

The Effect of Actual and Inferred Value Similarity on Interpersonal Liking

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Abstract

This research examined whether value similarity between a person and another individual elicits more positive attitudes towards the individual. Chapter 1 provides a review of the interpersonal similarity-liking effect, which has been studied primarily in research on attitudes and personality, and it raises some issues that might be particularly relevant to examining effects of value similarity. Chapter 2 tested the similarity-liking effect by manipulating actual similarity in reported values, and found that value similarity increased liking in both a between and within-subjects design (Studies 1 and 2). Chapter 3 described four experiments testing the similarity-liking effect using trait-like descriptions to manipulate the extent to which a target individual is perceived as possessing similar values to the participant. Results indicated that perceived similarity predicts liking in a positive direction, and that this relationship is mediated by the perception of the target individual's warmth and competence. Finally, Chapter 4 reviews the contribution of this research, discussing findings and implications. Overall, data from the six experiments provides novel and robust evidence that value similarity increases liking, while providing provocative evidence about the mechanisms underpinning this effect.

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Chapter 1

A Review of the Similarity-Liking Effect and its Relevance to Social Values

General Introduction

According to an article by the Pew Research Center, one in five people in the US, aged between 25 and 34 years old, have used online dating (Smith & Anderson, 2015). This appears to be a fast growing industry with numerous websites and mobile apps promising to help people find a soulmate. What factors do these websites take into account? Popular dating websites such as Match and eHarmony claim that their algorithms use science to find the best match according to personality, values and interests. Match says “Whether that's someone with similar values, the same taste in music or simply someone tall, dark and handsome, we can help you find them on our site” (“Need more persuasion match.com works”, n.d.). In contrast, eHarmony is more specific, advising that “shared values are more important than shared interests” (Creffield, n.d). Millions of users each year are persuaded by these claims, and our contemporary definitions of values make it easy to see why. Values are conceptualized as trans-situational goals and principles that guide human behaviour (Schwartz, 1992). They help people decide whether actions, events, and people are desirable or not; therefore, they influence how people interpret and process information (Manfredo et al., 2016). This causal role makes them seem pivotal for behaviour, which may make values particularly important in predicting harmony between partners who must act jointly on a frequent basis.

Nonetheless, this assumption about the special role of values merits scrutiny. Research has not yet discovered whether values are special in attraction and interpersonal attitudes. Before addressing more specifically the question whether values are special in attraction, it is important to consider the broader question of whether similarity between people elicits more liking between them than complementarity. What makes a good match? Whilst some people might defend the idea that “opposites attract”, others may say that “birds of a feather flock together”. One of the most well-established and consistent findings in social

psychology is that positivity toward a person can be predicted from the similar and dissimilar attributes shared between that person and the person forming an impression (Ajzen, 1974, Byrne & Nelson, 1965, Montoya & Horton, 2012, Montoya, Horton, & Kirchner, 2008). This finding has been described as “the similarity effect” (Byrne, 1961, Byrne & Nelson, 1965, Ajzen, 1974). Byrne’s (1971) book on this effect, *The Attraction Paradigm*, has over five thousand citations as reported by Google Scholar (retrieved on the 20th June of 2015), showing the high interest in this effect.

This chapter reviews research on similarity and attraction in social psychology, beginning with research looking at similarity in attitudes and traits, before considering research on similarity in values. All three constructs are important in social psychological research. This chapter will describe these constructs, how they are distinct, and how they relate to interpersonal attitudes. At the same time, I will describe two important perspectives that attempt to explain effects of similarity on interpersonal attraction: Byrne’s (1961, 1971) reinforcement model and the information processing approach from research on social cognition (Ajzen, 1974; Kaplan & Anderson, 1973). It is not my intention to debate the best or worst model, although two meta-analyses by Montoya and colleagues (Montoya & Horton, 2012; Montoya, Horton, & Kirchner, 2008) will be presented to clarify the conditions wherein such effects produce more robust findings. My principal aim is to adapt the similarity-attraction (liking) paradigm to study effects of similarity in social values.

Similarity and Interpersonal Attraction in Past Research

The study of effects of similarity between people on interpersonal attitudes has a long history. This section reviews this research. It begins by considering definitions of interpersonal attraction. Next, I focus on the two perspectives that have been applied to understanding these effects. I outline two meta-analyses that have helped to understand

which assumptions of each model have received empirical support. I also identify moderators of the effects of similarity on attraction.

Definition of interpersonal attraction

As a field boasting over 70 years of research, it is not a surprise that researchers do not always agree about the conceptualization and measurement of attraction. In physics, attraction is a force exerted by one object which attracts another object, such as magnetic and gravitational forces. This definition is maintained by some researchers in psychology (e.g., Schachter, 1959). In this view, attraction refers to the capacity to draw another person towards oneself, and there is a focus on behaviour implicit in this view (Schachter, 1959). In contrast, other researchers emphasize affective aspects, such as feeling positively toward someone (e.g., Zajonc, 1958), and additional researchers emphasize cognitive aspects, which indicate that attraction subsumes positive beliefs about another person (e.g., Berscheid, 1985).

The two models discussed below also emphasise different components of attraction. The reinforcement model, for instance, focuses on affective aspects - defining attraction as a continuum subsuming one person's affection towards another, varying from strongly positive to strongly negative (Byrne, 1961). Behavioural aspects are also taken into account by the reinforcement model, but it neglects the role of cognitive processes. The information integration model emphasises the cognitive aspects, which are seen as an antecedent of attraction (Montoya & Horton, 2014).

Importantly, these views of attraction can be distinguished from other constructs that emphasize either the emotional or behavioural aspects in longer-term interpersonal experiences and relationships - constructs such as romantic love, kinship, or attachment. In the extant research on similarity effects (e.g., Ajzen, 1974; Byrne, 1961; Tidwell, Eastwick, & Finkel, 2013) attraction refers to a more immediate evaluation of a person and not to solely

the emotional and behavioural patterns of responding implied by the latter constructs (Montoya & Horton, 2014).

I would argue that, notwithstanding the differences in emphasis by different scientists, the term attraction is virtually a synonym for liking in most of the research considered in this thesis, because attraction focuses on an affection that is considered positive or negative (Byrne, 1961), and it is an immediate evaluation of a person. When we like someone, we have positive feelings, beliefs, and actions toward the person. This perspective echoes contemporary tri-partite definitions of attitude (Eagly & Chaiken, 1998; Maio & Haddock, 2015). These suggest that attitudes are tendencies to evaluate an object (e.g., person, thing, idea) with some degree of favourability and/or unfavourability and that these general evaluations have affective, cognitive, and behavioural components. This perspective is more inclusive of diverse research looking at the effects of similarity on attraction, as it does not attempt to separate components that may be synergistic and inextricably linked (see Eagly & Chaiken, 1998).

Thus, although most of the research reported here uses the term attraction, my studies adopt the term liking, defined as the degree of favourability towards the target. Even though both terms are used interchangeably in most studies, I consider liking to be a more accurate representation of the measures employed as dependent variables. These measures often focus on attitudes toward people who are *not* being considered for intimate, close relationships (e.g., friends, strangers who will never be encountered), whereas the term attraction is often used in everyday dialogue to refer more specifically to romantic attraction. Liking is therefore the more inclusive term for the interpersonal attitudes assessed in most research, because a person can like an individual in or out of a close relationship.

Amongst the many possible determinants of liking, similarity would appear to be the most prominent and successful. It is the focus of the most investigations due to its robustness

and generalization across different populations and psychological aspects, such as personality, attitudes, preferences and interests. Below I present the two dominant models in research on the effects of similarity on liking (attraction), then I present some examples of past research on the effects of similarity on attraction.

The Reinforcement Model

Byrne (1961, 1971) developed a framework of interpersonal attitude formation based on concepts from cognitive dissonance theory (Festinger, 1957) and reinforcement (Newcomb, 1956), which he called reinforcement model. In this model, individuals have a need for a logical and consistent view of the world. Disagreement with other people creates feelings of inconsistency, which is associated with anxiety and confusion. People who agree with our world views act as reinforcers, leading to positive feelings and positivity to them.

Byrne (1961) suggested that interpersonal attraction flows directly from affective states we experience when we interact with other people. Specifically, based on Newcomb's (1956) work, Byrne (1961) assumed that a crucial factor for interaction is reciprocal reward. This reward comes from interaction with another person if the person not only fulfils our need for affiliation, but also our need to perceive the world in a consistent way. Byrne labelled the latter need as the effectance motive (Byrne & Clore, 1967). This motive helps ensure that our views are logical and correct, by seeking confirmation through other people. Thus, the need for propinquity derives from this basic need for a logical world.

Accordingly, perceiving similarities (or dissimilarities) is crucial for interaction and for liking another person. Similarity provides validation, resulting in a rewarding interaction and a positive relationship. Conversely, dissimilarity and disagreement give a sense that one might be wrong or illogical, resulting in a punishing interaction and a negative relationship. Although similarity on several dimensions (e.g. personality, interests, beliefs) was relevant to Byrne's (1961) model, he considered similarity of attitudes as a special sub-class of variables

that are important for our interactions. Consequently, Byrne's tests of reinforcement model focused on the effect of attitudes similarity on attraction.

To examine this effect, Byrne (1961) developed a paradigm that would later be successfully employed in many studies. This paradigm involves manipulating similarity and then assessing interpersonal attraction. The manipulation is implemented through the phantom-other paradigm, and the measure of attraction is implemented using the Interpersonal Judgment Scale (IJS). The phantom-other paradigm consists of two experimental sessions. In the first session, participants express their attitudes on 26 issues, which were pre-tested and considered either very important for most subjects (e.g. God, premarital sex, integration) or not very important (e.g. classical music, western movies, politics). The second session usually occurs two weeks after the first session. Participants return to the lab and are informed that students from another class also participated in the first part of the study. They are given a booklet containing the answers of a particular student to the attitudes questionnaire, but these are bogus answers manipulated by the experimenter. The bogus answers make the target seem either similar or dissimilar to the participant.

After examining the target's attitudes questionnaire, participants complete the IJS. The first four items in this six-item measure are fillers; they ask about the other's intelligence, knowledge of current events, morality, and adjustment. According to Byrne (1971), these items were speculations about the way individuals might respond to others who agree or disagree to them, based on pilot studies he conducted with undergraduate students. More important, the last two items of the IJS evaluate interpersonal attraction by asking the participant to rate the extent to which they would like or dislike the person, and whether they would enjoy or dislike working with the person. Participants respond to all six items using a 7-point scale, which varies for each item. For example, beliefs about the target's intelligence were rated on a scale with labels from "I believe this person is very much above average in

intelligence” (1) to “I believe this person is very much below average in intelligence” (7). Similarly, favourability toward the target was rated on a scale with labels from “I feel that I would probably like this person very much” (1) to “I feel that I would probably dislike this person very much” (7), and favourability toward working with the target was rated on a scale with labels from “I believe I would very much dislike working with this person in an experiment” (1) to “I believe I would very much enjoy working with this person in an experiment” (7). The average of the last two items is used as the index of attraction in the IJS.

Byrne (1961) first tested this paradigm by assigning participants to one of four conditions. Participants received the attitude scale with responses that were exactly as their own, exactly the opposite of their own, similar on the most important issues, or similar on the least important issues. Analyses of responses to the IJS revealed an effect of general similarity, that is, participants exhibited more liking for the stranger possessing exactly the same attitudes as their own than for the stranger possessing the opposite attitudes. There was no difference in attraction regarding agreement on important or unimportant issues.

Even though other studies (Byrne & Nelson, 1964, 1965) also failed to find a significant effect of agreement on important versus unimportant attitudes, Byrne, London and Griffitt (1968) noticed some design issues that were potentially inhibiting this effect. For instance, in Byrne and Nelson’s (1964) first study, participants answered 56 attitudes items, and were later presented with only 14 of the 56 attitudes, ostensibly filled out by the stranger. Agreement and topic importance were manipulated between-subjects. Byrne et al. (1968) suggested that adaptation was the most likely limitation to the lack of support of topic importance effects, because participants could have assumed that the stranger would have the same level of similarity on the remaining items, that is, participants would have adapted to the level of the importance presented to them. The second study by Byrne and Nelson (1965)

repeated this study, but presented each participant with four strangers' attitudes on 14 of the 56 items. Each of the four strangers represented similarity or dissimilarity on one level of topic importance. Despite this alteration, there was again only a significant effect of similarity on attitudes, but not of topic importance.

One possible explanation for these results is that subjects inferred the same degree of similarity on the remaining items (42 attitude items) that were not revealed to the participants. Another possibility speculated by Byrne et al. (1968) is that individual differences on judgments of topic importance could be nullifying the manipulation. These two issues were addressed in another study (Byrne et al., 1968). In this experiment, the researchers showed participants the stranger's attitudes on all 56 items, manipulating the proportion that were similar (.25 vs .75). In addition, the researchers estimated topic importance on an individual basis for half of the participants, and on a group basis (scaled values used in previous studies) for the other half of the participants. This time, the analyses of attitude revealed main effects of attitude similarity and of topic importance. The higher the proportion of similarity, the higher was the attraction toward the stranger. Moreover, agreement on important items led to higher attraction than agreement in less important items, regardless of whether importance was estimated on the individual or group level.

Nevertheless, some researchers have failed to obtain empirical support for the reinforcement model (e.g., Aronson & Worchel, 1966; Rosenbaum, 1986). Byrne, Clore, and Smearton (1986) attempted to address some critiques from Rosenbaum's (1986) studies, which did not corroborate the positive relationship between similarity and attraction. His main conclusion was that only dissimilar attitudes have an influence on attraction. That is, Rosenbaum suggested that dissimilarity may decrease liking, but similarity does not increase liking (compared to positive non-attitudinal information). This raised some methodological questions that are relevant to any study investigating similarity and attraction. The starting

point of this debate is whether it is possible to have a no-attitude control, while testing if similar attitudes lead to more attraction than dissimilar attitudes lead to less attraction. The authors found in three of the four studies that the neutral control was actually positive instead of neutral in attitudes, because it included positive traits from Anderson's (1968) scaling of likeability items, and this should be sufficient for participants to form a positive, instead of a neutral, impression. People will always try to fill in the gaps in whatever information is available to them, and in this process, there is a tendency to assume some relatively high level of similarity with a stranger. For instance, even White students with high levels of prejudice assumed 62% of similarity on attitudes items from a Black stranger (Byrne & Wong, 1962).

Notwithstanding this controversy, the balance of findings to date provides evidence for effects of attitude similarity on liking, and some provocative evidence that agreement on important attitudes is relevant (evidence which requires replication). Later in this chapter, I will revisit the fact that most of the studies conducted by Byrne and his colleagues examined the formation of attitudes toward a stranger with whom there was no expectation of actual interaction. Hence, the external validity of these effects must be considered cautiously.

The Information Processing Model

Another perspective is based on an information processing approach. This viewpoint does not contradict the propositions of the reinforcement model (Ajzen, 1974; Kaplan & Anderson, 1973; Tesser, 1971), but outlines a different starting point for understanding interpersonal attitudes. The information processing approach regards attraction as being determined by the information one has about another person. From this perspective, we use the attributes of a stranger to form our beliefs. These attributes can have a positive or negative valence, vary in importance and degree of attention allocated to them. Similarity is a separate piece of information, which is relevant to the extent that similar attitudes are

evaluated more positively than dissimilar attitudes, controlling for the other factors (i.e., valence, weight, salience).

Unlike the reinforcement model, which is mainly based on the research carried out by Byrne and his collaborators, the information processing model has many contributors. Although recognizing the robustness of Byrne's work in establishing the effect of similarity on attractiveness, Ajzen (1974) proposed that studies of the similarity-attraction effect should also account for subjective values regarding the attributes establishing similarity. Specifically, when we find out about a person's opinions, we form beliefs about the person's attributes and designate positive or negative valence to such attributes. For example, finding out that someone believes in God might induce the belief that this person is religious, and this trait expectation will influence the formation of a positive or negative attitude towards this person.

In a similar vein, Montoya and Horton (2004) proposed that cognitive evaluation is the primary determinant of interpersonal attraction. This suggestion is based on the reinforcement model's inability to explain weak or non-existent effects of similarity in personality traits (Montoya et al., 2008), peripheral attitudes (Byrne et al., 1968), and field studies (Montoya et al., 2008). They propose a model of interpersonal attraction stressing that another person's attitudes imply information, which leads to cognitive evaluations regarding the quality of the person. In turn, this cognitive evaluation shapes attitudes towards the target. In other words, Montoya and Horton (2004) argue that the cognitive evaluation of a person mediates the effect of similarity on attraction.

In two of their studies, Montoya and Horton (2004) demonstrated that cognitive evaluation is a proximal determinant of attraction. The first study manipulated attitude similarity using the phantom-other paradigm. Cognitive evaluation was assessed by seven items expressing an evaluation of the target's capacities (e.g., "In general, how good a person

do you think your partner is?”, and “My future interaction partner is probably good at everything that s/he does”), and attitudes were measured with an adapted version of the IJS, containing nine items to express general liking for the target (e.g., “This person would probably not make a good friend to me” and “I think I would enjoy interacting with this person”). The researchers tested two mediational models to verify the temporal relationship between cognitive evaluation and attraction. The first model tested the effect of similarity on attraction via cognitive evaluation, and results indicated that cognitive evaluation mediated the effect of similarity on interpersonal attraction. The second model tested the opposite mediational pattern, whether similarity affects cognitive evaluation via interpersonal attraction. The results of this analysis were not significant; thus, similarity appears to affect the cognitive evaluation, which affects interpersonal attraction. The results of the second model also failed to support the assumption of a direct relationship between similarity and interpersonal attraction. Montoya and Horton interpreted this pattern as support for their conclusion that cognitive evaluation is a proximal determinant of attraction.

The second study addressed the limitation of Study 1, investigating the role of information implied by similar and dissimilar attitudes, and testing whether the similarity effect is doubly mediated by the valence of the information and by the cognitive evaluation of the quality of the target. This study was conducted in two sessions, the first session being identical to the previous study. Participants first rated their own attitudes, then received an attitude survey that was ostensibly completed by a partner, and finally rated attraction and cognitive evaluation for the partner. One third of the participants were assigned to the similar condition, one third to the dissimilar condition, and one third to the control condition, which did not provide the partner attitudes survey. The second session happened two weeks later. Each participant received an attitudes questionnaire that was exactly the same as the partner’s questionnaire in the first session, with five filler items irrelevant for the experiment.

Participants were asked to write information they could infer from each attitude and then attribute a valence for each set of information. Control participants were randomly assigned to write information about attitudes that were either similar or dissimilar to their own. Both cognitive evaluation and information valence mediated the effect of similarity on attraction. In sum, these studies suggest that the similarity provides additional positive information about a target, and this positive information leads to a favourable cognitive evaluation, and, consequently, to attraction.

Ajzen (1974) also aimed at separating the effects of similarity and of information's affective value. He found more support in favour of the information processing explanation than for the reinforcement model. Ajzen's study was designed to demonstrate how information about another person's opinion is used to form beliefs about this person's characteristics. This study applied the expectancy-value formulation of attitudes, $A = \sum_{i=1}^n SP_i V_i$, where A is the attitude toward a person, SP is the subjective probability that the person possesses attribute i , V_i is the subjective attribute of i , and n is the number of attributes. In this mathematical description, attitudes are the average of the valence associated with each attribute of an attitude object. In this context, the attitude object is a person, and the attributes are the person's traits. These traits, in turn, can be inferred from the person's opinions. To test this perspective, three groups of participants received a set of 12 items regarding opinions about religion, college life, foreign policy, domestic politics and racial relations. Participants were told that the questionnaire contained the opinions of another student, and, on the basis of these responses (for each item researchers threw a die to place the answer on the response scale), participants were asked to answer questions about the other person's personality traits and likeability. The list of adjectives about the person's personality was scored attributing +1 for yes, -1 for no, and zero for undecided, and then the scores for each trait were multiplied by Anderson's (1968) likeability values for the same

traits. The sum of the resulting product was an estimate of the participant's attitude toward the other person, which correlated significantly with the IJS and the same semantic differential measure of the first study. Thus, participants used the information about a person's opinions to form beliefs about the person's characteristics, which in turn predicted attitudes. For Ajzen, this is demonstration of the superiority of the information's value over similarity. Similarity is important and relevant to the extent that it provides information about the person's attributes.

Of interest, the reinforcement model assumes an effect of *proportion* of similar attitudes, regardless of set-size (Byrne, 1997, Byrne & Nelson, 1965). This prediction is consistent with some experimental evidence (Byrne, Griffitt, & Stefaniak, 1967; Byrne & Nelson, 1965). However, Kaplan (1981) argues that the set-size effect is negligible only when subjects are not aware that they could be receiving more or less information, and he obtained support for this view in two experiments. In one of the experiments, participants were asked to what extent they agreed or disagreed with 6 attitude statements read by a pollster, who also answered the questions after the participant gave his/her answer. Half of the participants were informed that the pollster was instructed to answer all six questions, and the other half of the participants were informed that the pollster was only allowed to answer three of the six questions. In the second experiment, participants received a booklet with descriptions of four different people. In one condition, participants were told that they were receiving more information than most other subjects, and, in the second condition, participants were told that they were receiving less information than others. Across these two experiments, Kaplan (1981) found that a larger set-size produced more confidence in the provided ratings when information about the available set-size was made salient than when it was not; this effect was absent when information about available set-size was not made salient. The increased set-size also led to greater extremity for liking judgements in the

condition wherein the available set size was salient than when this information was not salient. That is, a set size of six positive attributes led to more positive evaluations than a set size of three positive attributes, and a set size of six negative attributes led to more negative evaluations than a set size of three negative attributes. The main conclusion of these studies is that more information does not increase information weight by itself, unless the evaluator is aware of the amount of information that is being presented.

Montoya and Horton (2014) re-examined many studies testing the similarity-attraction effect and proposed that interpersonal attraction can be understood using a two-dimensional model. According to these authors, there is consensus in the literature about two fundamental dimensions in social judgements – one dimension subsumes judgements of the other's competence and capabilities, and the other subsumes judgments of the other's willingness to benefit the perceiver's goals or interests. In other words, one dimension is an evaluation of the target's competence and skills, and the other is an evaluation of the target's trustworthiness and warmth. These dimensions are also cited within the Stereotype Content Model, which regards competence and warmth as two fundamental dimensions for evaluating social groups (see Fiske, Cuddy, & Glick, 2007).

According to Montoya and Horton's (2014) model, the two dimensions are important because perceivers' goals can vary according to time and situation. Unless a situation-specific goal has priority in a given moment, people will use their chronic/core goals to evaluate others. Individuals will integrate cues and information about the target person's competence and warmth. This information will be weighted subjectively based on the activated goals, and the result of this integration affects attitudes toward the person. This model might be able to provide more consistent results in the cases where similarity effects are weaker, as in studies examining personality traits, negative attributes, or field contexts (Montoya & Horton, 2004).

In sum, the information processing model is presented as a different perspective to understand the similarity-liking effect. It focuses on the information that similarity provides, and how this information is used to form an impression. Considering the importance of understanding the differences and similarities between the two models, I present below a summary, and two meta-analysis studies that will clarify the evidences supporting reinforcement model and the information processing model.

Summary of the reinforcement model and of the information processing model

Two different models have originated most of the research conducted to test the similarity-liking effect. The reinforcement model, proposed by Byrne (1961), assumes that people tend to like more similar others because this perception increases the sense of being logical and correct. Thus, this model assumes a direct effect of the proportion of similarity on liking, disregarding possible moderators of this relationship. In a different perspective, the information processing model attaches less importance to similarity, focusing on how the information is processed. In other words, this model assumes that similarity provides specific information that is used to form positive or negative impressions.

Although these two models do not exclude each other, they make different assumptions about how similarity affects liking. Montoya and Horton (2012) synthesized the differences in four categories: type of stimuli (central or peripheral attitudes/attitude importance, attitude or personality), set size, information salience and proportion of similarity. Specifically, the reinforcement model does not assume an effect of attitude importance, and does not make a prediction whether attitudes or personality similarity is stronger. The information processing model, on the other hand, predicts that attitude importance affects liking because more information is implied, and that similarity of attitudes should have greater effects than similarity of personality, because attitudes might provide more information than personality. The two models also make different assumptions about

the set size, whilst the reinforcement model predicts no effects (only of the proportion of similarity), the reinforcement model predicts that a larger set provides more information, thus affecting the estimation of liking. Finally, the influence of information salience is predicted differently by the two models. The reinforcement model predicts no effect, whilst the information processing model assumes that salient information should have greater influence.

In sum, both models have been used in investigations of the similarity-liking effect, with each possessing supportive evidence. This evidence is discussed below in the context of two meta-analyses, which help to understand the conditions under which the similarity-liking effect is more robust.

Meta-analysis of the Similarity-Attraction Effect

Two meta-analyses have helped to clarify the nature of the similarity-attraction effect. First, information about the reliability of the effect was obtained in a meta-analysis by Montoya et al. (2008). They reviewed 313 studies investigating the impact of actual and perceived similarity on attraction. In this meta-analysis, actual similarity was identified within manipulations or measures of actual similarity information, whereas perceived similarity was identified within participants' self-reports of similarity (e.g., after the information was presented). Montoya et al. considered laboratory and field studies (e.g., computer dating, actual dating, marital relationships), the amount of interaction (no-interaction, short and existing relationships), and whether the research examined similarity in attitudes or personality. (Value similarity was not the focus of any of the studies they reviewed). Regarding the effects of actual similarity, the overall effect size for laboratory studies was large ($r = .59$), and the similarity effect was larger when there was no interaction ($r = .54$) than when there was a short interaction ($r = .21$), but there was no difference between short interactions and existing relationships. Regarding field studies, the effect size was small ($r = .12$), and all the studies that had large samples (making them more

representative of the true population) had a mean near zero. The amount of interaction did not significantly moderate the effect of actual similarity in the field studies.

The overall effect size for perceived similarity was also large ($r = .39$). Specifically, a large effect size was found for laboratory studies ($r = .39$), and a moderate effect size was found for field studies ($r = .32$). The amount of interaction also moderated the similarity-attraction effect. The similarity effect was larger for no-interaction studies ($r = .54$), than for short-interaction studies ($r = .21$) in laboratory studies.

In sum, Montoya et al.'s (2008) meta-analysis provided strong support for effects of actual and perceived similarity on attraction. The effect of actual similarity gets weaker with short-interaction, and is not detected in existing relationships. In contrast, perceived similarity was strongly associated with attraction across short interactions and existing relationships in field studies.

Another important meta-analysis compared the ability of the reinforcement model (Byrne, 1971) and the information processing model (Ajzen, 1974) to explain the effect of similarity on interpersonal attitude. Montoya and Horton (2012) synthesized the predictions of both models in four categories: type of stimuli (central or peripheral attitudes/attitude importance, attitude or personality), set size, information salience and proportion of similarity.

Regarding the type of stimuli, the reinforcement model predicts that attitude importance has no effect, and it does not make a prediction regarding the effect of similarity of personality traits or attitudes. The information processing model predicts that attitude centrality (importance) influences the weight of this stimuli, therefore affecting liking because more information is implied. It also predicts that similarity of attitudes should have greater effects than similarity of personality, based on the assumption that attitudes provide more information than personality. Results of the meta-analysis for this moderator indicated

that similarity on central attitudes has a stronger effect than peripheral attitudes, corroborating the prediction of the information processing model and refuting the prediction of the reinforcement model. Similarity of attitudes also exhibited a stronger effect than similarity of personality traits, as predicted only by the information processing model.

The effect of set size is predicted differently by both models. The reinforcement model predicts no effect, whilst the information processing model predicts an effect, assuming that a larger set provides more information. Results indicated that there was no significant difference for the set size, corroborating the prediction of the reinforcement model. Regarding the effect of information salience, the reinforcement model predicts that it does not affect attraction, whilst the information model predicts that salient information has greater influence on attraction. Results favoured the prediction of the information processing model, showing that more salient information increased liking. Finally, both models predict that proportion of similarity has an effect on liking, and this result was obtained.

Collectively, results from the analysed studies supported two of the four effects proposed by the reinforcement model, and four of the five effects proposed by the information processing perspective. This meta-analysis also tested the effects of gender, finding interesting results. Specifically, female-female interactions elicited stronger effects of similarity than male-male interactions, and unspecified-matched interactions elicited weaker effects of similarity than a combination of all gender-specified interactions.

It is important to consider why the effects of similarity in lab studies are stronger than in field investigations. Montoya et al. (2008) suggested the influence of several factors. The cognitive processing of environmental cues in field investigations could dilute the impact of similarity on attraction (e.g. room temperature, background music, target race, physical attractiveness). They also questioned the appropriateness of the assessment of similarity for field studies, suggesting that similarity on *core* traits might produce attraction in established

relationships. Thus if the studies fail to tap core traits or attitudes, they would not capture the effects. Another difference between laboratory and field studies relates to the salience of the information. Attraction is evaluated immediately after participants see the target's attributes in the lab, whereas the partner's attitudes are often collected separately from the participant's attitudes in field studies. Moreover, it is also possible that participants are unaware of some of the partner's attitudes regarding many topics (e.g. abortion, discotheques or novels) in the field. Finally, it is also possible that the reinforcement of similar attributes tends to decrease over time.

The differences between the effects of perceived and actual similarity can be influenced by factors such as cognitive biases (Sillars, 1985), self-esteem maintaining forces (Ross, Greene, & House, 1977), or beliefs that the partner is similar to oneself (Morry, 2007). People might inflate their perceptions of similarity in order to facilitate the consonance of cognitions, and because people assume that similarity increases agreement and avoids conflicts, resulting in better relationships.

In sum, two important meta-analysis provided information about some specific aspects of the similarity-liking effect. Studies reveal stronger effects when there is no interaction, the focus is on attitude similarity rather than personality similarity, and the information is salient. Furthermore, the proportion of similarity in a set of traits is consistently important in attraction, and that this effect is different for men and women.

Personality Factors and Attraction

In the previous sections I have discussed how the reinforcement model and the information processing model explain the similarity-attraction effect. The reinforcement model makes the assumption that the proportion of similarity increases liking because similarity reinforces one's world views and sense of correctness. This model assumes a direct effect of the proportion of similarity on liking (Byrne, 1971). The information processing

model, on the other hand, proposes that similarity provides information, which shapes the formation of attitudes (e.g., Ajzen, 1974), indicating that cognitive information processing mediates the effect of similarity on liking (Montoya & Horton, 2004). Therefore, both models predict that higher similarity increases liking, but they make different assumptions about how this effect occurs. In either case, whether the similarity-liking effect is direct or mediated by cognitive processes, it is likely that other factors can influence it, such as individual differences (e.g., self-monitoring, preference for consistency, self-esteem).

For instance, do we like similar people because we see ourselves in positive terms? A study conducted by Brown and Brown (2015) found that people with high self-esteem were more likely to describe their ideal partner in a similar way to their self-evaluations. Another study found that similarity is a stronger determinant of attraction when discrepancies between actual and ideal self-concept are small (LaPrelle, Hoyle, Insko, & Bernthal, 1990; Wetzel & Insko, 1982). These two studies are an indication that we might like similar people because we like ourselves, that is, we have a high self-esteem, or because we perceive ourselves as holding ideal characteristics. Alternatively, people with lower self-esteem or who feel their actual self is different from their ideal self might experience less positive attitudes towards someone similar.

Some people value reliability and predictability for themselves and for others. This personal characteristic is known as Preference for Consistency (PFC), and refers to the desire to appear consistent to others and to perceive others as consistent (Cialdini, Trost, & Newsom, 1995). This motivation, especially for internal consistency, might influence individuals' expressions of attitudes, values and behaviours. Hence, people who desire consistency tend to vary less in their self-presentation. For instance, PFC moderated the relationship between perceived value differences and dehumanization of asylum seekers (Greenhalgh & Watt, 2015). Although this moderation effect was anticipated by the

researchers, the direction of the results was surprising. For low-PFC participants, perceiving smaller differences in conservation values (i.e., security and tradition focused values) predicted higher levels of dehumanization. It would have been expected that people *high* in PFC would experience high levels of discomfort when presented with dissimilarities, because they could feel less able to predict someone else's actions, also experiencing threat and uncertainty. In order to adjust for this discomfort, high PFC participants would therefore present higher levels of dehumanization. In contrast, the results suggest another potential effect of the preference for consistency: high-PFC participants may minimize perceptions of value differences in order to alleviate inconsistency.

Another personality factor that could potentially influence the similarity-liking effect is self-monitoring. It refers to the monitoring and control of behaviours and public image (Fuglestad & Snyder, 2009). Low self-monitors rely on internal cues, such as their attitudes, to guide their behaviours, whilst high self-monitors use situational cues. In this sense, low self-monitors tend to show higher attitude-behaviour consistency than high self-monitors (Kraus, 1995). Jamieson, Lydon and Zanna (1987) were interested in determining whether effects of attitude similarity are stronger for low self-monitors than high self-monitors and whether effects of activity similarity are stronger for high self-monitors than for low self-monitors. Results showed the effects of activity similarity on attraction were stronger for high self-monitors than for low self-monitors, whilst the effects of attitudes similarity were stronger for low self-monitors than for high self-monitors.

It is important to consider that the similarity-liking effect might be moderated by personality factors, such as those previously mentioned. Nevertheless, exploring personality factors is a secondary objective of the present thesis, which primarily focuses in adapting and developing a paradigm to investigate the similarity-liking effect for human values.

Warmth and competence

As previously mentioned, Montoya and Horton's (2014) analysis of the similarity-liking effect highlighted two dimensions that are important in the literature on social judgments. One dimension refers to the other person's capabilities and competence, whilst the other dimension refers to the other's trustworthiness and warmth.

The Stereotype Content Model is probably the most successful application of these two dimensions. This model regards competence and warmth as two fundamental dimensions for evaluating social groups (Fiske et al., 2007), which have been replicated across many studies, accounting for 82% of the variance in perceptions of everyday social behaviours (Wojciszke et al., 1998). The primary dimension is often defined as warmth, it is an indication of the other person's intentions for good or ill. Therefore, it captures the other person's intentions, friendliness, trustworthiness, and helpfulness. The secondary dimension is referred to as competence, which captures a person's capability for acting according to his/her intent, being an indication of one's ability, intelligence, efficacy, and skill. It is argued that warmth judgments are dominant in affective and behavioural reactions, and have a primacy over competence ones (Fiske et al., 2007).

In personality research, these dimensions are represented in the interpersonal circumplex model (Gurtman, 2009; Wiggins, 1979). According to this model, there are two dimensions that define a given interpersonal space, which can be represented in a circumplex model. Thus, there is a continuous order, where the two dimensions serve as Cartesian coordinates for the variables to be organized. These two dimensions are named Agency and Communion. Agency reflects characteristics such as dominance, power, status, and control. The second dimension, communion, expresses ideas such as love, affiliation, union, and friendliness.

Based on the interpersonal circumplex model, Trapnell and Paulhus (2012) outlined a two-dimensional model of values that predicts links between values and the dimensions of warmth and competence. The researchers demonstrated that communion and agency emerged as dimensions in four data sets with different measures of values. Communion reflects the motives of “getting along”, thus being related to warmth, whilst agency reflects the motives of “getting ahead”, congruent with the competence dimension.

Given the links between warmth and competence and values (Trapnell & Paulhus, 2012), and the importance of these two dimensions for interpersonal perception (Fiske et al., 2007; Montoya & Horton, 2014), these variables were included in the research programme described in this thesis as potential mediators of the relationship between value similarity and liking.

Value Similarity in Interpersonal Attitudes

The research reviewed above shows that years of research have demonstrated the robustness and reliability of the similarity-attraction effect. This effect has emerged across a series of person attributes, such as attitudes, personality, and interests. Although many studies have been carried out on similarity in attitudes and traits, tests focusing on social values are scarce. It is rather intuitive to assume that value similarity would also be crucial to attraction. Although there was interest in this question in some early research (Hill & Stull, 1981; Newcomb, 1961; Curry & Emerson, 1960), few studies have used contemporary measures of values to understand the effect of value similarity on attraction. The remaining question is, therefore, whether we are attracted to people with the same values, or do opposites actually attract?

To address this question, it is helpful to first consider the contemporary social psychological definitions of values and how the perceptions of others' values influence

attitudes and behaviours towards them. I will then propose an investigation of the similarity-attraction effect with a contemporary model of social values.

Definition of Values and Their Relation to Attitudes and Personality

Values are a common topic in our social life, typically mentioned by politicians, education and health care guidelines. For example, Jeremy Corbyn said on his speech at the 2015 Labour Conference “let's get on with bringing values back into politics”, David Cameron mentioned values in his Christmas speech in 2015, “...it is because of these important religious roots and Christian values that Britain has been such a successful home to people of all faiths and none”. The NHS website says that everything it does is inspired by the values of “working together”, “respect and dignity”, and “compassion”, “improving lives”, “everyone cares”, and “commitment to quality of care”. Thus, values are present in many different sectors and aspects of people’s lives, justifying their important contribution for the comprehension of social interaction.

Social values are relevant to understanding diverse social psychological phenomena and human actions (Bardi & Schwartz, 2003). Contemporary definitions define values as concepts or categories that express human needs and goals, serve as guiding principles for a person or group, varying in importance and transcending situations (Gouveia, 2013, Schwartz et al., 2012). The most important contemporary model of values was proposed by Schwartz (1992). He defined values as trans-situational goals that vary in importance and serve as guiding principles in people’s lives. His theory suggests that human existence is grounded in three universal requirements: (1) biological needs from the organism to guarantee survival, (2) needs that regulate social interactions, and (3) social institutional needs of well-being and group survival. Schwartz (1992) proposed that ten basic motives are expressed by values: self-direction, benevolence, conformity, stimulation, hedonism, power, achievement, security, tradition and universalism.

These ten motivational types are structured in a motivational continuum in the shape of a circle; they express and predict motivational conflict and compatibility between the values. More specifically, adjacent values share similar motives, and ratings of their importance are positively correlated (e.g., power-achievement or achievement-hedonism). Values situated on opposed sides of the circle serve opposing motives, and ratings of their importance are negatively correlated (e.g., conformity-hedonism or hedonism-benevolence). Values at orthogonal positions in the circle are not expected to correlate (e.g., universalism-stimulation or power-conformity). The ten motivational types can be grouped in four higher order dimensions. Values serving power and achievement goals are said to be self-enhancement values, which are opposed to self-transcendence values, a combination of the universalism and benevolence types. The other opposition is represented by the dimensions of openness, and conservation. The first dimension groups stimulation, hedonism and self-direction values, and the second dimension correspond to the combination of security, tradition and conformity values.

Traditionally, researchers have used two different scales to measure values of the Schwartz model, the Schwartz Values Survey (SVS), and the Portrait Values Questionnaire (PVQ). Schwartz Values Survey (Schwartz, 1992; Schwartz, Sagiv, & Boehnke, 2000). The SVS (Schwartz, 1992; Schwartz et al., 2000) consists in a list of 56 values with a short description (e.g., RESPECT FOR TRADITION. Preservation of time honoured customs). Each value is rated in a 9-point scale from -1 (opposed to my principles) to 0 (not important) to 7 (extremely important), according to the extent to which it is a guiding principle in the individual's life. The PVQ is most commonly used in the 21-item version, also used in the European Social Survey (Schwartz et al., 2001). This measure was developed to tap the ten values dimensions proposed by Schwartz (Schwartz, 2003; Schwartz et al., 2001). The aim was to provide a concrete measure of values, able to be used in younger samples and low

educational levels (Schwartz, Melech, Lehmann, Burgess, & Harris, 2001). Each item describes a person in terms of goals, aspirations or wishes regarding a single value (Schwartz, 2007). Participants responded using a scale from 1 (“not like me at all”) to 6 (“very much like me”).

Although values may be important for our own behaviour (see also Maio, 2010), it is prudent to ask how we might learn about another person’s values. Values are desirable goals with an underlying motivation, thus they do not refer directly to action. This makes it difficult for others to infer a person’s values based on observation, especially because one’s value may be expressed through many different behaviours and a single behaviour can express more than one value (Bardi & Schwartz, 2003, Rokeach, 1973). McAdams and Pals (2006) suggest that personality traits are the starting point in the process of getting to know someone else. In order to infer and get information about attitudes and values, it is necessary to have more interaction.

Nevertheless, evidence suggests that we are accurate in estimating the values of a close acquaintance. Dobell, Aavik, Konstabel, Schwartz and Realo (2014) examined self-other agreement of values and personality. They observed substantial level of convergence for Schwartz’s higher-order values and for personality dimensions. Thus, the evidence contradicted the assumption that values are too privately held for accurate inferences (McAdams & Pals, 2006). The researchers argued that familiarity with the target may play an important role on the accuracy of a judgement. In addition, even when the targets are unfamiliar, people’s mere assumptions of similarity may be accurate in contexts where people share similar environments and background.

Differentiating values from other psychological constructs

In order to support the claim that values might play a special role in the similarity-attraction effect, it is important to differentiate them from other important variables such as

attitudes, personality and interests. In this section, I consider attitudes, personality and interests in turn.

Regarding the difference between values and attitudes, Rokeach (1973) suggested that values play a more central role in people's cognitive structure. This assumption is based on the fact that attitudes are related to specific objects, whereas values transcend specific elements when guiding actions. Values are also more stable than attitudes (Milfont, Duckitt, & Wagner, 2010). Many researchers suggest that attitudes, values and behaviour form a hierarchy (Hauser, Nussbeck, & Jonas, 2013; Homer & Kahle, 1988; McCarty & Shrum, 1994). Values precede attitudes to influence behaviour. In other words, the values held by one person will affect the person's attitudes, therefore influencing behaviours related to such attitudes.

Insofar as values shape behaviour in a stable manner, values should also relate to personality. Personality can be defined as enduring dispositions that cause specific patterns of interaction (Goldberg, 1993). It is often represented by a five-factor structure, which defines traits that are considered the basic dimensions of normal personality (McCrae & Costa, 1997). Personality relates to what we naturally tend to do, whilst values relate to what we believe we should do (Parks & Guay, 2009). Moreover, the five dimensions of personality do not seem to conflict with one another, as it is the case for values, which might be important for interpersonal evaluation.

Finally, it is important to differentiate values from interests. The main distinction is probably that the latter are not normative patterns or ideals that guide people's behaviour. Thus, interests do not aim at goal attainment, but at experiencing what is preferable, influencing the choice of activities (Sagiv, 2002).

In sum, specific characteristics of values, such as their trans-situational condition, patterns of conflict, and links to goal attainment make them important in people's cognitive

self-concept and representation of the social world. This distinctiveness further justifies the present interest in investigating their role in the similarity-liking effect. Below I present how values might influence judgements of others.

Perceived values influence judgements and evaluation of known and unknown others

To the best of my knowledge, there are no studies investigating directly the relationship between value similarity and liking. However, some studies investigate other implications of perceptions of a target's values. These studies are relevant to understanding how values are used to form impressions and are useful as information before examining effects of value similarity.

The effects of perceived similarity with a specific group was investigated by Haddock and Zanna (1998). They observed (study 3) an effect of perceived value dissimilarity in attitudes toward homosexuals. More specifically, persons with higher scores on authoritarianism perceived homosexuals as less similar and held more negative attitudes. Further analyses also showed that for high authoritarians the perceived value dissimilarity was strongly related with negative symbolic beliefs, and not significant for low authoritarians.

Another relevant study investigated the perception of a specific group. Although Greenhalgh and Watt (2015) did not examine the similarity-attraction effect, they investigated whether perceived differences in values, especially self-transcendence values, would lead to dehumanization of asylum seekers in Australia. The study was conducted online, using scales to assess personal values (own values and estimation of values of asylum seekers), dehumanization, preference for consistency and attitudes toward asylum seekers. It was observed that participants' emphasis on conservation and self-enhancement values was associated with higher dehumanization and more negative attitudes toward asylum seekers, while stronger endorsement of self-transcendence values was negative correlated with these

variables. Perceiving differences (absolute difference between own values and asylum seekers' values) between personal and outgroup self-enhancement and self-transcendence values predicted dehumanization, and perceived differences on self-transcendence also predicted negative attitudes toward asylum seekers. Together, these results support the hypothesis that dehumanization of and attitudes toward asylum seekers are potentially influenced by perceptions of the similarity of the asylum seekers' values to one's own values, although causal arguments are weakened by the cross-sectional nature of this study.

Greenhalgh and Watt also suggested that the role of value similarity may depend on the perceiver's personality. Specifically, they found a moderating role of preference for consistency (PFC; Cialdini, Trost, & Newsom, 1995). As mentioned earlier in this chapter, this personality trait reflects individuals' desire to see themselves as stable, holding consistent beliefs, attitudes and behaviours, while appearing consistent to others and being motivated to perceive others as consistent. The investigators found that low-PFC and *lower* perceived differences in conservation values predicted higher levels of dehumanization. These unexpected results highlight the importance of considering personality variables as moderators of the effects of value similarity. Although it is not clear why differences in conservation values were moderated by PFC, but other value differences were not, the findings indicate that value differences may not operate in the same way for everyone.

It remains to be seen whether a similar moderating role occurs for attitudes toward individuals. An investigation by Sortheix and Lönnqvist (2015) looked at the effect of value congruence in interpersonal relationships, while also illustrating an important potential consequence of this similarity. These scientists examined value similarity, satisfaction from interpersonal relationships, and the well-being of university students from Argentina, Bulgaria and Finland. Value similarity was computed as the correlation between a participant's personal values and the average profile related by the other students from same

degree major and country. The results yielded several interesting observations. Particularly relevant here, the similarity-attraction effect was corroborated by an association between value similarity and satisfaction with interpersonal relationships, even though participants were not explicitly comparing their own values to a target, as in the classic paradigm. In addition, value similarity was significantly associated with subjective well-being, and this relationship was statistically mediated by satisfaction with interpersonal relationships. The authors therefore concluded that value similarity facilitates positive social relationships, leading to increase in well-being.

Perhaps the most relevant study for the present research was one that investigated the role of value similarity as a mediator of the relationship between similar music preference and attraction (Boer et al., 2011). Participants were music fans of four different genres; they were first instructed to imagine meeting a person with certain music preference, which was manipulated to be similar or dissimilar to the participant's own music preference. Next, participants indicated the values that they believed the target person considered to be important (using 14-bipolar value instrument developed by Strack (2004) to assess Schwartz's (1992) two value dimensions; self-transcendence versus self-enhancement and openness to change versus conservation values, on a 5-point Likert-type scale), the person's likability, and willingness to get to know the person. Finally, participants rated their own values and musical preferences. Regardless of the participants' musical preferences, similar music preferences increased favourability toward the other person, and this relation was statistically mediated by perceived value similarity. In a second study, the authors replicated these findings while also finding that similarity in personality did not explain the effect of music preference on liking.

In sum, the extant research provides interesting evidence that the perception of other people's values has important implication for the formation of attitudes toward those people,

interactions with them, behavioural intentions, and well-being. However, none of these studies aimed at directly testing the effect of value similarity on liking, as the main objective. The findings are cross-sectional, leaving causal interpretations equivocal. Thus, this question remains an important topic for investigation.

To address this question, a number of issues must be considered. Although the similarity-attraction effect is one of the most robust findings in social psychology, values similarity in a dyad may not be as straightforward as attitude or personality similarity. Due to the connections between values and different motives, values are highly susceptible to the normative-desirability confound (NDC, Wood & Furr, 2016). NDC refers to a spurious effect from having a normative psychological profile, that is, a mathematically average profile. People tend to find all values important (Gouveia, 2013); that is, all values assessed in contemporary measures are desirable to some degree (Gouveia, Milfont, & Guerra, 2014). In addition, there is substantial similarity in which values are rated most and least important, even across nations: most participants consider benevolence and universalism to be the most important values, whereas power and conformity tend to be the least important (e.g., Bardi, Lee, Hofmann-Towfigh, & Soutar, 2009). Thus, even values of relatively low importance may be similar between individuals.

Even if the values are dissimilar between people, this may not inevitably imply that they should dislike each other. Consider a person who does not attribute great importance to benevolence, but knows someone who does. This difference in values might cause lower favourability toward the relatively benevolent person or it might cause admiration for the person. Because values are consensually important to some degree across people, differences in values may not cause as much tension as differences in other constructs where social desirability varies a great deal more. Ironically, this would work against claims that value similarity is of special, unique importance in interpersonal relationships.

A related complication is that values are relatively abstract. They can be construed in different ways that imply different actions (Maio, 2010). For one person, protecting the environment may mean avoiding all airplane flights; for another person, protecting the environment may mean recycling plastic goods. As a result, even if people disagree about a value's importance, they might harbour suspicions that they are simply not agreeing on what the value means. In contrast, the attitudes examined in past research are relatively specific and somewhat less open to differences in construal.

Yet another complication is that a value might be more desirable or attractive depending on specific situations. For instance, if one is choosing a partner to work on a project, one might find a person who values power and achievement more beneficial in that situation (to the extent that these values foster harder work and success on the project). As a result, that person may seem more likeable than someone who is lower in these values. However, if one is choosing a person for a long-term relationship or a friendship, this same person may be perceived as less attractive. Such a person may seem unwilling to make personal sacrifices for a relationship, making him or her less than ideal as a long-term partner. Furthermore, there may be individual differences in what we look for in the short-term and long-term situations, depending on other variables such as gender, age, socioeconomic status, and personality.

Together, these issues illustrate why the examination of the effects of value similarity on interpersonal attitudes has basic, theoretical relevance, in addition to the practical importance discussed at the outset of this chapter. These issues also foreshadow the possibility of examining the effects of value similarity in different ways. For instance, we could apply the phantom-other design to values by presenting people with the values profile of a target whose values are similar or dissimilar and then recording attitudes toward this target person. In addition, we could consider how people might use value similarities in real

life, by looking at how people infer values from another person's traits, and then whether the degree of similarity between own values and the other person's values predicts favourability to the person. At the same time, we could manipulate the perceived traits to influence values in a systematic way. These approaches foreshadow some of the choices I have made in this thesis. As will be shown in the subsequent chapters, I have endeavoured to stretch the well-established phantom-other paradigm to include values, while also constructing a new paradigm to look at the role of value similarity vis-à-vis traits.

Chapter Summary

One of the most robust findings in social psychology is the similarity-attraction effect. This effect has been revealed across a variety of populations and countries, using different manipulations of similarity (e.g., attitudes, personality, interests). This chapter presented a review of the theory and evidence regarding this effect, while outlining the main contributions of two major models accounting for the effect: the reinforcement model and the information-processing model. An interesting omission in this literature is a rigorous examination of the role of similarity in social values in facilitating attraction. It may be the case that the role of value similarity is less potent than is frequently assumed, because of the social desirability of values (even when different from our own) and the variety of ways in which they may be construed. The remainder of this thesis tackles this issue.

Chapter 2

Effects of Actual Value Similarity on Liking

Chapter 2 Summary

There has been abundant theory and conjecture suggesting that people like other individuals who share their own values more than they like individuals with dissimilar values, but there has been surprisingly little research testing this hypothesis. The present research provides the first direct investigation of the effect of value similarity on liking by using the classic phantom-other paradigm. In Study 1, after completing a measure of their values in a pre-test session, participants took part in a lab session that presented a target person's responses to the same measure of values. The target person's value ratings were identical, 82% similar, or 64% similar to the participant's values. Participants then completed measures of their perceptions of the target and attitudes to the target. Results indicated that the target with identical values was liked more and rated as warmer than the target with 64% value similarity. Moreover, perceptions of the target's warmth mediated the effect of similarity on liking. Using a within-subjects design that described targets who possessed identical values or 62% similar values, Study 2 obtained further support for the hypothesis that value similarity increases attraction. Thus, results across both studies provide the first direct evidence that value similarity elicits positive interpersonal attitudes.

The literature described in the previous chapter demonstrated a robust effect of perceived similarity on liking. Across many studies, participants liked targets who reported attitudes similar to their own more than targets with dissimilar attitudes (e.g. Byrne & Nelson, 1965, Byrne et al., 1986). Byrne concluded that attitude similarity increases liking because it validates personal worldviews, providing a sense of being correct. In theory, values are more central to the self-concept and personal worldviews than most attitudes (Rokeach, 1973). This makes it important to verify that value similarity influences liking in the same manner as attitude similarity. The present chapter aims to test the similarity-liking effect for values, and to test possible mediators of this effect.

Past Evidence of the Similarity-Liking Effect

The past research demonstrating the similarity-liking effect in attitudes used a simple but elegant experimental design known as the phantom-other paradigm (Byrne, 1961). In the first part of the paradigm, participants provide self-ratings. For example, participants may rate their attitudes or interests regarding a number of topics. In the second part, participants are informed that they will see the self-ratings of another participant and that they will be asked about their impressions of this person. Participants are then shown a booklet like the one they had completed in the first part of the study, but containing bogus answers manipulated by the experimenter. These answers are manipulated in a way that makes the target seem either similar or dissimilar to the participant. After examining these answers, participants complete a measure assessing their liking for the target. The results of over 200 such experiments have found that similarity increases liking for the target (Montoya & Horton, 2012, Montoya et al., 2008).

While Byrne (1961, 1971) suggested that similarity increases liking because it validates personal worldviews, other researchers propose that the effect of similarity occurs due to the information that it provides about another person (Ajzen, 1974; Montoya &

Horton, 2004). For instance, an important claim was made by Montoya and Horton (2014), who proposed that the similarity-liking effect is an underlying process of person perception and social judgement based on the estimation of two dimensions: capability and willingness. The first is related to the judgement of the target's competence to facilitate (or thwart) perceiver's goals, and the second covers the perception of target's willingness to facilitate (or thwart) perceiver's goals. There is also important claim that the similarity does not have a direct effect on liking, it rather provides information that will be used to estimate liking (Ajzen, 1974; Montoya & Horton, 2004).

Researchers supporting this latter perspective suggest that similarity provides positive information about a target, and this positive information leads to a favourable cognitive evaluation, and, consequently, to favourable attitudes. As noted in the prior chapter Montoya and Horton (2004) tested this hypothesis by developing a measure of cognitive evaluation, which assessed mainly the target's capacities (e.g., "My future interaction partner is probably good at everything that s/he does"). Half of the participants answered this scale before providing rating of interpersonal attraction, and half of the participants rated cognitive evaluation after rating liking for the target. Results indicated that similarity influenced interpersonal attraction only when cognitive evaluation was assessed before the evaluation of attraction, while similarity had no effect when the cognitive assessment happened after the assessment of attraction.

This similarity-as-information perspective has been invoked to explain why some studies have observed weaker or non-existent effects of similarity in personality traits (Montoya et al., 2008), peripheral attitudes (Byrne et al., 1968), and in field studies (Montoya et al., 2008). For example, similarity in traits is presumably a positive contributor to attitudes because it signals the potential to relate to another person, but it is less important than cognitive evaluation of the traits per se: Being similar to another person in

conscientiousness, neuroticism, and other traits matters less than knowing that the other person is conscientious and not neurotic. Together with Byrne's cultural worldview argument, this perspective on similarity-as-information shows that there are open questions relevant to how similarity affects liking.

The Similarity-Liking Effect and Values

It is ironic that value similarity is often touted as particularly crucial to interpersonal attraction, and yet the effect of similarity in values on liking has not been investigated. As shown in Table 1, searches on Google Scholar using the terms "similarity effect" and "human values" yielded 26 results. This indicates that the similarity-liking effect has neglected the importance of values to understand social interaction. An examination of titles and abstracts showed that none of the studies investigated the similarity-liking effect directly or indirectly.

Table 1. Results of the search on Google Scholar with the terms "similarity effect" and "human values"

Reference	Study information
Allen et al. (2002)	Similarity between humans and animals
Bao, Dolan, & Tzafrir (2012)	Literature review of value congruence between person and organization
Billsberry (2004)	Test of the proposition that organisations select people who share their values
Bohns & Higgins (2011)	Compatibility between partners for in preference for joint tasks
Bull & Rumse (2012)	Book about the social psychology of facial appearance
Caprara, Vecchione & Barbaranelli (2011)	Book chapter about personality and politics
Dieterich (2015)	Friendships in adolescence and school outcomes
Douglas (2006)	Gender identity and women's response to adverts
Eck & Waltman (2009)	Similarity measures for data normalization
Erdogan & Liden (2002)	Book chapter about social exchanges in the workplace
Feiereisen, Broderick, & Douglas (2009)	Same as Douglas (2006)
Hadjar et al. (2012)	Parent and child value similarity and wellbeing in the context of immigration
Hoekman, Frenken, & Tijssen, (2010)	Bias a physical (geographical) distance in scientific collaboration
Jepsen et al. (2009)	Similarity between employee and supervisor in ethical dilemmas

Continuation Table 1

Jepsen, Hine, & Cooksey (2009)	Ethical attitudes and leadership relationships
Lambert & Chasteen (1997)	Attitudes towards elderly and blacks
Lee & Jeong (2014)	Online brand experience
Maio et al. (2014)	Value relatedness in argument persuasiveness
Martini (1977)	PhD dissertation about value congruence between patient and therapist
Pfeffer (2013)	Theories of power
Potipiroon (2014)	Social orientation and behaviour in the workplace
Romanovsky, Gren, & Knysh (2015)	Leadership and management
Van de Bunt & Groenewegen (2007)	Development of interorganizational collaboration networks
Van Lange & Kuhlman (1994)	Partner collaboration in social dilemma
Zhang & Bloemer (2008)	How value congruence affects consumer-brand relationship

As stated in the introductory chapter, values are trans-situational goals that guide human actions (Schwartz, 1992). They are abstract and desirable goals that people strive to attain. Although different theoretical models have been suggested to explain the structure and content of values (Gouveia, 2003; Hofstede, 1984; Inglehart, 1977; Rokeach, 1973, Schwartz, 1992, Trapnell & Paulhus, 2012), Schwartz's (1992) model has received most attention, and gathered most evidence for its suitability (e.g., Maio, 2010; Schwartz et al., 2012). In this model, values can be classified according to the goals they express. Schwartz (1992) groups 56 values (e.g., freedom, helpfulness) into ten motivational types: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, or security. As shown in Figure 1, these values are organized in a motivational continuum forming a quasi-circumplex structure, such that values serving the same or congruent motives are adjacent in the circle and values serving conflicting motives are in opposing positions.

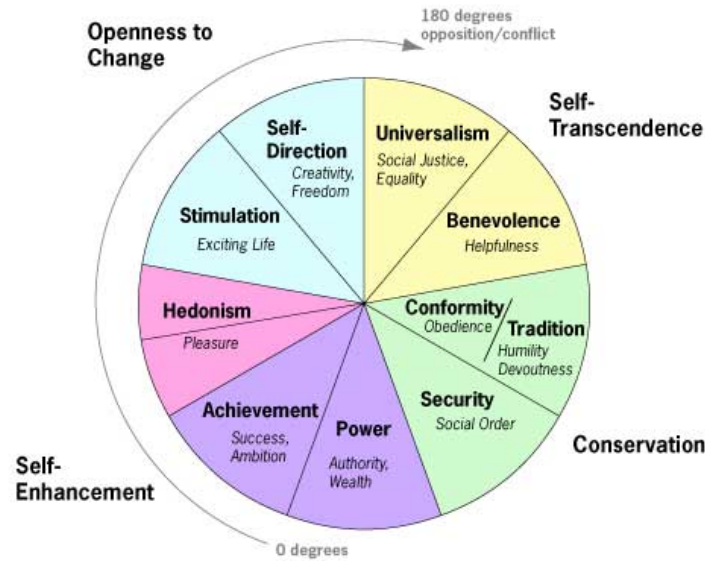


Figure 1. Structure of Schwartz's (1992) basic values

How might value similarity influence liking? Following Byrne's (1971) theoretical perspective, value similarity may lead to positive reinforcement through affirmation of personal worldviews. Alternatively, value similarity may provide important information that is considered for interpersonal judgement, through the cognitive evaluation mechanism described by Montoya and Horton (2004). At the same time, there are a number of reasons why the effects of values may stronger or weaker than those seen for attitude and trait similarity. On the one hand, values are relatively central to the self-concept, and for this reason are used in abundant research that seeks to manipulate whether people feel self-affirmed, by asking them to write about values that are important to them (Sherman & Cohen, 2006). This centrality to the self may lead to stronger effects of value similarity on interpersonal attitudes. On the other hand, all values are positively evaluated. Whereas people might express directly opposing attitudes on contentious issues, they are very unlikely to *oppose* another person's values. People merely vary in degrees of value importance, rather than assuming opposing value positions. This makes it difficult to elicit strong *dissimilarity* in values, which may undermine an impact of value similarity on interpersonal attitudes.

As mentioned in the introductory chapter, some personality factors are suggested to moderate the relationship between similarity liking. Individual differences have been neglected in past research on the similarity-liking effect. Yet, there may be some traits that shape the way similarity is perceived and transformed into an attitude, such as self-esteem, self-ideal discrepancy, preference for consistency, and self-monitoring. The latter, for instance, is a concept proposed by Snyder (1974) to express a conscious effort to control and monitor self-presentation. Self-monitoring can serve different goals, such as intensifying the expression of an emotional state in order to communicate it accurately, concealing an emotional state to appear unresponsive, or appearing to express an appropriate emotion when being nonresponsive is inappropriate. Therefore, high self-monitors regulate their expressive self-presentation using situational cues to have a desired public appearance. In contrast, low self-monitors lack the ability or the motivation to regulate their expressive self-presentation, and their behaviours are more likely to reflect their true attitudes, traits, and feelings. As a result, low self-monitors' interpersonal attitudes may be more influenced by self-other similarity in these internal attributes. Consistent with this view, low self-monitors have been shown to be more attracted than high self-monitors to a person with similar attitudes, whereas high self-monitors were more attracted than low-self-monitors to a person with preferences for similar activities (Jamieson, Lydon, & Zanna, 1987).

As noted above, no prior evidence has directly examined the role of value similarity in interpersonal attitudes or the role of putative moderators like self-monitoring. However, some relevant research has examined the role of value similarity in attitudes toward other groups. Specifically, in the 1960s, many studies revealed correlations between perceptions of value, belief, and attitude differences and prejudice (Byrne & Wong, 1962; Rokeach & Mezei, 1966; Rokeach & Rothman, 1965). Subsequent research replicated these findings with different methods and measures of values (e.g., Biernat, Vescio, & Theno, 1996;

Biernat, Vescio, Theno, & Crandall, 1996; Insko, Nacoste, & Moe, 1983; Struch & Schwartz, 1989). For instance, greater perceived dissimilarity to asylum seekers on self-transcendence and self-enhancement values predicts more prejudice toward them (Greenhalgh & Watt, 2015). Nevertheless, although the dominant trend across studies of intergroup value and attitude similarity suggests that similarity is associated with less prejudice, the belief that an outgroup is similar to one's own group is not a guarantee that attitudes to the group will be positive. The tendency for similarity to decrease liking may be higher among those who more strongly identify with their in-group (Roccas & Schwartz, 1993).

The impact of value similarity in interpersonal attitudes is separable from the effects for intergroup attitudes. One important reason (among many, such as identification, abstractness of groups, and relevance to the relationships) is that attitudes toward groups can be influenced by stereotypes, which may cause people to perceive differences in values that are larger or smaller than in reality. Furthermore, these stereotypes can cause people to believe that particular values are relevant to perceptions of other groups (cf. Chambers, Schlenker, & Collisson, 2013). For example, prejudice toward homosexuals is linked to a perceived threat to family values (Vescio & Biernat, 2003), and Whites' prejudice toward Blacks is associated with beliefs that Blacks do not value hard work and self-discipline (Katz & Hass, 1988). Particular values have been identified as relevant to prejudice against other groups as well, including Germans (Schwartz, Struch, & Bilsky, 1990) and obese individuals (Crandall et al., 2001). For interpersonal attitudes, an individual's group membership may also play a role, but if this information is controlled (e.g., statistically or by experimental design), then attitudes have to be formed on another basis. This makes it perilous to extrapolate from the evidence about intergroup to interpersonal attitudes.

The Present Study

My review of the literature makes clear there are still underexplored questions about the role of value similarities in interpersonal attitudes, even though research on similarity-liking effect has been gathering evidence for over 70 years. The present research tested whether value similarity affects liking. As secondary objectives, it also aimed at testing (a) Montoya and Horton's (2004) mediation model, which postulates that similarity affects liking through a cognitive evaluation, and (b) whether the similarity-liking effect is affected by self-monitoring. In addition, for exploratory purposes, I tested whether perceptions of warmth and competence mediates the effects of value similarity on interpersonal attraction. This latter aim was chosen because of conceptual overlap between the cognitive evaluations proposed by Montoya and Horton and judgments of target warmth and competence, mentioned in the introductory chapter.

Thus, I anticipate that the effect of similarity on liking is not direct, assuming that similarity implies information about the target, which influences the attitudes towards this target. In order to assess the content of this information, I assess it in terms of perceptions of warmth and competence, considering their relevance for the person perception literature. I also anticipate that self-monitoring will moderate the similarity-liking effect. This variable was chosen to explore the effect of individual differences, although other moderators could have been chosen (e.g., preference for consistency; Snyder, 1974), I chose self-monitoring because the design is explicitly about impression formation. Thus, participants could feel free to react to the information in whichever way suits their own self-monitoring style, without feeling that attention is being drawn to them.

To perform these empirical tests, I adapted the well-established phantom-other paradigm. This method's high control over extraneous factors makes it an ideal departure point for testing whether value similarity is potentially important in interpersonal attitudes.

In the present research, the method consisted of first pre-testing participants on their own value priorities, then, in a second session, they were presented with the ostensible values scores of another student. After studying the student's values, participants responded to items assessing attitudes toward the target, the individual's warmth and competence, their intrapersonal attraction to the target, cognitive evaluations of the target, and their own self-monitoring. Study 1 followed a between-subjects design, manipulating three levels of actual value similarity, whereas Study 2 followed a within-subjects design, manipulating two levels of similarity.

Study 1

To manipulate value similarity in Study 1, three levels of value similarity were employed: identical, 82% similar, and 64% similar. This manipulation was designed to look at a plausible range of value similarity, wherein the targets were not shown blanket rejections of values in a way that would suggest complete alienation from societal values.

Method

Participants

Participants were 138 psychology undergraduate students of a university in the UK, who participated for course credits. They were aged between 18 and 40 years ($M = 18.8$, $SD = 1.89$), and most were women (90%). The inclusion criterion for considering a participant for the analyses was based on the median of their value priorities, assessed in a pre-test session. Only participants with a median value of 5, 6, 7 or 8 on the 9-point (1 to 9) value scale were included, leaving a sample of 115 participants. This criterion is explained in detail in the procedure.

Using *g*power* (Faul, Erdfelder, Lang, & Buchner, 2007), a power analysis was conducted prior the experiment. Assuming a medium effect size (.25) and power of .80, a sample of 160 participants was intended. However, I was unable to recruit this number of

participants prior to the end of the participant panel's testing term. The issue of statistical power is revisited in the description of the results.

Design and Procedure

The experiment investigated the effect of three levels of value similarity on liking. Participants indicated their values priorities in the 56-item Schwartz Values Survey in a pre-test session. In a second session, between six and eight weeks later, participants were presented with the ostensible values scores of another student, who had either an identical value profile (same value scores for the 56 items), a somewhat dissimilar value profile (10 different items), or a moderately dissimilar value profile (20 different items). Therefore, value similarity was manipulated in three proportions: 100% identical, 82% identical, or 64% identical.

Participants were randomly assigned to an experimental condition after completing the pre-test. The phantom-other profile was created by the experimenter for a total of 198 participants who took part in the pre-test. The first stage of generating this profile entailed calculating the participant's median value rating. Next, the experimenter reversed particular value scores around the median, depending on the participant's assigned condition. For example, if a participant had a median of 7 and was assigned to the 82% similar profile (i.e., 10 items differing from the participant's), five human values above and five human values below the median were reversed using the median as middle point (e.g., 8 became 6, 9 became 5). The values with scores immediately above and below the median were reversed first (a score of 8 or 6 in the example used), and the subsequent scores (9 or 5) would only be reversed if there were not enough scores immediately above or below the median. All reversals were applied symmetrically (i.e., equal number above and below the median), and human values were randomly selected when more were available for reversal than the condition specified (e.g., by choosing 10 reversals among 14 candidates for reversal). This

procedure was only applicable for participants whose median was 5, 6, 7, or 8. Some participants had higher or lower medians and were therefore assigned to the 100 % identical condition, for the purpose of not excluding them from the opportunity to take part (which was important for ethical purposes because of the award of course credit), but these participants were not considered in the analysis. In this design, the final sample could potentially include 176 participants for whom the 100%, 82%, or 64% profiles could be assigned at random.

Each experimental session was carried out with one to ten participants at the same time. Participants were informed they would study another student's values and form an impression about the student, who was ostensibly matched in age and gender, but studying in a different class. After being presented with the 56 values of the phantom-other, participants completed measures assessing general attitudes to the target, the target's warmth and competence, cognitive evaluations of the target, and interpersonal attraction to the target, and self-monitoring, in this order. Participation took 10 minutes on average.

Measures

Manipulation check

Participants rated how similar they were to the other person using a 9-point scale from -4 (Not similar at all) to +4 (Extremely similar). This item provides a global estimate of perceived similarity.

Values

Values were measured using the Schwartz Values Survey (Schwartz, 1992; Schwartz, Sagiv, & Boehnke, 2000). This instrument lists 56 values with a short description beside each one (e.g., RESPECT FOR TRADITION. Preservation of time honoured customs). Each value is rated in a 9-point scale from -1 (opposed to my principles) to 0 (not important) to 7 (extremely important), according to the extent to which it is a guiding principle in the individual's life. For the purpose of our manipulation, these responses were recoded to

scores from 1 to 9 prior to using the medians for assignment to condition (and then recoded back again for the presented materials).

Liking

Attitudes toward the phantom-other were assessed with four items. One item asked participants to indicate, “To what extent do you feel favourable towards this person?”, and responses were provided on a 9-point scale from -4 (Unfavourable) to +4 (Favourable).

Three additional items were 9-point semantic differential items from -4 (Dislike/Bad/Negative) to +4 (Like/Good/Positive). Responses were averaged to form a total index of attitudes ($\alpha = .83$).

Warmth and competence

Participants’ perceptions of the phantom-other’s warmth were recorded with three semantic-differential scales from -4 (Cold/Unfriendly/Insincere) to +4 (Warm/Friendly/Sincere). The same approach was used to assess competence, using scales from -4 (Incompetent/Incapable/Unintelligent) to +4 (Competent/Capable/Intelligent). Both sets of scales exhibited high internal consistency (warmth $\alpha = .87$; competence $\alpha = .93$).

Cognitive Evaluation Questionnaire

This questionnaire was developed by Montoya and Horton (2004). It contains seven items to assess a cognitive evaluation of the target person. Examples are “My future interaction partner would probably be successful in life,” and “My future interaction partner is probably well-respected.” Minor modifications were made to all of the items in order to make the scale more congruent with the cover story. Instead of “my future interaction partner,” we referred to the target as “this person.” Participants responded to each item using a 9-point scale from -4 (Strongly disagree) to +4 (Strongly agree). One item was excluded, “My future interaction partner could help me accomplish my goals,” because it did not fit

with the cover story for the experiment. The internal consistency of the scale was high ($\alpha = .85$).

Interpersonal Attraction Questionnaire

Attraction towards the phantom-other was evaluated using nine items adapted from Byrne and Wong's (1962) Interpersonal Judgment Scale by Montoya and Horton (2004). Example items are "This person would probably not make a good friend to me" and "I think I would enjoy interacting with this person". Participants responded to the items using a 9-point scale from -4 (Strongly disagree) to +4 (Strongly agree). The internal consistency of the scale was high ($\alpha = .92$).

Self-Monitoring Scale

The revised version of the Self-monitoring scale was used. This measure is composed of 18 items (e.g., "In different situations and with different people, I often act like very different persons.") taken from the original scales (Snyder & Gangestad, 1986). Participants answered with either "False" or "True" ($\alpha = .54$).

Results

Manipulation check

A one-way ANOVA was conducted to test whether the manipulation was effective in differentiating the three levels of similarity to the self. The results yielded a significant effect of similarity, $F(2, 112) = 4.67, p = .011, \eta_p^2 = .08$. However, Tukey post-hoc comparisons indicated that only the identical ($M = 7.7, SD = 1.02$) and 64% similar ($M = 6.6, SD = 2.02$) profiles elicited significantly different perceptions of similarity to the self. Both profiles elicited ratings of similarity that were not statistically different from the 82% similar profile ($M = 7.2, SD = 1.5$). Therefore, the subsequent analyses compare only the 100% identical and the 64% similar conditions.

Correlations between dependent measures

Table 2 displays the correlations between the measures assessing perceptions of the target other for the 100% identical (upper diagonal) and the 64% similar condition (lower diagonal). For the identical condition, the highest correlation was found between attitudes and perceived similarity ($r = .57$), and the lowest correlation was between perceived competence and perceived similarity ($r = .35$). Cognitive evaluation correlated only with competence. Self-monitoring was not significantly correlated with any of the variables. Regarding the 64% similar condition, most correlations were significant. The strongest correlation was between interpersonal attraction and perceived similarity ($r = .81$), and the weakest between cognitive evaluation and self-monitoring ($r = -.32$). Self-monitoring was only not correlated with interpersonal attraction and competence, there was also no significant correlation between warmth and competence.

Table 2. Correlations between dependent measures

	1	2	3	4	5	6	7
1	-	.20	.17	.08	.35*	.13	-.02
2	.61***	-	.47**	.47**	.44**	-.09	.62
3	.58***	.78***	-	.48**	.35*	-.05	.57***
4	.44**	.69***	.76***	-	.47**	.01	.48**
5	.58***	.53**	.35*	.26	-	.16	.34*
6	-.32*	-.26	-.45*	-.56***	-.21	-	-.13
7	.45**	.81***	.69***	.57***	.46**	-.44**	-

1 = Cognitive Evaluation, 2 = Interpersonal Attraction, 3 = Liking, 4 = Warmth, 5 = Competence, 6 = Self-monitoring, 7 = Manipulation check/perceived similarity

* $p < .05$, ** $p < .01$, *** $p < .001$

Effect of actual similarity on liking

An independent samples t test revealed no significant difference between the 100% identical ($M = 7.5$, $SD = 1.18$) and the 64% similar condition ($M = 7.3$, $SD = 1.13$) in liking the target, $t(71) = .57$, $p = .571$.

Effect of actual similarity on warmth

An independent samples *t* test found that the 100% identical target was rated as warmer ($M = 7.3$, $SD = 1.26$) than the 64% similar target ($M = 6.6$, $SD = 1.39$), $t(71) = 2.10$, $p = .039$.

Effect of actual similarity on competence

A *t* test revealed no significant difference in perceptions of the target's competence between the 100% identical ($M = 7.5$, $SD = 1.40$) and the 64% similar condition ($M = 7.5$, $SD = 1.39$), $t(71) = .01$, $p = .990$.

Effect of actual similarity on interpersonal attraction

A *t* test indicated that participants reported higher interpersonal attraction to the 100% identical target ($M = 7.2$, $SD = .95$) than to the 64% similar target ($M = 6.3$, $SD = 1.54$) in interpersonal attraction, $t(62.165)^1 = 3.10$, $p = .003$.

Effect of actual similarity on cognitive evaluation

An independent samples *t* test revealed no significant difference between the 100% identical target ($M = 7.1$, $SD = .70$) and the 64% similar target ($M = 6.9$, $SD = .94$) in cognitive evaluation of the target, $t(71) = .92$, $p = .360$.

Cognitive evaluation as a mediator of interpersonal attraction from similarity

Because value similarity did not predict cognitive evaluation (above), I did not test whether cognitive evaluation mediated the effect of value similarity on interpersonal attraction, as suggested by Montoya and Horton (2004). However, there were associations between perceived similarity (manipulation check) and cognitive evaluation and interpersonal attraction (above). Consequently, I tested whether cognitive evaluation mediated the association between perceived similarity and interpersonal attraction, with the average of the interpersonal attraction items as the outcome variable. The PROCESS procedure for SPSS

¹ Equal variances were not assumed.

(Hayes, 2013, model 4) was used. The significance of the indirect path was determined using 95% bias-corrected and accelerated confidence intervals with 5,000 bootstrap resamples.

Perceived similarity predicted cognitive evaluation ($B = .17, SE = .05, p = .003$). Both the direct ($B = .57, SE = .06, p < .001$) and indirect effect ($B = .63, SE = .06, p < .001$) on attraction via cognitive evaluation were significant, and cognitive evaluation significantly predicted interpersonal attraction ($B = .36, SE = .12, p = .004$). Consequently, the indirect effect did not include zero, IC 95% [.01, .16]. This result supports Montoya and Horton's (2004) prediction that perceived similarity produces a more positive cognitive evaluation, which, in turn, is associated with increased interpersonal attraction.

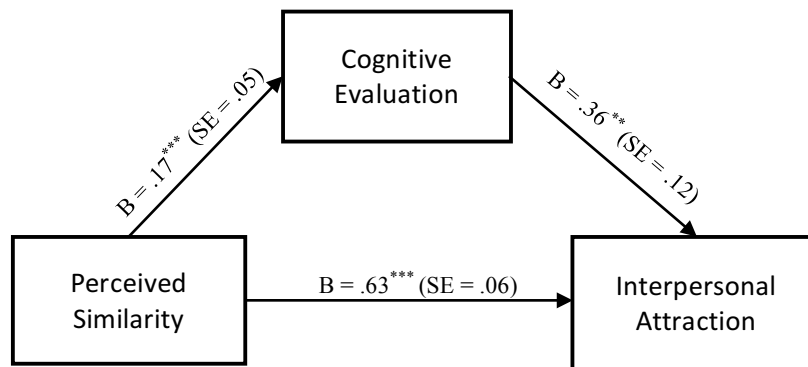


Figure 2. Cognitive evaluation as mediator of perceived similarity and attraction

Warmth and competence as mediators of interpersonal attraction from similarity

For exploratory purposes, I considered whether perceptions of warmth mediated the effects of value similarity on interpersonal attraction. This analysis considered manipulated value similarity as a dummy coded variable (0 = 64%, 1 = 100%). Value similarity predicted warmth ($B = .65, SE = .31, p = .039$), and warmth significantly predicted interpersonal attraction ($B = .59, SE = .09, p < .001$). The direct effect of similarity on personal attraction was significant ($B = .54, SE = .25, p = .036$), as was the indirect effect through warmth ($B = .92, SE = .30, p = .003$). The indirect effect confidence interval did not include zero, IC 95% [.03, .88], indicating significant mediation. Higher similarity predicted higher estimation of warmth, and warmth positively predicted interpersonal attraction. Because the manipulation

of value similarity did not influence perceived competence of the target (above), I did not test whether perceived competence mediated the effect of value similarity on interpersonal attraction.

Finally, I considered whether the effect of perceived similarity on interpersonal attraction would be mediated by warmth and competence judgments. Perceived similarity predicted warmth ($B = .45, SE = .08, p < .001$), and warmth significantly predicted interpersonal attraction ($B = .25, SE = .08, p = .004$). Perceived similarity also predicted competence ($B = .21, SE = .07, p = .005$), but competence did not predict interpersonal attraction ($B = .14, SE = .09, p = .103$). The direct effect of perceived similarity on interpersonal attraction was significant ($B = .49, SE = .07, p < .001$), as was the total effect ($B = .63, SE = .06, p < .001$) through warmth and competence. Consequently, the confidence interval of the indirect effect through warmth did not include zero, IC 95% [.05, .23], but the interval of the indirect effect through competence included zero, IC 95% [-.01, .10]. In the same direction as actual value similarity, perceiving the target as more similar increased estimation of warmth and, consequently, led to higher interpersonal attraction.

The role of self-monitoring on interpersonal evaluations

A moderated regression analysis was conducted to test the effect of self-monitoring on interpersonal evaluation. In the first block, self-monitoring (mean-centred) was entered as a continuous predictor, and similarity condition was dummy coded, with 0 representing the 64% similar condition, and 1 representing the identical condition. In the second block, the cross-product self-monitoring X condition was entered to model the interaction.

Regarding the effects on liking, although neither the first, $F(2, 70) = 2.49, p = .09$, nor the second, $F_{change}(1, 69) = 3.10, p = .083$, regression models were significant, there was an effect of self-monitoring ($\beta = -.25, p = .035$) in the first block, indicating that a higher score on self-monitoring produced lower levels of liking towards the target.

Warmth was significantly predicted by self-monitoring ($\beta = -.29, p = .011$) and condition ($\beta = .22, p = .049$). This effect was qualified by the interaction, $\beta = .41, p = .008$. As shown in Figure 3, high self-monitors estimated lower levels of warmth for the dissimilar target. There was no difference between low and high-self-monitors for the identical target.

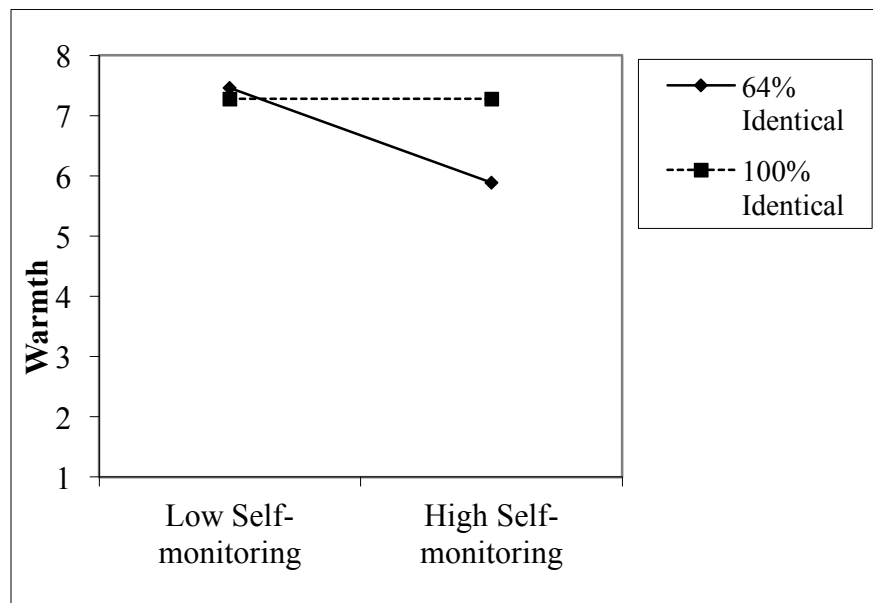


Figure 3. Interaction between similarity and self-monitoring on warmth

There was no effect of self-monitoring or interaction between self-monitoring and condition on the perception of target's competence and interpersonal attraction. Regarding cognitive evaluation, there was a significant interaction between self-monitoring and condition, $\beta = -.34, p = .044$. Figure 4 shows the simple slopes for this interaction. High self-monitors, but not low self-monitors formed a less positive cognitive evaluation of the dissimilar target.

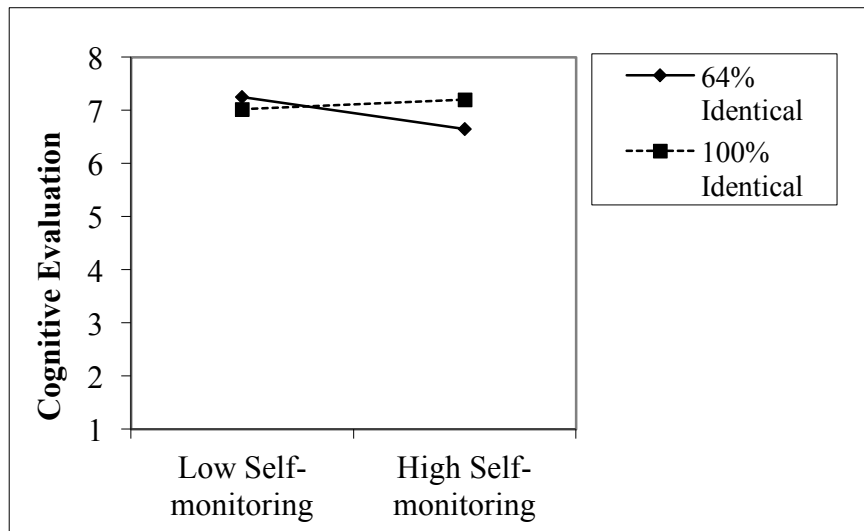


Figure 4. Interaction between similarity and self-monitoring on cognitive evaluation

Discussion

Study 1 aimed at testing the similarity-liking effect by manipulating value similarity. Results of the manipulation check revealed that participants only differentiated two of the three levels of similarity. Specifically, participants were only able to distinguish the most extreme levels, identical and 64% similar. The intermediary level (82% similar) only had ten items different from the identical and the 64% similar profiles, and this amount was probably not sufficient to produce significant effects. Byrne and Nelson (1965) argued that it is the proportion of similarity that produces the effects, regardless of the number of items. In the present study, the intermediary proportion failed to produce differentiated levels of liking. I therefore focused on the identical vs 64% comparison. This comparison revealed no significant effect of value similarity on the attitude measure, but there was a significant effect on the intrapersonal attraction scale.

Given this finding, I then pursued my secondary objective: to test Montoya and Horton's (2004) prediction that the effect of similarity on interpersonal attraction is mediated by cognitive evaluation. This model was not supported in the analysis that included manipulated value similarity as the predictor. The mediation model was significant only

when perceived global self-other similarity was used as the predictor of cognitive evaluation and, in turn, attraction.

Finally, an additional contribution of this study was to provide evidence that individual differences should be considered when analysing the similarity-liking effect. Moderated regression analyses revealed an interaction between self-monitoring and value similarity in the prediction of attitudes target's warmth and cognitive evaluation. High self-monitors expressed more negative liking, judgments of target warmth, and cognitive evaluation towards the non-identical target than did low self-monitors, but high and low self-monitors did not differ in how they evaluate the identical target. Overall, the effect of similarity was stronger for high self-monitors than for low self-monitors, which fits the pattern that Jamieson et al. (1987) found for similarities in activity preferences, but not their pattern for attitude preferences.

In sum, the support for an effect of value similarity on liking was modest. The effect emerged in a reliable manner for the measure of interpersonal attraction, but not in the measure of liking. In contrast, the influence on attitude was moderated by individual differences in self-monitoring. At the same time, the influence on interpersonal attraction was mediated by cognitive evaluation only when perceived self-other similarity was used as the predictor.

This study also encountered a limitation regarding participants' perception about the different levels of similarity and aims of the study. In the debriefing, most participants mentioned that similarity was involved when asked what they thought the study was about. Fewer mentioned similarity and liking. One participant said "is it about how much we like someone who looks like us?" Another commented "I thought I was reading my own values profile and you wanted to know how much we like ourselves." These comments represented the thoughts of most of the suspicious participants, and may have been reflected in the

manipulation check, where they only seemed to differentiate between two levels. When using the experimental condition that the participants thought they were, instead of the group they were actually allocated, the results remain almost the same, only the 64% similar and the 100% identical targets are significantly differentiated regarding warmth, interpersonal attraction, and cognitive evaluation.

Given this supportive, but mixed, pattern of results, and the limitations encountered, it was prudent to replicate this design in another experiment. The second experiment adopted a within-subjects design in order to increase power, and used a different cover story, which was potentially more credible.

Study 2

The feedback from participants in the debriefing within Study 1 indicated that, although the phantom-other paradigm provides high control over extraneous variables, its artificiality might attenuate the similarity-liking effect. In Study 2, I intended to address this issue by using a modified version the cover story and a different value measure for participants and the phantom-other. Specifically, the cover story introduced information that participants were able to check. The values of the phantom-other were presented in a different values measure, but the level of similarity was kept similar to the two conditions that were effective in Study 1. One profile was manipulated to be identical, and the other profile was 62% similar. Both profiles were presented in a within-subjects design. Self-monitoring was retained in this design.

Method

Participants

Participants were 19 psychology undergraduate students who participated either for course credit ($n = 16$) or for a £4 cash payment ($n = 3$). 12 participants were women and 7 were men. Their ages ranged from 18 to 21 ($M = 18.8$, $SD = 1.37$).

Experiment 1 found a medium-to-large effect size when comparing interpersonal attraction between the identical and 64% similarity conditions (Cohen's $d = 0.7$). Using g^* power (Faul et al., 2007), the advisable sample size for this effect size in a within-subjects design is 15 participants, given the recommended power of .80.

This experiment took part in the semester after Study 1. The participants could only sign-up for the study if they had participated in the pre-test the prior autumn (which was the same one as in Study 1) and had not participated in the previous experiment. There were 60 participants who could have signed-up for this experiment. I stopped the experiment at the end of the academic term, relying on those participants who had signed up to this point.

Design and Procedure

Participants indicated their value priorities in the 56-item Schwartz Values Survey in the pre-test session, which occurred between 4 and 6 months earlier. Participants came to the lab individually. They were told that this study was part of a collaboration with another university, which aimed at investigating potential issues with exchange students' adaptation to a new university and culture. Participants were asked to search the internet about the partnership between the two universities, and become familiar with it. They were given search terms that pointed them to the (real) exchange program. This search helped to ensure the plausibility of the cover story. After getting familiar with the partnership, participants were told that the aim was to look for characteristics that might help predict whether exchange students will fit into the Cardiff University environment and that the best way to address this issue is to look at how Cardiff students evaluate prospective students based on information they provide. Participants were further told that, in this particular study, we were presenting information about the others students' values. Participants were then presented with an example profile of an exchange student, in order to get familiar with the format of the profiles and response scale that they would use. They were not asked to pay attention to the

answers in the example, the experimenter explained the format of the response scale and how the answers should be interpreted. Each participant then evaluated the profile of two ostensible exchange candidates from the other university: one profile was intended to be similar to participants' own values, and the other profile was intended to be dissimilar to participants' values. The order of presentation of similar and dissimilar exchange candidate was counterbalanced between participants. They were presented with one profile at the time. After studying the person's values, participants completed the measures of general attitudes, warmth, competence, cognitive evaluation, and interpersonal attraction, in this order, and then repeated this sequence of tasks for the second student. Participation took 10 minutes on average, and participants were then debriefed and probed for suspicion.

To create the profile of the phantom-others, I first computed the average scores of participants' pre-test values on the SVS. I then multiplied the score of each value type by 1.5 in order to have the same scale range as the PVQ (Schwartz et al., 2001), which was used to generate the phantom-other values profile. Therefore, the scores for the PVQ items were based on the participants' scores on the SVS for the ten dimensions. After transforming SVS scores in PVQ scores, the next step involved calculating the answers for each PVQ item. Unlike the SVS, the PVQ presents values as brief descriptions. For example, self-direction is assessed using two items: "Thinking up new ideas and being creative is important to him. He likes to do things in his own original way" and "It is important to him to make his own decisions about what he does. He likes to be free and not depend on others". The average of responses to both items represents the score for the value. For the similar phantom-other, the initial score of the items for each value were identical (or as proximate as possible) to the computed score. For the dissimilar phantom-other, I subtracted 1 or 2 from the scores of the items of the two most important values, and added 1 or 2 to the scores of the two least important values. Therefore, the dissimilar target was different in four values,

giving less importance to two values that the participant considered important, and giving more importance to two values that the participant considered less important.

Measures

The measures of liking, warmth, competence, cognitive evaluation (Montoya & Horton, 2004), interpersonal attraction (Montoya & Horton, 2004), and self-monitoring (Snyder & Gangestad, 1986) were the same as in Study 1. Additional items were included as part of the cover story. These items asked which student would (a) fit in better at the university, (b) make more friends, (c) have a better academic performance, (d) be more likely to be friends with the participant, and (e) be more similar to the participant. The response options for these questions were “Student 1” or “Student 2”. Internal consistency for the measures were acceptable to good in the assessment of liking ($\alpha = .82$), warmth ($\alpha = .74$), competence ($\alpha = .82$), interpersonal attraction ($\alpha = .84$), and cognitive evaluation ($\alpha = .83$), but low for self-monitoring ($\alpha = .55$).

Results

Manipulation check

A paired samples *t* test on the item assessing perceived similarity (“To what extent are you similar to this person?”) revealed that the similar student ($M = 6.7$, $SD = 1.78$) was perceived as significantly more similar than the dissimilar student ($M = 5.3$, $SD = 2.09$), $t(17) = 2.16$, $p = .045$.

Correlation between dependent measures

In Table 3, the upper diagonal refers to the correlations for the similar target, and the bottom diagonal refers to the correlations between the measures for the dissimilar target. Regarding the similar target, liking correlated positively with warmth, attraction, cognitive evaluation, and perceived similarity. Warmth also correlated positively with attraction, cognitive evaluation, and perceived similarity; and attraction correlated positively with

cognitive evaluation, and perceived similarity. The highest correlation was observed between attraction and perceived similarity, and attraction and warmth ($r = .90$), whilst the lowest correlation was between cognitive evaluation and attraction ($r = .49$). Regarding the dissimilar target, all variables were positively correlated to each other, except for a non-significant negative relationship between self-monitoring and attraction. The highest correlation was observed between warmth and perceived similarity ($r = .87$), and the lowest correlation was between competence and attraction ($r = .49$).

Table 3. Correlations between the dependent measures

	1	2	3	4	5	6	7
1. Liking	-	.73*	.39	.75***	.55*	-.29	.73**
2. Warmth	.84***	-	.21	.90***	.53*	-.17	.89***
3. Competence	.51*	.53*	-	-.03	.35	.02	.11
4. Attraction	.83***	.85**	.49*	-	.49*	-.29	.90**
5. Cognitive evaluation	.73***	.75***	.84***	.70**	-	-.35	.63**
6. Self-monitoring	.05	.02	.08	-.10	.24	-	-.32
7. Perceived similarity	.77***	.87***	.36	.86***	.62**	.01	-

* $p < .05$, ** $p < .10$, *** $p < .001$

Effect of actual similarity on liking

Means, standard deviations and t tests comparing the similar and dissimilar student regarding liking, warmth, competence, attraction, and cognitive evaluation are displayed in Table 4. Although all the trends were in the predicted directions, results from paired-samples t tests indicated only a significant difference for competence: the similar student was perceived as more competent than the dissimilar student.

Table 4. Means, SDs and t tests for similar and dissimilar student

	Similar		Dissimilar		t (df)
	M	SD	M	SD	
Liking	6.9	1.17	6.4	1.49	1.33 (17)
Warmth	6.6	1.06	6.4	1.49	.63 (17)
Competence	7.6	.76	6.9	1.21	2.28 (17)*
Attraction	6.6	1.18	5.9	1.32	1.73 (17)
Cognitive evaluation	6.9	.85	6.4	1.28	1.76 (17)

* $p < .05$

Considering the results from these analyses and the strong and significant correlations between variables, I decided to compute a new variable averaging the scores of all the measures into a single variable ($\alpha = .92$), indicating general liking, and then repeated the t test. Results of this analysis revealed that the similar target ($M = 6.9$, $SD = .80$) was liked more than the dissimilar target ($M = 6.4$, $SD = 1.19$), $t(17) = 2.11$, $p = .050$.

Effect of self-monitoring

Considering the results of the previous experiment, which showed that self-monitoring only had an effect for the dissimilar target, this effect was once again explored. However, due to the small sample size, I examined only the correlations between self-monitoring and liking for each target, rather than performing a moderated regression analysis. Results revealed trends in the same direction as in the previous study, but neither the correlation between self-monitoring and liking for the similar target ($r = -.29$, $p = .242$), nor the correlation of self-monitoring and liking for the dissimilar target ($r = .06$, $p = .802$) were significant.

Discussion

Study 2 aimed at replicating the findings from the previous study, while making three modifications to Study 1. Specifically, Study 2 used a more credible cover story, a different measure of values, and a within-subjects design instead of a between-subjects design. These modifications appear to have significantly reduced the issue of artificiality that arose in Study 1: only three participants revealed a minor level of suspicion, and removing them from the analyses does not affect the results. The results indicated that the manipulation of value similarity was also effective, because the similar and a dissimilar target were rated as significantly different in similarity to the self. The effect of value similarity on liking for the targets was similar to Study 1. That is, although there were no significant differences when the measures of liking were analysed separately, the measures exhibited high intercorrelations

and a global measure of liking based on all of the measures revealed replicated the similarity-liking effect found in Study 1.

Nonetheless, this approach meant that the measure of cognitive evaluation was intrinsic to the measure of liking, making it impossible to test the mediating role of cognitive evaluation. Furthermore, the moderating role of self-monitoring was not replicated in this study, although the trends were in the same direction as in Study 1. This issue is revisited in the Chapter Discussion.

Chapter Discussion

Using the classic phantom-other paradigm developed by Byrne (1961), two experiments tested the effects of value similarity on liking. Although the effect of value similarity on liking was reliable only for some measures in each experiment, both studies found evidence for more liking of targets with similar values than of targets with dissimilar values. Study 1 found a medium-to-large effect size (Cohen's $d = .70$), which is congruent with the prior literature examining effects of other manipulations of similarity on other variables (Montoya et al. 2008). In Study 2, value similarity exerted a medium-sized effect on the global measure of liking (Cohen's $d = .48$). Together, these effects are provocative evidence that the effect of similarity on liking can be obtained for attitudes based on values.

Another aim of the studies was to explore mediators of the relationship between value similarity and liking. Of particular interest was the role of cognitive evaluation. The information processing perspective on similarity effects suggests that similarity shapes attitudes through its effect on cognitive evaluations of a target (Ajzen, 1974; Kaplan & Anderson, 1973; Montoya and Horton, 2004). Study 1 found support for this mechanism only in the analysis of effects of perceived global similarity and not for value similarity. Therefore, these results only partially corroborate the model proposed by Montoya and Horton (2004). However, perceived similarity influenced the perception of target's warmth

and competence, which, in turn, influenced the liking for this target. This finding corroborates the perspective that these two dimensions are fundamental in interpersonal perception (Fiske et al., 2007).

Finally, some preliminary results regarding the influence of individual differences were found. Self-monitoring exerted opposing effects for the similar and the dissimilar target in Study 1. In this study, higher levels of self-monitoring were related to less liking for the similar target, but were positively related with liking for the dissimilar target. These results are not in the same direction as those found by Jamieson et al. (1987), who found that low self-monitors expressed higher liking for the similar person than high self-monitors. In my studies, the similar person was evaluated equally by low and high self-monitors. Of course, the similar target expressed values identical to participants' own values, so it may stand to reason that no differences were obtained in evaluations of this target. Nonetheless, no firm conclusions can be drawn from the findings for self-monitoring until future research replicates this pattern, which was not the primary focus of the present studies.

It is possible to rule out the hypothesis that results were produced by participants' idiosyncrasies in scale use. Study 2 followed a within-subjects design, which is generally more powerful and provides control of individual differences in answering the scales. This study replicated the main findings of Study 1, providing evidence that different proportions of similarity affected liking, and not participants' idiosyncratic use of the response scale. Study 2 also demonstrated that it is possible to manipulate actual similarity using different items or measures for the same construct. This is probably a good strategy for future studies seeking to avoid suspicion.

Limitations and Future Directions

Although the desired sample sizes for the two experiments were based on a power-analysis, participant availability was a constraint, and the observed power did not always

exceed the recommended .80. On the one hand, Study 1 found a medium to large effect size for interpersonal attraction (Cohen's $d = .70$), which resulted in an observed power of .84. However, the effect size for attitudes was small (Cohen's $d = .17$), and the observed power for this effect was only .11. Study 2 found a medium effect size (Cohen's $d = .48$), but fell shortly on observed power, achieving only .61. The observed power dropped even more for the individual variables. For instance, the effect size for attitudes was $d = .31$, but the observed power was .22, and the effect size for interpersonal attraction was $d = .41$, and the observed power of .35. Clearly, further studies need to be conducted with larger sample sizes.

The results from Study 1 showed a different mechanism between perceived global similarity and liking than between value similarity and liking. Specifically, it was found that perceiving someone as similar to oneself leads to a more positive cognitive evaluation of this person, which in turn, positively influences attitudes to the individual. Cognitive evaluation did not mediate the effect of value similarity on attitudes, but the evidence for perceived global similarity provides partial support for the model proposed by Montoya and Horton (2004). This difference is interesting in light of evidence that the effects of manipulated similarity on liking are robust in no-interaction and short-interaction studies, whilst the effect of perceived similarity is strong for no-interaction, short-interaction, and studies considering existing relationships (Montoya et al., 2008). It could be the case that cognitive evaluation matters more for the latter scenarios than for the former scenarios. Nevertheless, there is a need for more research contrasting the effects of perceived similarity with effects of manipulated value similarity, across a range of relationships (e.g., no interaction, short-term, long-term).

The biggest limitation of previous studies using the phantom-other paradigm is that the bogus answers are usually produced by the experimenter. Therefore, the studies are not

double-blind. In contrast, the first experiment presented here was double-blind, participants were assigned to the conditions before participating in the second session, and the experimenter had no knowledge of the condition to which they were assigned. Therefore, it is not possible to rule out that stronger results from previous experiments were produced by the experimenter's expectations. It is important that any future testing of this paradigm adopt a double-blind procedure.

Another important issue for future studies is to produce less artificial ways of manipulating value similarity. As previously mentioned, manipulating value similarity can be difficult, because some value profiles might not seem plausible or credible. To some extent, everyone shares similar values; thus, it is harder to produce large differences in value similarity in a plausible range – a range that might also be sufficiently large to shape interpersonal attitudes. In the next chapter, I consider one important option for addressing this issue. To foreshadow, this possibility entails using personality descriptors to express values. People use adjectives on a daily basis to describe themselves, and it is possible that impressions about one's values can be formed based on such self-descriptions.

Conclusions

Notwithstanding the need for further research, the present studies produced initial evidence of the importance of values for interpersonal evaluations. Although most of the literature has focused on a direct influence of similarity in variables other than values, the present experiments show that effects of value similarity can be discerned. The next chapter takes this issue a step further, searching for evidence of the role of value similarity using a more natural design.

Chapter 3

The Role of Inferred Similarity of Self-Enhancement and Self-Transcendence Values on Liking

Chapter 3 Summary

Values are putatively an important factor in relationships, but values are not directly observable: people must somehow infer values from other information, such as traits and attitudes. For example, singles on dating sites often describe themselves using trait terms (e.g., creative, fun-loving). Two experiments examined the effects of value-laden personality descriptors on interpersonal attitudes, testing whether the effects on liking relate to perceptions of the targets' warmth and competence. The experiments gave female participants a brief description of a male target, manipulating the presence or absence of traits representing self-transcendence values (having time for others, generous) and traits representing self-enhancement values (hardworking, competitive). Results indicated that the presence of the value-affirming traits increased liking for the target and perceived similarity to the target. Furthermore, perceptions of the target's warmth mediated the effect of the self-transcendence manipulation on liking, and perceptions of the target's competence mediated the effect of the self-enhancement manipulation on liking. Overall, these findings support previously untested assumptions about the importance of values for interpersonal attitudes, while showing that this effect is partly mediated by perceptions of congruent traits.

“Hello gents – thanks for stopping by. I’m a creative, fun-loving, energetic and active gal whose favourite words – in any language – are, ‘Please proceed to your gate for departure’. (...)” (eHarmony Dating Advice Site, 2014).

“I am a conscientious person who works hard and pays attention to detail. I'm flexible, quick to pick up new skills and eager to learn from others. I also have lots of ideas and enthusiasm”. (Three excellent cover letter examples, 2014)

We often seek to describe ourselves in ways that will make people like us. This is important when we are trying to put ourselves forward for dating, as in the upper example of a profile featured in the dating website *eHarmony*. It is also important when we are trying to put ourselves forward for a job, as in the lower example of text from application cover letters featured in the *Guardian* newspaper. In diverse contexts, we want a few words to give a big and positive impression. How can we safely make a positive impression?

One approach is to emphasise attributes that we (likely) share with the people who we want to like us. Over 70 years of research has shown that we like those who appear similar to us (e.g., Ajzen, 1976; Byrne, 1971), particularly in first encounters (Montoya et al., 2008). Such similarity could be perceived and made up of many aspects, such as interests, opinions, attitudes, personality, and values. As described in Chapter 1, value similarity is often held up as being particularly important, but there is a lack of research on its effects. In this chapter, I propose that brief trait descriptions can convey information about common human values. In fact, the use of traits to convey information about values may be an efficient strategy because people do not dispute the importance of these values (Maio & Olson, 1998). By emphasising traits that convey values, people make it likely that they are demonstrating a characteristic that is shared with the person they wish to impress (i.e., a common value).

This approach takes a slightly different direction than the research described in Chapter 2. Its two studies provided evidence that value similarity increases attraction, but the studies used the artificial, phantom-other paradigm, which provides direct information about values. In real life, people usually have to infer values from other information, such as personality descriptors. People commonly use trait adjectives to impress others, as when they are trying to find a good match in a dating website or to win a job from a prospective employer. The present chapter aims to describe a test of whether inferred values from such descriptions increase liking, and whether this effect is mediated by perceptions of target warmth and competence.

Interpersonal Perception

Theory and research on social cognition have demonstrated two universal dimensions that people use in social perception at individual and group level. This model has been called the Stereotype Content Model (SCM) (Fiske, Cuddy, & Glick, 2007). The primary dimension is often defined as warmth, capturing the other person's intentions, friendliness, trustworthiness, and helpfulness. The secondary dimension is referred to as competence, including perceptions of the other person's ability, intelligence, efficacy, and skill. Thus, warmth would be an indication of the other person's intentions for good or ill, and competence would be this person's capability for acting as such. For this reason, warmth judgments have a primacy over competence ones, and they are dominant in affective and behavioural reactions (Fiske et al., 2007).

The different levels of an individual's or group's warmth and competence can be shown in a four-quadrant structure: high warmth and high competence, low warmth and high competence, high warmth and low competence, and low warmth and low competence. For instance, past research examining stereotypes has found that people perceive middle class people to be high in warmth and competence, homeless people to be low in warmth and

competence, rich people to be low in warmth but high in competence, and the elderly or disabled to be high in warmth but low in competence. The SCM has been replicated across the 20th and 21st century, and accounts for 82% of the variance in perceptions of everyday social behaviours (Wojciszke et al., 1998). In this research, I test whether the perception of value similarity influences judgements of warmth and competence, which might in turn affect liking for the target.

Social Values, Traits and Goals

As mentioned in Chapter 1, social values are guiding principles for a person or a group. They serve to express needs and goals, varying in importance and transcending situations (Gouveia, 2013, Schwartz et al., 2012). People not only have knowledge about their own values, they are also fairly accurate in inferring the values of an acquaintance (Dobell et al., 2014).

Chapter 1 noted that manipulating value similarity can be challenging for two reasons. First, according to Gouveia (2013), people tend to attach similar levels of importance to all values. In other words, value hierarchies across individuals can be somewhat similar, and any manipulation that asserts a high difference may lack mundane validity. Second, it could be the case that even high value dissimilarity is not easily detectable, because all values tend to be desirable or ideal (Gouveia, Milfont, & Guerra, 2014). Thus, notwithstanding the results from Chapter 2, it is difficult to manipulate value similarity in a way that is powerful while maintaining mundane validity.

One possible strategy to overcome this difficulty is to use traits to express values. Traits and values are both conceptually related to motivational goals (Parks & Guay, 2009), which are relatively specific objectives that people seek in particular contexts (e.g., to be healthy, to work hard). Traits and goals are related in the sense that traits serve and guide goals. McCabe and Fleeson (2016) demonstrated that the goals that people pursue can

explain approximately half of the variance in extraversion and conscientiousness traits, as rated by the person or by observers. Similarly, there are strong conceptual and empirical links between motives, goals, and values, such that values help people choose the goals that will guide their actions (Grouzet et al., 2005). Therefore, it is plausible that we can manipulate value similarity using traits that describe people's actions.

Personality can be defined as enduring dispositions that lead to patterns of interaction with the environment (Goldberg, 1993). It is commonly represented by traits, which are "dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings and actions" (McCrae & Costa, 1990, p. 23). Values, however, are cognitive representation of needs, of desirable and abstract goals (Rokeach, 1973; Schwartz, 1992). In a simpler distinction between the two concepts, the traits represent "who we are", and values represent "what is important to us". Sometimes the same term can be used to represent either a trait or a value. For instance, a person described as competent is expected to exhibit competent actions with certain frequency. Nevertheless, this person might not necessarily value competence. Competence as a value means that the person values the demonstration of competence, but it does not mean that this person has the ability to be competent.

But how does the common link to goals help us to identify which traits express which values? Extant data do not help, because research has focused on broad trait dimensions. That is, past research examining relations between values and traits has found theoretically consistent but moderate relations between measures of values and scores on the dimensions in the Five Factor Model of Personality (e.g., Parks-Leduc, Feldman, & Bardi, 2014). Unfortunately, none of the associations point to associations that are sufficiently strong to expect consistent interpretations of a trait as expressing a value dimension (i.e., $r_s < .39$).

However, a focus on more specific traits may be more fruitful. Stronger, more consistent connections between traits and values may be evident if we focus on relatively

specific traits that more directly express values. For instance, because hard work promotes self-enhancement motives, a person described as hard worker may be perceived as pursuing self-enhancement values. In a similar way, because generosity promotes self-transcendence motivation, someone described as generous is probably perceived as pursuing self-transcendence values. It may be the case that relatively specific trait descriptions lead to more reliable inferences about values.

Of importance, such descriptions might also lead to inferences about warmth and competence. For instance, hard work conveys competence, and generosity conveys warmth. It could therefore be the case that the descriptions lead to inferences about values and inferences about these personality dimensions. The potential links between values and the warmth and competence dimensions were raised by a recent model of values (Trapnell & Paulhus, 2012). Specifically, Trapnell and Paulhus (2012) outline agency and communion as two superordinate dimensions that serve to explain human values, motives, traits, and behaviour. Agency is related to competence, reflecting the motives of “getting ahead”, whilst communion is related to warmth and expresses motives of “getting along”. The researchers demonstrated that these two dimensions emerged in four data sets with different measures of values. They also developed a specific measure of values for their model, defining agency and communion as orthogonal dimensions in the measure. Given the potential effects of specific traits on the warmth and competence dimensions and on perceptions of values, an interesting question for the present research was whether the effects of specific traits (e.g., hardworking) on liking are mediated by perceptions of the related values or perceptions of the related trait dimensions or both.

Despite the existence of Trapnell and Paulhus’s (2012) alternative measure of values and a number of other alternative measures (e.g., Gouveia, 1998; Rokeach, 1967), the research in this thesis focuses on the values measured by Schwartz’s (1992) model. As

described in Chapter 1, this model merits inclusion because of the evidence for cross-cultural replicability across more than 80 nations, with a variety of support from cross-sectional, longitudinal and experimental paradigms (Maio, 2010). Focusing on this model, an interesting issue is whether the effects of the specific traits on liking are different between the higher-order values assessed in the model. This is an interesting issue because the potential links between self-transcendence values and self-enhancement values, on the one hand, and warmth and competence traits, on the other hand, may be more direct than the potential links between the traits and openness and conservation values. Because openness values involve following emotional and intellectual pursuits in uncertain directions, these values may or may not entail more warmth toward others or more competence. Similarly, because conservation values involve protecting the status quo, these values may or may not entail more warmth and competence. In fact, this issue is one additional reason why the present research utilises Schwartz's (1992) model of values instead of Trapnell and Paulhus's (2012) model of warmth and competence values. The warmth and competence values conceptually and empirically resemble opposite ends of the dimension from self-transcendence values to self-enhancement values (see Trapnell and Paulhus, 2012), whereas the dimension from openness to conservation values is more unique. This arguably makes Schwartz's model a broader conceptualization, with some values relating to warmth and competence while others do not. Consequently, it is possible for experimental designs to target specific personality traits that connect directly to one of the four Schwartz higher-order domains. This methodology enables distinct tests of the magnitude of the effects relevant to each of the higher-order domains, while testing whether the effects for each higher-order domain differ in mechanism (e.g., with a role for perceptions of warmth for some domains but not others).

The final issue I considered was the role of the situational context. Montoya and Horton's (2014) model indicates that a person's interpersonal goals might depend on the

situation. If one aims at finding a romantic partner, finding someone who is warm may be more important than finding someone who is competent. The warm person might prioritize values such as family security and mature love over values like independence and pleasure, and this balance would help make the relationship work. In contrast, if one has to choose a leader or a partner to work in a project, it may be most important to find a person who is highly competent. The competent person might value success and power more than values like helpfulness and equality, but the person would help get the job done. In this manner, the context in which a person learns about another individual's values may make a difference to how those values are used as a basis for the interpersonal attitude. If the values match the situational context, then they may elicit more liking than if the values mismatch the situational context.

This hypothetical role of context calls for an ordinal interaction between perceived values and context on attitudes, such that there is a positive effect of the target's values on liking in all contexts, but it is greater role when there is a situational match. Such ordinal interactions are more difficult to detect than disordinal (crossover) interactions, because they are conceptually half of the effect size as cross-over interactions. My priority in this thesis was the demonstration of the direct effects of value similarity on liking, and therefore the studies described below were powered sufficiently to detect these effects. The situational context hypothesis was nonetheless included as an exploratory issue.

The Present Research

The present research included two experiments. In each experiment, participants first reported their own values. Participants then read a description of a fictional target containing two personality attributes, with each attribute relevant to a different target value. The text described a low or high level of each trait. As a result, each description subsumed one of four value profiles (high value A and value B, high value A and low value B, low value A and

high value B, low value A and value B). Each attribute represented one of the four higher-order value domains from Schwartz (1992) model. Studies 3 and 4 focused on the self-transcendence and self-enhancement domains.

After reading the descriptions, participants were asked to indicate how much they liked the target and their perception of target's warmth and competence. Furthermore, for the exploratory test of an effect of context matching, I manipulated participants' goals for the imagined interaction with the fictional character by asking them to imagine that this interaction would occur in different contexts (e.g., dating or working). Finally, I asked participants to estimate the target's value profile, which enabled the calculation of indices of participants' inferred similarity to the target on the values.

This design enabled me to test for influences of the trait descriptions on the inferred values, perceived similarity to the target's values, and liking for the target. I expected that descriptions defining a high level of a trait supporting a particular value would elicit higher perceptions of that value and of congruent traits (i.e., warmth or competence), more perceived similarity to the target's values (especially those linked to the trait), and more liking. My design treated the perceptions of the target's traits and values both as putative mediators of the effects of the manipulation and liking.²

Study 3

Study 3 was my first experiment aimed at testing the effects of specific personality attributes on the perception of a target's values and attitudes toward the target. The descriptions included traits expressing high self-transcendence and high self-enhancement, high self-transcendence and low self-enhancement, low self-transcendence and high self-enhancement, and low self-transcendence and low self-enhancement. I expected that

² According to Tate (2015), conceptual timing of the variables is critical and superior to statistical analyses alone (Fiedler et al., 2011). That is, regardless of measurement timing, the mediator must be conceptually posterior to the predictor variable. In the present research, the exposure to a target (predictor), should influence judgement/perception of this target's warmth/competence and values (mediators), finally influencing liking (outcome variable).

participants who were presented with descriptions expressing a high level of self-transcendence (e.g., has a lot of time for others) would estimate higher self-transcendence values for the target than participants who were presented with descriptions expressing a low level of self-enhancement (e.g., does not have time for others). Similarly, I expected that participants who were presented with descriptions expressing a high level of self-enhancement (i.e., hardworking) would estimate higher self-enhancement values for the target than when the descriptions expressed a low level of self-enhancement (i.e., not very hardworking). I also expected that perceptions of the target's warmth would be influenced in the same directions as perceptions of the target's self-transcendence values and that perceptions of the target's competence would be influenced in the same directions as perceptions of the target's self-enhancement values. An open question was whether the trait warmth would mediate the relationship between a self-transcendence attribute and liking, and whether trait competence would mediate the relationship between a self-enhancement and liking.

Regardless, I expected that perceived value similarity would increase liking. That is, not only would the target's estimated values predict liking, but similarity between the participants' values and their estimates of the target's values should also predict liking. I expected this role to be more pronounced for similarity in those values that are linked to the manipulated attribute (e.g., self-transcendence values for the target who has time for others). Nonetheless, it was also plausible that broader inferences of value similarity would play a role, in addition to a potential impact of global subjective feelings of similarity to the target. These roles might emerge particularly if people make global inferences about the target's whole value profile and personality based on the values that were manipulated. Thus, for completeness, I examined the roles of these variables as well.

Method

Participants

Previous research on similarity-liking reliably reveals large effect sizes (Cohen's $d > 0.8$), especially in manipulating attitudes similarity with no interactions between the participant and target (Montoya et al., 2008). Considering that I instead used personality traits to manipulate values similarity, I estimated only a medium effect size (Cohen's $d = 0.5$). Using g^* power (Faul, Erdfelder, Lang, & Buchner, 2007), and given the recommended power of .80, a sample of 158 participants would be advised. Therefore, I established that data collection would finish when reaching 158 participants or after being advertised for the four-week time limit in the university notice board.

Participants were 143 female staff and students recruited through the electronic noticeboard of a UK University for a prize draw. Their ages ranged between 18 and 60 years ($M = 27$, $SD = 9.62$). Most were single (76%) or in a civil union/married (13%). One participant was excluded from the analysis due to their failure to follow instructions.

Design and Procedure

The experiment followed a 2 (Time for Others: high vs. low) X 2 (Hardworking: high vs. low) X 2 (Context: dating vs. working) design. The dependent variable was liking for the target, which was assessed as a general attitude and as liking specific for each context (i.e., potential enjoyment working with or dating the target; see below). Perceptions of the target's warmth and competence were also assessed as potential mediators between the independent variables and liking.

Participants took part online. After consenting to participate, participants indicated their age and marital status. They then completed the values measure. Next, they were presented with the target description appropriate to their randomly assigned experimental condition. After one minute, the next webpage loaded and liking for the target was assessed.

On subsequent screens, participants rated his warmth and competence, his values, and their degree of similarity to him. These screens were followed by a screen asking them to describe things that he likes to do and his interactions with friends and family. The final screen debriefed participants and thanked them for their participation. On average, participants took ten minutes to complete the study.

Experimental Manipulations

Two of the manipulated factors were related to the target's attributes: he was described either as finding time for other people or not finding time for other people or as hardworking or not very hardworking. Each participant read a sentence describing one of the four possible combinations of the attributes, as described below.

Jamie is a very hard worker, and finds a lot of time to dedicate to other people.

Jamie is not a very hard worker, and finds a lot of time to dedicate to other people.

Jamie is a very hard worker, and he doesn't find a lot of time to dedicate to other people.

Jamie is not a very hard worker, and he doesn't find a lot of time to dedicate to other people.

The final factor was a manipulation of the context in which participants were asked to imagine an interaction with the target. Participants were asked to imagine either going on a date with Jamie or working on a project with him.

Measures

Personal values

The study employed the 21-item Portrait Values Questionnaire used in the European Social Survey. This measure was developed to tap the ten values types proposed by Schwartz (2003; Schwartz et al., 2001). The aim was to provide a concrete measure of values, suitable for use in younger samples and low educational levels (Schwartz, Melech, Lehmann,

Burgess, & Harris, 2001). Each item describes a person in terms of goals, aspirations or wishes regarding a single value (Schwartz, 2007). Participants responded using a scale from 1 (“not like me at all”) to 6 (“very much like me”). Responses were averaged across the items for each of the ten value types, and the averages were centred around each individual’s mean rating following the recommendations of Schwartz (2005). Reliability of the ten value dimensions in the present study were low but in accordance with prior findings (e.g., Bardi et al., 2014, Schwartz, 2005): $\alpha_{\text{Power}} = .56$, $\alpha_{\text{Achievement}} = .78$, $\alpha_{\text{Hedonism}} = .65$, $\alpha_{\text{Stimulation}} = .79$, $\alpha_{\text{Self-direction}} = .03$, $\alpha_{\text{Universalism}} = .41$, $\alpha_{\text{Benevolence}} = .72$, $\alpha_{\text{Tradition}} = .44$, $\alpha_{\text{Conformity}} = .72$, $\alpha_{\text{Security}} = .63$; and the higher order dimensions: $\alpha_{\text{Self-enhancement}} = .75$, $\alpha_{\text{Self-transcendence}} = .61$, $\alpha_{\text{Openness}} = .65$, $\alpha_{\text{Conservation}} = .63$. The reliability for the higher-order domains (calculated in the same manner as for the lower-order domains) was higher: $\alpha_{\text{Self-enhancement}} = .73$, $\alpha_{\text{Self-transcendence}} = .61$, $\alpha_{\text{Openness}} = .65$, $\alpha_{\text{Conservation}} = .72$. The higher-order domains were also congruent with the theoretical aims of this research. Therefore, my analyses focused on the higher-order domains.

The target’s values

Participants estimated the character’s values using a modified version of PVQ-21. Instead of asking how much the person in each item is like the respondent, this adaptation asked how much the person resembled the target person in the manipulation, Jamie. The response scale labels therefore replaced the word “me” with “Jamie”. The reliability of the target value measures for Jamie’s values varied from low to high: $\alpha_{\text{Power}} = .55$, $\alpha_{\text{Achievement}} = .92$, $\alpha_{\text{Hedonism}} = .72$, $\alpha_{\text{Stimulation}} = .81$, $\alpha_{\text{Self-direction}} = .44$, $\alpha_{\text{Universalism}} = .87$, $\alpha_{\text{Benevolence}} = .92$, $\alpha_{\text{Tradition}} = .45$, $\alpha_{\text{Conformity}} = .87$, $\alpha_{\text{Security}} = .74$; and the higher order dimensions: $\alpha_{\text{Self-enhancement}} = .86$, $\alpha_{\text{Self-transcendence}} = .93$, $\alpha_{\text{Openness}} = .68$, $\alpha_{\text{Conservation}} = .73$. The reliability for the higher-order domains (calculated in the same manner as for the lower-order domains) was again higher: $\alpha_{\text{Self-enhancement}} = .86$, $\alpha_{\text{Self-transcendence}} = .68$, $\alpha_{\text{Openness}} = .93$, $\alpha_{\text{Conservation}} = .77$. As noted above, the

higher-order domains were also congruent with the theoretical aims of this research.

Therefore, my analyses focused on the higher-order domains.

Value similarity

The self-ratings of values and the ratings of Jamie's values were used to form three indices of value similarity. I calculated each index using the Fisher transformation of the correlations between participants' values and the target's estimated values. This calculation was performed for the higher order dimensions of self-transcendence and self-enhancement, and for the whole values set.

Liking

Liking for Jamie were assessed with an individual item, "To what extent do you feel favourable towards Jamie?", from -3 (Unfavourable) to +3 (Favourable), and three 7-point semantic differential items from -3 (Dislike/Bad/Negative) to +3 (Like/Good/Positive). Responses were averaged to form a total index of liking toward Jamie ($\alpha = .90$). Two additional items also asked participants to rate the extent they would enjoy going on a date with Jamie and the extent to which they would enjoy working with him, from 1 (Not at all) to 7 (Very much). The order of presentation of these items was determined by the context condition: if the participant was asked to imagine going on a date with Jamie, the first question asked whether she would enjoy going on a date with him, and if the participant was asked to imagine working with Jamie, the first question asked whether she would like working with him.

Warmth and competence

Perception of the target's warmth was evaluated with three semantic-differential items. Participants responded to each item using a scale from -3 (cold/unfriendly/insincere) to +3 (warm/friendly/sincere). The same approach was used to assess the target's competence, using a scale from -3 (incompetent/incapable/unintelligent) to +3

(competent/capable/intelligent). Good internal consistency was evident for both the warmth ($\alpha=.87$) and competence ($\alpha=.93$) scales.

Overall similarity

Finally, participants rated the extent to which they were similar to the target using a scale from 0 (Not at all) to 5 (Extremely).

Results

Effects on Values

The importance of the target's estimated values was analysed in a 2 (Time for others: high vs. low) X 2 (Hardworking: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA for each of the four higher-order value domains (self-transcendence, self-enhancement, openness, and conservation).

Regarding the target's estimated self-enhancement values, there were significant main effects of time for others, $F(1, 141) = 114.58, p < .01, \eta_p^2 = .46$, hardworking, $F(1, 141) = 87.98, p < .01, \eta_p^2 = .40$, and context, $F(1, 141) = 5.32, p < .023, \eta_p^2 = .04$. There were no significant interactions. Participants estimated higher self-enhancement values when the target was described as not finding time for others ($M = .66, SD = .09$) compared to finding time for others ($M = -.74, SD = .10$), when described as hardworking ($M = .57, SD = .09$) than when he was described as not very hardworking ($M = -.66, SD = .09$), and in the context of dating ($M = .11, SD = .09$) rather than of working ($M = -.19, SD = .09$).

Whilst for target's estimated self-transcendence values, there was a significant main effect of each attribute. Specifically, when the character was described as finding time for others ($M = 1.23, SD = .08$) he was perceived as possessing higher self-transcendence values than when he was described as not finding time for others ($M = -.98, SD = .08$), $F(1, 141) = 421.04, p < .01, \eta_p^2 = .76$. When he was described as hardworking, he was perceived as possessing lower self-transcendence values ($M = .02, SD = .08$) than when he was described

as not hardworking ($M = .24$, $SD = .08$), $F(1, 141) = 4.46$, $p = .037$, $\eta_p^2 = .03$. There was no significant effect of context or significant interactions.

For comparison, I also tested the effects on the other value dimensions: openness and conservation. For the target's estimated openness values, there was a significant main effect of the attributes time for others, $F(1, 141) = 14.04$, $p < .01$, $\eta_p^2 = .10$, and hardworking, $F(1, 141) = 116.86$, $p < .01$, $\eta_p^2 = .47$. When the target was described as finding time for others ($M = -.24$, $SD = .08$) compared to when he was described as not finding time for others ($M = .18$, $SD = .08$), and when he was described as hardworking ($M = -.65$, $SD = .08$) he was perceived as possessing lower openness values than when he was described as not very hardworking ($M = .59$, $SD = .08$).

Finally, there was a significant main effect of time for others, $F(1, 141) = 14.80$, $p < .01$, $\eta_p^2 = .10$, and of hardworking, $F(1, 141) = 34.37$, $p < .01$, $\eta_p^2 = .20$, on the target's estimated conservation values. When the target was described as not finding time for others ($M = .16$, $SD = .07$) he was perceived as possessing higher conservation values than when he was described as finding time for others ($M = -.22$, $SD = .07$), and when he was described as hardworking ($M = .26$, $SD = .07$) compared to when he was described as not very hardworking ($M = -.32$, $SD = .07$).

Therefore, although the two attributes intended to manipulate self-enhancement and self-transcendence values, participants also inferred openness and conservation values in a systematic manner. Their inferences exhibited parallel changes in self-transcendence and openness values, which were in the opposite direction to changes in self-enhancement and conservation values.

Effects on Liking

A 2 (Time for others: high vs. low) X 2 (Hardworking: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA was conducted on the three measures of

liking for the target (general, working, dating)³. General liking was affected by both attributes: finding time for others, $F(1, 134) = 103.95, p < .001, \eta_p^2 = .44$, and hardworking, $F(1, 134) = 59.39, p < .001, \eta_p^2 = .31$. There was a significant three-way interaction between finding time for others, hardworking, and context, $F(1, 134) = 6.43, p = .012, \eta_p^2 = .05$. As shown in Figure 5, finding time for others (vs. not finding time) significantly increased liking in the dating context. Moreover, when the target was described as not finding time for others, he was liked significantly more when he was also described as hardworking. In the working context, finding time for others (vs. not finding time) also significantly increased liking when the target was described as hardworking compared to when he was described as not very hardworking. The interaction appears to be carried by a larger impact of finding time for others when the target is not hardworking in the dating context than in the working context. Strikingly, however, the effects of both attributes are very consistent across both contexts.

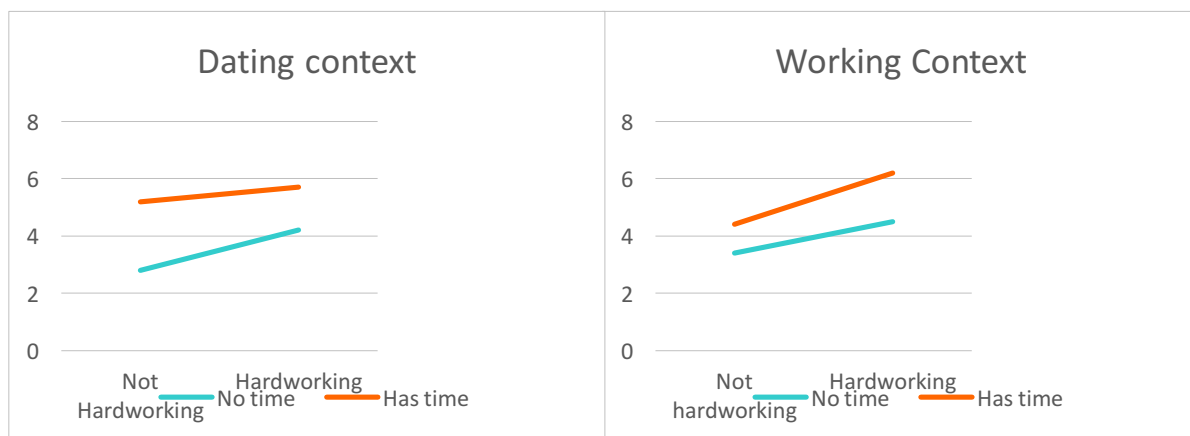


Figure 5. Three-way interaction on liking (general attitudes)

When liking was assessed as potential enjoyment working with the target, there was a significant main effect of finding time for others, $F(1, 134) = 14.97, p < .001, \eta_p^2 = .10$, of hardworking, $F(1, 134) = 216.45, p < .001, \eta_p^2 = .62$, and a significant two-way interaction between hardworking and context, $F(1, 134) = 22.09, p < .001, \eta_p^2 = .14$. Specifically, when the target was described as hardworking (opposed to not very hardworking), there was no

³ Considering that relationship status could also affect liking, another ANOVA was carried out adding it as fourth factor. Two 2-way interactions were found, as reported in the supplementary material.

difference in potential enjoyment working between both contexts. In contrast, when he was described as not being very hardworking, higher potential enjoyment working was estimated in the working context.

Regarding the potential enjoyment of going on a date with the target, there was a main effect of time for others, $F(1, 134) = 57.20, p < .001, \eta_p^2 = .30$, and hardworking, $F(1, 134) = 20.56, p < .001, \eta_p^2 = .13$. Higher potential enjoyment of going on a date was estimated for the target described as finding time for others ($M = 4.3, SD = 1.70$), compared to when he was described as not finding time for others ($M = 2.4, SD = 1.37$), and for the hardworking target ($M = 4.0, SD = 1.87$) than the not very hardworking target ($M = 2.9, SD = 1.57$).

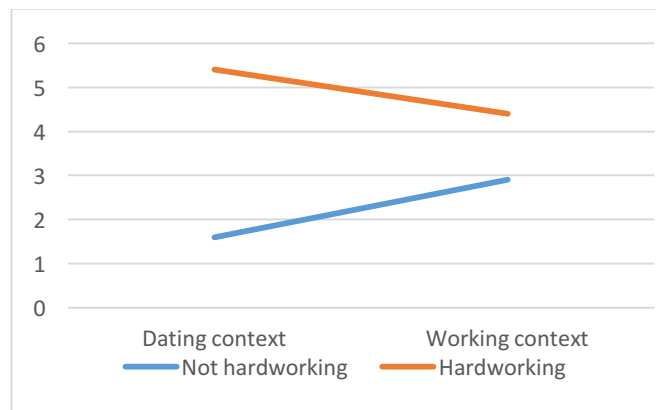


Figure 6. Two-way interaction on potential enjoyment working

Effects on Value Similarity

The importance of the target's estimated values was analysed in a 2 (Time for others: high vs. low) X 2 (Hardworking: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA for perceived value similarity. Results indicated only a main effect of time for others, $F(1, 134) = 53.99, p < .001, \eta_p^2 = .29$. When the target was described as finding time for others ($M = .34, SD = .38$), he was perceived with more similar values than when he was described as not finding time for others ($M = -.10, SD = .29$).

Effects on Warmth and Competence

Finally, the target's estimated warmth and competence were analysed in a 2 (Time for others: high vs. low) X 2 (Hardworking: high vs. low) X 2 (Context: dating vs. working)

between-participants ANOVA. The target's warmth was only affected by finding time for others, $F(1, 141) = 88.51, p < .001, \eta_p^2 = .40$. The target described as finding time for others ($M = 5.5, SD = .14$) was perceived as warmer than the target described as not finding time for others ($M = 3.6, SD = .15$). The target's competence was affected by the attribute hardworking, $F(1, 141) = 143.62, p < .001, \eta_p^2 = .52$, with a two-way interaction between hardworking and having time for others, $F(1, 141) = 7.55, p = .017, \eta_p^2 = .05$. When the target was described as hardworking ($M = 5.8, SD = .12$) he was perceived as more competent than when he was described as not very hardworking ($M = 3.7, SD = .13$). Not finding time for other people accentuated target's competence when he was also described as hardworking, as seen in Figure 7.

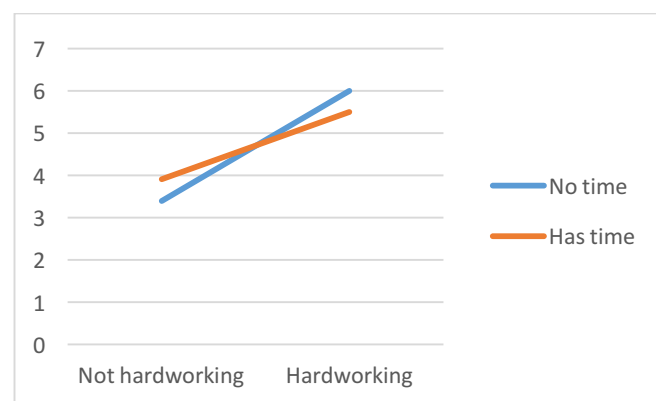


Figure 7. Effects of hardworking and having time on competence

Effects on Overall Similarity

The importance of the target's estimated values was analysed in a 2 (Time for others: high vs. low) X 2 (Hardworking: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA for perceived value similarity. Results indicated a main effect of time for others, $F(1, 134) = 52.81, p < .001, \eta_p^2 = .28$, and of hardworking, $F(1, 134) = 58.21, p < .001, \eta_p^2 = .30$. The attribute finding time for others ($M = 3.4, SD = 1.11$) elicited higher perception of similarity than the attribute not finding time for others ($M = 2.2, SD = 1.08$). In the same direction, hardworking ($M = 3.4, SD = 1.14$) also led to higher similarity than not hardworking ($M = 2.3, SD = 1.03$).

Mediation Analyses

Results of the above analyses showed that the target description significantly affected his estimated values, likability, warmth and competence. Similar effects were observed across the different measures of liking (attitudes, potential enjoyment working, and potential enjoyment dating). This pattern made it interesting and feasible to test whether the effects of the target descriptions were mediated by perceptions of values and traits. Considering these results, a series of mediation analyses were conducted. For simplification, context was not included in the analysis, because the effects of both attributes were in the same direction in each context. Furthermore, only general attitudes were considered as outcome variable (as the other liking measures were exploratory and context dependent).

The PROCESS procedure for SPSS (Hayes, 2013, model 4) was used for all the mediation analyses. First, I tested the effect of the attributes (not hardworking vs. hardworking, and not finding time vs. finding time for others) on liking with two mediators (M_1 = estimated target's values or value similarity, and M_2 = competence or warmth), as shown in Figure 8 and Figure 9. Liking was the outcome variable in all analyses, assessed by the general attitudes. The significance of the two indirect paths was determined using 95% bias-corrected and accelerated confidence intervals with 5,000 bootstrap resamples.

Target's values as mediators of the relationship between attributes and liking

This group of preliminary mediation analyses aimed at testing the indirect effect of the manipulated attributes on liking, through the target's estimated values, warmth, and competence. Separate analyses were conducted for each attribute. The attributes were dummy coded, with 0 for not hardworking vs 1 for hardworking, and 0 for not finding time for other people vs 1 for finding time. The two main predicted models are shown in Figure 8, all results are shown in Table 5, and the main findings are detailed below.

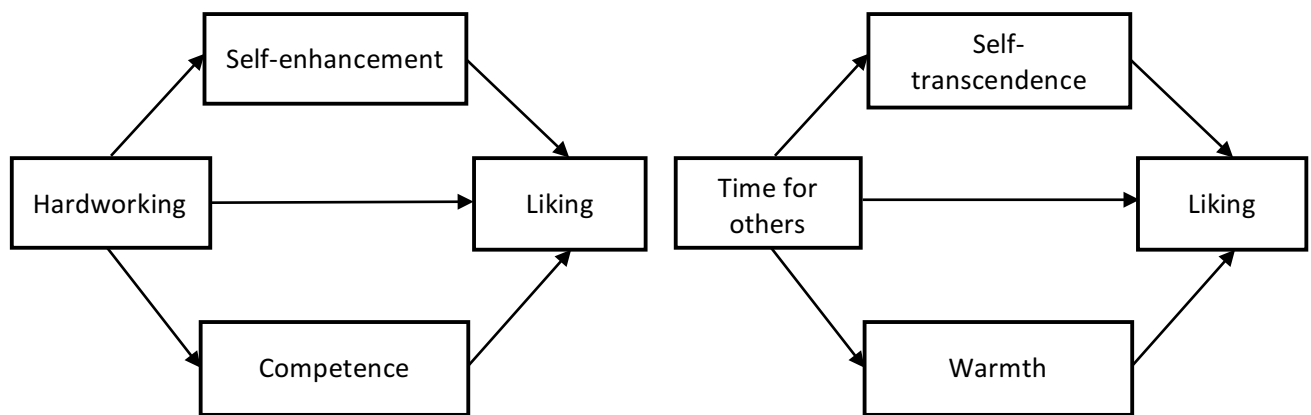


Figure 8. Mediation models with estimated values

The first mediation tested the indirect effect of being hardworking on liking through the target's estimated self-enhancement values and competence. Table 5 shows that being hardworking predicted the two mediators, and both mediators significantly predicted liking. Both the direct and total paths of hardworking on liking were significant. The confidence intervals of the indirect effect through self-enhancement and through competence did not include zero, indicating significant mediation. Specifically, when the target was presented as hardworking, he was perceived as possessing higher self-enhancement values and as more competent. The target's self-enhancement was associated with a decrease in liking, whilst competence was associated with an increase in liking.

The second mediation tested the indirect effect of finding time for others on liking through the target's estimated self-transcendence values and warmth. Finding time for other people significantly explained target's self-transcendence values and warmth. The target's self-transcendence values did not predict liking, whereas warmth did. The direct effect of finding time for others on liking was not significant, but the indirect effect, when including the mediators, was significant. Congruently, the confidence interval of the indirect effect of target's self-transcendence values included zero, but the confidence interval of warmth did not. These results indicate that, when the target was described as finding time for other

people, he was perceived as endorsing self-transcendence values and as warmer. Both mediators were positively associated with liking, but only warmth significantly mediated the relationship between the target's time for others and liking.

Value similarity as a mediator between attributes and liking

I expected a significant indirect effect of being hardworking on liking through similarity in self-enhancement, and of finding time for others on liking through similarity in self-transcendence.

As shown in Table 5, being hardworking predicted similarity in self-enhancement values, and had significant direct and indirect effects on liking. Similarity in self-enhancement also predicted liking. The confidence interval with 5000 bootstrapping of the indirect effect of hardworking through similarity in self-enhancement did not include zero, indicating a significant mediation. Thus, when the character was described as hardworking, he was perceived as more similar to the self and, consequently, liked more.

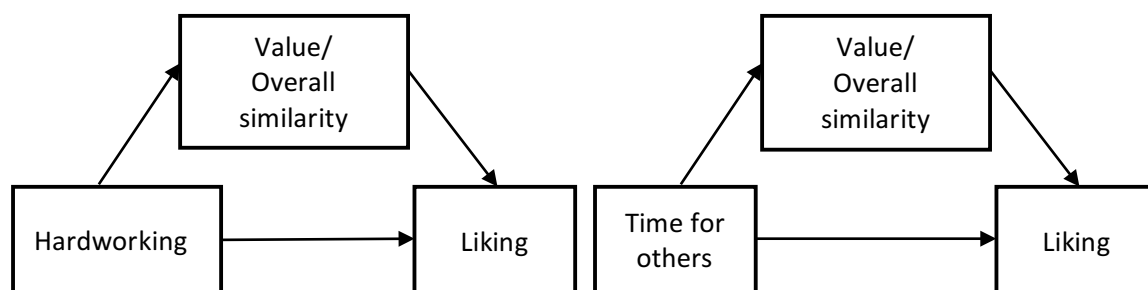


Figure 9. Mediation models with similarity

Contrary to my prediction, but consistent with the results for the target's estimated values, the mediation analysis of the indirect effect of finding time on liking through similarity in self-transcendence values was not significant. Finding time for others did not predict similarity in self-transcendence values, although it directly and indirectly predicted liking. Similarity in self-transcendence values did not predict liking. Consequently, the

bootstrapping confidence intervals of the indirect effect included zero, and there was no mediation.

Finally, I tested whether overall value similarity (correlation) and overall similarity (single-item) mediated the relationship between the target's attributes (hardworking and finding time for other people) and liking. Being hardworking did not predict overall value similarity. However, overall value similarity predicted liking. The direct and the indirect effects of being hardworking on liking were significant. However, the confidence interval of the indirect effect included zero and the mediation was not significant.

Finding time for other people significantly predicted overall value similarity. Although both the direct and the indirect effects of finding time for other people on liking were significant, overall value similarity did not explain liking. Hence, the confidence interval of the indirect effect included zero, and the mediation was not significant.

Participants were also asked in a single item how similar they were to the target. This variable was entered as mediator of the relationship between target's attributes and liking. Being hardworking significantly predicted similarity, and similarity predicted positive attitudes. The direct and the indirect effect of being hardworking on attitudes were significant, and the bootstrapping of the indirect effect through similarity was significant. Thus, when the character was described as being hardworking he was perceived as more similar and, consequently, more positive.

Similarly, finding time for others positively predicted similarity, and similarity predicted attitudes. The direct and the indirect effect of finding time for others on attitudes were significant, and the confidence interval did not include zero. Similarity significantly mediated the relationship between finding time for other people and attitudes, when the target was described as having time he was perceived as more similar and the attitudes toward him were more positive.

Table 5. Models of the indirect effect of the attributes on liking through target's estimated values, and through value similarity

Y	X	M ₁	M ₂	B (SE) X on M ₁	B (SE) X on M ₂	B (SE) M ₁ on Y	B (SE) M ₂ on Y	B (SE) Direct effect X on Y	B (SE) Total effect X on Y	95% IC M ₁ ¹	95%IC M ₂ ¹
L	HW	SE _e	C	1.19 (.18)***	2.06 (.18)***	-.67 (.07)***	.44 (.07)***	1.12 (.24)***	1.24 (.21)***	[-1.13, -.51]	[.51, 1.33]
L	HT	ST _e	W	2.20 (.11)***	1.86 (.20)***	.13 (.13)	.49 (.07)***	.50 (.34)	1.64 (.19)***	[-.34, .96]	[.43, 1.55]
L	HW	SE _c	-	.74 (.13)***	-	.41 (.13)**	-	.94 (.23)***	1.24 (.21)***	[.12, .55]	-
L	HT	ST _c	-	.21 (.12)	-	.06 (.13)	-	1.63 (.19)***	1.64 (.19)***	[-.04, .10]	-
L	HW	Vsim	-	.01 (.07)	-	1.36 (.24)***	-	1.22 (.19)***	1.24 (.21)***	[-.18, .20]	-
L	HT	Vsim	-	.47 (.06)***	-	.29 (.29)	-	1.51 (.24)***	1.64 (.19)***	[-.18, .41]	-
L	HW	Sim	-	1.19 (.18)***	-	.57 (.09)***	-	.56 (.21)**	1.24 (.21)***	[.42, 1.01]	-
L	HT	Sim	-	1.15 (.18)***	-	.47 (.08)***	-	1.10 (.19)***	1.64 (.19)***	[.32, .84]	-

L = Liking W = Warmth, C = Competence, ST_e = Target's estimated Self-transcendence values, SE_e = Target's estimated Self-enhancement values, ST_c = correlation between ST scores, SE_c = correlation between SE scores, Vsim = correlation between all values, Sim = single-item similarity.

¹ 95% confidence interval of the indirect effect with 5000 bootstrapping.

* p < .05, ** p < .01, *** p < .001

Discussion

Study 3 found that personality descriptors influenced liking. As expected, targets whom were described as being more hardworking or as finding more time for others were liked more than targets whom were described as being lower on these attributes. Both traits promote values that people tend to consider important guiding principles in their lives, including self-enhancement and self-transcendence values in particular. Indeed, the descriptors led to predictable patterns of inferences about a person's social values. The target described as hardworking was considered to possess more self-enhancement values than the not very hardworking target, and higher self-transcendence values were estimated when the target was described as having time for others compared to not having time for others. Unexpectedly, there were also effects on openness and conservation values: higher openness values were estimated when the target was described as not hardworking, and as not having time for others; higher conservation values were estimated when the target was described as hardworking, and finding time for others. This impact on a broad set of values may explain why participants also inferred higher value similarity when the target was described as being more hardworking or as having more time for others. Not only did the pattern of effects for both value dimensions showed the reciprocal relations between self-transcendence and self-enhancement values as predicted by Schwartz (1992), the enhancement of self-transcendence values and of openness values is consistent with the most common prioritization of values in nations around the world (Bardi et al., 2009). Thus, the value shifts may have made the target seem more similar to the participants' values as a set.

At the same time, the target descriptions led to specific impressions of the target in terms of warmth and competence. The target was considered warmer when described as finding time for other people, and perceived as more competent when described as hardworking. Given these effects on top of the effects on perceptions of the target's values

and value similarity, it is not surprising that the descriptions caused participants to see more similarity overall.

Given this plethora of effects of the descriptions, an interesting question was whether the effects of the target descriptions on liking were mediated by perceptions of values, traits, value similarity, and/or overall similarity. Mediation analyses of the perceptions of values alongside the perceived traits revealed that the hardworking target was perceived as endorsing more self-enhancement values, and this perception decreased liking for the target. Thus, there was good support for a mediating role of self-enhancement values (in the effect of information about the target's work ethic), but no support for a mediating role of self-transcendence values.

The results of the analysis of similarity of the target to the self were mixed. Although similarity in self-enhancement values mediated the relationship between the information describing the target as hardworking and liking the target, similarity in self-transcendence values did not mediate the relationship between the information describing the target as having time for others and liking. When value similarity was considered as an overall index (correlation), it only mediated the relationship between having time for others and liking, but not between being hardworking and liking. Both mediations were significant when overall self-target similarity was assessed through the single-item rating measure. Therefore, the overall perception of similarity had stronger mediating role than specific similarity (value dimensions or value overall score).

Of interest, there was little impact of asking the participants to imagine meeting the target either on a date or at work, although there was an interaction indicating that, in the dating context, the target was liked more when he had time for others, regardless of being hardworking or not. Despite this interaction, the direction and magnitude of effects for the

attributes was remarkably similar across both contexts. For this reason, the role of context was not examined in the mediational analyses described above.

Study 4

This experiment aimed at replicating the effects of the previous experiment using different personality attributes for the target. The experiment followed the same design and procedure of Study 3. The only modification was a change in the attributes from having time for others to generosity (generous vs. not very generous) and from hardworking to competitiveness (very competitive vs. not very competitive). These new traits were intended to elicit self-transcendence and self-enhancement values, as in Study 3. The change in traits was therefore intended to help test the conceptual replicability of the effects in Study 3.

The analyses also followed the same procedure. After establishing the effects of the attributes and the context manipulation on general liking and all of the putative mediators (values, value similarity, overall similarity), a series of mediation analyses were conducted, using a multiple mediator model to test two pathways, one through either perception of warmth or perception of competence, and the other through either target's estimated values or value similarity.

Method

Participants

To reach a medium effect size as was revealed in Study 3, I required 158 participants within four weeks of advertisement in the university notice board. Exactly this number took part in return for a prize draw. However, 37 participants were excluded for not following the instructions, leaving a final sample of 121 participants. Their ages ranged between 18 and 66 years ($M = 28$, $SD = 10.96$), most were single (75%) or in a civil union/married (12%).

Design and materials

The same design and measures as in Study 3 were used. The experiment followed a 2 (Generous: high vs. low) X 2 (Competitive: high vs. low) X 2 (Context: dating vs. working) design. Each participant read one of the eight possible combinations between the attribute and value factors.

Jamie is generous, and is very competitive.

Jamie is not very generous, and is very competitive.

Jamie is generous, and is not very competitive.

Jamie is not very generous, and is not very competitive.

Jamie is very competitive, and is generous.

Jamie is not very competitive, and is generous.

Jamie is competitive, and is not generous.

Jamie is not very competitive, and is not generous.

As in Study 3, the internal consistency scores for the measures were lower for the participants' value types in the PVQ-21 (Schwartz et al., 2001) ($\alpha_{\text{Power}} = .37$, $\alpha_{\text{Achievement}} = .71$, $\alpha_{\text{Hedonism}} = .66$, $\alpha_{\text{Stimulation}} = .74$, $\alpha_{\text{Self-direction}} = .47$, $\alpha_{\text{Universalism}} = .41$, $\alpha_{\text{Benevolence}} = .57$, $\alpha_{\text{Tradition}} = .48$, $\alpha_{\text{Conformity}} = .73$, $\alpha_{\text{Security}} = .32$) than for the participants' higher-order value domains ($\alpha_{\text{Self-enhancement}} = .68$, $\alpha_{\text{Self-transcendence}} = .75$, $\alpha_{\text{Openness}} = .61$, $\alpha_{\text{Conservation}} = .71$). Reliability was also lower for the ratings of the target's 10 value types ($\alpha_{\text{Power}} = .72$, $\alpha_{\text{Achievement}} = .93$, $\alpha_{\text{Hedonism}} = .71$, $\alpha_{\text{Stimulation}} = .81$, $\alpha_{\text{Self-direction}} = .67$, $\alpha_{\text{Universalism}} = .85$, $\alpha_{\text{Benevolence}} = .88$, $\alpha_{\text{Tradition}} = .48$, $\alpha_{\text{Conformity}} = .59$, $\alpha_{\text{Security}} = .55$) than for the target's higher-order value domains ($\alpha_{\text{Self-enhancement}} = .91$, $\alpha_{\text{Self-transcendence}} = .87$, $\alpha_{\text{Openness}} = .91$, $\alpha_{\text{Conservation}} = .73$). Along with my *a priori* focus on the higher-order values, this difference in reliability again justified the focus on the higher value domains. Internal consistency was high for the measures of liking ($\alpha = .94$), warmth ($\alpha = .90$), and competence ($\alpha = .90$).

Results

Effects on Values

The importance of the target's estimated values (self-transcendence, self-enhancement, openness and conservation) was analysed in a 2 (Generous: high vs. low) X 2 (Competitive: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA.

Regarding the target's estimated self-transcendence values, there were significant main effects of both attributes: generous, $F(1, 113) = 194.82, p < .001, \eta_p^2 = .63$, and competitive, $F(1, 113) = 80.82, p < .001, \eta_p^2 = .42$. The target was perceived as endorsing more self-transcendence values when he was described as generous ($M = .63, SD = .86$) than when he was described as not very generous ($M = -1.03, SD = .83$), and when he was described as not very competitive ($M = .36, SD = 1.08$), compared to when he was described as competitive ($M = -.72, SD = 1.04$).

For the target's estimated self-enhancement values, there was a significant main effect of the attribute generous, $F(1, 113) = 57.77, p < .001, \eta_p^2 = .34$, and of the attribute competitive, $F(1, 113) = 248.15, p < .001, \eta_p^2 = .69$. The target was perceived as endorsing self-enhancement values more strongly when he was described as not being very generous ($M = .93, SD = 1.22$) than generous ($M = -.07, SD = 1.25$). He was also seen as endorsing these values more strongly when he was described as being competitive ($M = 1.4, SD = .67$), in comparison to being described as not very competitive ($M = -.63, SD = 1.03$),

For target's estimated openness values, there were main effects of the attribute generous, $F(1, 113) = 10.97, p = .001, \eta_p^2 = .09$, and of the attribute competitive, $F(1, 113) = 79.38, p < .001, \eta_p^2 = .41$). The target described as not very generous ($M = .25, SD = .82$) and competitive ($M = .55, SD = .67$) was perceived as possessing more openness values than the target described as generous ($M = -.13, SD = .78$) and not very competitive ($M = -.47, SD = .61$).

Finally, the ANOVA revealed a significant main effect of generous, $F(1, 113) = 6.5, p = .012, \eta_p^2 = .05$, and of competitive, $F(1, 113) = 193.38, p < .001, \eta_p^2 = .63$, on the target's estimated conservation values. Higher conservation values were estimated when the target was described as not generous ($M = -.03, SD = .91$) and not competitive ($M = .60, SD = .54$), and lower conservation values were estimated when the target was described as generous ($M = -.28, SD = .92$) and competitive ($M = -.84, SD = .61$).

Effects on Liking

Liking for the target (general, working, dating) was analysed in a 2 (Generous: high vs. low) X 2 (Competitive: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA.

General liking was affected by the attribute generous, $F(1, 113) = 252.59, p < .001, \eta_p^2 = .69$, by the attribute competitive, $F(1, 113) = 6.46, p = .012, \eta_p^2 = .05$, and by context, $F(1, 113) = 7.40, p = .008, \eta_p^2 = .06$. The target was liked more when he was described as generous ($M = 5.8, SD = .88$) than when he was described as not generous ($M = 3.4, SD = .86$), when he was described as not competitive ($M = 4.8, SD = 1.47$) than when he was described as competitive ($M = 4.4, SD = 1.47$), and in the working context ($M = 4.8, SD = 1.53$) than in the dating context ($M = 4.4, SD = 1.42$).

Potential enjoyment of working was affected by the attribute generous, $F(1, 113) = 126.80, p < .001, \eta_p^2 = .53$, and by context, $F(1, 113) = 4.58, p = .034, \eta_p^2 = .04$. Higher potential enjoyment working was estimated when the target was described as generous ($M = 5.2, SD = 1.22$) than when he was described as not generous ($M = 2.8, SD = 1.25$), and in the working context ($M = 4.2, SD = 1.75$) than in the dating context ($M = 3.8, SD = 1.71$).

Finally, potential enjoyment dating with the target was affected by the attribute generous, $F(1, 113) = 159.86, p < .001, \eta_p^2 = .59$. Higher potential enjoyment dating the

target was estimated when he was described as generous ($M = 4.9$, $SD = 1.41$) than when he was described as not generous ($M = 2.1$, $SD = 1.00$).

Effects on Value Similarity

The importance of the target's estimated values was analysed in 2 (Generous: high vs. low) X 2 (Competitive: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA for perceived value similarity. Results indicated main effects of the attributes: generous, $F(1, 113) = 45.62$, $p < .001$, $\eta_p^2 = .29$, and competitive, $F(1, 113) = 4.91$, $p = .029$, $\eta_p^2 = .04$. These effects were qualified by a two-way interaction between these two attributes, $F(1, 113) = 16.01$, $p < .001$, $\eta_p^2 = .12$. As shown in Figure 10, and tested through simple comparisons, the target described as generous and not competitive was perceived with more similar values than the target described as generous and competitive, $F(1, 58) = 22.23$, $p < .001$. In contrast, when the target described as not generous, there was no significant difference in perceived value similarity whether he was also described as competitive or not competitive, $F(1, 59) = 1.47$, $p = .230$.

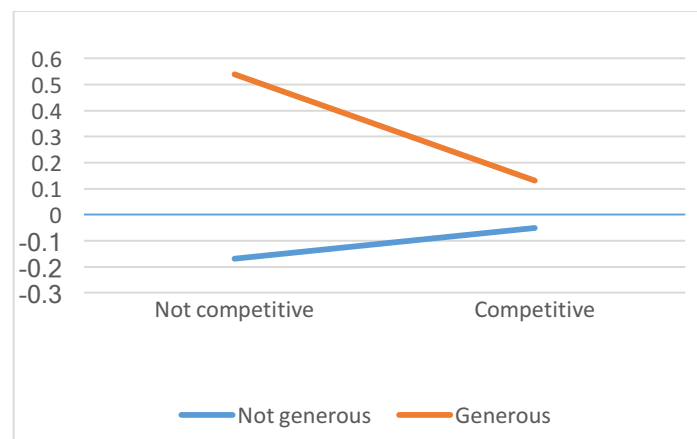


Figure 10. *Interaction between competitive and generous on value similarity*

Effects on Warmth and Competence

Finally, target's estimated warmth and competence were analysed in a 2 (Generous: high vs. low) X 2 (Competitive: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA.

Target's warmth was affected by the attribute generous, $F(1, 120) = 188.15, p < .001, \eta_p^2 = .63$, and by the attribute competitive, $F(1, 120) = 15.59, p < .001, \eta_p^2 = .12$. The target was perceived as warmer when he was described as generous ($M = 5.6, SD = .12$) compared to when he was described as not very generous ($M = 3.3, SD = .12$), and as not very competitive ($M = 4.8, SD = .12$) than when he was described as competitive ($M = 4.1, SD = .12$). There was also a significant two-way interaction between these two variables, $F(1, 120) = 4.60, p = .034, \eta_p^2 = .04$. As shown in Figure 11, when the target was described as not very generous, the differences between competitive and not competitive were smaller than when he was described as generous. However, the figure shows that the main effects are large in comparison to this attenuation.

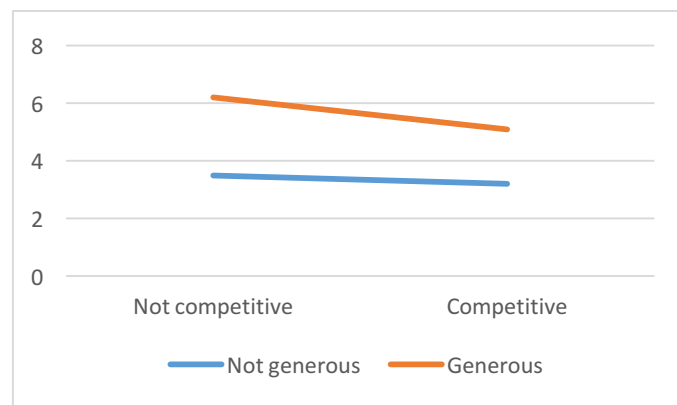


Figure 11. Interaction of competitive and generous on warmth

The target's estimated competence was significantly affected by the attributes generous, $F(1, 120) = 45.38, p < .001, \eta_p^2 = .29$, and competitive, $F(1, 120) = 23.59, p < .001, \eta_p^2 = .17$. Participants estimated higher target competence following the attribute generous ($M = 5.5, SD = .12$) than not generous ($M = 4.4, SD = .12$), and competitive ($M = 5.4, SD = .12$) than not competitive ($M = 4.6, SD = .12$).

Effects on Overall Similarity

The importance of the target's estimated values was analysed in a 2 (Generous: high vs. low) X 2 (Competitive: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA for perceived value similarity. Results indicated only a main effect of generous, $F(1, 113) = 106.41, p < .001, \eta_p^2 = .49$, and a significant two-way interaction between generous and context, $F(1, 113) = 7.91, p = .006, \eta_p^2 = .07$. As shown in Figure 12, the target described as generous was perceived as equally similar in both contexts, $F(1, 58) = 3.16, p = .080$, whilst the target described as not generous was perceived as more similar in the working context than in the dating context, $F(1, 59) = 4.48, p = .038$.

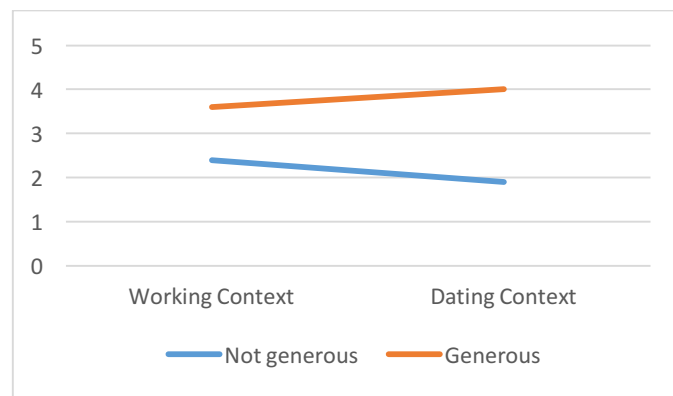


Figure 12. Interaction of competitive and generous on overall similarity

Mediation analysis

The PROCESS procedure for SPSS (Hayes, 2013, model 4) was used for all the analyses. First, I tested the effect of the attributes (not very generous vs. generous and not very competitive vs. competitive) on liking with two mediators (M_1 = estimated target's value or value similarity, and M_2 = warmth or competence). The attributes were dummy coded: with 0 for not generous vs 1 for generous and 0 for not competitive vs 1 for competitive. Liking was the outcome variable in all analyses, assessed by the general attitudes. The significance of the two indirect paths was determined using 95% bias-

corrected and accelerated confidence intervals with 5,000 bootstrap resamples. The results from these analyses are shown in Table 6, and the main findings are summarised below.

The first mediation model tested the indirect effect of generous on liking through the target's estimated self-transcendence values and warmth. As shown in Table 6, the attribute generous significantly predicted both mediators, and these significantly predicted liking. Both the direct and the total effect were also significant. Therefore, the confidence intervals of the indirect effects did not include zero, indicating significant mediation. When the target was described as generous, he was perceived as giving more importance to self-transcendence values and as warmer, increasing liking.

The attribute competitive significantly and positively predicted the target's estimated self-enhancement values and perception of competence. The target's estimated self-enhancement values negatively predicted liking, whilst target's competence predicted liking in a positive direction. The direct effect of the attribute competitive on liking was significant, but the total effect was not. The confidence intervals of the indirect effects did not include zero. The target was liked less when perceived with higher self-enhancement values, but liked more when perceived as competent.

Regarding the mediating role of value similarity in self-transcendence and self-enhancement, they did not mediate the relationship between the attributes (generous or competitive) and liking. However, similarity in self-transcendence values predicted liking, and similarity in self-enhancement did not.

Finally, four models tested whether overall similarity mediated the effect of the attributes on liking. Overall value similarity based on the Fischer's transformation of the correlation between participants' values and the target's estimated values only mediated the effect of the attribute generous on liking. When the target was described as generous, he was perceived with a similar value profile and liked more. Similar results were found for

subjective ratings of overall similarity (single item): the mediation was only significant for the attribute generous, and in the same direction as the mediating role of overall value similarity.

Discussion

Using different personality descriptors to manipulate the target's values, Study 4 obtained results similar to those of the previous study. In fact, the descriptors influenced a wider range of values than before, but in a manner consistent with Schwartz's (1992) model of values. For instance, participants saw the generous target as possessing stronger self-transcendence values *and* weaker self-enhancement values than the target described as not generous. Conversely, participants saw the competitive target as possessing weaker self-transcendence values *and* stronger self-enhancement values than the target described as not competitive. These reciprocal effects fit Schwartz's model, but they also showed that each attribute affected two sets of values on opposing ends of the same dimension, while also influencing orthogonal values (openness and conservation) in Schwartz's model. Perceptions of warmth and competence influenced in a similar manner, and like Study 3, context did not have a strong moderating impact on impression formation and liking.

Of interest, the participants' estimates of the targets' values were significant mediators of the effects of the attributes on liking, independently of the estimates of the target's warmth and competence. At the same time, Study 4 replicated the mediating effects of warmth and competence that were found in Study 3. That is, when the target was described with a self-transcendence attribute, he was perceived as warmer, and this perception elicited more liking; when he was described with a self-enhancement attribute, he was perceived as more competent, and this perception elicited more liking.

Table 6. Models of the indirect effect of the attributes on liking through target's estimated values, and through value similarity

Y	X	M ₁	M ₂	B (SE) X on M ₁	B (SE) X on M ₂	B (SE) M ₁ on Y	B (SE) M ₂ on Y	B (SE) Direct effect X on Y	B (SE) Total effect X on Y	95% IC M ₁ ¹	95%IC M ₂ ¹
L	Ge	ST _e	W	1.66 (.15)***	2.32 (.18)***	.25 (.07)**	.50 (.06)***	.84 (.19)***	2.39 (.16)***	[.11, .78]	[.54, 1.86]
L	Co	SE _e	C	2.03 (.16)***	.78 (.19)***	-.79 (.12)***	.58 (.10)***	.73 (.33)*	-.42 (.27)	[-2.19, -1.06]	[.22, .76]
L	Ge	ST _c	-	.48 (.32)	-	.09 (.04)*	-	2.35 (.16)***	2.39 (.16)***	[-.01, .10]	-
L	Co	SE _c	-	.39 (.34)	-	.14 (.07)	-	-.47 (.27)	-.42 (.27)	[-.10, .13]	-
L	Ge	Vsim	-	.44 (.07)***	-	.72 (.19)***	-	2.08 (.17)	2.39 (.16)***	[.16, .56]	-
L	Co	Vsim	-	-.15 (.08)	-	1.84 (.26)	-	-.15 (.23)	-.42 (.27)	[-.58, .02]	-
L	Ge	Sim	-	1.60 (.16)***	-	.35 (.08)	-	1.84 (.20)	2.39 (.16)***	[.30, .86]	-
L	Co	Sim	-	.02 (.22)	-	.87 (.08)***	-	-.43(.19)	-.42 (.27)	[-.35, .40]	-

L=Liking, W = Warmth, C = Competence, ST_e = Target's estimated Self-transcendence values, SE_e = Target's estimated Self-enhancement values, ST_c = correlation between ST scores, SE_c = correlation between SE scores, Vsim = correlation between all values, Sim = single-item similarity.

¹ 95% confidence interval of the indirect effect with 5000 bootstrapping.

* p < .05, ** p < .01, *** p < .001

The mediating role of perceived value similarity differed from Study 3, however. In Study 3, similarity on self-enhancement values and overall perception of similarity mediated the effects of the attributes on liking, but in this experiment, similarity in self-transcendence values mediated the effects, but similarity in self-enhancement did not. Overall value similarity and the overall perception of similarity mediated the effect of the self-transcendence attribute (generous) on liking, but the mediation for the self-enhancement values were not significant.

It may be the case that the mediating role of the values varied because of the strong reciprocal effects of the attributes on the opposing ends of the self-transcendence-self-enhancement value dimension. This reciprocal impact was not as marked in Study 3, which used different trait attributes. The attributes used in Study 3 (time for others, hardworking) may not have been as powerful in conveying self-transcendence and self-enhancement as the traits used in Study 4 (generous, competitive), resulting in more covariance between the effects on values in Study 4. Of course, this suggestion is speculative and requires further testing, but it is useful that Study 4 provided a conceptual replication capable of revealing this possibility.

Notwithstanding this difference in the role of self-transcendence and self-enhancement values, the principal findings of Study 4 replicate those in Study 3. The value-related attributes elicited more liking, perceptions of target values and value similarity elicited more liking, and the perceptions of trait warmth and competence mediated the effects of the attributes on liking (independently of the role of values). Together, these results affirm the importance of modelling the effects of specific trait attributes on values and on the warmth and competence trait dimensions.

Chapter Discussion

The research presented in this chapter investigated the role of inferred value similarity on liking and potential mediators of this relationship. Warmth and competence were selected as mediators due to their importance for social perception. Another tested mediator was perceived similarity. The main findings of the studies are discussed below.

Effects of Inferred Values

Using personality attributes to express higher order values proved to be a valid and efficient strategy. First of all, when manipulating attributes to represent high and low levels of self-transcendence and self-enhancement, participants inferred the target's values according to the predicted patterns of Schwartz (1992) model. In both studies, the attributes representing self-transcendence values led to higher estimation of the target's self-transcendence values, and the attributes representing self-enhancement values led to higher estimation of the target's self-enhancement values. Schwartz (1992) argues that these two higher order values serve opposing motives: people guided by self-transcendence values are concerned about welfare and wellbeing of others, whereas people oriented by self-enhancement values pursue self-interests. This opposition was clearly observed in both studies. For instance, when the high level of a self-transcendence attribute was presented, participants estimated that this target had high self-transcendence and low self-enhancement values. Similarly, when the high level of a self-enhancement attribute was presented, the target was perceived with higher self-enhancement values, and lower self-transcendence values. These results also challenge Trapnell and Paulhus's (2012) model, which assumes that these values do not oppose each other.

Although I was not interested in the effect of the attributes in the openness and conservation values, results indicated that they were also affected, although in a different way in each study. Considering that Schwartz (1992) assumed that values are organised in a

quasi-circumplex structure representing a motivational continuum, it is not a surprise that openness and conservation values were affected, because they are both located between self-transcendence and self-enhancement values, thus sharing common motivations with both. In Study 3, higher openness values were estimated for the target described as finding time for others (high self-transcendence) and not very hardworking (low self-enhancement). In Study 4, higher openness values were estimated for the target described as not generous (low self-transcendence) and not competitive (high self-enhancement). Regarding conservation values, results were also different across the two studies. The target described as not having time for others (low self-transcendence) and hardworking (high self-enhancement) was perceived as endorsing more conservation values in Study 3. In Study 4, higher conservation values were inferred for the target described as not very generous (low self-transcendence) and not competitive (low self-enhancement). Thus, the results regarding the values that were not manipulated did not follow the pattern of oppositions predicted by Schwartz (1992) model. However, this result should not be considered a limitation of the theory without direct testing using appropriate attributes to represent openness and conservation values.

Finally, regarding the effects of inferred values on liking, the target's estimated self-transcendence values did not mediate the relationship between finding time for others and liking (Study 3), but mediated the relationship between generous and liking. The target described as generous was perceived as endorsing more self-transcendence values and was liked more. Whereas target's estimated self-enhancement values mediated the relationship between hardworking and liking (Study 3), and between competitive and liking (Study 4). In both studies, when the target was described with the high level of the self-enhancement attribute, he was perceived as endorsing more such values, and this perception decreased liking. This result contradicts assumptions that all values are positive (Gouveia et al., 2014, Parks & Guay, 2009), at least in terms of interpersonal perception. It would be interesting to

investigate whether people would like themselves less when confronted with their own self-enhancement values, or if this is the case only for perceiving others, because this has an implication in terms of perceived warmth and competence.

Effects of Perceived Similarity

In line with expectations, both studies found that perceived similarity increases liking. Similarity was measured in three ways: similarity in the relevant value dimension (self-enhancement, self-transcendence, openness, or conservation), overall value similarity, and overall perception of similarity. Study 3 found that similarity in self-enhancement mediated the effect between the self-enhancement attribute (hardworking) and liking; similarity in self-transcendence did not mediate the relationship between the self-transcendence attribute (finding time for others) and liking. Overall, value similarity was not a significant mediator for either attribute, but it significantly predicted liking.

Results of Study 4 were slightly different regarding the effect of similarity, but still congruent with the findings of Study 3. Similarity in the specific value dimensions was not a significant mediator of the relationship between the attribute and liking, and only similarity in self-transcendence predicted liking, whilst in Study 3, perceived similarity in self-enhancement was a significant mediator. Regarding the effect of overall value similarity, it only mediated the effect between the self-transcendence attribute (generous) and liking, but it was not significant for the self-transcendence attribute (competitive) and liking.

Studies 3 and 4 found the same results for overall perception of similarity: it consistently mediated the relationship between the attributes and liking. Results of these first two experiments indicated that a global evaluation of similarity appears to be stronger than a specific evaluation. These results showed that a global perception of similarity has stronger effects for liking than a more specific similarity, such as in one value dimension, even if this dimension is relevant. It is important to highlight that this result is not a statistical artefact

due to different set sizes. Although this artefact could explain the role of overall value similarity, because it is more precisely estimated through 21 value items than the specific value domain estimates relying on only 4 items, it cannot explain the more consistent findings from the single-item measure of global subjective overall similarity. The key difference is the role of participants' own inferences about similarity in the latter item, whereas the experimenter calculates the value similarity estimates. Thus, the role of participants may be drawing upon information more closely related to their attitudes when judging similarity.

Byrne (1971) would argue that actual similarity is critical for attraction (liking). However, the results presented in this chapter favour the claim that the *belief* about the degree to which one is considered to be similar suffices to produce liking (e.g., Hoyle, 1993; Ptacek & Dodge, 1995). Although the results cannot be extrapolated to real life interactions or existing relationships, they reinforce the importance of perceived similarity in interpersonal liking. For instance, Buunk and Bosman (1986) observed nonsignificant correlations between actual similarity and attraction in married couples. Hence, researchers should always consider assessing perceived similarity both in no-interaction and interaction designs, either for existing or non-existing relationships.

The Role of Warmth and Competence

Warmth and competence are two dimension that play an important role in person and group perception (Fiske et al., 2007). It is vital to identify a person's intention and capacity to do us good or harm. Therefore, it was expected that, when the target was perceived as warmer or as more competent, he would be liked more than a colder and incompetent target. This is exactly what was found across both experiments.

These results are not a surprise, considering the extant research demonstrating warmth and competence as two dimensions that emerge in social perception (e.g., Asch, 1946; Bales,

1950; Rosenberg et al., 1968). However, the present experiments are the first to test these effects alongside a manipulation of perceived values. Some past research has found that values are more important than traits in political judgments (Maio, 2016), but there has been no evidence about their relative role in person judgments. The SCM provides two universal dimensions on social cognition, and Trapnell and Paulhus (2012) showed that these dimensions are relevant to values.

The Role of Context

The role of the situational context was also explored in these studies, because, as indicated by Montoya and Horton (2014), a person's interpersonal goals might depend on the situation. Participants were asked to imagine that they could either work with the target on a project or go on a date with him. Results for this manipulation were not very consistent. In Study 3's dating context, general liking was not affected by whether the target was described as hardworking or not hardworking when he had time for others. In Study 4, only a main effect was found, and the target was liked more in the working context. In both studies, the main effects of the attributes were far more robust than the interactions, which failed to reduce the main effects to nonsignificant simple effects.

On the surface, these results may seem to contradict evidence that goal instrumentality shapes the evaluation of others (Fitzsimons & Shah, 2008, Fitzsimons & Shah, 2009). Fitzsimons and Shah (2009), for instance, demonstrated that people spontaneously categorize others in terms of their instrumentality to a goal. "Instrumental" people are useful for an active goal, whereas "noninstrumental" people are not useful for the active goal. The studies presented in this chapter intended to activate different goals, either going on a date or working with the person. This enabled me to test whether, when the dating goal was activated, some traits would be preferred (e.g., self-transcendence traits), whilst for a working goal, different traits would be liked more (e.g., self-transcendence). The results

revealed no consistent impact of these goals on the similarity-liking effect, but this may be due to the design of the studies. In particular, the goal was imagined and not real for the participants. As this test was just an exploratory element of the studies, I did not attempt to create vivid, real-life dating and working situations. If the context had been important in the imagined contexts, there would have been provocative evidence to pursue this design. As it stands, this realistic design still merits pursuit, but the present findings show that the direct and powerful role of values in perceived similarity, person perception (warmth and competence) and liking merits consideration independent of the role of context. Future studies could design experiments focusing specifically on the influence of active goals for the values-similarity-liking effect.

Limitations and Future Directions

The results presented in this chapter showed interesting evidence of the similarity-liking effect for human values, and provided an alternative paradigm to study this phenomenon. The paradigm is more natural than the one used by Byrne (1971), and proved itself to be extremely useful to manipulate value similarity without falling into the issue of creating value profiles that are not plausible, as discussed in Chapter 2.

Nevertheless, some limitations should be taken in consideration. Perhaps the most prominent limitation concerns the sample used. Both studies included female participants and no male participants. Montoya and Horton's (2012) meta-analysis found that, for women, the similarity-liking effect tends to be stronger when the target has the same gender. This was not the case in these studies, although the gender (male) of the target was only made explicit in Study 3. Hence, the effects found might have been influenced by the gender of the participant and the target. Moreover, some of the participants reported being in a relationship. Although removing them from the analyses did not change the results in any significant way, it would be ideal to consider only single participants when a dating context is

part of the manipulation. There is also room to further examine the effects of value similarity on liking using a sample of participants in existing relationships or relationships that are just starting.

It is also not possible to disentangle the similarity effects from possible positivity effects in this design. There is an inherent positivity with which people consider themselves (Montoya & Horton, 2004) thus, it is reasonable to assume that people would infer favourable information about a similar target, because they see themselves in a positive way (Ajzen, 1974). By focusing on values, my studies did not attempt to vary the positivity of the information implied by the traits. Part of the effects of value similarity may arise because of shared positive attributes. To me, this shared positivity is an interesting conceptual component of potential similarity effects and not one I wished to isolate at this stage. Nonetheless, further investigation could examine the role of shared positivity by examining perceiver's self-esteem and their perceptions of the valence of the targets' values.

Another issue was the reliability of the values measure. Past research has already noted that the reliability can be low because most dimensions are evaluated only with two items (see Schwartz, 2005; Versakalo, Lonqvist, Lipsanen, & Helkama, 2009). Apart from the reliability of self-direction in Study 3, the other dimensions' reliabilities were congruent with previous findings (e.g., Versakalo et al., 2009). Future research could include Schwartz's revised values model as a way of attempting to boost measurement reliability.

Moreover, the studies only focused on the self-transcendence and self-enhancement opposition of Schwartz (1992) model, because they are directly relevant for the warmth and competence dimensions. The effects found for the openness and conservation dimensions are an indication that they could also be relevant and provide information regarding warmth and competence. This issue should also be explored in future studies.

Conclusion

In sum, the studies presented in this chapter provide novel evidence for the role of values in interpersonal attitudes, while demonstrating a mechanism that has not been explored previously. Combining the use of personality descriptors to manipulate value similarity appears to be an efficient means to study the effects of values. Moreover, it is important to take in consideration that similarity in values is not the only element in interpersonal perception; the consideration of warmth and competence provides a clearer picture of the underlying mechanism.

Chapter 4

The Role of Inferred Similarity of Conservation and Openness Values on Liking

Chapter 4 Summary

Chapter 3 manipulated the presence or absence of traits representing self-transcendence and self-enhancement values in order to examine the effects of these descriptors on interpersonal attitudes, as well as perceptions of target warmth and competence. This focus on self-transcendence and self-enhancement values was a useful starting point for looking at effects of values on interpersonal attitudes, but it is also important to examine the effect of value-laden personality descriptors representing conservation and openness values. Two studies addressed this issue using the same design and procedure as for Studies 3 and 4. Results in both studies again indicated that the presence of the value-affirming traits increased liking for the target and perceived similarity to the target. Both studies also found that the descriptors of openness and conservation affected warmth and competence, although warmth was affected only by the conservation attribute in Study 6. There was no consistent evidence for a mediating role of value similarity in the relationship between the attribute and liking across studies, but the overall perception of similarity did act as a mediator between the attribute and liking. These findings support and extend the results from the previous experiments, and provide further evidence of how values are related to the dimensions of warmth and competence.

The studies presented in Chapter 3 extended the findings regarding the similarity-liking effect for values. They demonstrated that the manipulation of personality attributes to represent the opposition of self-transcendence and self-enhancement values produced impressions of the target's values and traits and that these perceptions predicted inferred similarity and liking for the target. Considering the results from Studies 1 and 2, which showed that value similarity elicited judgments of greater warmth and competence, Studies 3 and 4 tested the values that are most directly relevant for these two dimensions. Of interest, however, the manipulations of self-transcendence and self-enhancement attributes produced impressions of conservation and openness values as well. The present chapter aims to further investigate how conservation and openness attributes affect perceptions of a target. The chapter describes two studies examining the effects of these attributes on perceptions of the target's values, traits (warmth and competence), and how these perceptions affect inferred value similarity and liking for the target.

Conservation and Openness Values

Schwartz's (1992) theory of basic human values defines them as trans-situational goals that guide individuals' actions. As described in Chapter 1, the content of values refers to the motivational goals that they express. Two dimensions contrast different motivational goals between higher-order value domains: self-transcendence vs. self-enhancement, and openness vs. conservation. Chapter 3 explored the opposition between self-transcendence and self-enhancement values. The present chapter investigates the opposition between conservation and openness values.

According to Schwartz et al. (2012), openness values represent the pursuit of new ideas and experience, and are comprised of self-direction, stimulation, and to a lesser degree, hedonism values. Self-direction values represent the need for independency and autonomy. Schwartz et al. (2012) propose dividing self-direction into independence of thought and

action. Autonomy of thought refers to the use of one's own intellectual competence, and the autonomy of action refers to the ability to attain self-chosen goals. Individuals guided by self-direction do not rely on other people's judgments, because their own sense of competence is intrapersonal. They like to form their own opinion and make their own choices, and often will engage in activities that express creativity.

Self-direction values share common motivations with stimulation values. Stimulation values are located in between self-direction and hedonism values, having compatible motivations with both. Stimulation values express the desire for excitement, novelty, and challenge (Schwartz, 2012). People endorsing these values seek an exciting and varied life. It is expected that people higher on these values are more likely to exhibit risk taking behaviours and higher levels of the personality characteristic of sensation seeking (Zuckerman, 1994). Typically, individuals endorsing these values are looking for activities to provide the level of arousal to satisfy the need for stimulation.

This aspect of stimulation values is similar to the functioning of hedonism values, which share elements of openness and self-enhancement (Schwartz & Rubel, 2005; Schwartz & Sagie, 2000). They represent the need for pleasure and gratification. Hence, people who endorse these values normally will engage in activities aiming at life enjoyment and personal satisfaction. These aims are compatible with stimulation and achievement values.

In contrast, conservation values serve the maintenance of status quo and avoidance of threat. This value domain encompasses the value types of security, tradition, and conformity (Schwartz et al. 2012). Security values refer to motivational goals of safety, harmony, and stability, involving either the individual or the group (see also Schwartz et al., 2012). These values are located between power and tradition. Tradition values express respect for and acceptance of customs and ideas from the culture or religion, whereas conformity values represent the control of impulses and restraint of actions in order to avoid upsetting others or

violating expectations and norms. People who attach high importance to conformity values will try to behave properly and to comply with rules, law, and authority.

Relationship of Conservation and Openness Values with Warmth and Competence

In the previous studies, I focused on the self-transcendence values linked to communion and the self-enhancement values linked to agency. I briefly discussed Trapnell and Paulhus's (2012) proposition that there are two superordinate dimensions that organize values, traits, motives, and behaviour. One dimension is called community, and it is associated with the maintenance of positive relationships. The other dimension, called agency, is associated with self-advancement. In their analysis of four data sets examining values, they found that these two dimensions are adequate to represent values. Relevant to the present chapter, communion comprised the values of conformity, tradition, security, universalism and benevolence, whereas agency comprised the values of achievement, power, hedonism, and stimulation. Thus, conservation values were related to communion, or warmth, whereas openness values were related to agency, and, therefore, competence.

This model of Trapnell and Paulhus (2012), although pertinent, assumes that communion and agency are orthogonal dimensions, whereas Schwartz's (1992) model considers them opposite ends of the same dimension, opposing self-transcendence versus self-enhancement. The prior chapter focused on these two higher-order value domains, which are not controversial in their connection to warmth and competence. However, the effects on both conservation and openness values in Studies 3 and 4 brings Trapnell and Paulhus's (2012) model back into focus. They commented that their framework was not motivated by a disagreement with the model proposed by Schwartz, it only represents a different way of theoretically representing values. Congruent with the previous chapter, the inclusion of the Schwartz (1992) model is justified considering the evidence for cross-cultural replicability, and support from cross-sectional, longitudinal and experimental paradigms

(Maio, 2010). However, considering Trapnell and Paulhus's evidence of the relationship between conservation and openness values with warmth and competence, it is interesting to further consider the potential connection between conservation and openness attributes and warmth and competence.

Prior research on personality is relevant to this issue. Roccas, Sagiv, Schwartz, and Knafo (2002) investigated the relationship between Schwartz (1992) values and the Five Factor Model of personality, which includes neuroticism, extroversion, openness, agreeableness, and conscientiousness as trait dimensions. Results indicated a positive relationship between (a) extroversion and achievement and stimulation values, (b) agreeableness and benevolence and tradition values, of openness to change with self-direction and universalism values, and (c) conscientiousness with achievement and conformity values. However, more detailed inspection of the results showed that trait warmth, which was an extraversion item, only correlated with benevolence values ($r = .20$). Trait competence, which is a facet of trait conscientiousness, was only related to achievement values ($r = .12$), and with values created to represent conscientiousness ($r = .22$). These findings support the conceptual link between self-transcendence (e.g., benevolence) and self-enhancement values (e.g., achievement) and warmth and competence traits, respectively.

On the other hand, a different pattern was recently obtained in a meta-analysis by Fischer and Boer (2015). They examined 26 samples of participants from studies that used any of the measures developed for the Schwartz (1992) model and a measure of the Big Five personality traits. Results indicated that neuroticism only showed weak associations, compared to the other traits. Extraversion was positively related to openness values and negatively to conservation values. These investigators also observed a positive association between extraversion and self-enhancement values. In addition, openness to experience was negatively related to conservation values and positively related to openness to change values,

while being positively associated with universalism and benevolence values, and negatively with power values. Agreeableness was positively related with tradition and conformity values, and conscientiousness was positively related with conservation values and negatively with openness to change. Unlike the results from Roccas et al. (2002), this meta-analysis indicated that extraversion and conscientiousness have associations with both conservation and openness values.

Extrapolating from these results, it could be expected that conservation values are negatively related to warmth and positively related to competence, whilst openness values are positively related to warmth and negatively related to competence. However, these expectations contradict Trapnell and Paulhus's findings, because they observed that conservation values belonged to communion (i.e., warmth), and openness values belonged to the agency dimension (i.e., competence). Given these contradictions, the relationship between conservation and openness values and warmth and competence remains an important issue. In the context of my paradigm, this entails looking at the impact of openness and conservation-related traits on perceptions of warmth and competence, while looking simultaneously at perceived value similarity and interpersonal attitudes.

The Present Research

Following up on the studies presented in Chapter 3, the present research included two experiments. Both used the same design and procedure as in Studies 3 and 4. Participants first reported their own values, then read a description of a fictional target containing two personality attributes, with each attribute relevant to a different target value. The text described a low or high level of each trait. As a result, each description subsumed one of four value profiles (high value A and value B, high value A and low value B, low value A and high value B, low value A and value B). Each attribute in these experiments represented either the openness or conservation value domain.

That is, the descriptions included traits expressing high conservation and high openness, high conservation and openness, low conservation and high openness and low conservation and low openness. I expected that participants who were presented with descriptions expressing a high level of conservation (i.e., humble) would estimate higher conservation values for the target than when the descriptions expressed a low level of conservation (i.e., not very humble). Similarly, I expected that participants who were presented with descriptions expressing a high level of openness (e.g., adventurous) would estimate higher openness values for the target than participants who were presented with descriptions expressing a low level of openness (e.g., not very adventurous). Considering mixed patterns in the literature, I did not make any predictions regarding warmth and competence. Following the previous studies, I expected that perceived value similarity would increase liking. That is, not only would the target's estimated values predict liking, but similarity between the participants' values and their estimates of the target's values should also predict liking.

Study 5

Study 5 was my first study aimed at testing the effects of specific personality attributes relevant to conservation and openness on the perception of a target's values and attitudes toward the target. I chose the attribute humble to represent conservation and the attribute adventurous to represent openness, because humility and adventurousness appear as values in these domains, respectively.

The analyses also followed the same procedure as in Studies 3 and 4. After establishing the effects of the attributes and the context manipulation on general liking and all of the putative mediators (values, value similarity, overall similarity), a series of mediation analyses were conducted, using a multiple mediator model to test two pathways, one through

either perception of warmth or perception of competence, and the other through either target's estimated values or value similarity.

Participants

To reveal a medium effect size, as was found in Studies 3 and 4, I sought 158 participants within four weeks of advertisement in the university notice board. Exactly this number took part in return for a prize draw. Their ages ranged between 18 and 50 years ($M = 22$, $SD = 5.66$). Most were single (90%).

Design and procedure

The experiment followed a 2 (Humble: high vs. low) X 2 (Adventurous: high vs. low) X 2 (Context: dating vs. working) design. Each participant read one of the four possible combinations between the attribute and value factors, as described below. The order of the attributes was counterbalanced, thus generating another four combinations where the attribute humble appeared first. The gender of the character was not explicit, allowing participants to imagine Sam as either a female or a male.

Sam is adventurous, and is humble.

Sam is not very adventurous, and is humble.

Sam is adventurous, and is not very humble.

Sam is not very adventurous, and is not very humble.

Sam is humble, and is adventurous.

Sam is not very humble, and is adventurous.

Sam is humble, and is not very adventurous.

Sam is not very humble, and is not very adventurous.

As in Study 3 and Study 4, the internal consistency scores for the measures in the PVQ-21 (Schwartz et al., 2001) were lower for the participants' value types ($\alpha_{\text{Power}} = .37$, $\alpha_{\text{Achievement}} = .71$, $\alpha_{\text{Hedonism}} = .66$, $\alpha_{\text{Stimulation}} = .74$, $\alpha_{\text{Self-direction}} = .47$, $\alpha_{\text{Universalism}} = .41$, $\alpha_{\text{Benevolence}}$

= .57, $\alpha_{\text{Tradition}} = .48$, $\alpha_{\text{Conformity}} = .73$, $\alpha_{\text{Security}} = .32$) than for the participants' higher-order value domains ($\alpha_{\text{Self-enhancement}} = .70$, $\alpha_{\text{Self-transcendence}} = .59$, $\alpha_{\text{Openness}} = .71$, $\alpha_{\text{Conservation}} = .69$). Reliability was also lower for the ratings of the target's 10 value types ($\alpha_{\text{Power}} = .70$, $\alpha_{\text{Achievement}} = .83$, $\alpha_{\text{Hedonism}} = .72$, $\alpha_{\text{Stimulation}} = .97$, $\alpha_{\text{Self-direction}} = .72$, $\alpha_{\text{Universalism}} = .81$, $\alpha_{\text{Benevolence}} = .78$, $\alpha_{\text{Tradition}} = .49$, $\alpha_{\text{Conformity}} = .86$, $\alpha_{\text{Security}} = .82$) than for the target's higher-order value domains ($\alpha_{\text{Self-enhancement}} = .87$, $\alpha_{\text{Self-transcendence}} = .87$, $\alpha_{\text{Openness}} = .91$, $\alpha_{\text{Conservation}} = .85$). Along with my *a priori* focus on the higher-order values, this difference in reliability again justified the focus on the higher value domains. Internal consistency was high for the measures of liking ($\alpha = .89$), warmth ($\alpha = .82$), and competence ($\alpha = .88$). These are congruent with the reliabilities reported in previous studies (Schwartz, 2005; Versakalo et al., 2009).

Results

Effects on Values

The importance of each of the target's estimated higher-order values (conservation, openness, self-transcendence, self-enhancement) was analysed in a 2 (Humble: high vs. low) X 2 (Adventurous: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. For the target's estimated openness values, there were significant main effects of the attributes humble, $F(1, 150) = 51.19, p < .01, \eta_p^2 = .25$, and adventurous, $F(1, 150) = 445.94, p < .01, \eta_p^2 = .75$. The target was perceived as endorsing more openness values when he was described as not humble ($M = .64, SD = 1.30$) compared to when he was described as humble ($M = -.12, SD = 1.32$), and when he was presented as adventurous ($M = 1.35, SD = .74$) than when he was presented as not adventurous ($M = -.90, SD = .78$).

There were significant main effects of humble, $F(1, 150) = 121.49, p < .01, \eta_p^2 = .45$, and adventurous, $F(1, 150) = 407.04, p < .01, \eta_p^2 = .73$, on the target's estimated conservation values. Participants estimated higher conservation values for the humble target ($M = .26, SD = 1.18$) than for the not humble target ($M = -.83, SD = 1.17$). When the target

was described as adventurous ($M = -1.25, SD = .78$), participants estimated lower conservation values, compared to when he was described as not adventurous ($M = .74, SD = .86$).

For the target's estimated self-transcendence values, there were significant main effects of humble, $F(1, 150) = 173.34, p < .01, \eta_p^2 = .54$, and adventurous, $F(1, 150) = 6.68, p = .011, \eta_p^2 = .04$. When the target was described as humble ($M = .63, SD = .53$) he was perceived as having more self-transcendence values compared to when he was described as not humble ($M = -.62, SD = .67$). When the target was described as adventurous ($M = -.11, SD = .83$), he was perceived as giving less importance to self-transcendence values than when he was described as not adventurous ($M = .14, SD = .90$).

Finally, regarding the target's estimated self-enhancement values, there was only a significant main effect of the attribute humble, $F(1, 150) = 285.28, p < .001, \eta_p^2 = .66$. When the character was described as humble ($M = -.97, SD = .67$), he was perceived as endorsing less self-enhancement values than when he was described as not humble ($M = 1.11, SD = .86$).

Effects on Value Similarity

The inferred similarity between participant's and target's values was analysed in a 2 (Humble: high vs. low) X 2 (Adventurous: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. Results indicated main effects of humble, $F(1, 150) = 5.75, p = .018, \eta_p^2 = .04$, and adventurous, $F(1, 150) = 6.40, p = .012, \eta_p^2 = .04$. The target was perceived as more similar when he was described as humble ($M = .17, SD = .39$) and adventurous ($M = .17, SD = .34$), compared to when he was described as not humble ($M = .03, SD = .38$) and not adventurous ($M = .02, SD = .42$).

Effects on Liking

Liking for the target were analysed in a 2 (Humble: high vs. low) X 2 (Adventurous: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. Results revealed main effects of humble, $F(1, 150) = 117.02, p = .001, \eta_p^2 = .44$, and adventurous, $F(1, 150) = 38.72, p = .001, \eta_p^2 = .21$. The target was liked more when he was described as humble ($M = 5.6, SD = .85$) compared to when he was described as not humble ($M = 4.0, SD = 1.20$). The adventurous target ($M = 5.3, SD = 1.16$) was liked more than the not adventurous target ($M = 4.4, SD = 1.30$).

Effects on Warmth and Competence

Targets perceived warmth and competence were analysed in a 2 (Humble: high vs. low) X 2 (Adventurous: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. Regarding the perception of warmth, there were main effects of humble, $F(1, 150) = 84.92, p < .001, \eta_p^2 = .36$, and adventurous, $F(1, 150) = 22.74, p < .001, \eta_p^2 = .13$. The character was perceived as warmer when he was described as humble ($M = 5.5, SD = 1.04$) than when he was described as not humble ($M = 4.1, SD = 1.05$), and when he was described as adventurous ($M = 5.2, SD = 1.17$) than as not adventurous ($M = 4.4, SD = 1.26$).

Regarding perceptions of the target's competence, there was also main effects of humble, $F(1, 150) = 17.13, p < .001, \eta_p^2 = .10$, and adventurous, $F(1, 150) = 28.59, p < .001, \eta_p^2 = .16$. The target was perceived as more competent when he was humble ($M = 5.3, SD = 1.14$), than when he was not humble ($M = 4.6, SD = 1.15$), and when he was adventurous ($M = 5.4, SD = 1.00$) than when he was not adventurous ($M = 4.5, SD = 1.22$).

Effects on Overall Similarity

The importance of overall similarity was analysed in a 2 (Humble: high vs. low) X 2 (Adventurous: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA for perceived value similarity. Results indicated main effects of humble, $F(1, 149) = 16.35, p$

< .001, $\eta_p^2 = .10$, and adventurous, $F(1, 149) = 9.50$, $p = .002$, $\eta_p^2 = .06$. The target was perceived as more similar when he was described as humble ($M = 3.3$, $SD = .95$) or adventurous ($M = 3.2$, $SD = 1.07$), compared to when he was described as not humble ($M = 2.6$, $SD = 1.12$) or not adventurous ($M = 2.7$, $SD = 1.04$).

Mediation analysis

The PROCESS procedure for SPSS (Hayes, 2013, model 4) was used for all of the mediation analyses. Separate analyses were conducted for each attribute. The attributes were dummy coded: with 0 for not humble vs 1 for humble and 0 for not adventurous vs 1 for adventurous. The first two models had three mediators ($M_1 =$ estimated target's value, conservation for the attribute humble and openness for the attribute adventurous; $M_2 =$ warmth; $M_3 =$ competence), because both attributes had an effect on warmth and competence. The four remaining models tested whether value similarity and overall similarity mediated the effect of the attribute on liking. The significance of the two indirect paths was determined using 95% bias-corrected and accelerated confidence intervals with 5,000 bootstrap resamples.

Regarding the results for target's estimated conservation values, the extent to which the target was described as humble significantly predicted perceptions of his conservation values ($B = 1.09$, $SE = .19$, $p < .001$), but target's estimated conservation values did not predict liking ($B = -.06$, $SE = .05$, $p > .05$). Humble predicted estimated warmth ($B = 1.44$, $SE = .17$, $p < .001$) and competence ($B = .71$, $SE = .19$, $p < .001$), and both predicted liking, respectively, $B = .49$, $SE = .06$, $p < .001$, and $B = .32$, $SE = .06$, $p < .001$. Both the direct effect of humble on liking ($B = .73$, $SE = .17$, $p < .001$), and the total effect were significant ($B = 1.59$, $SE = .17$, $p < .001$). Thus, the confidence interval of the indirect effect through target's openness values included zero, 95% CI [-.22, .08], but the indirect effects through warmth, CI 95% [.45, 1.02], and competence, CI 95% [.10, .43], were significant. These results indicate

that when the target was described as humble, he was perceived as warmer and more competent, and these trait perceptions increased liking.

The extent to which the target was described as adventurous significantly and positively predicted his estimated openness values ($B = 2.25, SE = .12, p < .001$), warmth ($B = .74, SE = .19, p < .001$) and competence ($B = .80, SE = .18, p < .001$). The target's estimated openness values were negatively related with liking ($B = -.27, SE = .02, p < .001$), whilst warmth ($B = .60, SE = .05, p < .001$) and competence ($B = .33, SE = .06, p < .001$) were positively related with liking. The direct effect of adventurous on liking was positive and significant ($B = .77, SE = .22, p < .001$), and the total effect was also significant ($B = .91, SE = .20, p < .001$). Therefore, the confidence intervals of the three indirect effects did not include zero, indicating significant mediation: 95% CI Target's openness values [-1.04, -.23], warmth [.21, .74], and competence [.14, .49]. When the target was described as adventurous, he was perceived as endorsing more openness values, as warmer and more competent. Whilst warmth and competence increased liking, the perception of openness decreased liking.

Table 7. Mediation models of the indirect effect of the attributes on liking through target's estimated values, and through value similarity.

X	M ₁	B (SE) X on M ₁	B (SE) M ₁ on Y	B (SE) Direct effect X on Y	B (SE) Total effect X on Y	95% IC M ₁ ¹
Adv	OP _c	.03(.10) ^{***}	.37 (.15) [*]	.90 (.19) ^{***}	.91(.20) ^{***}	[-.06, .11]
Hum	CO _c	.48(.24) [*]	.04(.05)	1.57(.17) ^{***}	1.59(.17) ^{***}	[-.06, .06]
Adv	Vsim	.15(.06) [*]	.94(.25) ^{***}	.76(.19) ^{***}	.91(.20) ^{***}	[.04, .31]
Hum	Vsim	.15 (.06) [*]	.78(.21) ^{***}	1.48(.16) ^{***}	1.59(.17) ^{***}	[.03, .24]
Adv	Sim	.50(.17) ^{**}	.57(.08) ^{***}	.60(.18) ^{***}	.89(.20) ^{***}	[.10, .52]
Hum	Sim	.65(.17) ^{***}	.46(.07) ^{***}	1.28(.15) ^{***}	1.58(.17) ^{***}	[.15, .49]

Adv = Adventurous, Hum = Humble, OP_c = similarity in openness values, CO_c = similarity in conservation values, Vsim = correlation between all values, Sim = single-item similarity.

¹ 95% confidence interval of the indirect effect with 5000 bootstrapping.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7 shows the results for the mediation analyses testing the effect of similarity. Although similarity in openness values positively predicted liking, the mediation was not significant. In addition, similarity in conservation values was not a significant mediator of

the effect of humble on liking. The four mediation models examining overall similarity, either based on the value correlations or on the single-item general measure, were significant. Thus, when the target was described as adventurous or humble, he was perceived as more similar and liked more.

Discussion

This experiment used descriptors of conservation and openness values to manipulate value similarity and impression formation. Results showed that the descriptors affected the target's estimated values not only in the two manipulated value domains, but also in the self-transcendence and self-enhancement value domains. Unlike the first two experiments, where the self-transcendence descriptor only affected warmth, and the self-enhancement descriptor only affected competence, the descriptors of openness and conservation each affected both warmth and competence in this study. For the effect of the openness attribute (adventurous) on liking, there were three significant mediators: the target's estimated openness values, warmth and competence (although perceptions of increased openness values decreased liking). In contrast, the effect of the conservation attribute (humble) on liking was mediated only by warmth and competence. Neither similarity in conservation or openness values mediated the effect of the attributes (humble or adventurous) and liking. Finally, it was found that both estimates of overall similarity (based on the overall values correlations or on the single-item general measure) were significant mediators of the effect of the attributes on liking. Put simply, the target who was described as humble or adventurous was perceived as more similar to the participant than the target who was described as not humble or not adventurous, and this perception of similarity predicted increased liking.

Of interest, there were no significant interactions with context. As in the studies reported in the prior chapter, this pattern indicates that the role of context in this paradigm

matters much less than the attributes themselves. Nonetheless, I will re-examine this conclusion after considering the results of Study 6.

Study 6

As is evident throughout this thesis, I am reluctant to interpret evidence from a single study without an additional replication. Study 5 was my first study aimed at testing the effects of specific personality attributes relevant to conservation and openness on the perception of a target's values and attitudes toward the target. To follow-up this study, I conducted a conceptual replication in Study 6. This replication simply replaced the attributes used to represent conservation and openness values, in order to test whether the findings of Study 5 are replicable for different exemplars of the values.

For Study 6, I chose the attribute responsible to represent conservation, and the attribute independent to represent openness, because responsible and independent are values in each of these value domains, respectively, within Schwartz's (1992) model. The analyses followed the same procedure as in the previous studies. After establishing the effects of the attributes and the context manipulation on general liking and all of the putative mediators (values, value similarity, overall similarity), a series of mediation analyses were conducted, as in Studies 3 through 5.

Participants

Participants were 159 female staff and students recruited through the electronic noticeboard of a UK University for a prize draw. Thirty-one participants were excluded due to not following the instructions. Their ages ranged between 18 and 79 years ($M = 34$, $SD = 17.33$), and most were single (63%).

Design and Procedure

The experiment followed a 2 (Responsible: high vs. low) X 2 (Independent: high vs. low) X 2 (Context: dating vs. working) design. Each participant read one of the four possible

combinations between the attribute and value factors, as described below. The order of the attributes was counterbalanced, thus generating another four combinations where the attribute independent appeared first. The gender of the character was not explicit, allowing participants to imagine Sam as either a female or a male.

Sam is responsible, and is independent.

Sam is not very responsible, and is independent.

Sam is responsible, and is not very independent.

Sam is not very responsible, and is not very independent.

Sam is independent, and is responsible.

Sam is not very independent, and is responsible.

Sam is independent, and is not very responsible.

Sam is not very independent, and is not very responsible.

The internal consistency scores for the measures in the PVQ-21 (Schwartz et al., 2001) were lower for the participants' value types ($\alpha_{\text{Power}} = .56$, $\alpha_{\text{Achievement}} = .74$, $\alpha_{\text{Hedonism}} = .74$, $\alpha_{\text{Stimulation}} = .73$, $\alpha_{\text{Self-direction}} = .40$, $\alpha_{\text{Universalism}} = .48$, $\alpha_{\text{Benevolence}} = .66$, $\alpha_{\text{Tradition}} = .48$, $\alpha_{\text{Conformity}} = .79$, $\alpha_{\text{Security}} = .64$) than for the participants' higher-order value domains ($\alpha_{\text{Self-enhancement}} = .77$, $\alpha_{\text{Self-transcendence}} = .65$, $\alpha_{\text{Openness}} = .70$, $\alpha_{\text{Conservation}} = .75$). Reliability was also lower for the ratings of the target's 10 value types ($\alpha_{\text{Power}} = .47$, $\alpha_{\text{Achievement}} = .84$, $\alpha_{\text{Hedonism}} = .71$, $\alpha_{\text{Stimulation}} = .86$, $\alpha_{\text{Self-direction}} = .81$, $\alpha_{\text{Universalism}} = .71$, $\alpha_{\text{Benevolence}} = .63$, $\alpha_{\text{Tradition}} = .56$, $\alpha_{\text{Conformity}} = .81$, $\alpha_{\text{Security}} = .78$) than for the target's higher-order value domains ($\alpha_{\text{Self-enhancement}} = .82$, $\alpha_{\text{Self-transcendence}} = .82$, $\alpha_{\text{Openness}} = .87$, $\alpha_{\text{Conservation}} = .88$). Along with my *a priori* focus on the higher-order values, this difference in reliability again justified the focus on the higher value domains. Internal consistency was high for the measures of liking ($\alpha = .88$), warmth ($\alpha = .85$), and competence ($\alpha = .91$).

Results

Effects on Values

The importance of the target's estimated values (openness, conservation, self-transcendence, self-enhancement) was analysed in a 2 (Responsible: high vs. low) X 2 (Independent: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. For the target's estimated openness values, there were significant main effects of the attributes responsible, $F(1, 120) = 97.18, p < .001, \eta_p^2 = .45$, and independent, $F(1, 120) = 56.93, p < .01, \eta_p^2 = .32$. The target was perceived as endorsing more openness values when he was described as not responsible ($M = .75, SD = 1.14$) than when presented as responsible ($M = -.64, SD = .78$), and when described as independent ($M = .57, SD = 1.10$) than as not independent ($M = -.46, SD = 1.07$).

There were significant main effects of responsible, $F(1, 120) = 42.09, p < .001, \eta_p^2 = .26$, and independent, $F(1, 120) = 79.18, p < .001, \eta_p^2 = .40$, on the target's estimated conservation values. Participants estimated higher conservation values when the target was described as responsible ($M = .52, SD = .97$) than when he was described as not responsible ($M = -.39, SD = 1.10$). Participants also estimated higher conservation values for the not independent target ($M = .69, SD = .97$) than for the independent target ($M = -.56, SD = .90$),

For the target's estimated self-transcendence values, there were significant main effects of responsible, $F(1, 120) = 14.46, p < .001, \eta_p^2 = .11$, and independent, $F(1, 120) = 6.25, p = .014, \eta_p^2 = .05$. When the target was described as responsible ($M = .14, SD = .77$), he was perceived as giving more importance to self-transcendence values than when he was described as not responsible ($M = -.33, SD = .59$). When the target was described as independent ($M = -.23, SD = .78$), he was perceived as having less self-transcendence values compared to when he was described as not independent ($M = .05, SD = .64$).

Regarding the target's estimated self-enhancement values, there was only a significant main effect of the attribute independent, $F(1, 120) = 24.74, p < .001, \eta_p^2 = .17$. When the character was described as independent ($M = .29, SD = .90$), he was perceived as endorsing more self-enhancement values than when he was described as not independent ($M = -.41, SD = .67$). However, there was also a significant interaction between independent and context, $F(1, 120) = 5.12, p = .025, \eta_p^2 = .04$. Simple effects testing revealed that, in the working context, the target was perceived as endorsing self-enhancement values more strongly when he was described as independent ($M = .49, SD = .91$) than as not independent ($M = -.51, SD = .70$), $F(1, 61) = 24.96, p < .001, \eta_p^2 = .28$. In the dating context, the target was also perceived as endorsing more self-enhancement values when he was described as independent ($M = .10, SD = .85$) than as not independent ($M = -.30, SD = .62$), $F(1, 61) = 4.53, p = .037, \eta_p^2 = .07$, although the difference was markedly smaller than in the working context.

Effects on Value Similarity

The importance of the target's perceived value similarity was analysed in a 2 (Responsible: high vs. low) X 2 (Independent: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. Results indicated main effects of independent, $F(1, 120) = 8.33, p = .005, \eta_p^2 = .07$, and a significant interaction between independent and context, $F(1, 120) = 4.47, p = .035, \eta_p^2 = .04$. As shown in Figure 13, in the dating context, simple effects comparisons revealed that the independent target was perceived as having more similar values to the participant than the not independent target. In the working context, there was no difference between the independent and the not independent targets.

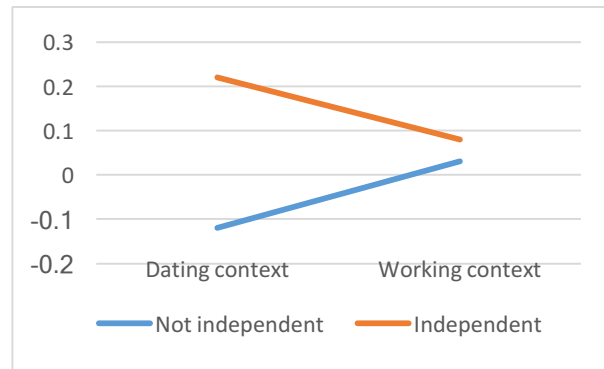


Figure 13. Interaction effect between independent and context on overall value similarity

Effects on Liking

Liking the target were analysed in a 2 (Responsible: high vs. low) X 2 (Independent: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. There were main effects of responsible, $F(1, 120) = 67.87, p < .001, \eta_p^2 = .36$, and independent $F(1, 120) = 15.82, p < .001, \eta_p^2 = .12$. There were also two 2-way interactions between context and independent, $F(1, 120) = 6.57, p = .012, \eta_p^2 = .05$, and between responsible and independent, $F(1, 120) = 3.98, p = .048, \eta_p^2 = .03$. Regarding the first interaction, the independent target ($M = 5.2, SD = 1.24$) was liked more than the not independent one ($M = 3.8, SD = 1.23$), $F(1, 61) = 17.72, p < .001, \eta_p^2 = .23$, in the dating context. This difference was not significant in the working context, $F(1, 61) = .34, p = .560, \eta_p^2 = .01$, as shown in Figure 14.

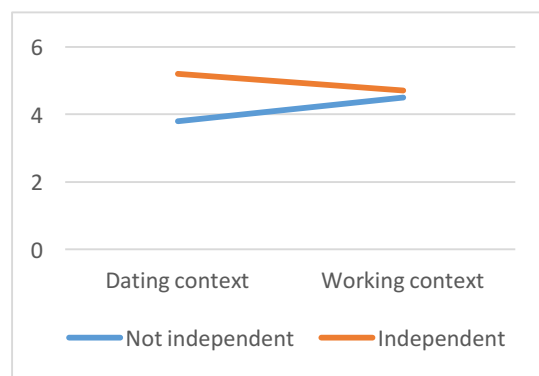


Figure 14. Interaction between independent and context on attitudes

Regarding the second interaction, when the target was described as not responsible, liking was unaffected by whether he was also described as independent or not independent, $F(1, 61) = 2.15, p = .148, \eta_p^2 = .03$. In contrast, when the target was described as responsible, the target was liked significantly more when he was described as independent ($M = 5.8, SD =$

.82) than as not independent ($M = 4.8$, $SD = 1.29$), $F(1, 61) = 14.40$, $p < .001$, $\eta_p^2 = .19$, as shown in Figure 15.

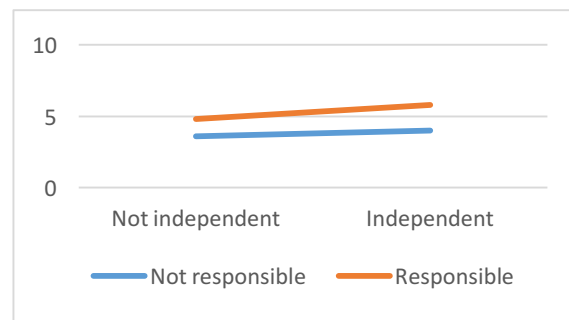


Figure 15. Interaction between responsible and independent on attitudes

Effects on Warmth and Competence

Targets' perceived warmth and competence were analysed in a 2 (Responsible: high vs. low) X 2 (Independent: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA. Regarding the perception of warmth, there was a main effect of responsible, $F(1, 120) = 16.19$, $p < .001$, $\eta_p^2 = .12$, and a significant interaction between context and independent, $F(1, 120) = 6.92$, $p = .01$, $\eta_p^2 = .06$. Generally, the character was perceived as warmer when he was described as responsible ($M = 5.0$, $SD = 1.24$) than as not responsible ($M = 4.2$, $SD = .85$). Simple effects analyses of the interaction indicated that, in the dating context, the target's perceived warmth was not influenced by whether he was described as independent ($M = 4.8$, $SD = 1.03$) or not independent ($M = 4.2$, $SD = 1.20$), as shown on Figure 16. However, in the working context, the target was perceived as significantly warmer when he was described as not independent ($M = 5.0$, $SD = 1.21$) than when he was described as independent ($M = 4.5$, $SD = .94$).

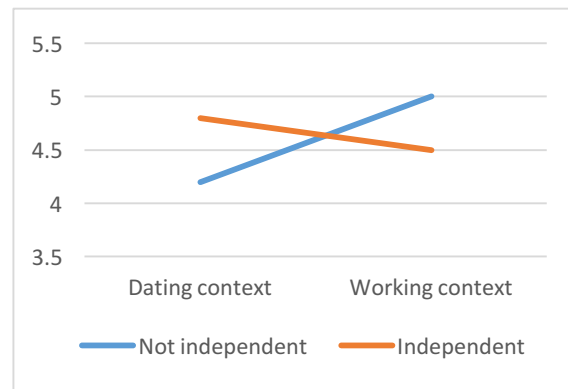


Figure 16. Interaction between independent and context on warmth

Regarding perceptions of the target's competence, there were main effects of responsible, $F(1, 120) = 39.59, p < .001, \eta_p^2 = .25$, and independent, $F(1, 120) = 56.05, p < .001, \eta_p^2 = .32$. The target described as responsible ($M = 5.1, SD = 1.58$) was perceived as more competent than the target described as not very responsible ($M = 3.8, SD = 1.24$). The target described as independent ($M = 5.3, SD = 1.36$) was also perceived as more competent than the target described as not very independent ($M = 3.7, SD = 1.38$). There was also a significant two-way interaction between these two attributes, $F(1, 120) = 10.37, p = .002, \eta_p^2 = .08$. When the target was described as not responsible, he was perceived as more competent if he was also described as independent ($M = 4.3, SD = 1.11$) than if he was described as not independent ($M = 3.4, SD = 1.21$), $F(1, 61) = 9.15, p = .004, \eta_p^2 = .13$. These differences were accentuated when the target was described as responsible: the independent target was perceived as even more competent ($M = 6.2, SD = .74$) than the not independent target ($M = 4.1, SD = 1.47$), as shown in Figure 17.

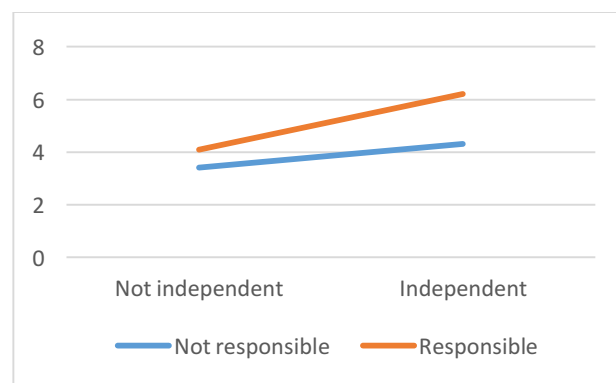


Figure 17. Interaction between responsible and independent on competence

Effects on Overall Similarity

The importance of overall similarity was analysed in 2 (Responsible: high vs. low) X 2 (Independent: high vs. low) X 2 (Context: dating vs. working) between-participants ANOVA for perceived value similarity. Results indicated main effects of responsible, $F(1, 119) = 28.01, p < .001, \eta_p^2 = .20$, and independent, $F(1, 119) = 10.27, p = .002, \eta_p^2 = .08$. The target was perceived as more similar when he was described as responsible ($M = 3.1, SD = 1.13$) and independent ($M = 2.9, SD = 1.11$), than when he was described as not responsible ($M = 2.1, SD = .87$) and not independent ($M = 2.3, SD = 1.05$).

Mediation Analyses

For the attribute responsible, a model with three mediators was tested, where M_1 = target's estimated conservation values, M_2 = warmth, and M_3 = competence. Results indicated that the target whom was described as responsible was perceived as endorsing more conservation values than the target described as not responsible ($B = .91, SE = .18, p < .001$), but the estimation of conservation values did not predict liking ($B = -.05, SE = .07, p > .05$). However, the responsible target was perceived as warmer than the not responsible target ($B = .79, SE = .19, p < .001$), and as more competent ($B = 1.36, SE = .25, p < .001$), and each of these perceptions increased liking, $B = .33, SE = .06, p < .001$, and $B = .42, SE = .05, p < .001$, respectively. Both the direct effect of responsible on liking ($B = .72, SE = .16, p < .001$), and the total effect ($B = 1.51, SE = .19, p < .001$) were significant. The confidence interval of the indirect effect through the target's estimated conservation values included zero, CI95% [-.19, .09], but the indirect effects through warmth, CI95% [.13, .47], and competence did not, CI95% [.34, .88]. These results indicate that responsible target was perceived as warmer and as more competent than the not responsible target, and these traits led participants to like the target more.

For the attribute independent, a model with three mediators was again tested, where M_1 = target's estimated openness values, M_2 = warmth, and M_3 = competence. Results indicated that the target whom was described as independent was perceived as possessing stronger openness values ($B = 1.03$, $SE = .19$, $p < .001$), and as being more competent ($B = 1.58$, $SE = .24$, $p < .001$) than the target described as not independent. The target's openness values predicted lower liking ($B = -.16$, $SE = .08$, $p < .05$), whereas the target's competence predicted higher liking ($B = .63$, $SE = .03$, $p < .001$). The direct effect of independent on liking was not significant ($B = -.09$, $SE = .21$, $p > .05$), but the total effects were significant ($B = .73$, $SE = .22$, $p < .001$). As a result, the confidence intervals of the indirect effects did not include zero, and both the target's openness values, CI95% [-.36, -.02], and competence, CI95% [.66, 1.43], mediated the relationship between independent and liking. Thus, when the target was described as independent, he was perceived as endorsing more openness values and as more competent. The perception of endorsement of openness values reduced liking, whereas the perception of competence increased it.

As shown in Table 8, similarity in conservation values did not mediate the relationship between responsible and liking, whereas similarity in openness values mediated the relationship between independent and liking. The role of overall value similarity varied: it was not a significant mediator of the relationship between responsible and liking, but it was a significant mediator of the relationship between independent and liking. The overall perception of similarity was a significant mediator in both models examining this variable. Thus, when the target was described as responsible or as independent, he was perceived as more similar and, consequently, liked more than when he was described as not responsible or as not independent.

Table 8. Models of the indirect effect of the attributes on liking through target's estimated values, and through value similarity.

X	M ₁	B (SE) X on M ₁	B (SE) M ₁ on Y	B (SE) Direct effect X on Y	B (SE) Total effect X on Y	95% IC M ₁ ¹
In	OP _c	.51(.11) ^{***}	.55 (.17) ^{**}	.45 (.23) ^{ns}	.73(.22) ^{**}	[.10, .54]
Re	CO _c	.04(.10) ^{ns}	.06(.16) ^{ns}	1.51(.19) ^{***}	1.51(.19) ^{***}	[-.02, .07]
In	Vsim	.19(.07) ^{**}	1.11(.28) ^{***}	.52(.22) [*]	.73(.22) ^{**}	[.06, .47]
Re	Vsim	.07 (.07) ^{ns}	1.11(.22) ^{***}	1.43(.17) ^{***}	1.51(.19) ^{***}	[-.06, .27]
In	Sim	.59(.19) ^{**}	.75(.08) ^{***}	.26(.18)	.71(.22) ^{**}	[.16, .77]
Re	Sim	.97(.18) ^{***}	.60(.08) ^{***}	.91(.18) ^{***}	1.49(.19) ^{***}	[.34, .89]

In= Independent, Re =Responsible, OP_c = similarity in openness values, CO_c = similarity in conservation values, Vsim = correlation between all values, Sim = single-item similarity.

¹ 95% confidence interval of the indirect effect with 5000 bootstrapping.

* p < .05, ** p < .01, *** p < .001

Discussion

As in all the experiments described in this chapter and the prior chapter, participants were able to estimate the whole value profile based on just two attributes. Similar to Study 5, this study used two attributes that described conservation and openness values. The conservation attribute affected perceptions of the target's warmth, and both the conservation and the openness attributes affected perceptions of the target's competence. The effect of the conservation attribute (responsible) on liking was mediated by perceptions of the target's warmth and competence. Similarity in conservation values did not mediate the relationship between responsible and liking.

The effect of the openness attribute (independent) on liking was mediated by target's estimated openness values and competence. The perception of endorsement of openness values reduced liking, whereas the perception of competence increased it. Similarity in openness values also mediated the relationship between independent and liking. When

overall value similarity was entered as mediator, it was only significant for the relationship between independent and liking.

As in previous studies, the overall perception of similarity had stronger and more consistent effects: Both attributes led participants to view the target as more similar to the participant, which led to increased liking. However, unlike Study 5 and the studies reported in the prior chapter, there were a number of interactions between the attributes presented and the context. Most of these interactions revealed smaller effects of one attribute (e.g., independent) when the context involved work than when it involved dating. This pattern may have arisen because overall value similarity and liking (attitudes) might be of less relevance when one is considering a colleague to work on a project. Perhaps this would not be the case if a longer period of interaction was expected. Nonetheless, aside from one interaction wherein the effect of this attribute reversed (in the analysis of warmth), these interactions are again relatively minor in proportion to the main effects, as in the prior studies. At the very least, these interactions would require replication before being regarded as significant caveats to the findings, especially in light of the weak role of context in Study 5.

Chapter Discussion

The research presented in this chapter investigated the role of perceived values and value similarity on liking, and potential mediators of these relations. As in the prior chapter, the paradigm used here presented brief descriptions of an individual, similar to those you might see applications for jobs and self-descriptions for online dating. I examined the impact of these descriptions on perceptions of the warmth and competence of the target individual. These traits were selected as mediators due to their importance for social perception, even though their relationship with conservation and openness values was difficult to ascertain from the prior literature. As discussed below, the findings provided an important replication and extension of the results described in the prior chapter.

Effects on Inferred Values

In the previous chapter, participants inferred the target's values based on attributes to represent high and low levels of self-transcendence and self-enhancement. Their inferences were according to the predicted patterns of Schwartz (1992) model. Hence, the attributes representing self-transcendence values had a main effect in the target's estimated self-transcendence values in both studies. The same was observed for the attributes representing self-enhancement values, they led to higher estimation of target's self-enhancement values. The effects of the openness and conservation values were not the focus of those studies; nevertheless, results indicated that they were also affected. In the present chapter, two studies investigated the effects of manipulating attributes to represent conservation and openness values. In Study 5, humble was the attribute for conservation and adventurous for openness. In Study 6, the attribute used for conservation was responsible, and the attribute used for openness was independent. As in the previous chapter, the effects of these attributes in inferred values were in accordance to Schwartz (1992) model.

In Study 5, participants perceived the target described as humble or as not adventurous as possessing higher conservation values, whereas higher openness values were inferred for the target described as not humble and as adventurous. In Study 6, higher conservation values were estimated for the target described as responsible and as not independent. Higher openness values were estimated for the target described as not responsible and as independent. Therefore, both studies replicated the opposition pattern proposed by Schwartz (1992).

The expected opposing patterns were not corroborated for the estimated self-transcendence and self-enhancement values. In Study 5, higher self-transcendence values were estimated for the target described as humble, and as not adventurous. Although higher self-enhancement values were estimated for the target described as not humble (showing the

opposite of the effect on self-transcendence values), there was no effect of the attribute adventurous on inferred self-enhancement values. Results of Study 6 were similar. Higher self-transcendence values were estimated for the target described as responsible, and as not independent. Although higher self-enhancement values were estimated for the target described as independent (revealing the expected opposition), there was no effect of the attribute responsible on inferred self-enhancement values.

In both studies, inferred conservation values did not mediate the relationship between the attribute and liking. However, inferred openness values mediated the relationship between the attributes (adventurous or independent) and liking. When the target was perceived as endorsing higher openness values, he was liked less. Congruent with the results for inferred self-enhancement values in Chapter 3, these findings fail to support assumptions that all values are viewed as positive personal characteristics (Gouveia et al., 2014, Parks & Guay, 2009). Although values are usually assumed to be desirable, these studies provide consistent evidence that some values lead to less favourable perception of those who endorse them.

This tendency for some values to elicit less favourable perceptions makes it difficult to explain the lack of opposing effects of the attributes on the opposite ends of each value dimension. If people were more favourable to individual targets possessing any or all of the values, then it could be claimed that the lack of opposition is due to a general process wherein people merely ascribe positive values to anyone who possesses a single positive attribute. As described below, this type of effect may be operating in this paradigm. Nonetheless, it does not explain the lack of value oppositions because at least some values (especially openness values) negatively predicted liking.

Effects of Perceived Similarity

Both studies found evidence that perceived similarity increases liking. Similarity was measured in three ways: similarity in the relevant value dimension (self-enhancement, self-transcendence, openness, or conservation), overall value similarity, and overall perception of similarity. In Study 5, similarity in the specific dimensions did not mediate the relations between the manipulated target attributes and liking. However, both overall value similarity and overall perceived similarity were significant mediators. In Study 6, similarity in openness values mediated the relationship between the openness attribute and liking. Overall value similarity did not mediate the relation between the conservation attribute and liking, but it did mediate the relationship between the openness attribute and liking. Finally, overall perception of similarity was a significant mediator for both attributes. Thus, the global perception of similarity consistently mediated the effect between the personality attribute and liking across both Study 5 and Study 6, congruent also with Study 3 and Study 4.

These results indicate that a global perception of similarity has stronger effects on liking than a more specific similarity, such as in one value dimension, even if this specific dimension is relevant. If global perceived similarity is the key moderator, it is possible that in first encounters people rely on unspecific and general clues to form a more general impression, suppressing the effects of more specific dimensions.

The Role of Warmth and Competence

Warmth and competence have been found to be universal dimensions in person and group perception (Fiske et al., 2007), because these traits provide information about a person's intention and capacity to do us good or harm. When a target is perceived as warmer or as more competent, he or she should be liked more than a colder and incompetent target. The findings in both Study 5 and Study 6 supported this conclusion, consistent with Study 3 and Study 4.

However, the key question was whether the conservation and openness attributes would influence perceptions of the target's warmth and competence. As discussed in the introduction to this chapter, prior research sets up different expectations about the links between these two value domains and the trait dimensions. In these studies, the conservation attributes elicited greater perceptions of warmth, and the openness attributes elicited greater perceptions of competence. At the same time, in both studies, perceptions of the target warmth tended to be negatively correlated with the target's inferred openness values, and positively correlated with the target's inferred conservation values. Furthermore, perceptions of the target's competence positively correlated with the target's inferred openness values. These findings are broadly congruent with Trapnell and Paulhus's (2012) model, who found that conservation values were linked to the communion (i.e., warmth) dimension of personality, and openness values were linked to the agency dimension (i.e., competence).

These effects make the overall pattern somewhat more complex, but they are consistent with prior research on halo effects in person perception. When people perceive a single positive or negative attribute of an individual, there is a tendency to ascribe other similarly valenced attributes to the person (Nisbett & Wilson, 1977; Wetzell, Wilson, & Kort, 1981). For instance, in Study 5, only main effects were observed for estimations of warmth and competence, indicating that the presence of a positive attribute favoured more positive evaluations. This type of halo effect is also congruent with the aforementioned evidence for a reliable role of global perceptions of similarity to the self across all of the studies reported in this chapter and in the prior chapter. People may jump from the level of specific information to global impressions, which have consequences for attitudes.

The Role of Context

As discussed in Chapter 3, it is plausible that a person's interpersonal goals might depend on the situation (Montoya & Horton, 2014). We tend to evaluate others and

categorize them in terms of “instrumental” and “noninstrumental”, that is, whether a person is useful or not for an active goal. Previous studies have found that goal instrumentality shapes the evaluation of others (Fitzsimons & Shah, 2008, Fitzsimons & Shah, 2009). In order to explore how situational goals can affect impression formation, participants were asked to imagine that they could either work with the target on a project or go on a date with him. Similar to the studies presented in the previous chapter, results were not very consistent. In Study 5 context had no effect, and in Study 6 it was found that, in the dating context, the independent target was liked more than the not independent one, but, in the working context, there was no difference whether the target was described as independent or not independent. In Study 6, the effect of the attribute independent on warmth also depended on context. In the working context, the not independent target was perceived as warmer than the independent target, but, in the dating context, there was no difference in perceived warmth whether the target was described as independent or not independent. Thus, although the effect of context was not consistent across the two studies, there is some support for the assumption that active goals influence person perception.

Nevertheless, these effects did not eliminate the consistent and robust effects of the attributes on the formation of impressions of warmth, competence, and attitudes. The robust nature of these effects suggests that attributes matter a great deal, even when presented only briefly in single-sentence descriptions. At the same time, however, it is possible that a real-life manipulation of context (e.g., involving real work or a real date) would yield a more powerful impact of this variable. Thus, it is unwise to use these results to argue against an impact of context.

Limitations and Future Directions

The main limitations of the studies presented in Chapter 3 can be cited for the present studies. All participants in the studies were women, who might exhibit different effects than

men (Montoya & Horton, 2012). It is important to replicate the value similarity effect in future studies with both male and female participants, while also manipulating the gender of the target.

As noted above, the effects of context were once again weak and inconsistent. Future studies could address this issue with a design that could explore the effect of context more directly, possibly including other scenarios of interaction that are not working or dating related. Such studies may also be more impactful if they include targets who are known to the perceiver. By studying actual relationships, the mundane validity of the findings would be enhanced.

Finally, just as the perception of self-enhancement values predicted lower liking in Studies 3 and 4, perceptions of openness values decreased liking for the target in Studies 5 and 6. These results challenge previous assumptions that all values are desirable and positive (Gouveia et al., 2014, Schwartz, 1992). The traits used to represent the values were intended to represent the content of the dimensions proposed by Schwartz (1992), whose model has been proved to be adequate across different designs, cultures, and measures (Maio, 2010; Schwartz et al., 2012). It would be interesting to further investigate whether some values lead to negative evaluations.

Conclusion

In sum, the studies presented in this chapter provide additional evidence for the similarity liking-effect by demonstrating a mechanism that has not been explored previously. When participants are presented with two value-laden personality descriptors, they are able to infer value priorities for diverse values and use this inference to form interpersonal attitudes. Perhaps the most significant contribution of this chapter was the investigation of the relationship of warmth and competence with conservation and openness values, which corroborated an alternative framework for the study of values in interpersonal relationships.

Chapter 5
General Discussion

Aims

This dissertation presented two sets of studies testing the similarity-liking effect for human values. The first set adapted the classical phantom-other paradigm, testing the effect of actual value similarity on liking. The second set of studies investigated how perceived value similarity affects liking, and manipulated personality attributes to achieve different levels of perceived similarity. Both research programmes were designed in parallel. Each programme took in consideration variables that could contribute to understanding the similarity-liking effect.

Particular attention was paid to two issues. First, previous literature indicated that similarity implies information, which is used for the formation of attitudes (Kaplan, 1981). Building on this idea, Montoya and Horton (2004) suggested that similarity indirectly influences liking via the cognitive evaluation of a person. Thus, this indirect influence was one mechanism explored in this thesis.

Second, prior literature on person perception indicates that people naturally categorize others in terms of their intention and capacity to do us good or harm (Fiske et al., 2007; Montoya & Horton, 2002). In this model, the first dimension is often defined as warmth, capturing the other person's intentions, friendliness, trustworthiness, and helpfulness. Whilst the second dimension is referred as competence, including perceptions of the other person's ability, intelligence, efficacy, and skill. For this reason, I also assessed perceptions of warmth and competence to examine their role in the similarity-liking effect. This enabled me to test whether information about a person's values conveys information about warmth and competence, which in turn predicts liking.

Chapter 1 described how the similarity-liking effect has been studied for over 70 years in more than 200 studies, showing that values have been almost completely neglected in investigations, despite frequent claims in the public forum and academic literature that

value similarity is personal for interpersonal attitudes. Chapter 1 described how, consistent with this view, there is ample evidence that the effect of similarity on liking is not direct, justifying the inclusion of other variables in the studies. This chapter outlined a model of values that I used to help examine the role of value similarity in liking. Specifically, Schwartz's (1992; Schwartz et al., 2012) model describes values as trans-situational and desirable goals that guide individuals' actions. Four higher-order value domains represent two dimensions of motivational goals: self-transcendence vs. self-enhancement and openness vs. conservation. The position of these value domains along the circle determines their compatibilities and conflicts. Adjacent values share common motivations and are positively related, whilst values on opposing sides of the circle have conflicting motivations and are negatively correlated.

Chapter 2 presented the first two studies testing the effect of actual value similarity on liking. Some difficulties in adapting the phantom-other paradigm were anticipated, such as the artificiality of an extremely dissimilar profile, but the two studies successfully replicated the similarity-liking effect. An exploratory aim of the studies was to examine the effect of individual differences in self-monitoring, which is a trait reflecting the extent to which people monitor the connection between their behaviour and their external context (Snyder, 1974). Research on this construct has found that low self-monitors are more likely than high self-monitors to use their values as the basis for attitudes and behaviour (e.g., DeBono, 2000). Therefore, I tested whether the effect of value similarity was stronger for low than high self-monitors. Contrary to expectations, the effect was stronger for high than low self-monitors.

Chapter 3 described two studies that tested the effect of value similarity on liking using a novel paradigm, using personal descriptions based on just two attributes. People frequently use adjectives to describe themselves and their values, making this design more realistic and natural. As in Studies 1 and 2, perceptions of warmth and competence were

assessed. In addition, the studies presented in Chapter 3 examined the role of context. Previous literature indicated that people's goals may depend on the situational context that they are experiencing at the moment (Fitzimons & Shah, 2009; Montoya & Horton, 2012). Consequently, the studies investigated whether situational context (going on a date vs working on a project) moderated the impact of the value-relevant attributes on liking for the target. The results of Study 3 showed a larger impact of finding time for others when the target is not hardworking in the dating context than in the working context. In Study 4, only a main effect was found, and the target was liked more in the working context. In both studies, the main effects of the attributes were far more robust than the interactions, which failed to reduce the main effects to nonsignificant simple effects.

Chapter 4 described two studies that are similar to those described in Chapter 3. The key difference is that Chapter 3 presented personality attributes relevant to self-transcendence and self-enhancement values, whereas Chapter 4 presented personality attributes relevant to conservation and openness values. Despite this change, the results again revealed a consistent effect of similarity on liking, especially for global evaluations (overall value similarity or general perceived similarity). Results also showed some support for the assumption that active goals influence person perception, but effect of context was not consistent across the two studies. Interactions between context and liking, and context and warmth were observed only in Study 6. In the dating context, the independent target was liked more than the not independent one, but, in the working context, there was no difference whether the target was described as independent or not independent. Regarding the perception of warmth, in the working context, the not independent target was perceived as warmer than the independent target, but, in the dating context, there was no difference. The most significant contribution of this chapter was the investigation of the relationship of warmth and competence with conservation and openness values.

Together, the findings have a range of implications for understanding the role of similarity in liking and for understanding values. Moreover, the research presented in this thesis is at the same time congruent and complementary to the extant literature about the similarity-liking effect. The adaptation of the phantom-other paradigm makes the results comparable to those obtained by the reinforcement and by the information processing model (e.g., Byrne, 1965, 1971; Montoya & Horton, 2004). The main difference is that the studies presented in this thesis were double-blind, but they still replicated the main finding that the perception of similarity increases liking. The proposition of a new paradigm, using descriptors to express values is another contribution to the literature. These descriptors help to enrich non-interaction studies of similarity and liking, which represent the majority of studies on the similarity-liking effect. In the remainder of this final chapter of the thesis, I discuss these implications, limitations across the studies, and directions for future research.

Implications for the Similarity-liking Literature

One of the innovations in this research was the adaptation of the phantom-other paradigm for examining the role of value similarity on liking. This adaptation was useful partly because it helps to illustrate conceptual reasons why the effect of value similarity is not as straightforward as often presumed. In particular, to manipulate value similarity in this paradigm, a balance must be struck between presenting dissimilar values and presenting realistic values. There is a range of values that most people tend to regard as being highly important, including self-transcendence and openness values in particular. If a person is identified as not considering these values to be important, the description will lack realism and plausibility. In the classic phantom-other paradigm, the researcher creates the dissimilar targets simply by putting items in the other side of the scale; thus, if the participant gave an answer towards the favourable side of the scale, the dissimilar phantom-other answered the same item on the other side of the scale. Using this strategy for values would probably

produce unrealistic value profiles, especially for dimensions like self-transcendence and openness, because it seems unlikely that people would show low endorsement of these values. For this reason, the highest level of dissimilarity in my designs entailed value descriptions that were more similar to the participant than dissimilar (i.e., the 64% similarity condition). This level of similarity is higher than those implemented in studies of attitude similarity, where opposing attitudes can be presented.

Despite this alteration, I found that value similarity predicts increased liking. Even though the manipulation of Study 1 was less extreme than in past experiments, where the answers of the phantom-other are placed on the other side of the scale (Byrne, 1971), the similarity-liking effect was corroborated. Furthermore, Study 1 introduced a double-blind design to the phantom-other paradigm. This provides an important control for effects of experimenter bias and demand on attitudes. Thus, the study's adaptation of the phantom-other paradigm provided a more robust and conservative test of the role of similarity in liking than has been present in past research.

Of interest, the proportion of similarity seems to be the key element for manipulating different levels of similarity, as opposed to the simple number of agreements or disagreements (Byrne & Nelson, 1965). For instance, Ulrich, Krueger, Brod, and Groschupf (2013) observed that participants' liking for a target did not correlate with the number of (randomly drawn) traits that they shared with a target, but did correlate with the percentage of shared traits. In Study 1, the 82% identical target did not elicit different attitudes than the identical and the 64% identical targets. Some participants in the 82% condition thought that the target was identical in values to themselves. For this reason, Study 2 included only two levels of similarity, identical and 62% similar. This proportion was strong enough for participants to perceive one target as more similar than the other. In fact, Study 2 presented

participants with less than half of the items that were shown to participants in Study 1, but the proportion was kept virtually the same. Yet, the results were very similar.

The studies were also important to demonstrate that similarity may have an indirect effect on liking. Montoya and Horton (2004) proposed a mediation model where cognitive evaluation mediates the relationship between similarity and liking. These authors argued that cognitive evaluation is the primary determinant of attraction, and they demonstrated this role through mediational analyses that were only significant when cognitive evaluation preceded attraction, and were not significant when interpersonal attraction preceded cognitive evaluation. Although this role of cognitive evaluation was not directly tested in any of the studies, findings from Studies 3 to 4 indicated that similarity in two traits were extrapolated for another two value domains that were not manipulated. Thus, people can use traits to infer other information about a person, which may in turn predict attitudes in a manner distinct from similarity *per se*.

An interesting finding across studies is that similarity in value domains appeared to have a weaker influence on liking than global perceptions of similarity. Across the four experiments that presented pairs of value-relevant attributes, eight models tested the roles of specific domains. Similarity in one value domain predicted liking in only two of the models. This was the case for self-enhancement values in Study 3 and openness values in Study 6. In contrast, overall value similarity, that is, the Fisher transformation of the correlation between participant's and target's values, was a more consistent predictor of liking, but it was a significant mediator in only half of the models that were tested. In contrast, participants' ratings of perceived similarity to the target were significant mediators of the effects of the attributes in all of the models tested. This pattern indicates that, if perceived value similarity plays a role, this role is only part of the similarity judgment that relates to liking. In other

words, value similarity may matter, but only insofar as it relates to other perceptions of the target.

This pattern extends other evidence that overall or general similarity might be more relevant than specific similarity. Effects of general similarity were found by Luther et al. (2016), who manipulated similarity only using pictures of a hospital roommate whom was pre-tested to either be similar or dissimilar to the participants. The researchers did not specify any dimension or make similarity salient. As a consequence, participants could extrapolate or imagine similarity based on any dimension, such as age or ethnicity. The results indicated that participants who saw the picture of the similar target expressed more positive feelings towards the target than participants who saw the picture of the dissimilar target. Related to these findings, Amber (2004) found that perceived similarity was positively related to projection to other domains. Therefore, the perception of similarity in one aspect appears to lead people to assume an overall similarity, which may produce stronger effects in social judgments. By finding this same type of effect when value similarity was manipulated, the present research shows that this pattern holds even when similarity is manipulated through a few attributes that are putatively high in self-relevance and centrality to attitudes and behaviour (Rokeach, 1973; Verplanken & Holland, 2002).

Additionally, as already mentioned, the effect of similarity on liking is indirect, and it does not happen in isolation from other phenomena. Considerable research has demonstrated that impressions of others are arrayed along the dimensions of warmth and competence (e.g., Fiske, 2015, Fiske et al., 2007, Montoya & Horton, 2014). Thus, the studies conducted here tested the hypothesis that interpersonal liking is determined by inferences about a target's warmth and competence. The results robustly supported this hypothesis. When the target was perceived as more similar, participants inferred that the target was warmer and more competent, and this evaluation led to more positive attitudes. This evidence not only supports

the stereotype content model (Fiske et al., 2007), it also provides support for the information processing model of attraction. Similarity provides information to infer whether a person has benevolent or malevolent intent and whether this person is capable of living up to these intentions.

Of interest, these effects shed some light on the role of familiarity with a target and the similarity-liking effect. McAdams and Pals (2006) argued that values are too privately held for accurate inferences about another's values. In contrast, Dobell et al. (2014) observed substantial levels of convergence when examining self-other agreement in judgments of values and personality. These scientists also observed that familiarity with the target played an important role in the accuracy of the judgment. I would suggest that, although familiarity is certainly important, the four studies presented in Chapter 3 demonstrated that familiarity is not essential for making judgments about someone else's values. Even in the absence of a lot of information about a target or high familiarity with the target, people can make inferences about the person's values, traits, and develop attitudes toward them.

One caveat to this observation about people's ability to utilise value-relevant attributes is that different values may not all operate in the same way. Values are frequently defined as ideals that desirable or important to people (Gouveia et al., 2014; Rokeach, 1973; Schwartz, 1992). If this is correct, perceiving someone as endorsing more of any type of value should increase liking. This was not the case for self-enhancement values. In Studies 3 and 4, when the target was perceived as endorsing more self-enhancement values, he was liked less. However, liking was higher when self-enhancement values were more similar to the self-ratings of the values in Study 3. It is plausible that self-enhancement values, by themselves, imply a level of egocentricity that is disliked by others, and this dislike is attenuated only when it reinforces one's own values. Of course, this hypothesis is post hoc and requires more investigation. One factor working against this explanation is my choice of

the attribute hardworking for Study 3. Dwiggings and Lewandowski (2015) found that a hardworking target was considered a better dating partner than a not hardworking partner. Competitive, which was used in Study 4, also appears to be a fairly desirable trait. In a study investigating the desirability of 110 traits, competitive ranked 53, with a mean desirability of 4.2 in a 7 points scale (Bochner & Van Zyl, 1985). It is therefore unlikely that the traits used in Studies 3 and 4 have negative valence individually.

It may be the case that pairing the self-enhancement values with self-transcendence values changed the perception of self-enhancement. Past research has found that pairing opposing values in a description of an individual elicits ambivalence (Maio, 2010), and this ambivalence may affect the way in which the self-enhancement traits are understood. An interesting issue is whether the same type of effect arose for openness values, which predicted lower liking in my studies. It may be the case that openness values take on a different valence when put alongside conservation values. This issue could be explored in future studies that manipulate the value-relevant attributes independently. In the interim, this pattern of findings suggests that self-enhancement and openness values operate in a unique manner in this interpersonal context.

Limitations and Future Research

Methodological Issues

There were a number of methodological aspects of this research that helped to progress beyond past research in the area. For instance, the phantom-other paradigm was made into a double-blind procedure, and the measurement of values included a scoring procedure that helped to control for idiosyncratic scale use in Studies 3 to 6. In these studies, participants' mean score on all values was subtracted from each item, in a procedure called within-subjects centring. This procedure has been recommended by Schwartz (2005) because people use the value scale differently: some might use just one extreme of the scale, reporting

all values as important, while others might have a tendency to answer in the middle of the scale. This procedure provides the relative importance of each value, considering trade-offs that people do in an intra-individual level to organize their values. This procedure was implemented both for participants' own values and for the values that they estimated for the target. Therefore, the results reflect the relative importance of the values for each participant.

Although these and other procedures were useful, there remain a number of limitations worth noting. Perhaps the most evident limitation is the artificiality of the studies, which did not consider real life interaction. The similarity-liking effect has been found both in no-interaction studies and in short- or long-term interactions. The effects appear to be stronger for no-interaction situations (Montoya et al., 2008). Further research exploring the role of values on the similarity-liking effect could focus in more realistic settings, such as online dating or getting acquainted situations, evaluating the impact of initial perceived similarity on the relationship, and whether the perception of similarity changes once people get more familiar with each other. It would also be interesting to have a study examining perceived value similarity, relationship satisfaction, and well-being in couples, comparing short (two months or less), and longer relationships (one year or more).

In fact, the artificiality of the setting may help to explain why the specific nature of the interpersonal context (e.g., working vs dating) made no apparent difference to the role of values on liking. Fitzsimons and Shah (2008; 2009) found that we form representations of people who are instrumental or useful to achieve a certain goal, and people who are "noninstrumental" or not useful for an active goal. To the extent that some of a person's values may match a current goal more than others (e.g., when working with someone who values hard work), then it is intuitive to also assume that we would feel more positive toward that person. It could be the case that studies looking at actual ongoing goal pursuits are more likely to discover this goal congruence effect than the kind of paradigm employed here. It is

important to design studies with actual goal pursuits to gather more evidence about whether the situational context or activated goals can influence attitudes towards a similar or dissimilar target, or whether the similarity-liking effect is so powerful that it overrules the effect of goal activation.

Another potential effect of the artificiality is an increase in participants' suspicion. In Study 1, many participants were able to guess that the study involved perception of similarity and liking for the target. In many cases, participants thought they were evaluating their own value profile instead of a stranger's, assuming that the study was about liking themselves. Study 2 successfully addressed suspicion, but it was only possible because the cover story was credible, and participants could check part of the information on Google. It might be more difficult to replicate this study in an institution that does not have a real partnership with another university, and participants would not be able to check the information. Thus, the phantom-other paradigm is problematic in terms of representing real life situations, and providing a credible cover story.

Nonetheless, the paradigm was useful for concretely showing the difficulties in achieving a plausible range of value similarity. As mentioned above, a balance had to be struck between presenting dissimilar values and presenting realistic values. The restricted range in manipulating value similarity may help to explain why the observed effect was medium to large, whilst the effects in the previous literature tended to be large (Montoya & Horton, 2008; Montoya & Horton, 2012). This slight decrease in the effect size, if reliable, could also be due to the fact that the study was double-blind, making experimenter expectations less likely to influence the results. At the same time, it is conceivable that the reason for the difference is simply that values were used instead of attitudes. However, being a broader construct than attitudes, values enable people to infer more information than relatively specific attitudes. For example, a person who strongly values the environment is

likely to be favourable toward a range of sustainable behaviours and policies, whereas attitudes towards any one specific sustainable policy provide less information (Weigel & Newman, 1976). Values also have a strong affective component (Maio & Olson, 1998), making them powerful signals for attitudes. (Maio & Olson, 2000). Both of these differences would make values exert a stronger effect on liking, rather than a weaker impact. Direct comparisons of values and attitudes in future research would help to discern the ways in which they share common and distinct mechanisms in shaping interpersonal attitudes.

Of course, sample size is always an important consideration. A relevant study by Boer et al. (2011) manipulated music preference and asked participants to estimate the targets values and attraction. Their index of value similarity was based on the correlation between participants' and targets' values, and this index significantly mediated the relationship between similarity in music preference and social attraction. However, this study included more than twice as many participants as in the four studies presented here. The larger sample could have contributed for the significant mediation of value similarity in Boer study. I had planned for medium effect sizes, but planning for small effect sizes may be more appropriate in future research.

Theoretical Issues

Perhaps the most important theoretical issue is how value similarity relates to other forms of similarity. It has been shown that attitude similarity has stronger effects than personality similarity. It would be interesting to know where values fit, testing a possible hierarchy personality-values-attitudes. According to Byrne et al. (1967), any type of similarity should produce attraction, because it is a validation of the self. Based on the information processing perspective, the amount of information that can be implied by attitudes, personality or values similarity is different. Attitude studies were related with larger effect size than personality studies (Montoya & Horton, 2012). In the future, a study

comparing the effects of value, attitude, and personality similarity would be useful for identifying their relative informativeness for interpersonal judgments.

Other theoretical issues pertain to the psychological nature of values, their interrelations, and normativeness. For instance, although only two value domains were manipulated in each experiment in chapters 3 and 4, they were sufficient to provide information about a target's whole value profile. It would be useful to test whether these two attributes must represent two value domains or whether two attributes from the same domain would produce the same effects. If the spread of the attributes matters, then presenting two attributes from the same value domain will weaken the impact on overall value similarity. However, prior research on the Halo effect (see Chapter 4) indicates that one characteristic can affect global evaluations of a person. Thus, overall value similarity might be inferred from just one value domain, and this finding may suggest a simpler, quicker judgment process than if a conceptual range of attributes was necessary.

It is important to highlight that people may experience similarity in different ways depending on whether the person they are thinking about is a stranger, an acquaintance or a close person. Wortman, Wood, Furr, Fanciullo, and Harm (2014) observed that, when people were evaluating similarity with acquaintances (e.g., students living on the same floor of a student accommodation, or other fraternity members), those with a normative profile were seen as more similar. A normative profile corresponds to a profile representing the average of endorsement of any particular traits or dimensions, which also tends to be considered as a desirable profile. However, when people evaluated a close person (e.g., parents or close friend), the perception of similarity was increased by the distinctive traits. A distinctive profile is the score after discounting for the average (normative) person. For instance, if the average person has a score of 3 in the trait agreeableness, any participant with a score 3 would be considered normative, and participants with a score higher or lower than 3 would be

considered distinctive for this dimension.). It is usually worth considering the whole profile (e.g., personality, values, attitudes) of normativeness and distinctiveness. These results suggest that normativeness is a cue for similarity when people are not very familiar with the target, whilst distinctiveness is more relevant to similarity to close others.

This issue of normativeness is also called the normative-desirability confound (NDC, Wood & Furr, 2016). This spurious effect of having a normative psychological profile is likely to always be a problem for values studies. All values assessed in contemporary measures are desirable to some extent (Gouveia et al., 2014), and people tend to endorse values from a moderate to high level of importance (Gouveia, 2013). As argued in previous chapters, even values of relatively low importance may be considered desirable, which would predispose people to always show a positive evaluation about someone else's values.

In the two studies presented in Chapter 2, the target profile was created based on participants' own values. Therefore, if a participant had a normative profile and was in the similar condition, the target was equally normative; if a participant had a normative profile and was in the dissimilar condition, the target had a distinctive profile. Considering that distinctiveness and normativeness were not controlled, it is not possible to disentangle the effects of similarity from the effects of distinctiveness and normativeness. Moreover, participants evaluated a fictional target; based on Wortman et al.'s (2014) results, it is likely that normativeness played a stronger role than distinctiveness when participants made their evaluations. Thus, I cannot yet rule out the possibility that liking was elicited by the desirable normative profile rather than actual similarity between participants and target, and this is an important issue for future research to consider.

It is also important to establish the limits of the similarity-liking effect. For instance, Aron, Steele, Kashdan, and Perez (2006) investigated conditions where the similarity-liking effect might be annulled. Specifically, based on self-expansion model of motivation (Aron,

Aron, & Norman, 2001), which proposes that we seek relationships that will help us to extend personal efficacy, these researchers assumed that dissimilar people have more potential to aid our self-expansion than similar people. In order to test this model, the researchers proposed that the similarity-liking effect occurs when there is no expectation about continuing the relationship with the target afterwards and that the similarity-liking effect is reduced when someone believes that the relationship with the other person is likely to continue. They tested this hypothesis in two experiments manipulating similarity in interests. In the first experiment, half of the participants were led to believe that the phantom-other was very likely to get along with them; for the other half of the participants, the likelihood of the relationship was not mentioned. In each condition, half of the participants were presented with a similar other, and the other half of the participants were presented with a dissimilar other. Results indicated that similarity increased attraction when the likelihood of the relationship was unknown, but the dissimilar other was liked more when the likelihood of the relationship was known, supporting the self-expansion hypothesis. In the studies presented in this thesis, the likelihood of the relationship was unknown, and it could have increased the effects of similarity.

However, Aron et al.'s effects were qualified by an interaction with gender, which indicated that these effects were actually not significant for women. This finding raises the broader issue of gender. Montoya and Horton's (2012) meta-analysis reported that the similarity-liking effect is stronger when participant and target have the same gender than when they have the opposite gender. Moreover, the effect was stronger for female than for male participants. To avoid mixing these gender effects, the studies in the chapters 3 and 4 only recruited female participants, and only the first study made explicit the gender of the target. The other three studies did not specify the gender, and they used a gender neutral name. Because participants were asked to imagine going on a date with the target, it was

important to not specify the target's gender, enabling the participation of both heterosexual and homosexual women. However, this was not controlled, and it is not possible to speculate whether participants' sexual orientation had any effect on the results. Ideally, only single participants would have been included in the studies, because half of them were asked to imagine going on a date with the target, and this could be more difficult for participants in a relationship. Nonetheless, the results were not affected by this variable, except in Study 3, where participants who reported being in a relationship also reported that they would enjoy more going on a date with the target.

All of this does not preclude the need to examine value similarity again in a sample of male participants. In my research, it was not possible to run the set of sequential, programmatic lab studies with men due to the substantively higher cost in recruiting this sample (for pay) from the general population. Experiments with male participants may reveal different effects if the mechanism underlying similarity effects is indeed different for men and women, as implied by Aron et al.'s research. Alternatively, Montoya and Horton's meta-analysis suggests that effects of similarity on liking may merely be weaker in male participants. In addition, it could emerge that any effects of gender depend on which values are analysed, consistent with evidence showing sex differences in value priorities (Rubel & Schwartz, 2006). Future research on this issue would help to clarify the generalizability of the findings reported here.

There is also room to further examine the influence of individual differences in the similarity-liking effect. There is evidence that the similarity-liking effect is affected by self-esteem (e.g., Brown & Brown, 2015), self-ideal discrepancy (Griffitt, 1966; LaPrelle, Hoyle, Insko, & Bernthal (1990); Wetzel & Insko, 1982), preference for consistency (Greenhalgh and Watt, 2014), and self-monitoring (e.g., Jamieson et al., 1987). It was not the main objective of this dissertation to analyse the role of individual differences in the similarity-

liking effect. It was more important to first establish whether and how value similarity influences liking. Notwithstanding this objective, Study 1 included a supplementary examination of self-monitoring. Unexpectedly, value similarity played a larger role in interpersonal attitudes for low self-monitors than for high self-monitors in this study. In contrast, Jamieson et al. (1987) observed that low self-monitors expressed more attraction for a target with similar attitudes than high self-monitors. One potential explanation for the unexpected finding is that the interpersonal nature of these attitudes leads high self-monitors to use value-relevant information, because this helps them to anticipate the potential for conflict with hypothetical individuals (which matters more to high self-monitors than low self-monitors; Snyder, 1974). It could be the case that real, expected interactions would yield a different pattern, wherein the values are ignored in order to pragmatically function in the relationships. Nevertheless, this explanation is post hoc and requires future research. This avenue of investigation is important because research has not acknowledged the potential role of individual differences in the value-similarity effect, and the present findings support the assumption that self-monitoring is relevant. However, there is some debate regarding the construct validity of self-monitoring (Gangestad & Snyder, 2000) and, therefore, future research should consider testing other individual difference variables like the ones cited above.

Finally, most of the focus of research about the similarity-liking effect has considered fictional characters, intimate relationships, and friendships. It is important to extend this research for other societal issues. The applications of the similarity-liking effect can be much broader. It can have serious implications in intergroup perception (Chen & Kenrick, 2002; Greenhalgh & Watt, 2015), students' (Sortheix & Lonnqvist, 2015) and patients' well-being (Luther, Luther, Benkenstein, & Rummelshagen, 2016), recruitment decisions in academia (Roebken, 2010), and recruitment of immigrants (Almeida, Fernando, Hannif, & Dharmage,

2015). Given the implications of values for many aspects of social life, it was an important step to provide an adaptation of the similarity-liking effect for this construct. When the perceptions of dissimilarity are generalized for whole groups and their interactions, the consequences may be even greater.

Conclusions

Popular psychology and common sense have been conjecturing for a long time whether opposites attract, or whether birds of a feather flock together. Over 70 years of research has shown we find ourselves liking those who appear similar to us more than those who appear dissimilar. Such similarity could be made up of many aspects, such as interests, opinions, attitudes, personality, and values. The present research was particularly interested in the latter: value similarity. It was found that both actual and perceived similarity increase liking. Moreover, similarity influences perceptions of a person's warmth and competence, which influences attitudes towards the person. This pattern supports the information processing model, suggesting that similarity does not merely provide validation of our self-concept, but adds to our knowledge about a person.

In sum, although a lot of research has examined the similarity-liking effect, value similarity has been understudied. This series of studies provides the first direct examination of the role of value similarity, while providing provocative evidence about the mechanisms for its impact. Given the implications of values for many aspects of social life, further examination of the effects of value similarity is an important topic for future study.

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