

Personality and Cultural Attitudes

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Statement of Co-authorship

The two manuscripts in my thesis projects were prepared in collaboration with my supervisor, Dave Miranda. I am the first author for the two manuscripts and was thus responsible for conceptualising the research question, planning the methods and analysis, preparing the documents for ethics' review, performing the analyses, and writing the manuscripts. My supervisor, Dave Miranda, is second author on both manuscripts. He assisted me for each step of the process and provided me extensive feedback that was incorporated in the manuscripts before their submission. The first manuscript, "*A Meta-Analysis on Personality and Cultural Attitudes*", was submitted to *Psychological Bulletin*. Kristina Kljajic is the third author on this manuscript. She assisted in coding the studies and revising the coding for all studies included in the meta-analysis. She also provided feedback on the manuscript. The second manuscript, "*Initial Validation of the Multi-Outgroup Inventory of Cultural Attitudes*", was submitted to *Cultural Diversity and Ethnic Minority Psychology*. For this manuscript, I was the first author and Dave Miranda is the second author.

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Summary of Thesis

In a multicultural society, people can embrace or reject cultural diversity to different degrees. These mixed feelings can be more salient in certain contexts that stir intercultural conflicts, but they can also arise from within people's nature. Recent research suggests that cultural attitudes may partially result from personality traits that compose our human nature. My doctoral project investigates cultural attitudes, which represent both negative and positive attitudes towards ethnocultural groups and their relationships with personality and ideological attitudes. I conducted two independent studies that will examine negative (prejudice) and positive (appreciation) cultural attitudes. In my first study, I built on and extended the influential Dual Process Model (DPM; Duckitt, 2001) by positing that personality traits predict cultural attitudes through two different mediated mechanisms: 1) Agreeableness predicts cultural attitudes through social dominance orientation (SDO), whereas 2) Openness predicts cultural attitudes through right-wing authoritarianism (RWA). Notably, I extended the Dual Process Model given that the original version (DPM) only explains prejudice, whereas my version (DPM-2) explains both cultural prejudice and cultural appreciation as dual outcomes. This first study is a meta-analysis that reviews all empirical work that can pertain to the DPM and the DPM-2. My meta-analysis provides shows that the DPM and the DPM-2 seem to be supported by the data. It also shows that cultural prejudice and cultural appreciation are related to personality and ideological attitudes to a different extent. This finding suggest that cultural prejudice and cultural attitudes are partially distinct. My second study validates a much-needed cultural attitudes scale (prejudice and appreciation) that is adapted to the Canadian multicultural context: The Multi-outgroup Inventory of Cultural Attitudes (MICA). This study shows that in the first sample, the factorial structure of the MICA is supported, the MICA scores are reliable, and the scale has a good validity. The second independent sample of this study replicates almost all the results, which

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provide even more support for the validity and reliability of the scores of MICA. The relationship between the cultural prejudice factor and the cultural appreciation factor of the MICA shows that the factors are negatively related, and partially distinct. This doctoral project contributes to a better understanding of prejudice and appreciation of ethnocultural groups in a multicultural context. Overall, it shows that cultural prejudice and cultural appreciation are negatively related constructs that are at least partially distinct.

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Chapter 1: General Introduction

“That's why opera is important, Baron. Because it's realer than any play! A dramatic poet would have to put all those thoughts down one after another to represent this second of time. The composer can put them all down at once - and still make us hear each one of them. Astonishing device - a vocal quartet! I tell you, I want to write a finale lasting half an hour! A quartet becoming a quintet becoming a sextet becoming a septet. On and on, wider and wider- all sounds multiplying and rising together- and then together making a sound entirely new... I bet you that's how God hears the world! Millions of sounds ascending at once and mixing in His ear to become an unending music, unimaginable to us! That's our job! That's our job, we composers: to combine the inner minds of him and him and him, and her and her - the thoughts of chambermaids and Court composers - and turn the audience into God.” - Mozart

Amadeus- Peter Shaffer (1979)

I will begin by explaining why I chose the topic of cultural attitudes and why I start my thesis dissertation with this quote from the play *Amadeus* (Shaffer, 1979). I wanted to study cultural attitudes, because I am deeply interested in people who are keen to encounter cultural diversity, see the best in it, and make the most of it. To me, the capacity to integrate diversity is like writing an opera as Mozart describes it in the quote above. People who can make the best of cultural diversity in their lives are able to take the differences in individuals that they encounter and integrate these differences to create a new and harmonious comprehension of their social world. Mozart has the ability to account for the different characteristics of a variety of musical instruments, to use their individual sound and create a sound that is entirely new, a sound that is beautiful and almost magical. The beauty of it is that the harmony in the way he writes his music not only respects the individuality of each instrument, but also uses their best qualities and features to create music that is greater than what an individual instrument can accomplish. Can we do the same with cultural diversity? Can we consider cultural groups that are different than ours as contributing to our world in which a bigger social group respects the particularities of

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each cultural group while achieving greater things than if each group was living and functioning separately? As humans, it is in our nature to categorize people in groups. It helps us to make sense of our social world. Social psychology has taught us that categorization is a normal process by which we organize social groups by certain characteristics (physical, cultural, psychological, and so on). We tend to divide our social world in terms of groups to which we belong (ingroups) and groups to which we do not belong (outgroups; Tajfel & Turner, 1979). We also use these characteristics to make assumptions about the behaviors and thought processes of the people we encounter which fit the profile of the social groups we have in our minds. When we identify to a group, we can try to get advantages and to promote our own group while derogating outgroups. Therefore, social psychology usually considers that prejudice can emerge particularly in contexts that make ingroup and outgroup differences more salient (Tajfel, 1982). Social categorization can be altered by de-categorization, a process by which we break social groups and focus on the individuals that form them. In the context of cultural diversity, it can lead to colorblindness, which makes us see what people have in common rather than focusing on the group people might belong to (Whitley & Webster, 2019). Recategorization is an interesting process that is close to creating an opera, as Schaffer makes Mozart describe it. Social psychology defines it as a way to reassess the boundaries of social groups and include more people in our ingroup (e.g., people that we consider similar to us). Social situations influence us in the way we react towards cultural diversity, but there are also personal factors that can shape the way we deal with it. Mozart was pushed by his father to play music at a very young age, but he was also gifted with the talent to play and to compose music very easily. Likewise, research shows that some people are predisposed to be favorable to cultural diversity whereas others are predisposed to be unfavorable towards it. People's personality may offer some explanation as to why certain trait

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dispositions play an important role in explaining cultural attitudes, especially prejudice (Sibley & Duckitt, 2008).

The present doctoral thesis examines the relationship between personality and cultural attitudes, which represent negative (i.e., prejudice) and positive (i.e., appreciation) attitudes towards ethnocultural groups. Ethnocultural groups are groups of people who may come from the same geographical region, share practices and values, and may also share a common history and ancestry (Kitayama & Cohen, 2010; West et al., 2017). To this end, the Dual Process Model (DPM; Duckitt, 2001) is used and expanded to explain how personality is related to prejudice. This project entails two independent studies. The first study is a meta-analysis of empirical studies that test the DPM and a new extended version, the DPM-2, in which cultural appreciation is an outcome. The second study is validation of the Multigroup Inventory of Cultural Attitudes (MICA) scores, a scale of cultural attitudes.

Thus far, the bulk of the research in personality psychology has been focused on prejudice, a negative attitude that consists in an overgeneralization in which a judgement is made before having enough relevant information on an outgroup or a member of an outgroup (Allport, 1954; Klineberg, 1968). Prejudice expresses itself in negative feelings, stereotyped thoughts, and behavioural intentions that would be at the disadvantage of an outgroup or members of an outgroup (Allport, 1954). Cultural prejudice and ethnic discrimination are important issues as they can have detrimental health consequences on the people who are targeted by it (de Freitas et al., 2018; Williams et al., 2019). For instance, a meta-analysis showed that ethnic discrimination is related to symptoms of psychiatric disturbances, depression, psychosis, stress, and externalizing behavior, as well as low self-esteem, low self-efficacy, less well-being and difficulties in psychological adaptation (de Freitas et al., 2018). This shows that discrimination is

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related to more mental health problems and to less positive psychological functioning. Moreover, institutional and systematic racism such as segregation has alarming consequences on people's health. For instance, Black people in the United States are more at risk of low birth weight and preterm birth and also have lower survival rates for breast and lung cancer than white people (Williams et al., 2019). Prejudice also fuels intergroup conflicts, which can result in war between countries, an outcome that has huge consequences on societies. This might explain partly why so much research in psychology focused on trying to understand prejudice and not so much on trying to understand positive cultural attitudes.

Personality Psychology and Prejudice

The idea that personality can explain prejudice was first explored in the 1950s by Gordon Allport and Theodor Adorno. Right after World War II, these researchers focused their explanation of prejudice in the person and its predispositions. Prejudice was viewed almost as a psychopathology, an ill attitudinal syndrome. From this tradition, the personality approach of studying prejudice assumed that identity can take positive or negative forms and that racism is embedded in negative identity (Adorno et al., 1950).

Allport argued in his book *The Nature of Prejudice* (1954) that prejudice itself is a personality trait, given that people tend to be prejudiced against a variety of outgroups when they are prejudiced. Adorno developed a theory on the authoritarian personality, which consists in nine covarying traits (conventionalism, authoritarian submission, authoritarian aggression, anti-intraception, superstition and stereotypy, power and toughness, destructiveness and cynicism, projectivity, and sex; Adorno et al., 1950). The F-scale was meant to measure authoritarian personality, namely, people who are susceptible to Fascist propaganda. The authoritarian

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personality describes people who are inclined to support (almost) blindly the decisions made by authoritative instances.

Robert Altemeyer modernised Adorno's ideas 30 years later. Altemeyer suggested that right-wing authoritarianism (RWA) is a combination of high degrees of submission to authority, aggressiveness against people who are perceived to be sanctioned by authorities, and compliance to traditional social norms and conventions (Altemeyer, 1981). According to Altemeyer, in North America, people who fit the RWA profile typically have conservative political orientations (Altemeyer, 2006). However, people who live in countries where communist parties are leading can also fit the RWA profile, but they would still be defined as a left-winger in terms of their political allegiance. RWA also characterises people who respond quite aggressively to outsiders who disrupt social stability and who defy authorities which explains why RWA is related to more prejudice (Altemeyer, 2006).

Another individual characteristic that is strongly related to prejudice is social dominance orientation (SDO). SDO is people's tendency to favour non-egalitarian and hierarchical divides between groups (Sidanius & Pratto, 2011). According to social dominance theory, there are three group-based systems underlying hierarchy, among which is the arbitrary-set system. This arbitrary system comprises all social groups that are based on distinctions specific to a situation or a historical context (Sidanius et al., 2017; Sidanius & Pratto, 2001).

Dual Process Motivational Model

Two decades ago, Duckitt (2001) elaborated the Dual Process Motivational Model (DPM) to organize the relationships between personality traits, ideological attitudes (right-wing authoritarianism and social dominance orientation), and prejudice. As illustrated in Figure 1, the DPM posits that two personality traits, as defined by the Big Five theory, are related to prejudice

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via two different mediators, social dominance orientation and right-wing authoritarianism. The two mediators in the DPM are considered as ideological attitudes, as they mainly pertain to social attitudes and beliefs (Sibley & Duckitt, 2008). The direct links from agreeableness to prejudice and from openness to prejudice are often small and positive, which is why they are not at central to the DPM posited links.

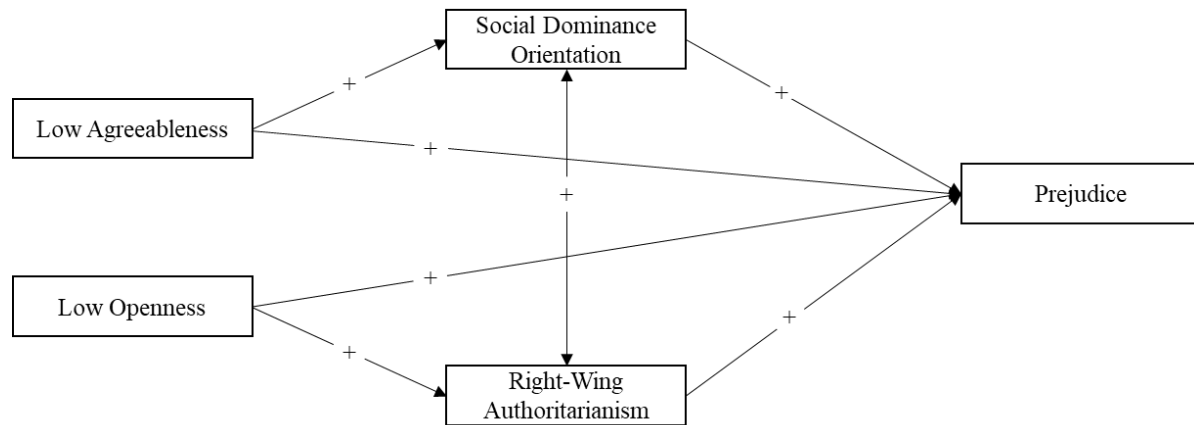


Figure 1. Dual Process Model (DPM)

Hence, the DPM is a dual mediation model with two different explanatory mechanisms that lead to prejudice. In this theoretical model, prejudice is a generalised tendency, which means that it assumes that people who are prejudiced against a specific target group (e.g., immigrants) will also tend to be prejudiced against other target groups (e.g., people with mental illness, gay men and lesbians; Akrami, Ekehammar, & Araya, 2000; Allport, 1954; Sibley et al., 2013). It also assumes that *individual differences* in cultural prejudice are relatively stable across situations. More specifically, the rank order of people based on their cultural prejudice tends to remain stable even across different social situations that may either spur or reduce prejudice (Duckitt & Sibley, 2017). This means, for example, that if a group of people from Sweden commit a terrorist attack in Madagascar, Malagasy are all likely to increase in prejudice against

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Swedish. It also means that those Malagasy who were already more prejudiced before the attack will still be the ones that are the most prejudiced in their country, relative to others. Of course, I chose these two countries only to illustrate the concept of rank order stability, this example is not based on real events and does not pretend to foreshadow any event that could happen in real life.

The First DPM Mechanism

The first mechanism in the Dual Process Model (DPM) starts with low agreeableness as the independent variable, which leads to higher social dominance orientation (SDO) as a mediator, which in turn leads to more prejudice as the dependent variable. The DPM suggests that people who are less agreeable tend to be more prejudiced towards ethnocultural groups that are perceived as competitors for resources and for high status positions in society (Sibley & Duckitt, 2013).

From Low Agreeableness to Social Dominance Orientation. Low agreeableness characterizes someone who is unfriendly, cold, and uncooperative (John et al., 2008). Social dominance orientation (SDO) is a broad individual difference in people's tendency to favour non-egalitarian and hierarchical divides between social groups (Sidanius & Pratto, 2011). According to the DPM, people who are less agreeable are more inclined to interpret competitive situations as a zero-sum game (i.e., when each gain for one party results in a loss for the other) or to perceive that situations are competitive in general, even when they are not (Sibley & Duckitt, 2013). This tendency to compete with other for resources is a characteristic of people who are high on SDO. It can explain why people who are less agreeable tend to have little consideration for others' needs, especially when these needs are perceived to conflict with their own goals (Sibley & Duckitt, 2008). This means that a person who is unfriendly, centered on his own needs, and uncooperative (low in agreeableness) tends to prefer a society that is organized in a

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group-based hierarchy and in which “superior” groups dominate “inferior” groups (high in SDO).

From Social Dominance Orientation to Prejudice. For people who are high in SDO, prejudice seems to come from a willingness to maintain their superiority over competing groups, which is the opposite of the motivational goal of equality and altruistic social concerns for others (Duckitt & Sibley, 2007). People who are socially dominant allow a lot of importance to power and tend to react strongly to groups who compete for the same resources as their own group (Perry & Sibley, 2012). In sum, the first mechanism suggests that low Agreeableness leads to SDO, which in turn leads to more prejudice (low Agreeableness → SDO → Prejudice).

The Second DPM Mechanism

The second explanatory mechanism in the Dual Process Model (DPM) starts with low Openness to Experience as an independent variable, which leads to higher right-wing authoritarianism (RWA) as a mediator, which in turn leads to more prejudice as a dependent variable. The DPM suggests that people who are less open to experience tend to be more prejudiced towards ethnocultural groups that are perceived as threats to society’s security and traditions (Sibley & Duckitt, 2013).

From Low Openness to Experience to Right-Wing Authoritarianism. Openness is a personality trait that characterizes someone who has very limited interests and who is not attracted towards novelty (John et al., 2008). Right-wing authoritarianism (RWA) is a combination of high degrees of submission to authority, aggressiveness against people who are perceived to be sanctioned by authorities, compliance to traditional social norms and conventions (Altemeyer, 1981). The DPM suggests that people who are low in openness appreciate clear and unambiguous social and moral rules, which is a preference that characterises people who are

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high on RWA (Sibley & Duckitt, 2008). They also favor social cohesion in their own group and are supportive of authoritative instances who enforce respect for laws and who are there to ensure social security. This means that a person who has narrow and common interests in life, who prefers concrete, simple and direct knowledge as opposed to abstract knowledge, familiarity over novelty (low in openness to experience) tends to want a society in which traditions, laws, and established authorities are respected (high in RWA).

From Right-Wing Authoritarianism to Prejudice. For people who are high in RWA, prejudice arises from the feeling that outgroups are threatening to ingroup or societal security, stability, order, and cohesion, which competes with the motivational goal of autonomy and individual freedom (Duckitt & Sibley, 2007). People who are high in RWA tend to see independence and individual freedom as leading to chaos and ambiguity. They are afraid that a lack of external control and clear structure will disturb social security. In sum, the second mechanism posits that low openness leads to RWA, which in turn leads to more prejudice (low openness → RWA → Prejudice).

Empirical Research on the DPM

The DPM has received empirical support as it was tested in cross-sectional studies using structural equation modeling with samples from the United States, Europe, and South Africa; and it demonstrated a good fit to the data with ethnocultural prejudice as an outcome (Duckitt, 2001). The entire model with generalized prejudice as an outcome (i.e., combination of racism, sexism, prejudice towards gay men and lesbians, and prejudice towards people who are mentally challenged; Ekehammar, Akrami, Gylje, & Zakrisson, 2004). It was found that personality traits had no direct effect on generalized prejudice, but they had indirect effects. More precisely, extraversion, conscientiousness, and openness were related to generalized prejudice through

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RWA, whereas Agreeableness was related to generalized prejudice through SDO (Ekehammar et al., 2004).

Some studies have tested the chronological sequence of the DPM by looking at how personality, ideological attitudes, and prejudice evolve over time. Cross-lagged longitudinal studies have tested the first half of the DPM, from independent variables to mediators, and showed that agreeableness and openness are related to SDO and RWA over a period going up to one year. A one-year prospective study showed support for the idea that low openness is related to dangerous worldview (i.e., the social world is dangerous and threatening) which is related to RWA and that low agreeableness is related to a competitive worldview (i.e., the social world is competitive and cutthroat) that is in turn related to SDO (Sibley & Duckitt, 2013). Another one-year longitudinal study showed a link between low agreeableness and SDO and a link between low openness and RWA (Perry & Sibley, 2012). Over a period of nine months, undergraduates' levels of agreeableness and openness were related to SDO and RWA, respectively (Perry & Sibley, 2012). Some longitudinal studies have tested the second half of the DPM, from mediators to dependent variables, by looking at the links between SDO/RWA and prejudice. For example, a six-month longitudinal study showed that SDO and RWA were related to prejudice (Asbrock et al., 2010). These studies seem to support the chronological sequence suggested by the DPM as they show that agreeableness and openness are related to changes in SDO and RWA with time, but that SDO and RWA are not related to changes in personality over time. In addition, SDO and RWA are related to changes in prejudice over time, but prejudice is not related to changes in SDO and RWA with time. Although the chronological sequence of the DPM seems logical and received support from cross-lagged studies, experimental designs are lacking in the literature and could provide support for the causality of the variables in the DPM.

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Variables within the DPM (i.e., personality and ideological attitudes) are included in many studies on attitudes towards a variety of outgroups (e.g., vegans and vegetarians, gay men and lesbians, and religious groups; Johnson, Labouff, Rowatt, Patock-Peckham, & Carlisle, 2012; MacInnis & Hodson, 2017; Stones, 2006) and to study sociopolitical attitudes on a variety of events such as the 2011 “Occupy Wall Street” protest (Crawford & Xhambazi, 2015).

Extending the DPM: DPM-2

The present doctoral thesis builds on and extends the original DPM (Sibley & Duckitt, 2008) to study cultural attitudes beyond only prejudice as it includes both prejudice and appreciation towards ethnocultural groups. Throughout this thesis, the adapted version of the original DPM is presented with the acronym DPM-2. The main substantive contribution of the DPM-2 is that it includes a dual outcome: prejudice and appreciation towards ethnocultural groups. Therefore, as presented in Figure 2, the DPM-2 suggests that personality traits (agreeableness and openness) lead to different degrees of ideological attitudes (social dominance orientation and right-wing authoritarianism), which in turn influence prejudice against and/or foster appreciation of ethnocultural groups.

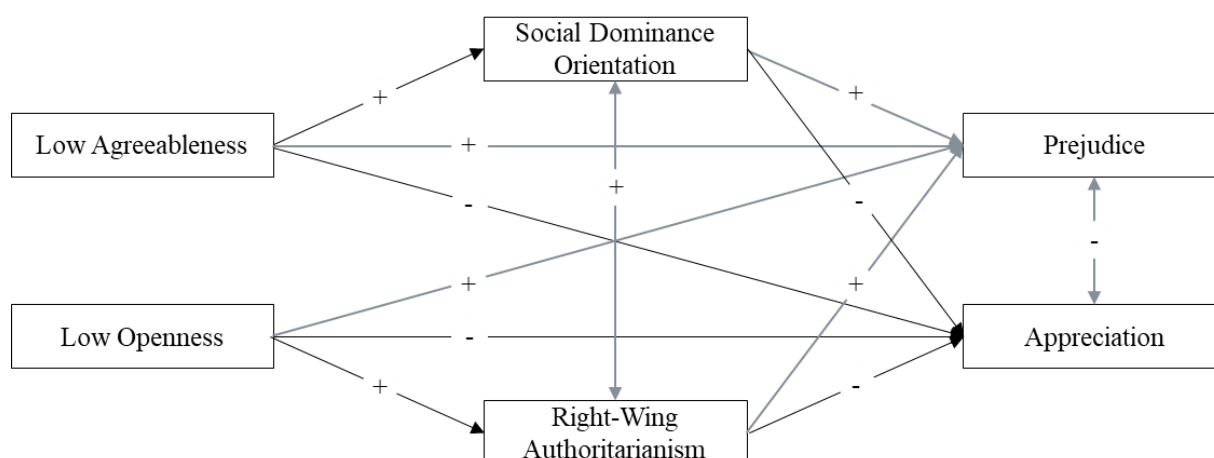


Figure 2. Dual Process Model-2 (DPM-2)

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Positive Cultural Attitudes: Appreciation

Thus far, the bulk of research on cultural attitudes has focused on negative attitudes. Therefore, much of the theoretical framework for the present thesis is drawn from the prejudice literature and much less from research on appreciation of ethnocultural diversity. For instance, in PsycInfo (28-10-2019), the keyword “prejudice” generates 20,050 results, whereas the keywords “allophilia” or “xenophilia” (i.e., terms that refer to appreciation for diversity), generate a mere total of 49 results.

The theoretical framework to study positive cultural attitudes is not well established. Researchers have used various terms to designate positive cultural attitudes (i.e., tolerance, xenophilia, allophilia), all of which have had different definitions over the years. Chapter 3 provides a more thorough review of these terms and their specific definitions.

Research on Positive Cultural Attitudes

Empirical research on positive cultural attitudes is rare and not as well developed than for negative cultural attitudes. The first empirical article that I came across was related to the idea of being appreciative of diversity was published in the *Journal of Public Policy & Marketing*. In this article, the authors created a scale to identify diversity seekers, which they define as people who seek out diversity in products, services and experiences (Brumbaugh & Grier, 2013). The concept of “diversity seekers” is important because that is the starting point of my theoretical position on cultural appreciation. What is interesting in Brumbaugh and Grier’s (2013) conception of diversity seekers is that they define them as agents of societal change. In their study, they validate a psychometric tool, the diversity seeking scale, which is related to dating diverse people and going to social activities that celebrate cultural diversity (Brumbaugh & Grier, 2013). However, their questionnaire was not adapted for the purpose of the present

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doctoral thesis because the items in the diversity seeking scale did not comprise enough aspects of positive cultural attitudes and had items pertaining to liking change in general. Brumbaugh and Grier (2013) argue that diversity seekers are not only interested in other cultures for the sensation-seeking aspect of inter-cultural experiences and can help other people, who might be less interested in cultural diversity in general, to discover and appreciate cultural diversity. An important element in their definition is that diversity seeking goes beyond tolerance or acceptance, it represents that people feel the need to integrate culturally diverse elements in their lives. This aspect of their conceptualisation of diversity seeking was very useful for the present thesis and for developing the conceptualisation of cultural appreciation.

The Miville-Guzman Universality-Diversity Scale is a psychological scale that aims to measure the universal-diverse orientation (M-GUDS; Miville et al., 1999). People who are universally diverse orientated recognize what people have in common in their experience of life as human beings. They are also accepting of what makes people different from one another as we all belong to different social groups (e.g., based on ethnicity, gender, socioeconomic status, sexual orientation, etc.). Acceptance of individual differences (e.g., personality) is also key elements in the conceptualisation of universal-diverse orientation. The M-GUDS is negatively related to homophobia and positively related to empathy (Miville et al., 1999). In the present thesis, the concept of universal-diverse orientation was too encompassing as it included the element of similarities between people. Also, the universal-diverse orientation did not focus specifically on cultural diversity.

More research lead to finding that some researchers have suggested a two-dimensional model of intergroup attitudes (TDMIA) that situates tolerance in the middle of prejudice and allophilia (Pittinsky & Simon, 2007). To my knowledge, the elaboration of the TDMIA is the

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most comprehensive attempt to understand positive cultural attitudes and to integrate it in a theoretical model. In this model, allophilia goes beyond tolerance (i.e. acceptance), as it implies a willingness to go towards people who are different from one's ingroup members (Pittinsky, 2010).

The TDMIA posits that intergroup attitudes can be organized in two orthogonal dimensions. When tolerance is defined as concern for equality between groups, it correlates moderately with prejudice, suggesting that they are related, but distinct concepts (van Zalk & Kerr, 2014). Research shows that higher levels of allophilia are more related to pro-social behaviours towards outgroups than lower levels of prejudice (Pittinsky et al., 2011a). This result suggests that it is not sufficient to have low levels of prejudice in order to engage in positive intergroup interactions. Moreover, negative attitudes were more related to negative behavioral intentions than low levels of allophilia (Pittinsky et al., 2011a). This result suggests that someone who has low levels of allophilia does not seem to be likely to engage in negative intergroup interactions. However, there is still more research to be done to provide empirical support for this assumption that allophilia and prejudice are orthogonal concepts. Moreover, TDMIA theory is not explicit regarding which variables could be included as antecedents or consequences of allophilia in a testable model. Also, the TDMIA theory does not specify how allophilia and prejudice could be related to personality. Due to this gap in the theory/research, the Dual Process Motivational Model was used as a theoretical framework, as it suggests clear and testable links between personality and prejudice.

More recently, the concept of xenophilia was studied to identify personality traits as antecedents of a willingness to explore elements of foreign cultures and encounter people who have a different cultural background (Stürmer et al., 2013). They found that Extraversion and

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Openness, as defined by the Big Five Theory personality framework, were both related directly to xenophilia and indirectly through a tendency to control prejudice (i.e., motivation to respond without prejudice in a given situation). To my knowledge, this was the first study to investigate the links between personality and positive cultural attitudes.

In the present thesis, positive cultural attitudes can be referred to as “appreciation”. Given the lack of consensus on the definition for all the variations of terms used to refer to positive cultural attitudes. Throughout this doctoral thesis, positive cultural attitudes (i.e., appreciation) are conceptualized as a positive evaluation (thoughts, beliefs, and emotions) that reflects goodwill for ethnocultural outgroup. Cultural appreciation is not the same as benevolent racism. Benevolent racism comes from the perspective that ethnocultural outgroups are passive and helpless (Ramasubramanian & Oliver, 2007). Speaking slowly to a person that belongs to an ethnocultural outgroup so that she understands well would be considered benevolent racism because the intention may be good, but the underlying stereotype is that people from other ethnocultural backgrounds can’t understand English as well (Fehr & Sassenberg, 2009). In this doctoral thesis, cultural appreciation is an honest positive attitude that is distinct from wanting to display a positive attitude towards cultural diversity because it looks good to do so (i.e., social desirability).

Cultural Attitudes: Prejudice and Appreciation

In this doctoral thesis, prejudice and appreciation of ethnocultural groups is conceptualized based on two basic assumptions. The first assumption pertains to the *conceptual structure* of prejudice and appreciation. The second assumption pertains to the conceptualization of prejudice and appreciation as *cultural attitudes*.

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Assumption 1: Cultural Prejudice and Appreciation are Two Distinct Attitudinal Concepts

In the present thesis, cultural prejudice and cultural appreciation are considered as distinct concepts. There are at least two reasons why researchers should be careful when interpreting low prejudice as an expression of appreciation. First, scoring low on items of a racism scale does not necessarily reflect the equivalent of appreciating ethnocultural groups. For example, scoring low on items in the *Classical and Modern Racism scale* (Nazar Akrami et al., 2000), such as “Immigrants hold negative attitudes towards women” or “Discrimination is no longer a problem in Sweden” does not necessarily mean that one has positive attitudes towards immigrants. If a participant does not agree with these items, it could mean that he does not hold stereotypes against immigrants and that he acknowledges immigrants’ struggles. However, it does not necessarily mean that the participant appreciates immigrants to the point of being friends with them. Second, one could think that simply using reversed items on a cultural prejudice measure would suffice to create a measure of cultural appreciation. For instance, the *Classical and Modern Racism scale* (Nazar Akrami et al., 2000) has reversed items such as “It is easy to understand immigrants’ demands for equal rights” and “Immigrants get too little attention from the media”. Scoring high on those reversed items would not necessarily reflect positive attitudes either, but rather a form of sympathy. Reversed items of cultural prejudice scales were made to measure low cultural prejudice, not high cultural appreciation. Therefore, without more research, it would be hazardous to conclude that people who have low prejudice towards different outgroups necessarily appreciate them.

Assumption 2: Cultural Attitudes Have Behavioural, Affective, and Cognitive Components

In this doctoral thesis, and especially for the validation of the Multigroup Inventory of Cultural attitudes (MICA) scores, the conceptualization of cultural attitudes is derived from the

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tripartite model of attitudes (Breckler, 1984). This classic model suggests that evaluations of an object can be positive or negative and are made of three components: behaviour, affect, and cognition (Breckler, 1984). The behavioural component refers to the extent to which one is ready to take supportive or hindering actions towards a subject. The affective component refers to the extent to which a subject elicits positive or negative emotions or feelings. The cognitive component refers to the extent to which the subject is related to favourable or unfavourable thoughts or beliefs. Based on this classical taxonomy of attitudes' components, this thesis will define cultural prejudice as a general antipathy towards ethnocultural outgroup members. More specifically, and in keeping with the classic rationale of Allport (1954), this antipathy will express itself in negative feelings, stereotyped thoughts, and behavioural intentions that would be at the disadvantage of members of those outgroups. Cultural appreciation is defined as a general positive evaluation (thoughts and beliefs) that reflects goodwill and appreciation of members of an ethnocultural outgroup. This appreciation is expressed through positive feelings, thoughts, and behavioural intentions towards members of an ethnocultural outgroup.

The Present Doctoral Thesis

The overarching goal of the present doctoral thesis is to better understand the contribution of personality on negative and positive cultural attitudes. This doctoral project consists of two independent studies on how people's personality traits and ideological attitudes are related to their tendency to have different cultural attitudes (i.e., both prejudice and appreciation). This doctoral thesis is in an article format and for each study in an article format, a manuscript was submitted for publication in a peer-review journal. These two studies are: (1) a meta-analysis; (2) an original scale validation.

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Study 1: A Meta-Analysis on the DPM-2

The first study is a meta-analysis (quantitative review) on the links between personality and cultural attitudes. The first objective of this study is to review the extent to which previous empirical work support the original Dual Process Model (DPM; Duckitt, 2001). The second objective of this meta-analysis is to include positive attitudes as an additional outcome in the DPM. More specifically, this meta-analysis is a review of the extent to which previous empirical studies may support links applicable to the DPM-2: personality traits (Agreeableness and Openness) are related to ideological attitudes (i.e., SDO and RWA), which are related cultural attitudes (prejudice and/or appreciation) (personality traits → ideological attitudes → cultural attitudes). This study is important because it integrates the scientific literature on links between personality, ideological attitudes, and cultural attitudes.

Study 2: The Initial Validation of the Multigroup Inventory of Cultural Attitudes

The objective of the second study is to perform a validation of the scores a new measure of cultural attitudes (i.e., prejudice against and appreciation of ethnocultural groups): the Multigroup Inventory of Cultural Attitudes (MICA). The items of this questionnaire have been inspired by the current literature on cultural attitudes. Items are also based on the tripartite model of attitudes and therefore include statements related to the three following components: behaviours, affect, and cognitions (Breckler, 1984). The questionnaire follows a hierarchical hypothesized structure in which the two factors (prejudice and appreciation) each have three facets (behaviors, affect, and cognition) that are represented by five items each. This study is important because it will provide a valid instrument to measure both negative and positive cultural attitudes. Notably, it has the practical advantage of being adapted for multicultural contexts as it was designed to measure cultural attitudes simultaneously in all participants

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without having to sample out participants for which the scale has items that represent their ingroup.

The goal of this doctoral thesis is to achieve a better understanding of cultural prejudice and cultural appreciation and how they can be integrated in a personality and cultural attitudes theoretical model. The first study of this thesis, a meta-analysis, provides a systematic review on how prejudice and appreciation have been measured in the literature and how these two concepts can be integrated in a comprehensive theoretical framework. The meta-analysis serves as a steppingstone to the second study of the present thesis, which entails the creation of a new psychometric tool that measures both cultural prejudice and cultural appreciation.

Chapter 2: Study 1- A Meta-Analysis on Personality and Cultural Attitudes**Abstract**

In psychology, prejudice has typically been studied by social psychology (e.g., intergroup processes), but the last 20 years have seen a renewed and growing interest for research on personality traits and prejudice. The present meta-analysis integrates findings between personality traits (Big Five), ideological attitudes (social dominance orientation-SDO and right-wing authoritarianism-RWA) and cultural attitudes (cultural prejudice and cultural appreciation). Our theoretical framework was the Dual Process Model (DPM; Duckitt, 2001), which posits that low agreeableness and low openness predict more cultural prejudice through the mediating effects of SDO and RWA. We also developed an extended DPM-2 by adding cultural appreciation as a second outcome. The systematic search for published and unpublished studies identified 300 independent samples. Overall, the main results support both the initial DPM and the extended DPM-2. In the DPM, low agreeableness was linked with cultural prejudice through SDO, whereas low openness was related to cultural prejudice through RWA. In the extended DPM-2, in addition to the same mediated links already present in the DPM, agreeableness was linked with cultural appreciation through low SDO, whereas openness was (though weakly) related to cultural appreciation through low RWA. The findings also show that although the antecedents of cultural prejudice and cultural appreciation are mostly the same, they do not necessarily have the same effect sizes. Importantly, the findings support that cultural prejudice and cultural appreciation are different but negatively interrelated attitudinal constructs. Results are discussed in terms of appreciation and prejudice towards ethnocultural outgroups being two distinct and complementary concepts.

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Keywords: Personality, social dominance orientation, right-wing authoritarianism, prejudice, appreciation, culture, ethnicity

Introduction

Our world is becoming increasingly multicultural due to various migratory waves, globalization of markets and communications, and multifaceted acculturation in people of diverse ethnocultural backgrounds (OECD et al., 2019). As a result, there is an unprecedented number of occasions for people - from a variety of ethnocultural origins - to meet and interact, as well as to see each other being portrayed in different ways in the media and Internet. These multicultural interactions and observations can involve positive cultural attitudes (i.e., appreciation for other cultures) but also negative cultural attitudes (i.e., prejudice against other cultures; Stürmer & Benbow, 2017; Stürmer et al., 2013; Troian, Bonetto, Varet, Barbier, & Lo Monaco, 2018). In recent years, numerous studies have examined if personality traits may partially explain why some people tend to hold more cultural prejudice (Duckitt, 2001; Satherley & Sibley, 2016; Sibley & Barlow, 2017; Stürmer et al., 2013). In contrast, only a few of studies have examined whether personality can be related to cultural appreciation (e.g., Stürmer et al., 2013). This is probably due to the assumption that cultural appreciation and cultural prejudice are simply at opposite ends of a spectrum of cultural attitudes. However, individuals who have little prejudice against a given ethnocultural group do not necessarily have an appreciation for this ethnocultural group, or vice versa. Hence, recent empirical evidence supports that cultural prejudice and cultural appreciation are instead two separate forms of cultural attitudes (Pittinsky & Simon, 2007).

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On the one hand, prejudice is defined as a negative attitude that consists in an overgeneralized judgment that is made before having enough relevant information on an outgroup (Allport, 1954; Klineberg, 1968). On the other hand, appreciation is defined as a positive attitude that conveys amicable feelings that are at the advantage of an outgroup (Blais-Rochette & Miranda, 2019; Pittinsky et al., 2011a). Although cultural outgroup attitudes can often emerge from situational factors, which have been extensively studied in social psychology (e.g., intergroup conflicts; Dovidio et al., 2010), personal factors that pertain to personality traits (e.g., trait dispositions) can also be involved (Ekehammar et al., 2009).

Therefore, to provide a synthesis on personality and cultural attitudes, the present meta-analytic path analysis integrates findings from empirical studies that have examined links between personality traits (as defined by the Big Five), ideological attitudes (social dominance orientation and right-wing authoritarianism) and both positive cultural attitudes (cultural appreciation) and negative cultural attitudes (cultural prejudice). To this end, the present study builds on and extends the influential Dual Process Motivational Model (DPM), which is well-known for providing a synthesis of the main relationships between personality traits and prejudice (Duckitt, 2001).

Personality and Prejudice: The Dual Process Motivational Model (DPM)

The idea that personality can partly explain the tendency in people to be prejudiced against a variety of outgroups was mostly popular near the mid-20th Century (e.g., Allport, 1954) but it has recently regained considerable interest among researchers (e.g., Duckitt, 2001; Satherley & Sibley, 2016; Sibley & Barlow, 2017; Sibley & Duckitt, 2009). The Big Five model one of the main personality model that researchers use to study prejudice (Sibley & Duckitt, 2008). The five traits are openness to experience, conscientiousness, extraversion, agreeableness,

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and neuroticism (John et al., 2008). Openness to experience characterises people who like to play with ideas, have intellectual curiosity and are creative. Conscientiousness characterises people who are organised, productive and responsible. Extraversion characterises people who are sociable and assertive and have high energy levels. Agreeableness characterises people who are compassionate, kind, and cooperative. Neuroticism characterises people who are anxious, fearful, and temperamental.

At the present time, the Dual Process Motivational Model (DPM) is the most influential theoretical framework to organize the relationships between personality and prejudice (Duckitt, 2001). As illustrated in Figure 1, the DPM mainly posits that the two personality traits that are related to prejudice are low agreeableness and low openness from the Big Five model via two different mediators (social dominance orientation and right-wing authoritarianism). Importantly, meta-analytical findings suggest that the DPM should focus on low agreeableness and low openness from the Big 5 (rather than extraversion, conscientiousness, and neuroticism) because these two traits show the strongest links with SDO, RWA, and cultural prejudice (Sibley & Duckitt, 2008). The two mediators in the DPM are usually considered to be ideological attitudes, as they pertain to social attitudes and beliefs (Sibley & Duckitt, 2008). Hence, the DPM is a dual mediation model because it has two different explanatory mechanisms for prejudice.

The first explanatory mechanism starts with low agreeableness as the independent variable, which leads to higher social dominance orientation (SDO) as a mediator, which in turn leads to more prejudice as the dependent variable. People who are low on agreeableness tend to be unfriendly, cold, and uncooperative (John et al., 2008). The DPM suggests that low agreeableness is thus associated with higher social dominance orientation (SDO) because the latter denotes an hostile tendency to favour non-egalitarian and hierarchical divides between

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social groups (Sidanius & Pratto, 2011). More specifically, this mechanism posits that people who are less agreeable are more inclined to interpret competitive situations as a zero-sum game (i.e., when each gain for one party results in a loss for the other) or to perceive that situations are competitive in general, even when they are not (Sibley & Duckitt, 2013). For people who are high in SDO, prejudice seems to come from a willingness to maintain their superiority over competing groups. According to the DPM, this generates a competitive motivational goal that is in conflict with equalitarian and altruistic motivational goals that would imply social concern for others (Duckitt & Sibley, 2007). In sum, the first mechanism suggests that low agreeableness leads to SDO, which in turn leads to more prejudice (low agreeableness → high SDO → high prejudice).

The second explanatory mechanism starts with low openness as an independent variable, which leads to higher right-wing authoritarianism (RWA) as a mediator, which in turn leads to more prejudice as a dependent variable. People who are low on the openness personality trait tend to have little intellectual interests, are not very curious, prefer simple things, and tend to be shallow (John et al., 2008). People who are low in openness also appreciate clear and unambiguous rules (Sibley & Duckitt, 2008). The DPM posits that people who are low on openness are more likely to be higher on RWA given that the latter is a combination of excessive submission to authority, aggressiveness against people perceived to be condemned by authorities, and an exaggerated compliance to traditional social norms and conventions (Altemeyer, 1981). Notably, the DPM postulates that people who are low in openness tend to be more prejudiced towards ethnocultural groups that are perceived as threats to societal security and traditions (Sibley & Duckitt, 2013). For people who are high in RWA, prejudice seems to come from the feeling that outgroups are threatening their ingroup or societal security, stability,

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order, and cohesion. According to the DPM, RWA's apprehensive motivational goals are probably fuelled by fear and feelings of threat which conflicts with other motivational goals pertaining to autonomy support and individual freedom (Duckitt & Sibley, 2007). In sum, the second mechanism posits that low openness leads to higher RWA, which in turn leads to more prejudice (low Openness → high RWA → high prejudice).

Empirical Support for the DPM

Cross-lagged longitudinal studies have respectively tested the first and the second half of the DPM and have provided support for its predictive sequence. The first half of the DPM, from independent variables to mediators, was tested with cross-lagged longitudinal designs over a 9 months and a one-year period and supported that low agreeableness predicts higher SDO while low openness predicts higher RWA (Perry & Sibley, 2012; Sibley & Duckitt, 2010). The cross-lagged designs in both studies revealed that the relationships between personality and the mediators were unidirectional, meaning that personality could predict change in SDO and RWA, but that SDO and RWA did not predict change in personality over time. Some longitudinal studies have tested the second half of the DPM, from mediators to dependent variables, by looking at the links between SDO/RWA and prejudice. For example, a six-month cross-lagged longitudinal study showed that SDO and RWA could predict prejudice (Asbrock et al., 2010). Again, the predictive sequence of the DPM was supported by this study, showing that SDO and RWA can predict prejudice, but that prejudice did not predict SDO and RWA.

In the present meta-analysis, the DPM serves as a well-established theoretical framework to examine how personality may partially explain prejudice against ethnocultural outgroups. The DPM conceptualises general prejudice as a combination of prejudice against various target outgroups (Duckitt, 2001). Research supports this idea by showing that people who are less

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agreeable and less open are more socially dominant and more (right-wing) authoritarian, respectively, which is related to having more prejudice in general (i.e., combination of racism, sexism, prejudice towards gay men and lesbians, and prejudice towards people with mental disabilities; Ekehammar, Akrami, Gylje, & Zakrisson, 2004). The DPM is also very effective in predicting prejudice towards more specific target outgroups such as immigrants (Asbrock et al., 2012; Chirumbolo et al., 2016; Satherley & Sibley, 2016), gay men and lesbians (Crawford et al., 2016), and ethnic groups (e.g., Americans, Asians, Pakehas, Pacific Islanders, Maoris, Afrikaners, Black people; Duckitt, 2001; Levin, Pratto, Matthews, Sidanius, & Kteily, 2013).

More than a decade ago, Sibley and Duckitt, (2008) conducted the only meta-analysis on the entire DPM. Their meta-analysis has since become influential and has become a seminal work on personality and prejudice. Originally, Sibley and Duckitt (2008) finalized their search for articles in early 2007 and included 71 studies in their final analyses. As expected by the DPM, Sibley and Duckitt's meta-analysis showed that agreeableness was negatively (and moderately) related to SDO ($r = -.29$) and was negatively (weakly to moderately) related to prejudice ($r = -.22$). Openness was negatively (and moderately) related to RWA ($r = -.36$), negatively (and weakly) related to SDO ($r = -.16$), and was negatively (and moderately) related to prejudice ($r = -.30$). SDO ($r = .55$) and RWA ($r = .49$) were positively (and strongly) related to prejudice. More recently, a meta-analysis was conducted on the second half of the DPM, from SDO and RWA to prejudice towards immigrants (Cohrs & Stelzl, 2010). These authors reported that SDO ($r = .45$) and RWA ($r = .46$) were positively (and strongly) related to anti-immigrants prejudice (Cohrs & Stelzl, 2010). However, these effects were slightly smaller than those reported by Sibley and Duckitt (2008) for generalized prejudice.

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In order to test the mediation effects posited by the DPM, Sibley and Duckitt (2008) performed partial correlations in their meta-analysis. They found that the negative relationship between agreeableness and prejudice was reduced significantly when controlling for SDO, which they interpreted as evidence of partial mediation. Furthermore, they also found that the negative relationship between openness and prejudice was also reduced significantly when controlling for RWA, which they also interpreted as evidence of partial mediation. They also found that relationships between personality (i.e., agreeableness and openness) and prejudice were slightly stronger in undergraduate samples compared to adult samples.

Cultural Attitudes: Prejudice and Appreciation

In this meta-analysis, prejudice against and appreciation of ethnocultural groups are considered as two separate dimensions. This will allow to test if cultural prejudice and cultural appreciation may have similar or different antecedents. Cultural prejudice expresses itself in negative feelings, stereotyped thoughts, and behavioural intentions that would be at the disadvantage of an ethnocultural outgroup or members of an ethnocultural outgroup (Allport, 1954). Cultural appreciation can be conceptualized as a positive evaluation (feelings, thoughts, beliefs, and intentions of behaviors) that reflects goodwill for an ethnocultural outgroup (Pittinsky et al., 2011a). Many scholars may consider cultural appreciation as merely the absence (or opposite) of cultural prejudice. However, it has been recently argued that negative and positive cultural attitudes are probably orthogonal (i.e., distinct) dimensions (Pittinsky & Simon, 2007). This implies, for example, that promoting less cultural prejudice does not necessarily result in promoting more cultural appreciation (Pittinsky & Simon, 2007). In other words, reducing cultural prejudice will not automatically make people appreciate different cultural groups. Likewise, increasing cultural appreciation will not automatically make people hold less

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prejudice towards cultural groups. It is also important to mention that cultural appreciation is different from benevolent racism. Benevolent racism is a condescending attitude towards cultural outgroups (Ramasubramanian & Oliver, 2007). An example of benevolent racism would be to tell a person from an ethnocultural outgroup that her level of English is impressively good. There might be a good intention behind this type of compliment, but it is also paired with the stereotype that people from ethnocultural outgroups do not speak English well. Cultural appreciation is also different from social desirability, as it is a genuine positive attitude, not a way to pretend that one likes people from other ethnocultural outgroups.

A Meta-Analysis on Personality, Ideological Attitudes, and Cultural Attitudes

The present meta-analysis builds on and extends that of Sibley and Duckitt (2008) in at least three ways. First, the present meta-analysis includes additional and recent empirical studies published since 2007. Studies in French and unpublished doctoral theses were included. Second, the present study attempts to test and extend the DPM by including outcomes pertaining to positive cultural attitudes (e.g., xenophilia, allophilia, tolerance; Balint, 2016; Barbarino & Sturmer, 2016; Pittinsky et al., 2011b). Therefore, the extended DPM has two separate outcomes in that two dependent variables consist of negative (prejudice) and positive (appreciation) cultural attitudes. Third, the meta-analytic path analysis is a statistical method that has never been used before to test the DPM. The main advantage of this statistical technique is that the hypothesized links between the variables of interest (both direct and indirect relationships) can be tested all at once in a single model (Cheung, 2015; Jak, 2015).

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Objectives

The present study evaluates the links posited by the DPM and the DPM-2 with a meta-analytic path analysis. Meta-analytic path analysis is a statistical technique that uses the correlation matrices obtained by a conventional meta-analysis to test a path model (Cheung, 2015; Jak, 2015). This method has been used in prior meta-analyses on training motivation (Colquitt et al., 2000) and climate perceptions (Carr et al., 2003), for example. The first step in conducting meta-analytic path analysis is to gather and meta-analyse all correlations for studies that have data on at least one of the links of interest among all the links in the DPM and the DPM-2 (Viswesvaran & Ones, 1995). The second step is to use the correlation matrices to perform a series of path analyses that allows to test one segment of the model at a time (Colquitt et al., 2000).

Following the meta-analytic path analysis procedure, there were two main objectives. The first objective is to obtain 26 meta-analytical estimates on the bivariate relationships between the personality traits from the Big Five (openness, conscientiousness, extraversion, agreeableness, and neuroticism), two ideological attitudes (SDO and RWA) and two forms of cultural attitudes (prejudice and appreciation). The reason why all personality traits are included in the meta-analysis is to replicate Sibley and Duckitt (2008)'s findings, who found that agreeableness and openness are the two main personality traits that are related to ideological attitudes and cultural attitudes. Two moderating variables are considered (university students vs. non-students and validated vs. homemade measures of cultural attitudes) for their potential influence on each of the meta-analytical estimates included in the DPM and the DPM-2. The second objective is to test the DPM and the DPM-2 through a meta-analytic path analysis. More specifically, the correlation matrix of meta-analytical estimates serves as data to examine the

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direct as well as the indirect relationships between personality (agreeableness and openness), ideological attitudes (SDO and RWA), and cultural attitudes (prejudice and appreciation).

Moderators for the Meta-Analytic Estimates

University students and non-students. Findings in personality and social psychology are generally based on samples of university students (Arnett, 2008). As a result, there is often a lack of information about non-student populations, notably older adults in the workforce or young people who are not attending university. In Sibley and Duckitt's meta-analysis, the relationships between personality (low agreeableness and low openness) and prejudice were slightly stronger in undergraduate samples compared to adult samples. Therefore, we expected to find similar results in the present meta-analysis.

Cultural attitudes: validated and homemade measures. We were interested to know if the effect sizes would be different between studies that have used validated versus homemade (non-validated) measures of cultural attitudes (i.e., prejudice or appreciation). From a psychometric perspective, this comparison is important given that using validated measures should lead to a more precise and accurate estimation of effect sizes. Therefore, a significant moderation could suggest that the results are probably more accurate with validated measures of cultural attitudes.

Hypotheses of the Meta-Analytic Path Analysis

Two Initial Hypotheses from the DPM (with Cultural Prejudice as an Outcome).

Hypothesis 1 (H1): Low agreeableness should be related to higher levels of cultural prejudice through higher levels of SDO.

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Hypothesis 2 (H2): Low openness should be related to higher levels of cultural prejudice through higher levels of RWA.

Two New Hypotheses from the DPM-2 (with Cultural Appreciation as an Outcome).

Hypothesis 3 (H3): High agreeableness should be related to higher levels of cultural appreciation through lower levels of SDO.

Hypothesis 4 (H4): High openness will be related to higher levels of cultural appreciation through lower levels of RWA.

Method

Search procedure

The search for published studies and unpublished theses was conducted in the following electronic databases: ScienceDirect, PsycInfo, Medline, Google Scholar, Scopus, Érudit, and ProQuest. All pertinent studies published before January 1st, 2018 were included. The search criteria pertained to three categories of keywords: (1) personality (i.e., personality trait, Big Five, Five Factor Model, agreeableness, openness); (2) ideological attitudes (i.e., ideology, social dominance orientation, dominance, competitiveness, right-wing authoritarianism, authoritarianism, authoritarian); and (3) attitudes (i.e., intergroup attitudes, outgroup attitudes, prejudice, racism, ethnic attitudes, allophilia, tolerance, xenophilia, positive attitudes). Studies needed to that have at least one keyword within two of the three categories of keywords in their title, abstract, or listed keywords. Requests were sent for additional information for studies in which some correlations were not reported for the variables of interest. We did not to send requests for unpublished data.

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The breakdown of the search is detailed in the Prisma chart (Figure 3). The initial search generated 4,076 articles. After removing the duplicates, a total of 3,519 articles remained and 2,756 articles were excluded by screening through the titles and abstracts. 763 articles remained for the full text screening and 599 of them were excluded (reasons of exclusions are listed in Figure 3). A total of 164 articles were kept and additional 26 articles were added after searching through the reference list of the 164 remaining articles. From these 190 articles, 300 independent studies remained for the analyses. The list of all references included in this meta-analysis is available as supplementary material and can be accessed on the Open Science Framework website (https://osf.io/8xy3v/?view_only=c78fcbffd60c4fc8b3e8321591ca6560).

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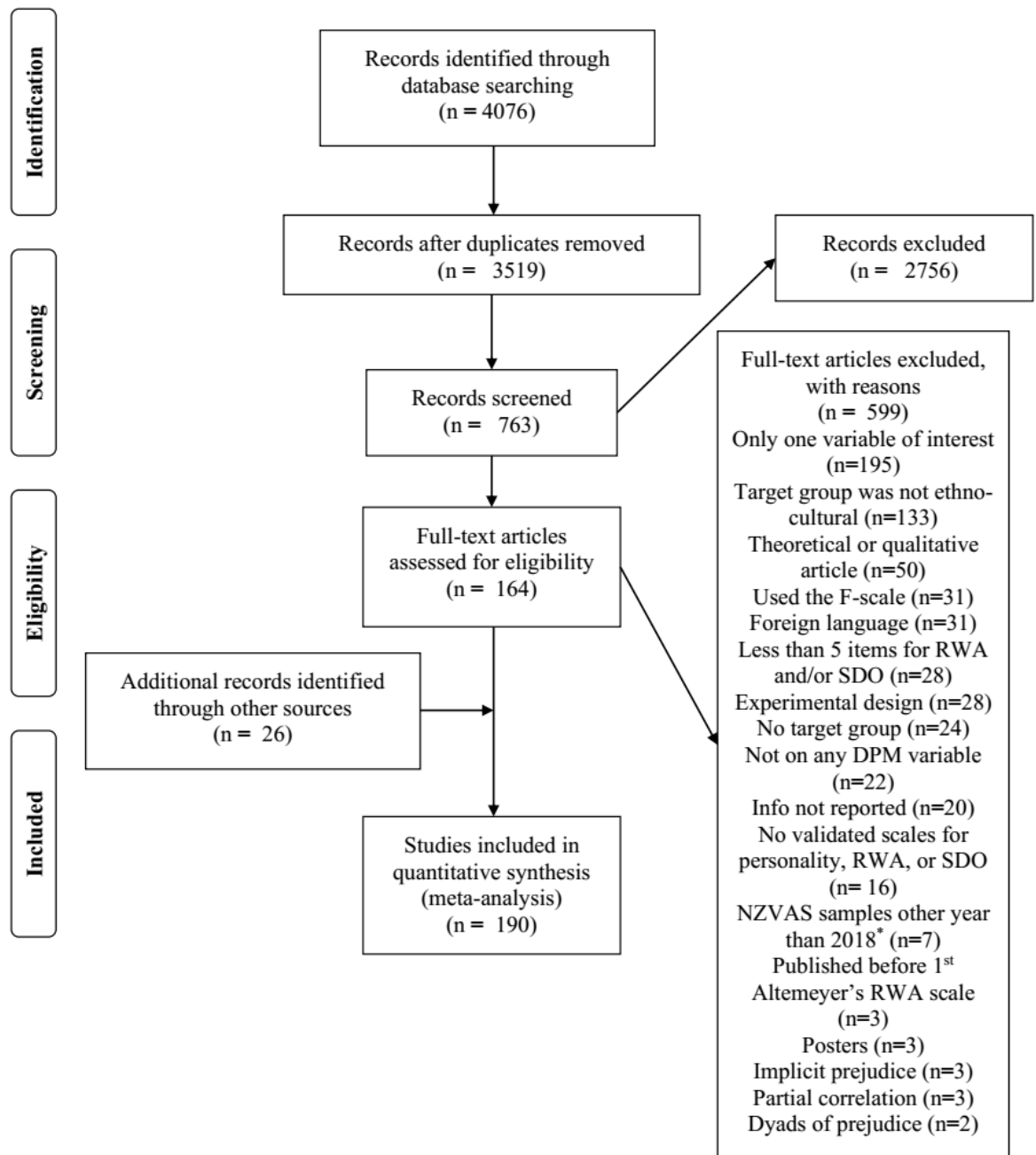


Figure 3. Prisma Chart for the Meta-Analysis Search Process *Results for 2018 for the New Zealand Attitudes and Values Survey (NZAVS) were received through personal communication with the author.

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Inclusion and Exclusion Criteria

If the study measured personality, it was included if it had validated personality scales that assess personality traits as conceptualized by the Big Five (John et al., 2008; Soto & John, 2016) or the HEXACO (Lee & Ashton, 2004). If the study measured SDO and/or RWA, it was included if it had a full or a short version of the SDO scale (Pratto et al., 1994) and/or a full or a short version of the an RWA scale that is either inspired by Altemeyer's conceptualization or a given version of the Altemeyer's scales (Altemeyer, 1981, 1988, 1996, 1998). If the study measured cultural attitudes, it was included if it had validated measures, homemade measures, and thermometers of cultural attitudes. It should be noted that religious prejudice was not considered as a cultural attitude in this meta-analysis. Studies in English and French were included. Published articles, additional information provided by personal communication with authors, and unpublished doctoral dissertations were included.

Coding of Studies

Several pieces of information were retrieved from the selected articles. They pertained to the effect sizes of the studied variables (i.e., bivariate correlations), as well as methodological characteristics (e.g., sample size, Cronbach's alpha). When studies reported their correlations by subscales for a variable of interest or when studies reported cultural attitudes correlations for different target groups, the correlations were considered as dependent from one another. Two moderators were considered. The first moderator was whether the sample was composed of university students or non-university students. The non-university students' group included community samples, high school samples, and samples from online survey. The second moderator was whether the measures of cultural attitudes (prejudice and appreciation) were validated or homemade. Validated measures needed to have a dedicated article with initial

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validation steps, otherwise it was a homemade measure. The first and third authors coded a subsample of 35 studies to evaluate the inter-rater reliability (Krippendorff's alpha of .99). The Krippendorff (or khalpha) is a measure of inter-rater reliability between coders; the minimum acceptable correlation is 0.67 (Swert, 2012). The first author coded the rest of the samples and the third author verified the coding. Disagreements in the coding were discussed between the first and the third author. The coded studies are all available in supplementary material and can be accessed on the Open Science Framework website

(https://osf.io/8xy3v/?view_only=c78fcbffd60c4fc8b3e8321591ca6560).

Effect Sizes

The measures of effect size were bivariate correlations between the variables of interest (e.g., SDO and prejudice; Borenstein, Hedges, Higgins, & Rothstein, 2009). For studies that reported their correlations by subscale for a variable of interest or by different target groups for cultural attitudes, the correlations were combined in CMA while considering the dependency between the correlations. Articles that only reported standardized betas were not included in this meta-analysis, as transforming standardized betas to correlations could lead to biased estimates (Roth et al., 2018). Note that the meta-analysis on the correlation between SDO and RWA will be done based on the available correlations in the present pool of studies.

Objective 1: Meta-Analysis

Comprehensive Meta-Analysis (Version 3; 2014), a software dedicated to meta-analyses, was used to estimate the effect sizes. A random effect meta-analysis was done because it allows to consider both the sampling error within each study and the between-studies variance in comparison to fixed effect models that consider the within-study variance only (Borenstein et al.,

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2009). The correlations were first corrected for attenuation bias using the following formula:

$$\rho_{xy} = \frac{r_{xy}}{\sqrt{r_{xx}\sqrt{r_{yy}}}} \quad \text{where } r_{xy} \text{ is the correlation between } x \text{ and } y \text{ variables and } r_{xx} \text{ and } r_{yy} \text{ are the}$$

reliabilities of those two variables. The correction for attenuation serves to compensate for

measurement errors in studies. When the reliability was not provided, the average alpha ($\bar{\alpha}$) of

all the samples for which a reliability indicator was reported was used. The uncorrected and

corrected correlations were converted into Fisher's z using the following equation: $z = 0.5 \ln \frac{1+r}{1-r}$

and the variance of z was calculated with: $Vz = \frac{1}{(n-3)}$ (Borenstein et al., 2009). The standard

error was calculated using the following formula: $SEz = \sqrt{Vz}$. The meta-analyses were done

using a random-effects model as it accounts for heterogeneity between effect sizes. A relatively

high degree of heterogeneity in effect sizes was expected due to differences in the types of

population studied and in the variety of measurement scales used by researchers to assess

cultural attitudes. A summary of effects represents the mean of a distribution of effects. The null

hypothesis that the mean effect is zero is then tested. Once the summary effects, the confidence

intervals, and the Z-scores were obtained and the null hypothesis was tested, the Fisher's z scores

were converted back into correlations using the following equation: $r = \frac{e^{2z}-1}{e^{2z}+1}$ (Borenstein et al.,

2009).

Moderators

Moderators were tested only for the relationships in the DPM and the DPM-2. This

means that moderation analyses on the meta-analytical estimates that involved either

conscientiousness, extraversion, or neuroticism were not tested. The reason why these three traits

were excluded from the moderation analyses is that the meta-analytical estimates showed that

openness and agreeableness were the main personality traits in the DPM and the DPM-2. We did

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subgroup analyses on the moderators that were coded as dichotomous variables (university students vs. non university students, validated vs. homemade measures of cultural attitudes) using a random effects model (Borenstein et al., 2009). The moderation analyses were done on the meta-analytical estimates that were corrected for the attenuation bias.

Objective 2: Meta-Analytic Path Analysis.

Path analysis is recommended when correlation matrices for composite scores are available, whereas CFA or SEM are preferred when one has correlation matrices at the item level (Cheung, 2015). For the present meta-analysis, path analysis was conducted on the summarized effect sizes (i.e., correlations) that were obtained with the meta-analysis using Mplus 8 (Muthén & Muthén, 1998-2015). When conducting meta-analytic path analysis, the number of studies required per path that is tested is usually not an issue. Instead, the challenge is more choosing the sample size that will be used to fit the path model (Cheung, 2015). Only one sample size can be used to test the path model, however, each path ends up having a different sample size given that the studies included in the meta-analysis do not include all the paths in the path model (Cheung, 2015). A solution to this problem is to use the harmonic mean as it is more conservative and gives less weight to studies with a very large sample (Viswesvaran & Ones, 1995). The harmonic mean is calculated with the following formula: $k = \left(\frac{1}{N_1} + \frac{1}{N_2} + \dots + \frac{1}{N_k} \right)$ where k is the number of correlations in the matrix and N represents the sample size of each correlation. The direct effects were estimated by the effect of personality traits on cultural prejudice and cultural appreciation. The indirect effects were estimated by the product of the links between personality traits and ideological attitudes and between ideological attitudes and cultural attitudes. The indirect effects were tested using a bootstrapping method that is implemented in Mplus 8. The path model for the DPM and the DPM-2 were estimated with maximum likelihood (Jak, 2015). The evaluation

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of the model fit usually consists in verifying if the suggested model explains the data (Kline, 2010). First, as presented in Figure 4, a series of path analysis (i.e., regressions) were conducted on all the relationships posited in the original DPM. Second, as presented in Figure 5, a series of path analysis (i.e., regressions) were conducted on all the relationships posited in the DPM-2.

Results

Objective 1: Meta-Analysis

Table 1 reports the results of the meta-analyses from which we used the corrected correlations to test the subsequent path model. Table 1 contains the uncorrected ($\bar{r}$) and corrected correlations ($\bar{\rho}$), as well as the number of samples per meta-analyzed correlation (k), the number of participants per meta-analyzed correlations (N), the confidence intervals (95% [CI]) and the Q_t statistics. Interpretation of effect sizes will be based on recent empirical benchmarks established from 728 correlations from 87 meta-analyses in research on individual differences: $\rho < .15$ is small; $.15 < \rho < .35$ is medium; $\rho > .35$ is large (Gignac & Szodorai, 2016).

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Table 1. Uncorrected and Corrected Meta-Analyses of the correlations between the Big Five and

Correlation	$\bar{r}$	$\bar{\rho}$	95% CI		Q_t	Number of studies	n	$\bar{\alpha}$
			Lower	Upper				
Openness								.76
With SDO	-.20	-.25	-.28	-.22	441.711	53	44474	
With RWA	-.32	-.41	-.44	-.38	877.201*	69	42679	
With Prejudice	-.23	-.29	-.36	-.22	285.729*	24	11944	
With Appreciation	.26	.34	.27	.40	290.615*	17	30167	
Conscientiousness								.79
With SDO	-.03	-.04	-.07	-.02	207.057*	46	41554	
With RWA	.16	.20	.17	.22	224.287*	52	36916	
With Prejudice	.03	.04	-.03	.09	31.279*	16	3345	
With Appreciation	.06	.08	.01	.15	183.549*	13	29237	
Extraversion								.82
With SDO	-.03	-.03	-.06	-.01	127.087*	44	40233	
With RWA	.00	.00	-.03	.03	220.977*	48	35551	
With Prejudice	-.04	-.05	-.12	.01	38.930*	14	3319	
With Appreciation	.15	.19	.11	.26	238.05*	14	29407	
Agreeableness								.73
With SDO	-.26	-.34	-.37	-.31	651.53*	52	43162	
With RWA	.01	.02	-.02	.05	356.85*	54	37255	
With Prejudice	-.18	-.25	-.34	-.15	135.384*	14	3987	
With Appreciation	.20	.26	.22	.30	55.338*	14	29486	
Neuroticism								.81
With SDO	-.03	-.04	-.07	-.01	251.780*	44	40233	
With RWA	.00	.00	-.02	.03	139.694*	48	35551	
With Prejudice	-.02	-.02	-.09	.05	51.927*	15	3309	
With Appreciation	-.06	-.07	-.11	-.02	64.152*	14	29315	
SDO								.86
With Prejudice	.48	.60	.56	.63	3997.723*	135	35603	
With Appreciation	-.37	-.45	-.51	-.38	584.936*	29	28791	
RWA								.82
With Prejudice	.43	.54	.50	.59	4129.172*	128	36163	
With Appreciation	-.24	-.29	-.38	-.21	468.588*	22	25973	
With SDO	.34	.41	.38	.44	1406.88*	118	53749	
Prejudice								.81
Appreciation								.84
Prejudice & Appreciation	-.34	-.44	-.56	-.30	514.661*	17	4343	

Ideological Attitudes, as well as Cultural Attitudes

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Note. * $p < .05$

All effect sizes are reported in Table 1. As expected, agreeableness has a medium and negative relationship with SDO and a small and positive relationship with RWA. Openness has a medium and negative relationship with SDO and a large and negative relationship with RWA. Conscientiousness has a small and negative correlation with SDO and a medium and positive correlation with RWA. Extraversion has a small and negative correlation with SDO and is not related to RWA. Neuroticism is not correlated with SDO and has a small and negative correlation with RWA.

Agreeableness and openness have medium and negative correlations with prejudice and medium and positive correlations with appreciation. Conscientiousness and neuroticism are not associated with prejudice and are weakly and negatively related to appreciation. Extraversion is not related to prejudice but has a medium and positive correlation with appreciation. SDO and RWA are strongly and positively related to prejudice. SDO is strongly and negatively related to appreciation and RWA is moderately and negatively related to appreciation. Finally, the analysis of 118 samples shows that the correlation between SDO and RWA is large and positive.

Moderators

Table 1 and Table 2 show that the Q_t statistics are almost all significant and that the I^2 are high, which indicate heterogeneity in the results. Q_t is the weighted sum of squared difference between individual study effects and pooled effect across studies. I^2 is the percentage of variation in the studies that is due to heterogeneity rather than chance. The influence of two potential moderators were considered as they might explain some of this heterogeneity in the results.

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Table 2. Heterogeneity and Publication Bias Indicators for All Meta-Analyses

Correlation	I^2	Kendall's Tau rank order correlation with continuity correction	Egger's regression intercept
Openness			
With SDO	88.23	-.07	.28
With RWA	92.25	-.10	-1.15
With Prejudice	91.95	-.13	-2.16
With Appreciation	94.50	.13	3.51*
Conscientiousness			
With SDO	78.27	.00	-1.14*
With RWA	77.26	-.05	.61
With Prejudice	61.64	-.14	-.90
With Appreciation	93.46	.04	1.59
Extraversion			
With SDO	66.17	.10	.00
With RWA	78.73	.21*	.83
With Prejudice	66.61	-.10	-.08
With Appreciation	94.54	-.08	1.89
Agreeableness			
With SDO	92.17	-.07	1.50*
With RWA	85.15	-.14	.74
With Prejudice	90.40	-.33	-.28
With Appreciation	76.51	.09	.69
Neuroticism			
With SDO	82.93	.04	-.24
With RWA	66.36	.01	.75*
With Prejudice	73.04	.21	1.34
With Appreciation	79.74	.13	1.07
SDO			
With Prejudice	96.65	-.07	-.41
With Appreciation	95.21	.28*	-2.67*
RWA			
With Prejudice	96.92	-.05	.62
With Appreciation	95.52	.05	-3.02*
With SDO	91.68	-.14*	1.82*
Prejudice & Appreciation	96.89	-.01	-.98

Note. * $p < .05$ SDO= social dominance orientation, RWA= right-wing authoritarianism

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Table 3 reports the results of the subgroup analyses for university students vs. non-students and Table 4 reports the results for the subgroup analyses of validated vs. homemade measures of cultural attitudes. For all moderation analyses, a listwise deletion was done to keep only the studies that provided the necessary information for the moderation analysis. The 95% confidence intervals (CI) indicated if there was a moderation. If the meta-analytical estimate of one group was not included in the CI of the other group and vice versa, it indicated a difference between the two groups (Belia et al., 2005).

Table 3. *Sample Subgroup Analysis for All Correlations in the DPM-2*

Meta-analysis	Sample							
	Number of studies	University students			Number of studies	Non university students		
		$\bar{\rho}$	Lower limit	Upper limit		$\bar{\rho}$	Lower limit	Upper limit
Openness								
With RWA	40	-.39	-.44	-.33	28	-.43	-.48	-.38
With Prejudice	14	-.34	-.40	-.27	10	-.23	-.33	-.12
With Appreciation	14	.37	.28	.44	3	.20	.10	.30
Agreeableness								
With SDO	37	-.35	-.39	-.30	15	-.31	-.39	-.23
With Prejudice	8	-.30	-.39	-.20	6	-.18	-.35	.01
With Appreciation	11	.28	.20	.36	3	.24	.22	.25
SDO								
With Prejudice	77	.57	.53	.61	58	.63	.56	.68
With Appreciation	22	-.45	-.52	-.37	6	-.39	-.53	-.24
RWA								
With Prejudice	74	.49	.42	.56	51	.61	.56	.65
With Appreciation	17	-.28	-.39	-.16	4	-.28	-.41	-.13
With SDO	70	.37	.33	.42	45	.46	.43	.50
Prejudice & Appreciation	13	-.43	-.58	-.25	2	-.32	-.60	.03

Note. SDO= social dominance orientation; RWA=right-wing authoritarianism

University Students vs. Non University Students. In studies conducted with university students, the meta-analyzed correlation is stronger between openness and appreciation compared

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to studies conducted with non-students. In studies conducted with non university students' samples, meta-analyzed correlations are stronger between RWA and between RWA and SDO than the ones in studies with university students. The rest of the meta-analytic estimates were not moderated by educational status (university students vs. non university students).

Table 4. *Validation subgroup analysis for all correlations in the DPM-2*

Meta-analysis	Number of studies	Validation			Number of studies	Homemade		
		$\bar{\rho}$	Lower limit	Upper limit		$\bar{\rho}$	Lower limit	Upper limit
Openness								
With Prejudice	6	-.17	-.35	.02	7	-.19	-.24	-.14
With Appreciation	9	.41	.30	.52	5	.31	.18	.42
Agreeableness								
With Prejudice ^λ	-	-	-	-	-	-	-	-
With Appreciation	8	.33	.26	.41	4	.15	.08	.23
SDO								
With Prejudice	63	.57	.52	.62	39	.59	.51	.66
With Appreciation	12	-.54	-.60	-.46	10	-.26	-.40	-.10
RWA								
With Prejudice	84	.55	.49	.61	24	.40	.33	.45
With Appreciation	9	-.34	-.47	-.18	3	-.13	-.17	-.09
Prejudice & Appreciation (App)	6	-.47	-.73	-.09	3	-.30	-.43	-.14
Prejudice & Appreciation (P)	9	-.48	-.68	-.21	4	-.35	-.48	-.21

Note. ^λWe did not have enough information to do this analysis. SDO= social dominance orientation; RWA=right-wing authoritarianism; APP= analysis for appreciation scale; P= analysis for prejudice scale

Validated vs. Homemade Measures of Cultural Attitudes. In studies that used validated measures of cultural attitudes, the correlations are stronger between agreeableness and appreciation, between SDO and appreciation, as well as between RWA and cultural attitudes

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(prejudice and appreciation) compared to studies that used homemade measures. The rest of the meta-analyzed correlations were not moderated by the validity of the measure. We did not have enough information to calculate this moderation for the relationship between agreeableness and prejudice.

Publication Bias

Table 2 shows that most of the meta-analytical estimates did not have publication bias, as the Kendall's tau rank order correlations and the Egger's regression intercept are mostly not significant. There are only two meta-analyzed correlations for which both indicators of potential publication bias are significant, which is for the correlation between SDO and cultural appreciation and the correlation between RWA and SDO. More specifically, these results suggest that there is some asymmetry in the funnel plot for the meta-analytic correlation between SDO and cultural appreciation and the meta-analytic correlation between SDO and RWA. However, the deviation of the Egger's intercept is not too far from 0, which indicates that the asymmetry might not be that pronounced. Nevertheless, there is a risk of publication bias for the link between SDO and cultural appreciation and the link between SDO and RWA.

Objective 2: Meta-Analytic Path Analysis

The next step was to use these meta-analyzed correlations organized in a matrix and test the path model. Based on the harmonic mean, we had 19,159 participants to test the path models (DPM and DPM-2) and the models were tested using the corrected correlations for the data.

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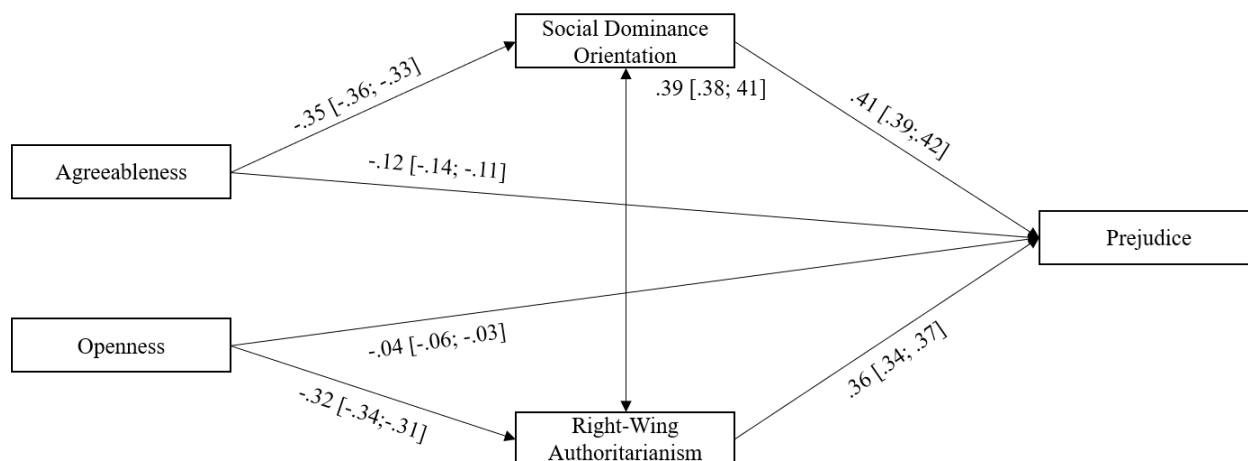
Original DPM

Figure 4. Path Analysis Results for the Dual Process Model (DPM) [95%CI]

Figure 4 displays the results for each of the meta-analytic paths for the original DPM. The model fit is somewhat satisfactory for the original DPM: $\chi^2 (2, n= 19,159) = 1413.29$ $p < .001$; CFI= .94; RMSEA= .192, 90% CI [.184; .200], $p < .05$. Inconsistencies in model fit indices like obtained here (i.e., a good CFI and an RMSEA that indicate poor fit), do not necessarily mean that the model fit is poor (Lai & Green, 2016). According to Lai and Green (2016), there are often characteristics in the data or the sample that can explain these inconsistencies. In the present analysis, the explanation as to why the RMSEA indicates poor fit while the CFI is good is probably because when testing models with a small number of degrees of freedom and large sample sizes, RMSEA tends to be high even if the model fit is good (Kenny et al., 2015). All effects are significant given the large number of participants. As expected, the direct effects from personality traits (agreeableness and openness) to prejudice are small and negative.

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As expected, Figure 4 also indicates that the effects between personality traits (openness and agreeableness) and ideological attitudes (SDO and RWA) are medium and negative. The direct effects between ideological attitudes and prejudice are also medium and positive. Lastly, the correlation between SDO and RWA is medium and positive.

The indirect effects show that agreeableness is related to prejudice through SDO ($c'_1 = -0.14, p < .001$), whereas openness is related to prejudice through RWA ($c'_2 = -0.11, p < .001$). In other words, low agreeableness is related to high SDO, which in turn is related to more prejudice, whereas low openness is related to high RWA, which in turn leads to more prejudice.

DPM-2

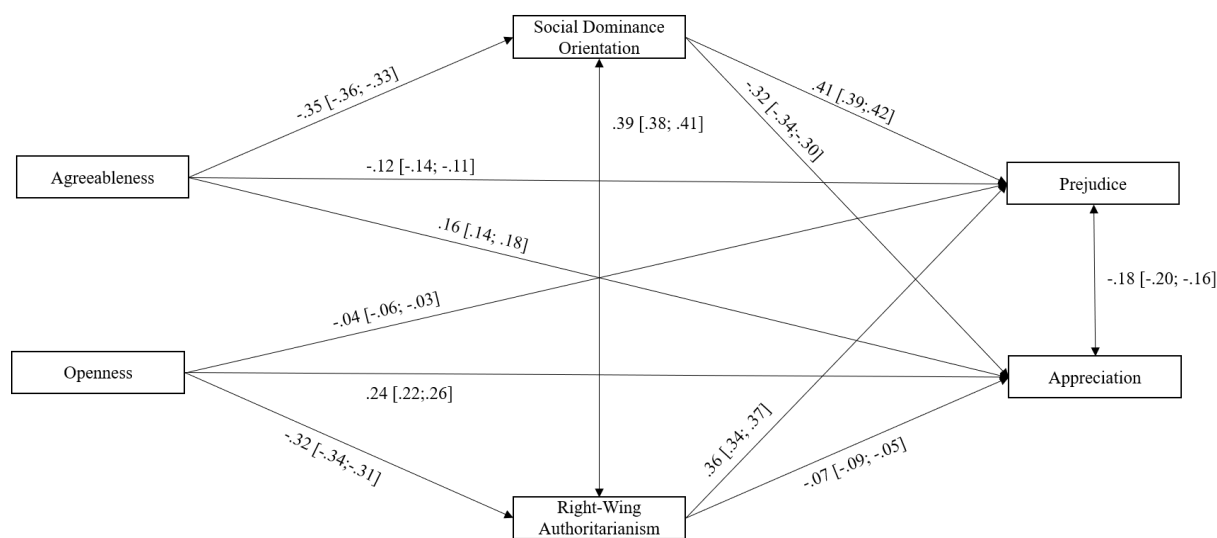


Figure 5. Path Analysis Results for the Dual Process Model-2 (DPM-2) [95%CI]

Figure 5 displays the results for each of the meta-analytic paths for the DPM-2. The model fit is again somewhat satisfactory and almost identical to the original DPM, except that the CFI is slightly better: $\chi^2 (2, n = 19,159) = 1413.29, p < .001$; CFI = .95; RMSEA = .192, 90% CI [.184; .200], $p < .05$. Again, the RSMEA is probably high because of the very large sample in the

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present study and very small number of degrees of freedom in the model tested (Kenny et al., 2015). All links that pertain to the original DPM are identical to those reported in the original DPM section in terms of strength and direction, which is expected given that the same information was to estimate these links for both analyses. The direct effect from agreeableness to appreciation is small and positive, whereas the direct effect from openness to appreciation is medium and positive. The direct effect of SDO on appreciation is medium and negative, whereas the direct effect of RWA on appreciation is small and negative. The correlation between prejudice and appreciation is small and negative. The indirect effects also show that agreeableness is related to appreciation through SDO ($c'_2 = 0.11, p < .001$), whereas openness is related to appreciation through RWA ($c'_4 = 0.02, p < .001$). In other words, this means that high agreeableness is related to low SDO, which in turn is related to more appreciation, whereas high openness is related to low RWA, which in turn is related to more appreciation. However, it is important to note that the indirect effect that related openness to appreciation through RWA has a very small effect size.

Discussion

This meta-analysis was divided in two main objectives to follow the meta-analytic path analysis steps. The first objective was to obtain 26 meta-analytic estimates on the relationships between the Big Five traits, two ideological attitudes (SDO and RWA) and two cultural attitudes (prejudice and appreciation). The possible moderating effect of two variables was also considered (university students vs. non-students and validated vs. homemade questionnaires of cultural attitudes). The second objective was to test both the original DPM and the extended DPM-2 while using the meta-analytical estimates as the data in the meta-analytic path analysis.

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Objective 1: Meta-Analysis

Prejudice

The meta-analytical estimates support the hypothesized links of the original DPM. First, the meta-analysis shows that within the Big Five; agreeableness and openness are indeed the two personality traits that are the most strongly related to prejudice. Moreover, as expected, agreeableness is the trait that is the most strongly linked with SDO, whereas openness is the trait that is the most strongly related to RWA.

That said, it is worth mentioning that conscientiousness is also moderately associated with RWA. This is consistent with the DPM's framework, as conscientiousness is one of the two personality traits (along with openness) that is paired with a preference for order, structure, and stability, which also increases levels of RWA (Duckitt & Sibley, 2017). Openness is also related to SDO, but to a lesser extent than agreeableness. As pointed out by several authors (Levin et al., 2013; Sibley & Duckitt, 2008), SDO and RWA are particularly strongly related to prejudice against ethnocultural outgroups. The results of the present meta-analysis are in agreement with the ones of Sibley and Duckitt (2008) who conducted a meta-analysis on the DPM more than ten years ago. However, the corrected correlations are slightly larger than the ones reported in the meta-analysis of Sibley and Duckitt (2008) on the DPM, as well as the ones in the meta-analysis of Cohrs and Stelzl (2010) on ideological attitudes and prejudice against immigrants. The relationship between SDO and RWA is strong and positive, which is keeping with the literature. In fact, this effect size is almost exactly the same as the one found in the Sibley and Duckitt (2008) meta-analysis on the DPM, which may suggest that the effect size of the interrelation between SDO and RWA has remained stable in the last 13 years. Scholars generally agree that SDO and RWA are excellent predictors of prejudice, but that their effect sizes are situated at the

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lower bound of strong correlations (Altemeyer, 2004; Heaven & Connors, 2001). RWA is related to submission to authority, whereas social dominance is related to competing and dominating others, which makes it difficult for these two phenomena to coexist at high degrees in the same person (Altemeyer, 2004). According to Altemeyer's study (2004), people who are high on both SDO and RWA are rare, but they seek power, domination and clear hierarchical divides, as well as outgroup's submission to their ingroup, which is an important nuance. They also score higher on many types of prejudice (e.g., sexism, homophobia, racism). People who are mostly high on RWA and not on SDO usually think that their ingroup should be submissive and they do not seek dominance. Thus, the fact that the effect size between SDO and RWA may not have increased over the years is probably reassuring given that being high on both ideologies can be toxic at the interpersonal and societal levels.

Cultural Appreciation

From the Big Five, agreeableness, openness, and extraversion were the three personality traits that are the most strongly associated with cultural appreciation. This means that people who are friendly and altruistic tend to have more favorable feelings towards ethnocultural outgroups. Also, people who are more curious, open minded, and original tend to appreciate ethnocultural outgroups as well. People who are more sociable and assertive are also more likely to appreciate ethnocultural outgroups. In sum, people who are more agreeable, open, and extrovert tend to have positive behavioral intentions, emotions, and thoughts towards diverse ethnocultural groups.

It is interesting to note that appreciation and prejudice do not necessarily share the exact same personality-related antecedents. Indeed, while extraversion was moderately and positively associated with appreciation, it was not correlated with prejudice. This means that prejudice and

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appreciation might have slightly different underpinnings in terms of personality traits. This is consistent with the work of Pittinsky (2011) who suggested that prejudice and allophilia have different antecedents and different consequences. This is also consistent with previous research that found cross-cultural exploration to be related to extraversion (Stürmer et al., 2013). In sum, given that cultural prejudice and cultural appreciation share slightly different antecedents, this suggests that prejudice and appreciation are not simply the opposite end of the same continuum of cultural attitudes.

Cultural appreciation has a large negative correlation with SDO and a moderate and negative correlation with RWA. Interestingly, results also show that the effect size for the relationship between appreciation and SDO and appreciation and RWA are smaller than the effect size for relationship between prejudice and SDO and prejudice and RWA. Once again, this suggest that appreciation and prejudice may display some subtle differences in the predictive weight of their ideological mediators. This means that people who are favoring equality and a more cooperative dynamic between groups, as well as individual freedom, tend to appreciate ethnocultural groups, but these characteristics do not seem to be as good of predictors for appreciation than they are for having low levels of prejudice. In sum, given that their attitudinal antecedents may not have the same degree of influence on them, this is additional evidence that prejudice and appreciation are not merely at opposite ends of the same spectrum of cultural attitudes.

Of importance, the present meta-analysis allowed us to estimate the nature of the relationship between cultural prejudice and cultural appreciation. To our knowledge, this relationship has never been studied in a meta-analysis. Our findings indicate that cultural prejudice and cultural appreciation have a strong and negative relationship ($\bar{\rho} = -.44$) that is

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nevertheless situated at the lower bound for large effect sizes (Gignac & Szodorai, 2016). This effect size suggests that both attitudinal constructs are strongly and negatively related to each other, but also that they are not simply the exact opposite of each other. Indeed, to conclude that prejudice and appreciation are simply the opposite ends of the same attitudinal continuum, we would need to observe an extremely strong negative relationship (e.g., $r = -.80$), which is not the case here. As Pittinsky expressed in the title of one of his article, it seems as though “liking is not the opposite of disliking” (Pittinsky et al., 2011a, p. 134). Pittinsky et al. (2011a), found that positive cultural attitudes were better predictors of positive behaviors than low negative cultural attitudes, even though positive attitudes and negative attitudes were highly and negatively correlated ($r = -.62$ and $r = -.54$). In sum, we argue that the present meta-analysis provides evidence that prejudice and appreciation are distinct but negatively interrelated cultural attitudes.

Moderators.

University Students vs. Non-University Students. The relationship between openness and appreciation was stronger in university students than non-students. This result is in line with those of Sibley and Duckitt’s (2008), who also found that personality had a stronger effect on prejudice in undergraduate students compared to adults. This indicate that as we get out of the education system, our cultural attitudes might be less affected by personal characteristics. It might also be because undergraduate students are better test takers, are more used to answering questionnaires regularly (e.g., exams), which could make them more consistent in their answers. The relationships between RWA and prejudice and between RWA and SDO were stronger in non university students compared to university students. This shows that submission to authority and the need for security and stability (RWA) are more related to prejudice as well as more related to a need for clear social hierarchies between groups in people (SDO) who are not

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university students. It seems that the DPM is applicable to samples outside of university settings given that the meta-analysis show that only 3 links out of 12 are stronger in samples that are not university students. There some gender differences in SDO levels (men are typically higher than women), but there are typically no gender differences for RWA levels (Altemeyer, 1981, Heaven & Bucci, 2001).

Validated vs. Homemade Measures of Cultural Attitudes. In studies where they used validated measures, the effects were stronger for agreeableness and appreciation, SDO and appreciation, RWA and prejudice, and RWA and appreciation. The differences in effects show that using a validated measure of cultural attitudes will influence the effect size of the results. Of course, using valid and reliable measurements is at the heart of rigorous psychological research (Anastasi & Urbina, 1997; Spector, 2013). For this reason, studies that used validated measures of cultural attitudes are possibly closer to the true effect than studies who used non-validated measures.

Objective 2: Testing the DPM and the DPM-2

Original DPM.

The first meta-analytic path analysis supports the relationships posited by the DPM. The results had inconsistent fit indices given that our CFI was good, but our RMSEA indicated poor fit. However, as mentioned before, the RMSEA tends to be less accurate with very large sample and models with small degrees of freedom like ours (Kenny et al., 2015). The direct links between personality traits and cultural prejudice are quite small in effect size. In our study, the links between agreeableness and social dominance orientation (SDO) and between openness and

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right-wing authoritarianism (RWA) are large. The links between SDO and prejudice and RWA and prejudice are also both large.

Our two hypotheses concerning the indirect effects in the DPM are supported by the data. The indirect effects show that agreeableness is related to cultural prejudice through SDO and that openness is related to cultural prejudice through RWA. Contrary to Sibley and Duckitt (2008), given our small direct effects of personality on prejudice, our path analysis does not support the idea of a partial mediation but rather a full mediation. However, it is recommended to focus attention on the size of the indirect effect rather than on the direct effect when testing mediations (Rucker et al., 2011). Overall, our results show that studies published up until the end of December 2017 clearly provide support for the original DPM and its dual mediation process. In other words, the data supports the idea that (1) people who are less agreeable tend to value/maintain hierarchy and competition between groups to obtain more resources for their group (higher on SDO), which in turn makes them more culturally prejudiced and (2) people who are less open tend to feel that social security and stability is threatened when other groups make their way close to their ingroup (higher on RWA), which in turn, makes them more culturally prejudiced. The assumption that the two parallel mediation processes only partially overlap is also supported by our analyses (Duckitt & Sibley, 2017). This is important as it shows that there are two different psychological paths that lead to prejudice and that their underlying motivations are different (Duckitt & Sibley, 2017). The first path's motivation is grounded in a willingness to compete for power, dominance, and superiority, whereas the second path is grounded in a willingness to protect, control, and maintain order (Duckitt & Sibley, 2017; Sibley & Duckitt, 2008).

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DPM-2.

The DPM-2 also had inconsistent fit indices like the DPM, as the CFI was good, but the RMSEA indicated poor fit. Once again, this is probably because the RMSEA remains high in good fitting models when sample sizes are very large and in models where there are a small number of degrees of freedom (Kenny et al., 2015). The path analysis of the DPM-2 shows that the direct links between agreeableness and openness with cultural appreciation are moderate. SDO has a negative and moderate relationship with cultural appreciation, whereas RWA has a very small and negative relationship with cultural appreciation. The meta-analytic path analysis of the DPM-2 provides convincing support for our third hypothesis given that the indirect effect shows that agreeableness is related to cultural appreciation through SDO. This means that agreeable people tend to be more egalitarian (lower on SDO) and in turn, they appreciate cultural diversity. There is less support for our fourth hypothesis given that openness is very weakly related to cultural appreciation through RWA. It also means that being open is related to cultural appreciation directly, and less through being in favor of individual freedom (lower on RWA). This shows that appreciation is related to agreeableness through SDO, like prejudice, but unlike prejudice, it is related to openness directly, and less through RWA. This result is important because it demonstrates that paths to cultural appreciation are different than the ones that lead to having low prejudice. Additionally, the direct links of personality on appreciation are stronger than the ones with prejudice, which shows that the personality antecedents of cultural attitudes have different strength for cultural appreciation than for cultural prejudice. Here, the antecedents for cultural appreciation and cultural prejudice are mostly the same, but that the strength of their association is different for appreciation than for prejudice. These results support the idea that

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prejudice and appreciation might be distinct concepts and that their explanatory mechanisms may differ (Pittinsky et al., 2011a).

Limitations

This meta-analysis has several limitations. First, the present study focused only on the specific case of prejudice and appreciation for ethnocultural outgroups. However, other target groups of prejudice and appreciation should be examined in future meta-analytic work (e.g., religious groups, women, gay men and lesbians, people with disabilities). Second, the present meta-analysis included studies that used thermometers of cultural attitudes and they were coded as the researchers presented them in their articles. This means that if the thermometer was used to measure warmth towards a given ethnocultural outgroup, the study was coded as measuring appreciations and vice versa. Thermometers measures put appreciation and prejudice on the same continuum of cultural attitudes and this inherent characteristic of thermometers limits the distinction between prejudice and appreciation. However, the influence of thermometers on the results was partly captured by the moderation that compared validated and homemade measures, as thermometers were classified as homemade measures. Third, meta-analytic estimates are based on cross-sectional data and therefore cannot confirm the direction of the posited predictive relationships between personality, ideologies, and cultural attitudes. This calls for an increase of longitudinal studies before a future meta-analysis can estimate longitudinal effect sizes in the DPM and DPM-2. This is a limitation that was already mentioned in Sibley and Duckitt's (2008) seminal meta-analysis. That said, more than ten years later, at least a few longitudinal studies have tested the first and second half of the DPM, providing encouraging but only preliminary empirical support for its predictive sequence (Asbrock et al., 2010; Perry & Sibley, 2012; Sibley & Duckitt, 2010). Fourth, it is important to note that in the present meta-analysis, the focus was

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on the psychological factors of the DPM. In the full DPM, social worldviews are measured to account for situational factors that could also influence the model (Duckitt & Sibley, 2017). However, for sake of parsimony, social worldviews were not included in the present meta-analysis.

Conclusion

In the context of research on cultural attitudes, our meta-analysis is the first to test the DPM through a meta-analytic path analysis, as well as the first meta-analysis to extend the DPM by adding cultural appreciation as a second outcome in what the DPM-2. The last ten years of research on personality and prejudice continue to support the original DPM. Hence, meta-analytic findings suggest that agreeableness and openness have each their own explicative impact on cultural prejudice, and that this is mediated by social dominance orientation (SDO) and right-wing authoritarianism (RWA), respectively. Interestingly, meta-analytic findings also suggest that cultural prejudice and cultural appreciation have similar but not identical antecedents. Indeed, agreeableness is related to cultural appreciation through SDO, whereas openness is related to cultural appreciation directly, but its indirect effect through RWA is rather weak. Moreover, our meta-analytic estimates revealed that cultural prejudice and cultural appreciation are different but still negatively interrelated attitudinal constructs. Overall, this meta-analysis suggests that appreciation for ethnocultural outgroups and prejudice against ethnocultural outgroups are distinct concepts that are not merely exact opposite on a single continuum of cultural attitudes. Future research should routinely add appreciation as an outcome in the DPM model, as it seems to have different antecedents than prejudice, at least in the context of studying cultural attitudes. Our results suggest that research that target cultural prejudice reduction may have to be designed differently than the ones that target an increase in cultural appreciation. In

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sum, comprehensive research programs should both aim at reducing cultural prejudice and at increasing cultural appreciation given that these are two distinct and complementary outcomes.

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Chapter 3: Study 2- Initial Validation of the Multi-Outgroup Inventory of Cultural Attitudes

Abstract

The objective of this study is to initially validate the Multi-Outgroup Inventory of Cultural Attitudes (MICA) scores, a new self-report scale on both positive (appreciation) and negative (prejudice) attitudes towards ethnocultural outgroups. The MICA offers three novel elements compared to other existing measures of cultural attitudes. First, it measures positive and negative attitudes as different constructs. Second, it can be used in multicultural contexts where participants have many different ethnocultural backgrounds. Third, it measures more specific behavioral, cognitive, and affective elements of cultural attitudes. We evaluated the validity and reliability of the MICA with two independent samples of undergraduate students attending a Canadian university. Sample 1 ($N=361$; $M=19.32$; $SD=1.49$) was very diverse: 44.8% Caucasian, 16.9% Black/Caribbean or African; 11.6% South Asian; 11.4% East Asian; 8.3% Middle Easterner (Arabs); 7.8% from another ethnic group; and 3.3% North African (Arab); 2.5% Latino; and 0.6% Aboriginal/Native. Sample 2 ($N=346$; $M= 19.02$; $SD= 1.34$) was also very diverse: 36.4% Caucasian or European; 15.3% East Asian; 12.7% Black/Caribbean or African; 11.3% South Asian; 10.4% from another ethnic group; 10.1% Middle Easterner (Arabs); 2.0% North African (Arab); 1.4% Latino; and 0.3% Aboriginal/Native. The MICA's 2-factor structure was confirmed and replicated across both samples. The MICA demonstrated concurrent validity, convergent validity, discriminant validity, and reliability across both samples. Importantly, this study indicates that cultural prejudice and cultural appreciation are two negatively related but distinct concepts. Cultural attitudes are multifaceted and may tell a story of both love

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(appreciation) and hate (prejudice) towards other ethnocultural outgroups in multicultural contexts.

Keywords : Cultural attitudes; Prejudice; Appreciation; Validation; culture, ethnicity

Introduction

In psychology, most self-report measures of cultural attitudes are exclusively focused on assessing prejudice (e.g., racism), which leaves out the assessment of positive cultural attitudes (i.e., appreciation) on the fringe. To fill this important caveat, we initially validated the Multi-outgroup Inventory of Cultural Attitudes (MICA) scores, a new scale that can assess both negative and positive cultural attitudes towards various ethnocultural outgroups. As we will explain, the MICA can be used in multicultural contexts where participants have many different ethnocultural backgrounds.

Ethnocultural groups can be defined as groups of people who share practices and values, may come from the same geographical region, and may also share a common history and ancestry (Kitayama & Cohen, 2010; West et al., 2017). Research examining the attitudes that people have towards various ethnocultural outgroups (i.e., ethnocultural groups other than their own) is often limited by three important issues, which we hope to solve with the MICA. First, most studies on cultural attitudes have focused on cultural prejudice without considering cultural appreciation. Notably, it is often assumed that having less negative cultural attitudes is the exact equivalent of having more positive cultural attitudes. However, not being prejudiced against a given culture does not automatically imply that one is very appreciative of this culture. In some instances, being low on cultural prejudice could also mean that one is indifferent towards a given ethnocultural outgroup. The MICA can solve this issue because it measures both cultural

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prejudice and cultural appreciation, separately. Second, given that research on cultural prejudice pertains to intergroup relationships (e.g., in-group vs. outgroups), it usually requires several inclusion and exclusion criteria when recruiting participants as they cannot be themselves in-group members of the target outgroup of prejudice. For example, a study on prejudice against African Americans would usually necessitate the recruitment of participants who are members of another ethnocultural group (e.g., European Americans). This can pose a practical challenge when recruiting an optimal number of participants in multicultural contexts characterized by great ethnocultural diversity (e.g., undergraduate students in many large universities). As a result, many potential participants may not have the opportunity to be included in a study on cultural prejudice because their ethnocultural background is not of immediate interest for the researchers. The MICA offers an inclusive solution to this issue by providing instructions that enables participants of all ethnocultural origins to answer all questions while never thinking of their own in-group (i.e., they are asked to think of an ethnocultural group that is the most different from their own). Third, measures of cultural attitudes often omit to include each of three basic psychological dimensions (i.e., behaviours, affects, and cognitions) that are supposed to underlie all types of attitudes according to classical theories in Social Psychology. Hence, the MICA includes all three basic psychological dimensions (i.e., behavioural, affective, and cognitive) within its respective assessment of cultural prejudice and cultural appreciation.

The MICA in the Multicultural Context of Canadian Society

The MICA was developed in the multicultural context of Canada, which is particularly well suited for studying both negative and positive cultural attitudes. Canada is known for its efforts to harmoniously integrate and respect multiple cultures and migration waves; for instance, through an official multiculturalism policy established by its government in 1971 (Berry, 2013).

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Furthermore, more than one fifth of the Canadian population is a visible ethnocultural minority and this proportion is increasing over the years (Government of Canada, 2017). According to projections from Statistics Canada, people who identify as being members of a minority ethnocultural group could represent about a third of the Canadian population by 2036 (Morency, 2017). Therefore, Canada will become even more multicultural in the next coming years. As such, the multicultural context of Canada is often considered to be a meaningful sample of the increasing cultural diversity worldwide (Lalonde et al., 2016). For instance, the 2019 International Migration and Displacement Trends and Policies Report to the G20 pointed out that migratory waves and globalization of markets and communications are increasing in importance, thus multiplying occasions for people from various ethnocultural groups to interact every day (OECD et al., 2019). Therefore, research on cultural attitudes in Canada can be useful to many different societies that are (and will be) increasingly characterized by cultural diversity.

Cultural diversity is usually positive given that being exposed to different knowledge, values, practices, and products can enrich, broaden, and deepen our worldviews and sociocultural practices. However, cultural diversity can also be challenging when cultural practices and values significantly differ or even conflict between different ethnocultural groups. In Canada, most people express positive attitudes towards multiculturalism, ethnocultural diversity, and immigration (Soroka & Roberton, 2010). However, only about 54% of Canadians think that multiculturalism is a symbol of Canadian identity (Brosseau & Dewing, 2018). Moreover, about 30% of Canadians feel that more ethnocultural diversity is bad and that there are too many immigrants (Soroka & Roberton, 2010). In sum, even in the multicultural context of Canada, many people hold positive, negative, or ambivalent attitudes towards ethnocultural diversity.

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Measuring Prejudice against and Appreciation for Ethnocultural Groups

The MICA is grounded in the notion that positive and negative cultural attitudes are distinct concepts that are not simply the opposite ends of a single attitudinal continuum (Pittinsky & Simon, 2007). Positive cultural attitudes can have a large negative correlation with negative cultural attitudes (ranging from $-.50$ to $-.57$; Pittinsky et al., 2011a, 2011b), however, the negative effect size is not large enough to conclude that both concepts are simply the reverse of each other. This suggests that positive and negative cultural attitudes are intertwined but distinct concepts. Moreover, negative cultural attitudes and positive cultural attitudes do not necessarily have the same consequences as the latter is a better predictor of pro-social behaviours towards outgroups than the former (Pittinsky et al., 2011a).

That said, research on positive attitudes towards ethnocultural diversity is very rare. Most published studies on cultural attitudes have been devoted to negative attitudes towards outgroups, and the consensus is to call those prejudice. Conversely, there is far less research on positive attitudes towards outgroups, and, of course, there is no consensus on how to call those. Over the years, as we will explain, different conceptual efforts have been done to study positive attitudes towards outgroups. Notably, more than half a century ago, in his classic book *The Nature of Prejudice*, Allport (1954) suggested that *tolerance* referred to people who do not only accept, but also approve of others. Allport's original outlook on tolerance is actually in line with how we intend to measure positive cultural attitudes. However, this more positive conceptualization of tolerance has since been underused in research. Unfortunately, Allport (1954) did not develop a psychometric tool to measure tolerance. Since then, in psychology, the concept of tolerance has been used and defined in so many other ways, that it would be misleading and confusing to use this term. For example, tolerance has been used to designate an

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attitude towards foreign cultures (Gasser & Tan, 1999), a tendency equality between groups (van Zalk & Kerr, 2014), acceptance and support for outgroups (Ross & Rouse, 2015), or even a midpoint between prejudice and positive attitudes (Balint, 2016). In one of its more ambivalent conceptualizations, it has been defined as “*a condition by which the individual perceives that some group has customs, values, or interests that are different from his own and unattractive to him, but does not allow his personal dislikes to interfere with his general principles of civil rights.*” (Jackman, 1977, p.166).

During the times of Allport, *xenophilia* had also been used to point out to a sort of idealization of foreign cultures coupled with a rejection of one’s own culture (Perlmutter, 1956), which is far more intense, ambivalent, and extreme than positive cultural attitudes as we intend to measure them. In a recent conceptualization, researchers have redefined xenophilia as a willingness to explore different cultural elements and meet people who have a different cultural background (Stürmer et al., 2013). This conceptualisation of positive cultural attitudes is interesting and much more moderate than that of Perlmutter’s (1956). However, the questionnaire that Stürmer and colleagues used to measure xenophilia was not validated.

Finally, *allophilia* has also been suggested as a term to designate an attitude that goes beyond tolerance (i.e., acceptance), as it implies a willingness to go towards people who are different from one’s in-group members (Pittinsky, 2010). Nevertheless, even though the concept of allophilia is an attitude, it has been mostly defined and measured in terms of affective components, only partially in terms of behavioural components, and it did not include any cognitive components. Theoretically, this can be problematic in terms of conceptual breadth as the concept of attitude is usually defined as an evaluation that encompasses affective, cognitive, and behavioral components (Breckler, 1984; Eagly & Chaiken, 2007).

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In the present study, we have decided that positive cultural attitudes can be referred to as *appreciation*. The reason is that none of the aforementioned concepts of positive attitudes can fully correspond to the way we want to define positive cultural attitudes with the MICA. Thus, positive cultural attitudes (i.e., appreciation) is conceptualized as a positive evaluation (thoughts and beliefs) that reflects goodwill for as well as appreciation of an ethnocultural outgroup. At this point, it is important to mention that cultural appreciation is different from benevolent racism. Benevolent racism is a paternalistic attitude towards outgroups that elicits feelings of pity and sympathy (Ramasubramanian & Oliver, 2007). An example of benevolent racism would be that to speak very slowly to a person that belongs to an ethnocultural outgroup. The intention of the speaker might be good, but assuming the English level of a person based on its ethnocultural group is based on a stereotype (Fehr & Sassenberg, 2009). Conversely, appreciation is a genuine positive attitude and therefore it is not merely the expression of a social desirability that would reflect a willingness to display positive attitudes for sake of impression management or political correctness.

Measuring Outgroup Cultural Attitudes

Most measures of cultural prejudice usually target a specific cultural outgroup and the items are written to reflect prejudice against that specific outgroup. Of course, both substantively and methodologically, this approach is pertinent and sound when focusing on the unique cultural experiences of a given ethnocultural outgroup (e.g., the case of prejudice against Latinos). Indeed, cultural prejudice is usually explained in terms of in-group vs. outgroup dynamics and often within a particular hierarchical context in which a majority in-group is hostile and oppressive towards a given minority outgroup (Bergh et al., 2016; Dovidio et al., 2010). The MICA, instead, can be used to assess outgroup cultural attitudes (prejudice and appreciation) in

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participants of any ethnocultural background. Most of the existing scales on cultural prejudice and cultural appreciation were created so that participants need to focus on the same target group for all items. For example, the Modern Racism Scale (McConahay, 1986) contains items that focus on prejudice against Black people as an outgroup to all participants. Also, the Allophilia scale (Pittinsky et al., 2011b) has statements ending with a given designated outgroup, such as “I am at ease around (group name)”. However, if a given participant identifies with the target outgroup, then the scale inadvertently measures in-group cultural attitudes instead of outgroup cultural attitudes, or perhaps a mix of both. This is an important issue as research on prejudice usually examines outgroup prejudice and less frequently in-group prejudice. This multi-outgroup issue has been highlighted recently given that studies are often unsuccessful in choosing targets that will certainly be outgroups to all participants (Bergh et al., 2016). In such case, researchers have at least two choices to examine negative cultural attitudes from the perspective of prejudice against an outgroup, one during recruitment and the other during database management. First, they can decide not to recruit certain participants *a priori* based on their *non-eligible* ethnocultural backgrounds. Second, they can exclude the data of certain participants from the final statistical analyses because of their *non-eligible* ethnocultural backgrounds. However, in multicultural contexts, it becomes less inclusive, more complicated, very time consuming, and perhaps at times biased to apply this kind of careful selection criteria when recruiting or retaining participants according to specific in-groups and outgroups.

The MICA offers a practical solution to the multi-outgroup issue by assessing each participant’s cultural attitudes towards the ethnocultural outgroup that she designates as the most different from her own. The MICA can thus be used in a multicultural research sample without requiring in-group and outgroup *a priori* (selective recruitment) or *post hoc* (selective retention)

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decisions about who can participate or not. In other words, everybody is welcome to participate, and researchers can conduct analyses with everybody's responses at the same time. As such, we use the term multigroup for the Multi-outgroup Inventory of Cultural Attitudes (MICA), which terminology is inspired by Phinney's Multigroup Ethnic Identity Measure, which was designed to be used with people who identify with any given ethnic group (Phinney, 1992). More specifically, the multi-outgroup instruction of the MICA asks participants to think about the ethnocultural group that they consider as being the most different from their own group.

Three Basic Dimensions Within Cultural Attitudes

The MICA measures both cultural prejudice and cultural appreciation, but furthermore, each of these two dimensions also includes three psychological dimensions or facets (behavioural, affective and cognitive) that are grounded in the classic taxonomy of attitudes in social psychology (Breckler, 1984). The MICA thus has a hierarchical hypothesised structure in which two factors (prejudice and appreciation) have three underlying facets (behaviors, affect, and cognition), which are represented by five items each. The behavioural component refers to the extent to which one is ready to take supportive or hindering actions towards a given ethnocultural outgroup. The affective component refers to the extent to which an ethnocultural outgroup elicits positive or negative emotions (i.e., feelings). The cognitive component refers to the extent to which the ethnocultural outgroup is related to favourable or unfavourable thoughts (i.e., beliefs). In this sense, the MICA scale will have broader content validity as it intends to grasp all aspects of what constitutes an attitude.

These three basic aspects are not always well represented in already existing scales of negative and positive cultural attitudes. For example, one of the only validated measures of positive attitudes, the Allophilia Scale (AS; Pittinsky et al., 2011b), has four dimensions that are

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mostly affective (affection, comfort, kinship, enthusiasm) and includes only a few items that are behavioural within its fifth dimension (engagement). Another example is the Classical and Modern Racial Prejudice Scale (CMRPS; Akrami et al., 2000), which is inspired by the well-established classical and modern racism scale (McConahay et al., 1981). The items of the CMRPS are mostly cognitive as they refer mostly to beliefs about immigrants. Recently, however, Cohrs, Kämpfe-Hargrave, and Riemann (2012) have created a scale that measures prejudice while considering cognitive, affective, and readiness to discriminatory behaviours. However, the items were adapted from scales measuring other types of prejudice (e.g., towards gay men, lesbians, foreigners, and people with disabilities) and the validity of this homemade scale was not assessed (Cohrs et al., 2012).

Objective: Initial Validation Process

The main objective of this study is to develop and validate the Multi-outgroup Inventory of Cultural Attitudes (MICA) scores by assessing the reliability of its score, factorial validity, concurrent validity (Coaley, 2014; Spector, 2013), convergent validity (Anastasi & Urbina, 1997; Coaley, 2014; Spector, 2013), and discriminant validity (Anastasi & Urbina, 1997; Coaley, 2014; Spector, 2013) with two independent samples. The first sample serves to validate the hypothesized factorial structure of the MICA and to obtain a scale with fewer items. The final (shorter) version of the MICA is used to test the reliability of its score and its validity. The second independent sample is used to replicate that the structure of the final (shorter) version of the MICA and test the reliability of its score and its validity. Table 1 summarizes the validity measures that were used for sample 1 and sample 2.

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Table 1. *Validity Measures for the Prejudice and Appreciation Factors of the Multi-Outgroup Inventory of Cultural Attitudes*

Types of Validity	
Concurrent Validity	
Evaluates the relationships between a new scale and existing scales that have been validated and developed to measure the same construct (Coaley, 2014; Spector, 2013)	
MICA Factor	Validity Measures Used
Prejudice Factor	Classical and Modern Racism Scale (CMRPS; Akrami et al., 2000)
Appreciation Factor	Allophilia Scale (AS; Pittinsky et al., 2011b)
Convergent Validity	
Evaluates the relationships between a new scale and existing scales that have been validated and developed to measure the same construct (Coaley, 2014; Spector, 2013).	
MICA Factor	Validity Measures Used
Prejudice Factor	Social Dominance Orientation (SDO; Pratto et al., 1994) and Right-Wing Authoritarianism (RWA; Duckitt et al., 2010)
Appreciation Factor	Ethnocultural Empathy (Wang et al., 2003).
Discriminant Validity	
Evaluates the absence of relationships between a new scale and constructs that should not be related to it (Anastasi & Urbina, 1997; Coaley, 2014; Spector, 2013).	
MICA Factor	Validity Measure Used
Prejudice Factor	Social Desirability (King & Bruner, 2000).
Appreciation Factor	

Method**Scale Development**

The Multi-outgroup Inventory of Cultural Attitudes (MICA) had 60 items, initially. The MICA was created based on a review of the literature on negative and positive attitudes towards ethnocultural groups, as well as related concepts (e.g., Akrami et al., 2000; Cohrs et al., 2012; Pittinsky et al., 2011b; Ryder et al., 2016; Van der Zee & Van Oudenhoven, 2001). There were 30 items per higher order factors (30 items for prejudice and 30 items for appreciation) which were respectively and equally separated in three lower order factors or facets (10 items for behaviors, 10 items for affect, and 10 items for cognitions). One of the present authors (an experienced researcher in cultural psychology), one researcher with expertise in cultural psychology (not on the present team and from a different university), four graduate students, and two undergraduate students (from the authors' university) have reviewed and provided feedback

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for the multi-outgroup instructions and for each item of the MICA. Based on their feedback, the instructions were shortened and clarified, and some items were modified or removed.

Samples

Two independent samples were collected over the course of two years. Participants were undergraduate students recruited in a Canadian university through this institution's online system of participation in research. For their participation in this study, they received one point that is worth one percent of their overall mark in an introductory course. Participants filled out an online survey that was first hosted by Psychdata.com and later by Qualtrics.com. The research was reviewed by the research ethics board (REB) at the authors' university.

Sample 1

The first sample was collected during the Winter, Summer, and Fall terms of 2018. The first sample consisted of 361 Canadian undergraduate students who were all emerging adults between 18 and 25 years old ($M=19.32$; $SD=1.49$). In this sample, 56.8% of students were in their first year, 24.9 % in their second year, 10.6% in their third year, and 7.2% in their fourth year at university. We asked participants to indicate their ethnic group and told them that they could select all groups that applied to them. We found that 44.9% of them self-identified as being Caucasian or European; 16.9% as being Black/Caribbean or African; 11.6% as being South Asian; 11.4% as being East Asian; 8.3% as being Middle Easterner (Arabs); 7.8% as being from another ethnic group; and 3.3% as being North African (Arab); 2.5% as being Latino; and 0.6% as being Aboriginal/Native.

Sample 2

The second sample was collected during the Winter, Summer, and Fall terms of 2019. The second sample consisted of 346 Canadian undergraduate students who were all emerging

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adults between 18 and 25 years old ($M = 19.02$; $SD = 1.34$). In this sample, 59% of them were in their first year, 28.9 % in their second year, 6.1% in their third year, and 6.1 % in their fourth year at university. Again, we asked the participants to indicate their ethnic group and told them that they could select all groups that applied to them. We found that 36.4% self-identified as being Caucasian or European; 15.3% as being East Asian; 12.7% as being Black/Caribbean or African; 11.3% as being South Asian; 10.4% as being from another ethnic group; 10.1% as being Middle Easterner (Arabs); 2.0% as being North African (Arab); 1.4% as being Latino; and 0.3% as being Aboriginal/Native.

Measures

Negative and Positive Cultural Attitudes

The Multi-outgroup Inventory of Cultural Attitudes (MICA) measures negative (prejudice) and positive (appreciation) cultural attitudes. The original 60-item scale has a multi-outgroup instruction that tells participants to think about the ethnocultural group that they consider as being the most different from their own group. Among the 28 items of the final version of the MICA (see results section and Appendix), 13 items measure prejudice and 15 items measure appreciation. For the cultural prejudice and appreciation subscales, the items are further subdivided in three equal categories representing each dimension (or facet) of attitudes (behaviour, affect, and cognition). The behavioral items represent judgments on how members of the participant's in-group should behave with the designated outgroup members identified in the multigroup instructions. The affective items evoke basic emotions (as per Ekman, 2016) that people can have towards the members of the designated outgroup. The cognitive items are negative or positive thoughts related to the worth of the members of the designated outgroup. Participants answered each item on a 7-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7).

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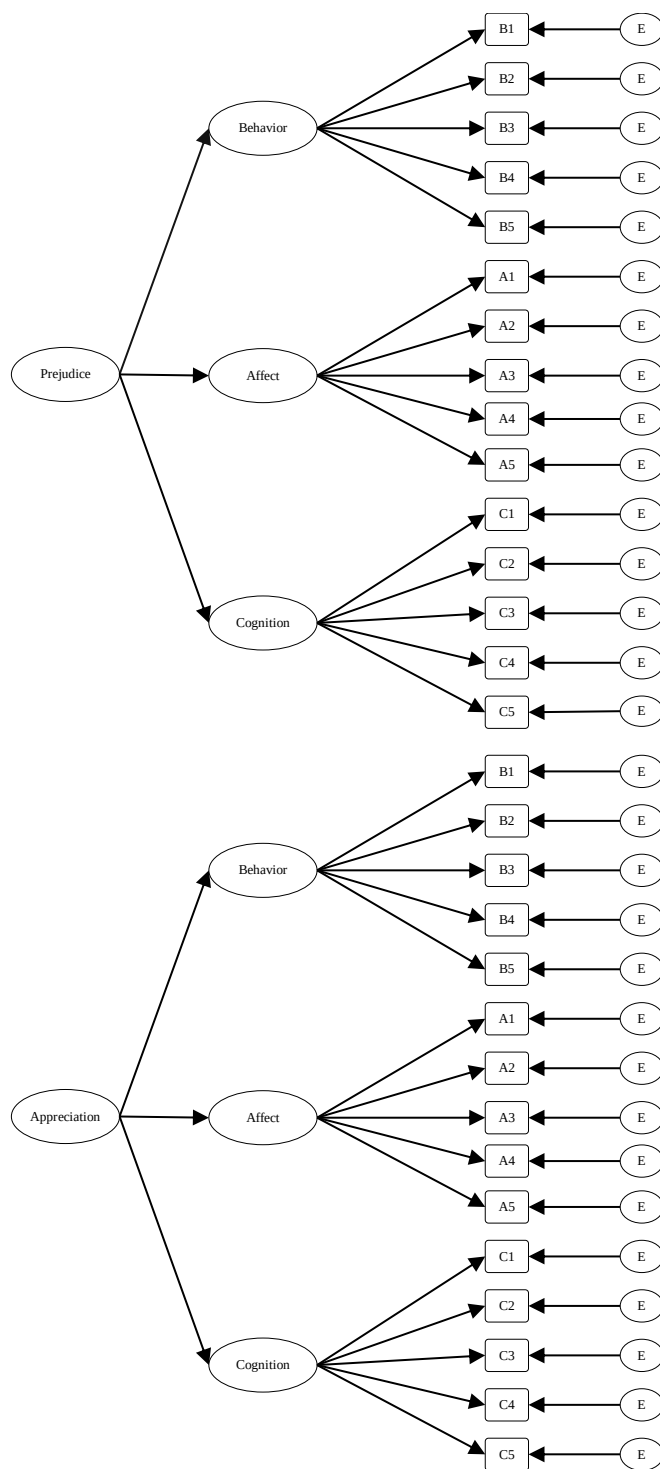


Figure 1. Hypothesized Factorial Structure of the MICA

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Concurrent Validity for Cultural Prejudice

To enable an equivalent comparison, the multi-outgroup instruction of the MICA was also used for all scales that measured the concurrent validity for cultural prejudice and we made very minor modifications to the items of these scales to be coherent with the multigroup instructions and the Canadian context. These modifications were done with the permission of the researchers who created these scales.

Negative Cultural Attitudes (Prejudice)

The Classical and Modern Racial Prejudice Scale (CMRPS; Akrami et al., 2000) is a 17-item scale that assesses classical and modern racial prejudice. Participants rated on a Likert-type scale if they strongly disagree (1) or strongly agree (5) with the statements listed. For example, the classical racial prejudice subscale has items such as “[Name of the outgroup] are generally not very intelligent” and the modern racial prejudice subscale has items such as “[Name of the outgroup] are getting too demanding in the push for equal rights”. The CMRPS has a clear two-factor structure and both subscales had satisfactory internal consistency ($\alpha = .72$ and $\alpha = .82$ for the classical and the modern, respectively; Akrami et al., 2000). It also has good convergent validity as both subscales were correlated with related constructs (i.e., modern and classical sexism and social dominance orientation; Akrami et al., 2000). In the two independent samples of the present study, the CMRPS score had satisfactory internal consistency for classical racial prejudice ($\alpha = .79$ and $\alpha = .74$) and for modern racial prejudice ($\alpha = .75$ and $\alpha = .74$).

Concurrent Validity for Cultural Appreciation

Again, to enable an equivalent comparison, the multi-outgroup instructions were also used for all scales that measured the concurrent validity for cultural appreciation. Some items were modified to fit the multi-outgroup instructions with the permission of the authors of these measures.

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Positive Cultural Attitudes (Appreciation)

The Allophilia Scale (AS; Pittinsky et al., 2011b) has 17 items divided in five subscales (affection, comfort, kinship, enthusiasm, and engagement). It was used to measure positive attitudes towards ethnocultural outgroups. Participants indicated the extent to which they strongly agree (1) or strongly disagree (7) with a series of statements. For example, the AS has items such as “I feel positively towards [members of designated outgroup]”. The factorial structure of the AS demonstrated a better fit with the five-factor model, however, a single composite score of AS was also validated as it was positively correlated with various related and similar constructs, as well as positive outcomes that provided evidence for convergent validity and criterion validity (Pittinsky et al., 2011b). In the two independent samples of the present study, the total score of AS had excellent internal consistency ($\alpha = .97$ and $\alpha = .96$).

Convergent Validity for Cultural Prejudice

Social Dominance Orientation

Social Dominance Orientation was measured with the Social Dominance Orientation Scale (SDO₆; Ho et al., 2012) which contains 16 statements about the extent to which one values hierarchy or equality between groups. Participants evaluated each statement on a 7-point Likert-type scale (1= very negative; 7= very positive). SDO demonstrated discriminant and convergent validity as a 16-item scale (Ho et al., 2012). The SDO scale has items such as “To get ahead in life, it is sometimes necessary to step on other groups” and “Increased social equality would be a bad thing”). Note that for sample 1, item was removed 13 from the analysis, because the item statement was incomplete in the online survey. In the two independent samples of the present study, the SDO scores had very good internal consistency ($\alpha = .93$ and $\alpha = .93$).

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Right-Wing Authoritarianism

Right-wing authoritarianism was measured with the Authoritarianism-Conservatism-Traditionalism scale (ACT; (Duckitt et al., 2010). The ACT can be used as a short form scale (18 items), longer form scale (36 items) and also has three subscales (authoritarianism, conservatism, and traditionalism). For the present study, we used the short 18-item version of the ACT.

Participants rate the extent to which they agree on statements that represent authoritarianism, conservatism, and traditionalism on a 7-point Likert-type scale (1=strongly disagree; 7= strongly agree). For example, the ACT scale has items such as “What our country needs most is discipline, with everyone following our leaders in unity.” The scale demonstrated a good three-factor structure and demonstrated convergent validity with the original 30-item RWA scale (Altemeyer, 1996). The ACT scores had a good internal consistency ranging from $\alpha = .83$ to $\alpha = .94$ and the three subscales scores had satisfying internal consistency ranging from $\alpha = .74$ to $\alpha = .92$ (Duckitt et al., 2010). The scores of the ACT had good internal consistency in both samples in the present study ($\alpha = .82$ and $\alpha = .82$).

Convergent Validity for Appreciation

Ethnocultural Empathy

The Scale of Ethnocultural Empathy (SEE) measures one's empathy towards members of ethnocultural groups that are different from one's own (Wang et al., 2003). This 31-item scale had good internal consistency for the three initial validation studies ($\alpha = .91$, $\alpha = .91$, $\alpha = .76$).

Participants read items such as “I express my concern about discrimination to people from other racial or ethnic groups” and had to rate on a 6-point Likert-scale the extent to which they agreed that the item described themselves (1 = strongly disagree that it describes me; 6 = strongly agree that it describes me). In both of samples of the present study, the EE scores had very good internal consistency ($\alpha = .94$ and $\alpha = .92$).

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Discriminant Validity for Prejudice and Appreciation

Social Desirability

Social desirability was assessed with the Marlowe-Crowne social desirability scale (Reynolds, 1982). It is a 33-item measure that evaluated the extent to which participants are prone to answer in a socially desirable way. Participants had to evaluate if they agreed (yes) or disagreed (no) with the items presented. For example, the Marlowe-Crowne social desirability scale has items such as “It is sometimes hard for me to go on with my work if I am not encouraged”. The score of the MCSD had acceptable reliability ($r_{KR-20} = .74$) and it was strongly correlated with the equivalent Edwards social desirability scale (Reynolds, 1982). In both samples of the present study, however, the reliability of the scores were not as good ($r_{KR-20} = .69$ and $r_{KR-20} = .68$).

Results

Descriptive statistics and correlations

All descriptive statistics, correlations and alphas for study 1 and study 2 are available in Table 2. We calculated all p -values in R using the Student t distribution with $n-2$ degrees of freedom.

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Table 2. *Correlations among the 28 items Multigroup Inventory of Cultural Attitudes (MICA) factors (and facets) with measures of concurrent, convergent, and discriminant validity*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Prejudice	-	-.47***	.78***	.93***	.94***	-.46***	-.44***	-.41***	.50***	.26***	-.50***	.46***	.31***	-.31***	.04
2. Appreciation	-.55***	-	-.38***	-.44***	-.42***	.90***	.96***	.94***	-.60***	-.32***	.68***	-.31***	-.28***	.23***	.04
3. Prejudice behavior	.72***	-.34***	-	.57***	.60***	-.41***	-.34***	-.31***	.39***	.27***	-.37***	.46***	.33***	-.29***	.09
4. Prejudice affect	.94***	-.56***	.53***	-	.86***	-.42***	-.42***	-.39***	.48***	.23***	-.50***	.38***	.25***	-.25***	-.02
5. Prejudice cognition	.91***	-.49***	.47***	.82***	-	-.41***	-.39***	-.38***	.45***	.21***	-.45***	.41***	.25***	-.28***	.04
6. Appreciation behavior	-.54***	.92***	-.40***	-.52***	-.46***	-	.79***	.75***	-.56***	-.32***	.64***	-.33***	-.33***	.21***	-.00
7. Appreciation affect	-.50***	.96***	-.29***	-.54***	-.44***	.82***	-	.89***	-.57***	-.28***	.65***	-.26***	-.20***	.23***	.06
8. Appreciation cognition	-.51***	.95***	-.26***	-.53***	-.49***	.78***	.89***	-	-.56***	-.29***	.62***	-.27***	-.24***	.20***	.04
9. Classical prejudice	.66***	-.64***	.44***	.64***	.60***	-.60***	-.60***	-.60***	-	.39***	-.59***	.41***	.39***	-.34***	-.07
10. Modern prejudice	.30***	-.29***	.31***	.30***	.20***	-.32***	-.25***	-.25***	.35***	-	-.22***	.61***	.45***	-.59***	-.02
11. Allophilia	-.62***	.75***	-.38***	-.64***	-.53***	.70***	.72***	.71***	-.67***	-.31***	-	-.29***	-.20***	.25***	.07
12. SDO	.48***	-.35***	.44***	.43***	.39***	-.39***	-.31***	-.28***	.49***	.62***	-.38***	-	.41***	-.63***	-.11*
13. RWA	.29***	-.17***	.37***	.21***	.23***	-.24***	-.12*	-.14*	.32***	.48***	-.19***	.37***	-	-.42***	.05
14. Ethnocultural empathy	-.31***	.30***	-.34***	-.29***	-.21***	.30***	.32***	.22***	-.42***	-.65***	.36***	-.61***	-.37***	-	.22***
15. Social desirability	-.06	.15**	.04	-.10	-.06	.14**	.15**	.13*	-.13*	-.02	.12*	-.07	.13*	.02	-
Alpha- Study 1	.94	.97	.96	.90	.88	.89	.94	.94	.79	.75	.97	.93	.82	.94	.69
Mean- Study 1	1.70	4.80	1.62	1.84	1.60	4.85	4.75	4.80	2.16	2.14	4.30	1.79	3.42	4.60	21.97
Standard deviation- Study 1	1.03	1.34	1.29	1.24	1.06	1.45	1.45	1.46	0.69	0.63	1.19	0.98	0.80	0.78	3.11
Alpha- Study 2	.95	.96	.96	.90	.90	.88	.92	.92	.74	.74	.96	.93	.82	.92	.68
Mean- Study 2	1.62	4.87	1.62	1.66	1.58	4.89	4.84	4.87	2.16	2.20	4.34	1.79	3.42	4.64	21.66
Standard deviation- Study 2	.98	1.23	1.30	1.05	1.01	1.27	1.34	1.32	0.62	0.62	1.04	0.96	0.80	0.72	3.11

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. Study 1 under the diagonal, N=361; Study 2 above the diagonal, N=346; SDO= Social dominance orientation, RWA= right-wing authoritarianism

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Results Sample 1

Choice of Items

In total, we had less than 5% of missing data, which were handled using Full Information Maximum Likelihood (FIML) in Mplus 8. From the 60 items, we ultimately kept a total of 30 items based on four criteria: (1) initial loadings from an exploratory factor analysis; (2) skewness (-.93; 3.88); (3) kurtosis (-.70; 16.95); and (4) content validity of items (Table 2). The idea was to keep a balance between the facets in terms of number of items. For the face validity, important aspects were the complexity of the items and how redundant they were with other items that were in the initial MICA.

The prejudice ($\alpha = .94$) and appreciation ($\alpha = .97$) factors had excellent internal consistency. The 60 items' loadings, skewness, and kurtosis are listed in supplementary material on the Open Science Framework website (https://osf.io/3fkb4/?view_only=2c0076be8b9a4eac9500c0fb6406b07e).

Factorial Validity and Internal Consistency

The factorial structure of the MICA was assessed with Confirmatory Factor Analysis (CFA) using Mplus 8 (Figure 2). The factorial structure would demonstrate an excellent fit to the data if we obtain a nonsignificant chi-square ($p > .05$), a comparative fit index (CFI) above .95, and a root mean square error of approximation (RMSEA) under .06 (Hu & Bentler, 1999). The structure of the 30-item MICA has two higher order factors (cultural prejudice and cultural appreciation) that each has three lower order factors or facets (behaviour, affect, and cognition). The hierarchical structure of the MICA yielded a satisfying fit to the data using the MRL robust estimates: χ^2 (398, $n=361$) = 942.11, $p < .001$, scaling correction factor for MLR = 1.54; CFI = .91; RMSEA = .062, 90% CI [.056; .067], $p < .001$. However, the CFI was still under the .95 standard and the RMSEA over the .06 standard.

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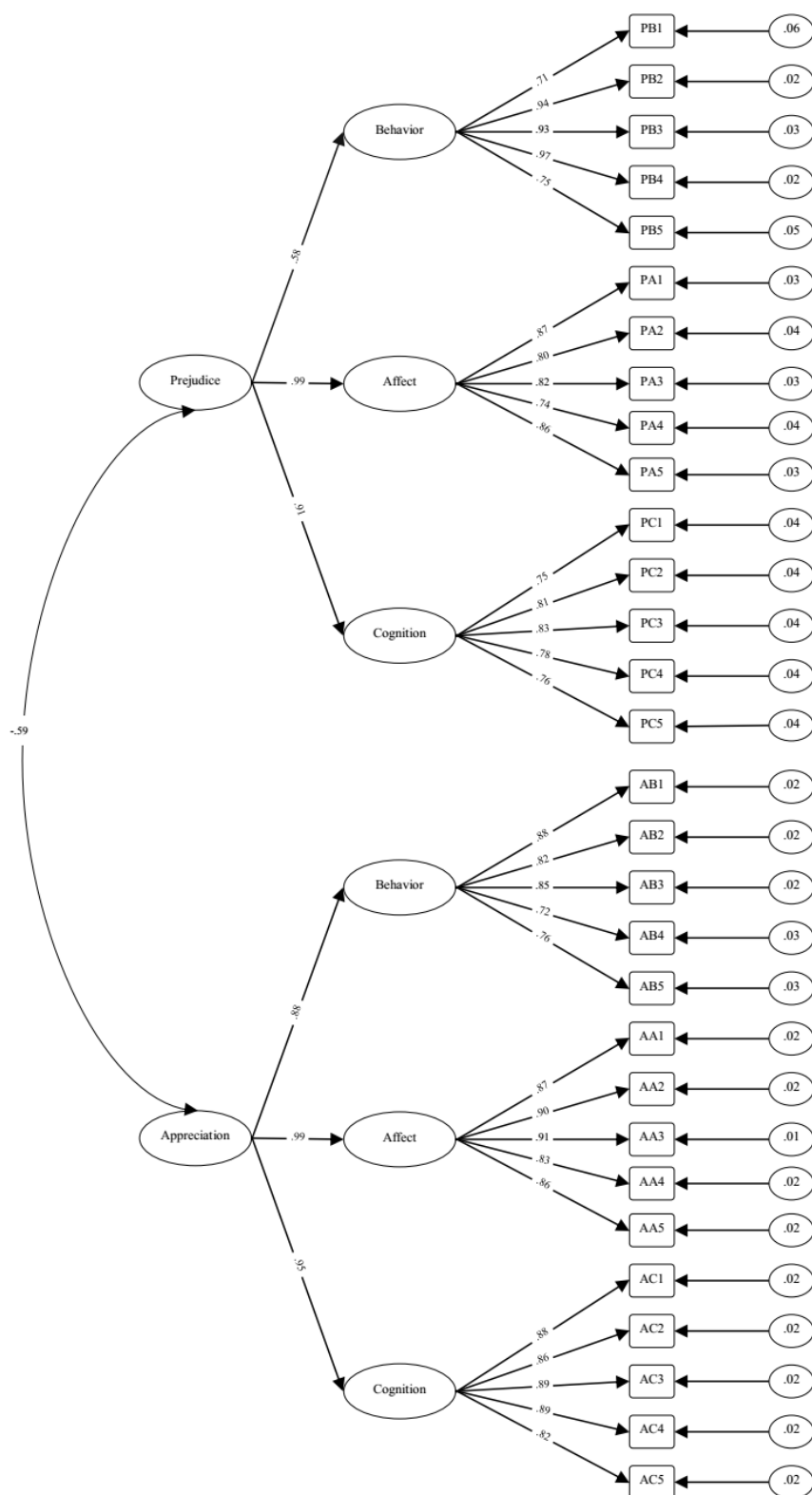


Figure 2. Confirmatory Factor Analysis on the MICA sample 1

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Hence, based on post-hoc modifications indices in Mplus 8 and on factor loadings, we dropped two items, added one cross loading and freed two parameters. We removed items 1 and 5, which are “My people should not engage in leisure activities with them” and “My people should not move or live near them”. The decision to remove these items is based on the lower loadings of these items on prejudice. These two items might also be less representative of behaviors for which one truly has control over, because they represent possible forced interactions that are dependent on the context (e.g., be part of a sports team that happens to have culturally diverse members) rather than intentional interactions like the other behavioral items. We also added a cross loading where item 18, “My people should date people like them,” also loads on the behavioral facet of prejudice. We think that the cross loading is indicated because dating is related to the behavioral items for prejudice, which are having sex, getting married, and having children with people from the cultural outgroup. We freed two parameters by correlating the errors between items 7 and 14, which are “They are boring people” and “They have poor taste in aesthetics (e.g., arts, fashion, entertainment)”, as well as the errors between items 28 and 29, which are “They make inspiring leaders in our society ” and “They are fantastic role models”. The common source of error between items 7 and 14 might come from the difficulty for the participants to evaluate how boring their outgroup members are or what their aesthetic tastes are like if they have never interacted with a person from that ethnic group in their life. The common source of error between items 28 and 29 might come from the difficulty of thinking about a leader or a role model that belongs to the ethnic group identified as being the most different from theirs, especially if that ethnic group has a minority status in Canada.

The hierarchical structure of the MICA with these modifications yielded a better fit to the data using the MRL robust estimates: $\chi^2(340, n=361) = 705.22, p < .001$, scaling correction

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factor for MLR= 1.52; CFI= .94; RMSEA= .055, 90% CI [.049; .060], $p > .05$. All subsequent analyses to test the validity of the MICA on sample 1 were done on the final 28 items version of the MICA. Lastly, prejudice and appreciation have a large negative correlation ($r = -.55$); however, this relationship was situated at the lower bound of the large correlation range. The internal consistency was measured with Cronbach's alpha. Table 2 shows that the prejudice and appreciation factors' scores of the MICA had internal consistencies over .90, which is excellent (George & Mallery, 2003).

Concurrent, Convergent, Discriminant Validity

Table 2 reports the results of validity criteria for the prejudice and appreciation factors for samples 1 and 2. Empirically grounded guidelines have been recently proposed for evaluating effect sizes. For example, Bosco and collaborators' (2015) suggested benchmarks for Pearson ρ based on 147, 328 correlations published in applied psychology studies: $\rho < .09$ is small; $.09 < \rho < .26$ is medium; $\rho > .26$ is large (Bosco et al., 2015). Moreover, Gignac and Szodorai (2016) provided similar guidelines with 728 correlations from 87 meta-analyses in individual differences research: $\rho < .15$ is small; $.15 < \rho < .35$ is medium; $\rho > .35$ is large (Gignac & Szodorai, 2016). In the present study, Gignac and Szodorai's guidelines are used, as the outlook pertains to individual differences in cultural attitudes. The cultural prejudice factor has concurrent validity because it was highly correlated with classical prejudice and moderately with modern prejudice. The cultural prejudice factor also has convergent validity because it was highly correlated with social dominance orientation (SDO) and moderately with right-wing authoritarianism (RWA). Finally, the cultural prejudice factor has discriminant validity because it has a small and negative correlation with social desirability. The cultural appreciation factor shows concurrent validity given its very large correlation with allophilia. Furthermore, cultural

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appreciation also displays convergent validity given its medium correlation with ethnocultural empathy. Cultural appreciation scores may be susceptible to some social desirability because of its medium correlation with social desirability- albeit situated at the lower bound of medium correlations.

Results Sample 2

Factorial Validity and Internal Consistency

We wanted to know if the factorial structure of the Multi-outgroup Inventory of Cultural Attitudes (MICA; 30 items) could be replicated on a different sample with another Confirmatory Factor Analysis (CFA; Figure 3). The hierarchical structure of the MICA yielded a satisfying fit to the data using the MRL robust estimates: χ^2 (398, n=346)= 843.71, $p < .001$, scaling correction factor for MLR= 1.65; CFI= .91; RMSEA= .057, 90% CI [.052; .062], $p < .05$. The hierarchical structure of the MICA for the sample 2 was also tested with the exact same modifications that were applied for sample 1, which implied that we removed items 1 and 5, added a cross-loading for item 18 on the behavioral facet of prejudice, and freed two parameters, which are the errors between items 7 and 14 and the errors between items 28 and 29. This solution yielded to a very good fit to the data: χ^2 (340, n=346)= 600.32, $p < .001$, scaling correction factor for MLR= 1.60; CFI= .95; RMSEA= .047, 90% CI [.041; .053], $p > .05$. All subsequent analyses to test the validity of the MICA on sample 2 were done on the final 28 items version of the MICA. The internal consistency was measured with Cronbach's alpha. Table 2 shows that the prejudice and appreciation factors' scores of the MICA had internal consistencies over .90 for sample 2, which is excellent. Lastly, as in sample 1, prejudice and appreciation have a large negative correlation ($r = -.47$); however, this relationship was situated at the lower bound of the large correlation range.

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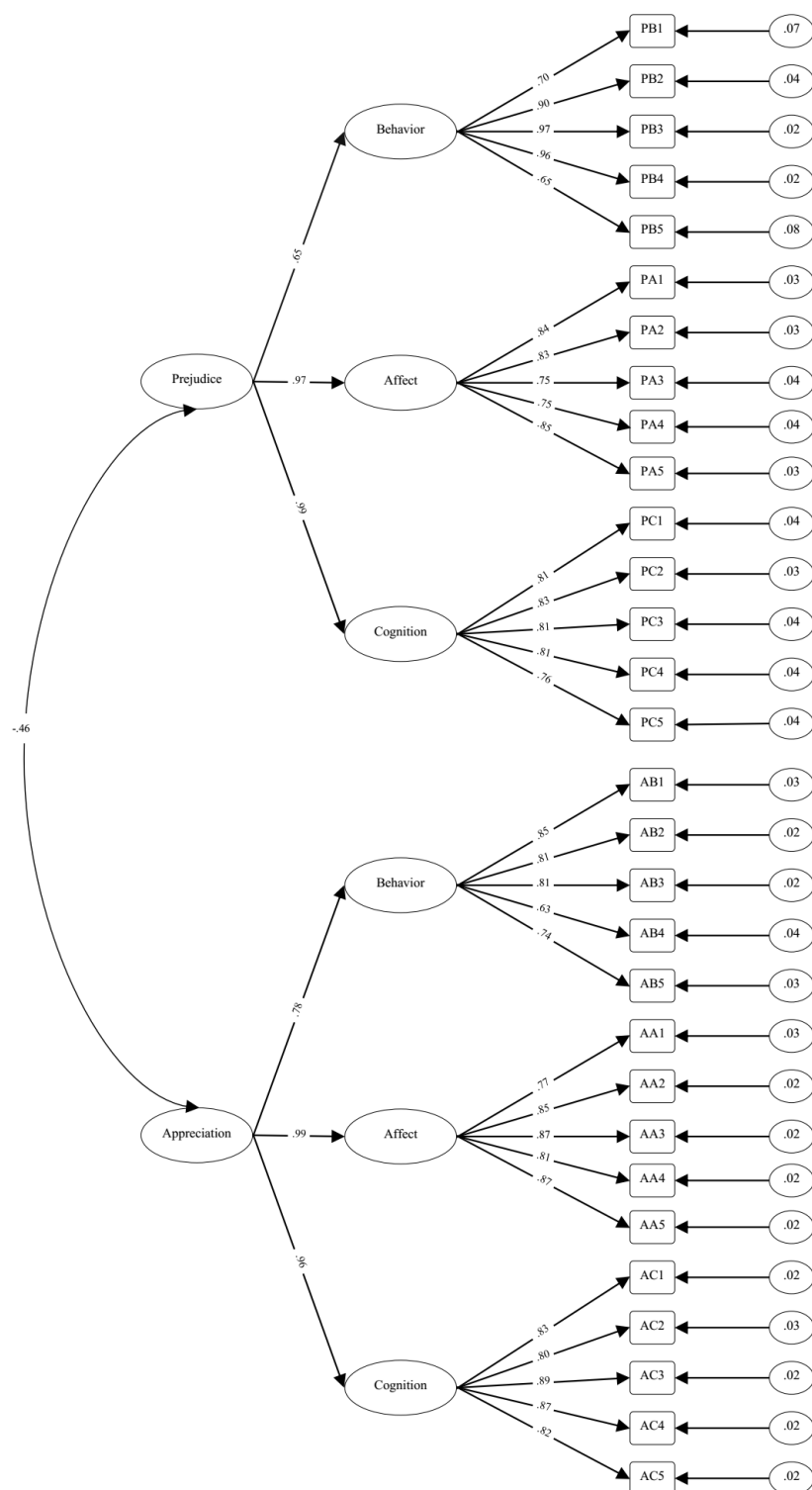


Figure 3. Confirmatory Factor Analysis on the MICA sample 2

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Concurrent, Convergent, Discriminant Validity

We used the same guidelines as per sample 1 to evaluate the effect sizes of the relationships between the validity variables and the MICA factors (Table 2): $\rho < .15$ is small; $.15 < \rho < .35$ is medium; $\rho > .35$ is large (Gignac & Szodorai, 2016). As in sample 1, the cultural prejudice factor has concurrent validity because it is highly correlated with classical prejudice and had a medium correlation with modern prejudice. Similar to sample 1, the cultural prejudice factor also has convergent validity as it is highly correlated with social dominance orientation (SDO) and is moderately correlated with right-wing authoritarianism (RWA). Finally, cultural prejudice has discriminant validity as per its small correlation with social desirability. In keeping with sample 1, the cultural appreciation factor shows concurrent validity given its quite large correlation with allophilia. Again, as in sample 1, cultural appreciation has convergent validity given its medium correlation with ethnocultural empathy. Similar to sample 1, cultural appreciation also has discriminant validity as per its small correlation with social desirability.

Discussion

The objective of this study was to conduct the validation of the Multi-outgroup Inventory of Cultural Attitudes (MICA) scores. The MICA is a measure of negative (prejudice) and positive (appreciation) cultural attitudes towards ethnocultural outgroups. The MICA has multi-outgroup instructions that allows it to be used simultaneously with people from different ethnocultural backgrounds.

The Hierarchical Factorial Structure of the MICA: Prejudice and Appreciation

The present study demonstrates, as hypothesized, that the MICA has a robust hierarchical factorial structure that was replicable across two independent samples. This hierarchical structure comprises two higher order factors (prejudice and appreciation), and each of which has three

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lower order factors or facets (behavioral, affective, and cognitive). Those three facets are important because although attitudes represent an affective evaluation, they also include cognitive and behavioral aspects (Dovidio et al., 2018).

The initial factorial structure of the MICA resulted in an almost satisfactory fit in the first sample and a satisfactory fit in the second sample. The factorial solution with modifications resulted in a good fit in the first sample and an even better fit in the second sample, which is why we advise researchers to use the 28 items and final version of the MICA. We also advise researchers who would like to use the MICA with other populations than university students to conduct preliminary validation steps on their sample. This shows that the MICA's factorial structure is supported by the data. In both samples, both higher-order factors have excellent internal consistency, which allows to use cultural prejudice and cultural appreciation as two subscales for the MICA. The factorial analyses suggest that the prejudice factor is mostly affective and that the behavioral facet is less representative of prejudice. This might be because the behavioral facet also pertains to discrimination (unfair and hostile behavior) and not only to prejudice (biased and hostile attitude). However, it is possible that people are also more careful not to self-report too much prejudice when it comes to behavioral intentions. The appreciation factor is also mostly affective and less represented by the behavioral facet.

Concurrent, Convergent, and Discriminant Validity of the MICA

Cultural prejudice showed concurrent validity in both samples by being highly correlated with already well-established measures of prejudice. This finding is very important because it indicates that we were able to measure cultural prejudice in a multicultural context using a multi-outgroup method. However, cultural prejudice was more correlated with classical prejudice than with modern prejudice, which is coherent. The items in the cultural prejudice scale were

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designed to measure more blatant forms of racism, which is probably why the cultural prejudice factor is more closely tied with classical prejudice (i.e., a form of prejudice that pertains to direct antipathy and negative feelings towards an outgroup; Akrami et al., 2000).

Cultural prejudice also demonstrated convergent validity by being respectively highly and moderately correlated with social dominance orientation (SDO) and right-wing authoritarianism (RWA) across both samples. This indicates that the measure of cultural prejudice is likely to have the same ideological antecedents as other constructs of prejudice. Indeed, SDO and RWA are usually considered to be potent ideological antecedents of prejudice against a variety of outgroups, such as immigrants, women, people with intellectual disabilities, gay men and lesbians, etc. (Ekehammar et al., 2004). That said, cultural prejudice was more related to SDO than RWA, which is consistent with previous research that also found SDO to have a stronger relationship with racism than RWA (Ekehammar et al., 2004; Satherley & Sibley, 2016). However, this nuance differs from previous meta-analytic findings that showed a minimal difference in effect size for correlations between prejudice and either SDO or RWA (Sibley & Duckitt, 2008). This might be the case because most existing prejudice scales have items that only represent affect or cognition, not behavior (e.g., Akrami et al., 2000; McConahay, 1986). By comparison, the cultural prejudice factor has a clear facet of behavioral intention. Indeed, in the present study, this behavioral facet of cultural prejudice includes elements of intimate relationships and is slightly more related to SDO (sample 1 $r = .44$; sample 2 $r = .46$) than are its affective (sample 1 $r = .43$; sample 2 $r = .38$) and cognitive (sample 1 $r = .39$; sample 2 $r = .41$) facets. Hence, future research on prejudice could further examine if including a behavioral facet while measuring cultural prejudice might strengthen its relationship with SDO. This is interesting because it may imply that when people high on SDO put more emphasis on

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hierarchical divides between social groups, it may also be related to their willingness to avoid intimacy and contact as much as possible with the outgroup. Another possible explanation for this small discrepancy between the findings in the present study and those of Sibley and Duckitt's (2008), is that their meta-analysis included various outgroups that were not only ethnocultural groups. Finally, the cultural prejudice factor had small correlations with social desirability in the two samples in the present study, which demonstrated its discriminant validity. This means that most participants who reported low prejudice were probably not simply trying to hide their true negative cultural attitudes.

Cultural appreciation also showed concurrent validity given that it was highly correlated with allophilia in both samples. This finding is particularly important because it indicates that the MICA - along with the Allophilia Scale (AS; Pittinsky et al., 2011b) - is among the very rare measures that can assess positive cultural attitudes. That said, the Allophilia Scale includes a more complete set of affective items than the MICA given that four out of five of its dimensions are affective (affection, comfort, kinship, enthusiasm) and one is behavioral (engagement). However, the MICA's factors may have more conceptual equilibrium from its items as they equally include the three basic features of attitudes (i.e., behavior, affect, cognition).

Cultural appreciation also had convergent validity in that it had high and medium correlations with ethnocultural empathy across both samples. This finding evidence that the construct of cultural appreciation goes beyond mere cultural tolerance (i.e., cultural indifference). Indeed, ethnocultural empathy refers to being able to understand, feel, and express empathic thoughts and feelings towards a person that has a different ethnocultural background (Wang et al., 2003). Cultural appreciation in the MICA is probably close to Allport's definition of tolerance, which was that people who tolerate others accept and approve of others. Cultural

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appreciation, as it is measured by the MICA, shows that people can display enthusiasm and warmth towards a different ethnocultural group through approving of prosocial intergroup behaviors, positive emotions, and positive thoughts.

Cultural appreciation had discriminant validity because it only had small and medium correlations with social desirability in the two samples. This means that most people who scored higher on cultural appreciation were probably not merely displaying political correctness or managing social impressions. It is encouraging to know that people can be sincere and genuine in their liking of cultures that are different from than their own. Social desirability could have been a methodological issue when conducting research in a multicultural campus given that most undergraduate students are probably aware that cultural showing appreciation for cultural diversity is reflective of being an open-minded person, a trait that students are encouraged to develop in university. The medium correlation in the second sample indicates that some people tend to have answered in a way that was more prone to social desirability. However, this correlation is situated at the lower bound of medium correlations and thus, should not have affected the main results. Thus far, much research has examined how hate messages that convey prejudice spread through social media (Ben-David & Matamoros-Fernández, 2016; Mondal et al., 2017). Future research should also examine how positive messages for cultural diversity spread through social media.

Moreover, the results of the present study also show that the cultural appreciation factor has smaller and negative correlations than prejudice with SDO and RWA. SDO and RWA are two important antecedents of prejudice. These differences in effect sizes show that appreciation is related to RWA and SDO, but to a lesser extent than prejudice. This shows that future research might find other key variables that are also good predictors of appreciation. This supports the

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assumption of Pittinsky's model of attitudes which suggests that positive attitudes and negative attitudes have different antecedents (Pittinsky, 2010). For example, according to Pittinsky (2011), behaviors that promote positive attitudes towards outgroup are different than the ones that reduce prejudice towards outgroups. One possible antecedent of cultural appreciation might be ethnocultural empathy, as being able to project oneself in the feelings of others can possibly fuel respect, trust, and positive feelings towards them.

Prejudice and Appreciation: Opposite Ends of a Continuum or Two Distinct Concepts?

Prejudice and appreciation are often viewed as two opposite ends of an attitudinal continuum. For example, many studies have used the metaphor of a warmth thermometer to measure prejudice and appreciation for ethnocultural groups along a single continuum from cold to warm (e.g., Campbell & Herman, 2010; Duckitt & Sibley, 2007). However, even though cold and warm temperatures do not have the same consequences on the environment, they have the same antecedent mechanisms that make them fluctuate. If prejudice and appreciation are at two ends of a continuum, appreciation would simply be defined as the absence of prejudice, and vice versa. In statistical terms, if prejudice and appreciation were at two ends of a continuum, their correlation would be negative and extremely high (e.g., $r > -.80$). That said, if prejudice and appreciation are two distinct but related concepts, they would still have some negative relationship given that they both belong to the same family of concepts (i.e., cultural attitudes).

The present study provides psychometric evidence that the correlation between cultural prejudice and cultural appreciation is indeed of importance and negative, but it is not particularly high, and it is nowhere close enough to indicate that one construct is merely the opposite of the other (sample 1; $r = -.55$; sample 2; $r = -.47$). For sake of comparison, classical and modern prejudice are recognized as two separate concepts but can still have a large ($r = .62$) correlation

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between them (Akrami et al., 2000). SDO and RWA can also be very highly correlated even though they are conceptually different (e.g., $r=.55$ in Chambers et al., 2013 or $r = .60$ in Roets et al., 2006).

A perspective that considers both negative (prejudice) and positive (appreciation) cultural attitudes as distinct but nonetheless negatively related constructs is much more coherent and attuned with recent research advances on cultural prejudice. This nuanced idea has been supported by other researchers, for instance, through a Two-dimensional model of intergroup attitudes (TDMIA; Pittinsky & Simon, 2007). The TDMIA states that positive and negative attitudes are distinct concepts, which means that they would not be the opposite ends of the same continuum. In the TDMIA, tolerance is situated at the midpoint between negative attitudes and positive attitudes towards outgroups (Pittinsky, 2005). This means that low scores of prejudice combined with low scores of allophilia would both correspond to tolerance. Although it is not explicitly stated by the assumptions of the TDMIA, tolerance seems to represent a state of indifference in which outgroups do not give rise to either a positive or a negative evaluation. This conceptualisation of tolerance fits with what is suggested by the MICA. Being low on the prejudice factor and low on the appreciation factor is equivalent to being emotionally neutral towards a given ethnocultural group. In addition, the MICA supports the idea that being low on prejudice is not necessarily related to being high on appreciation, which is also one of the assumptions of the TDMIA. However, the TDMIA'S conceptualization of tolerance is very different from that of Allport's (1954), who defined tolerance as a willingness to approve of others who are different. In sum, similarly, we reiterate that the term 'appreciation' is much more pertinent than the term 'tolerance' within the conceptual framework of the MICA. In our study, the differences in effect sizes in the correlations between prejudice and allophilia, prejudice and

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social dominance orientation compared to appreciation and allophilia, appreciation and social dominance orientation provide further evidence to consider prejudice and appreciation separately.

Limitations

This study has a few limitations that qualify the validation of the MICA scores. The two independent studies in the present article have been conducted with university students, which make them comparable to most validation studies in psychology. However, the fact that we only had access to university students limit the generalisability of the findings. For instance, older people tend to have more prejudice against ethnocultural groups than younger people (Gonsalkorale et al., 2009). Also, higher education is related to lower levels of ethnocentrism and lower levels of prejudice towards ethnic minorities and immigrants (Henry & Napier, 2017; Meeusen et al., 2013). This means that the samples might have displayed lower levels of prejudice than what might potentially be found in people with less years of post-secondary/post high school education. Validating the MICA with other different populations would be important for future research. Also, the instructions of the MICA were very inclusive and thus did not specify to exclude religious groups in the listing of ethnocultural groups that are the most different from the participants' in-group. Other research that aims to only focus on ethnocultural groups (without any religious affiliation) should perhaps consider adding this nuance to their multi-group instructions. Even if religion is part of culture (Edara, 2017), religious groups often include various ethnic groups. Further steps could have been taken to get more evidence for content validity of the MICA items (focus groups, consultation with more experts). However, we were limited in terms of time and resources. Also, because the order of questionnaires was not randomized, participants might have experienced some fatigue at while answering the last

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questionnaires and this could have led to less reliable answers for social desirability. However, we had a total of 259 items in our questionnaires and if participants answer at a rate of 7 items per minutes, they answered in 37 minutes, which is a reasonable amount of time to be answering questions. Part of the measurement error might be due to priming, but the effect is probably very small. This should not have affect the results and the parameters might be more precise in another study where the order is randomized. Future validation studies could randomize the order of questionnaires. Furthermore, the face that the instructions for all validation measures were changed to have the same target groups across measures might have increased the correlations between the MICA factors and our validity measures. However, studies show that people have a general tendency to be or to not be prejudiced, which makes their scores of prejudice highly correlated when we switch from one target group to another. Finally, given that the present study was online, it was not possible to control the conditions under which people answered the measures. Using the MICA in experimental studies under controlled conditions might give more information on how the MICA performs in detecting cultural prejudice and cultural appreciation.

Conclusion

The validation of the MICA scores indicates that it can measure both cultural prejudice and cultural appreciation towards ethnocultural outgroups members among people of any ethnocultural background. The MICA has good psychometric properties as it shows factorial, convergent, concurrent, and discriminant validity, as well as high reliability of its score in two independent samples. The MICA offers a solution to three issues in research on cultural attitudes: (1) it considers both prejudice and appreciation for ethnocultural groups; (2) it measures outgroup cultural attitudes in all participants of any ethnocultural background; and (3) it includes all three components of attitudes (affect, cognition, and behavior).

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Importantly, this study indicates that cultural prejudice and cultural appreciation are two negatively related but distinct concepts. This finding is similar to the recent argument made by Pittinsky et al. (Pittinsky et al., 2011a). Essentially, Pittinsky argues that having positive attitudes towards a group is different than having low prejudice against that group. He argues that there is more to appreciating an outgroup than having low levels of fears and negative feelings towards them. Indeed, we think that researchers should be careful and nuanced in their interpretations of cultural attitudes given that low prejudice does not automatically imply high appreciation for ethnocultural outgroups, or vice versa. However, the negative relationship between cultural prejudice and cultural appreciation still suggests that lowering cultural prejudice is likely to increase cultural appreciation at least to some significant degree, albeit not entirely. Nonetheless, the said negative relationship is moderate enough to suggest that there are probably other mechanisms that would increase cultural appreciation even further. In addition, the MICA measures outgroup cultural attitudes for all participants in a given study, which makes it a very inclusive measure. The MICA also includes items that pertain to each basic elements of attitudes (behavior, affect, and cognition), which provides a well-rounded measure that captures every element that makes attitudes what they are. In sum, cultural attitudes are multifaceted and may tell a story of both love (appreciation) and hate (prejudice) towards other ethnocultural outgroups in multicultural contexts.

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Appendix**Multi-Outgroup Inventory of Cultural Attitudes (MICA)**

Please make a list of three **cultural and/or ethnic groups** who strike you as being **the most different from your own cultural and/or ethnic group** and who are presently living in Canada.

1st _____

2nd _____

3rd _____

Within your list of 3 **different cultural and/or ethnic groups**, think only about **the one that is the most different from your own cultural and/or ethnic group** while reading the following statements. It is very important that you think only of that one group when answering all questions.

Please note that you will answer the next four questionnaires while thinking about that group.

Then, please rate the extent to which you agree or disagree with the following statements. In each statement, “they” and “them” refer to the group that is the most different from your own group.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

Prejudice**Behaviours**

1. My people should not have sex with them.
2. My people should not marry them.
3. My people should not have children with them.

Affect

4. They have disgusting manners.
5. They are boring people.
6. They raise their children in a shameful way.
7. Their presence in our society produces feelings of threat and danger.
8. They are irritating people.

Cognitions

9. Their accomplishments are not their own.

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10. They don't have enough aspirations in life.
11. They are lazy and unmotivated at work and/or school.
12. They have poor taste in aesthetics (e.g., arts, fashion, entertainment).
13. They receive much more in life than they deserve.

Appreciation

Behaviours

14. My people should have more friends like them.
15. My people should team up with them (e.g., at work, in sports, at school).
16. My people should date people like them.
17. My people should try to get to their level of excellence.
18. My people should include them in future plans.

Affect

19. People would feel very excited to have them as roommates.
20. People would feel proud to have them as friends.
21. They bring feelings of happiness.
22. They come from warm-hearted families.
23. As co-workers and/or classmates, they help create a joyful ambiance.

Cognitions

24. They have a good sense of humor.
25. They are humble.
26. They make inspiring leaders in our society.
27. They are fantastic role models.
28. They are brave people.

Chapter 4: General Discussion

My doctoral thesis aimed to better understand cultural attitudes and their relationships with personality and ideological attitudes (social dominance orientation and right-wing authoritarianism). My thesis included two empirical studies. The first one is a meta-analysis on the existing literature that concerns the relationships between personality, ideological attitudes, and cultural attitudes. The first study of my thesis extends the DPM by adding appreciation as a possible outcome. The second study involves the construction and the validation of the Multi-Outgroup Inventory of Cultural Attitudes (MICA), a scale that measures both prejudice against and appreciation for ethnocultural groups. This scale can be used in a variety of social contexts, such as in multicultural societies or social contexts. The multi-outgroup aspect of this scale makes it so it can be used with people who identify with any ethnocultural group.

Key Findings of Study 1: A Meta-Analysis on the DPM-2

The first study of this thesis is a meta-analysis on all relationships posited by the dual process model, in addition with appreciation as an outcome variable. The dual process model (DPM) is the most authoritative model to organize the relationships between personality, ideological attitudes, and prejudice (Duckitt & Sibley, 2017). It allows to study the extent to which people's behavioral disposition are related to their tendencies to favor competition and group-based hierarchies (i.e., SDO) or to favor submission to authorities, norms, and traditions (i.e., RWA). It also allows to study how these tendencies are related to people's favorable or unfavorable attitudes towards ethnocultural groups. The DPM suggests that two personality traits (agreeableness and openness), as defined by the Big Five Theory, are related with prejudice through two ideological attitudes (social dominance orientation and right-wing authoritarianism). The DPM is a parallel mediation, in which two paths can lead to prejudice (Duckitt & Sibley,

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2017). The first path starts with agreeableness, goes through social dominance orientation and leads to prejudice. In other words, people who are not friendly and who are cold (low agreeableness) are more likely to favor group-based hierarchies and competition between groups (high social dominance orientation), which leads to having more prejudice. The second path starts with openness, goes through right-wing authoritarianism which leads to prejudice. This means that people who are narrow-minded (low openness) tend to excessively favor traditions, norms, and to comply to authority (right-wing authoritarianism), which leads to having more prejudice. In this meta-analysis, we also considered cultural appreciation as an outcome, in the extended DPM-2. Consequently, the DPM-2 includes two new paths. The first path states that people who are friendly and cooperative are more likely to favor equality (low SDO), which leads them to having more cultural appreciation. The second path states that people who are curious and open-minded tend to favor individual freedom (low RWA) which leads them to have more cultural appreciation.

The main results of this meta-analysis are presented below. The results are presented in three sections: 1) meta-analysis, 2) moderation analyses, and 3) meta-analytic path analysis. All articles published before December 2017 and that reported correlations within the DPM-2 were selected and coded for this meta-analysis. The 27 meta-analysed correlations showed that agreeableness and openness are the most important personality traits when it comes to prejudice and agreeableness. Agreeableness and openness were also important traits for appreciation, as well as extraversion. Extraversion was moderately related to appreciation which is consistent with previous research on personality traits and xenophilia (Stürmer et al., 2013). SDO and RWA were strongly related to prejudice whereas SDO was strongly related to appreciation and

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RWA was moderately related to appreciation. The effect sizes of the relationships between SDO and prejudice and RWA and prejudice were stronger than for appreciation.

I then evaluated the influence of two potential moderators in my meta-analysis: being a university student or not, and the usage of validated or homemade measures. The university student of non-student status of participants in the studies we examined had an influence on 8 out of 12 meta-analyses. The fact that studies used a validated measure of prejudice or appreciation or not also influenced the strength of the relationships.

The results of meta-analytic path analysis show that the original version of the DPM is supported by published research. The fit to the data was somewhat satisfactory whereas the indirect effects were supported by the data. We had conflicting fit indices with CFI close to .95 and a RMSEA that is higher than what is expected for a good fit to the data. The RMSEA can be higher in models where there are small degrees of freedom and when the sample has a lot of participants, even if the model fits the data (Kenny et al., 2015; Lai & Green, 2016). In our case, it was not a good idea to free more parameters, as the theoretical DPM-2 model required all the included relationships to be estimated. Also, because we used the harmonized mean of participants in when performing the meta-analytic path analysis, our number of participants was quite high, which is not typical for path analysis studies. Researchers usually aim to have more than 200 participants when doing path analysis (Kline, 2011) and we had 19,159 participants. This might explain why the RMSEA was higher than expected. The path analysis demonstrates that with all the studies we found that reported DPM relationships, the data seem to support the idea that 1) people who are not agreeable tend to support hierarchies and competition between groups (high SDO), which make them more prejudiced towards ethnocultural groups and 2) people who are not open tend to support submission to authorities and compliance to social

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norms and traditions (high RWA) which make them more prejudiced towards ethnocultural groups. Testing the DPM-2 in meta-analytic path analysis also shows that the data supports the idea that 1) people who are generally friendly and warm tend to support equality and collaboration between groups (low SDO), which make them more appreciative of ethnocultural groups and 2) to a lesser extent, people who are more open and curious tend to favor independence and individual freedom (low RWA) which make them more appreciative of ethnocultural groups.

Key Findings Study 2: Initial Validation of the Multi-Outgroup Inventory of Cultural Attitudes

The second study of this thesis consists in the construction and validation of a scale that measures cultural prejudice and cultural appreciation. The Multi-outgroup Inventory of Cultural Attitudes was created to capture all three components of attitudes (i.e., behavior, affect, cognition; Dovidio et al., 2010) for cultural prejudice and for cultural appreciation. To this end, I created an initial set of 60 items that would measure 1) negative and positive judgments on how members of the participant's ingroup should behave with the designated outgroup members identified in the multi-outgroup instructions; 2) negative and positive basic emotions (as per Ekman, 2016) that people can have towards the members of the designated outgroup; and 3) negative and positive thoughts related to the worth of the members of the designated outgroup. With the help of my supervisor, lab colleagues and one cultural psychology expert from another university, I refined those items and the instructions that go along with the MICA. This consultation process allowed for a better face validity because we made sure that all items measured what they were meant to measure. This consultation also helped in clarifying the phrasing of some items. For the multi-outgroup component of the scale, it was necessary to create clear instructions so that all participants would think of the cultural outgroup that is the

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most different from theirs while filling the MICA. The initial validation process of the MICA scores consisted in two independent studies where we evaluated the factorial, concurrent, convergent, and discriminant validity of the MICA as well as its reliability. For the first sample, we started with a set of 60 items and ended up with a shorter 30-item scale after doing and exploratory factor analysis. We cut 30 items based on their face validity, their factor loadings, skewness and kurtosis. We then used these 30 items to test the hierarchical factorial structure of the MICA, which consists of 15 items under the cultural prejudice factor, 15 items under the cultural appreciation factor. Each factor then has three facets (behavior, affect, cognition) under which there are 5 items. The factorial structure that I tested with the first sample yielded to a satisfactory fit to the data which I was able to get to a good fit of the data after applying some modifications to the structure of the model. The CFA is a particularly stringent analysis, thus a very good indicator that the MICA has a good factorial structure. The internal consistency of both cultural prejudice and cultural appreciation were excellent. The concurrent, convergent, and discriminant validity analysis were done at the factorial level. In this first sample, the prejudice factor correlated well with the classical and modern prejudice, showing its concurrent validity. The prejudice factor was also correlated with social dominance orientation and right-wing authoritarianism, which are known to be strongly related with prejudice (Sibley & Duckitt, 2008). The prejudice factor also had small and negative relationship with social desirability, which demonstrates its discriminant validity. It also shows that people who expressed low levels of prejudice in our study probably did because they do not have a lot of prejudice and not because they wanted to look like they do not have a lot of prejudice. The appreciation factor showed concurrent validity with its strong relationship with allophilia. It was also moderately correlated with cultural empathy which demonstrates its convergent validity. It also had a small

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correlation with social desirability, which shows its discriminant validity. It also shows that people who were high on the appreciation factor were probably genuine in their answers and that these answers were probably not inflated by a willingness to look like a good person.

I used a second independent sample to see if the results obtained with the first sample could be replicated. The hierarchical factorial structure of the MICA was supported by the data and resulted in a better fit to the data than with the first sample. Again, we tested the factorial structure without and with the modifications applied for the second CFA with sample 1. This last solution provided the best fit to the data that we obtained so far. We used the same measures to test the concurrent, convergent, and discriminant validity of the MICA factors. The results are similar to the ones we had with sample 1. Both our factors had concurrent and convergent validity. However, our prejudice factor was moderately correlated with social desirability, which indicates that people who scored low on prejudice were partially trying to display a good version of themselves while answering our prejudice factor. The appreciation factor had discriminant validity with its small correlation with social desirability showing that their answers were probably honest.

Limitations

Besides the limitations mentioned in both articles in my thesis, I want to discuss some other limitations in more details in the next sections. I first address the fact that I did not make the distinction between classical and modern prejudice in my meta-analysis. Another limitation that I wanted to address is the fact that there is not consensus on how to define cultural prejudice and cultural appreciation. I first describe how this issue was handled in the first study of my thesis and then how it was addressed in the second study.

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Distinction Between Classical and Modern Prejudice.

The first limitation that I want to discuss in more details is that in my meta-analysis, I did not make the distinction between classical and modern prejudice. Classical prejudice is defined as a direct and blatant expression of negative feelings, thoughts, and behaviors directed towards an outgroup (Dovidio et al., 2010). Modern prejudice is more subtle and is defined as a mix of denial that people experience discrimination, negative feelings towards minority group requests (e.g., accommodation for cultural reasons) and about special favors for minority groups (Henry & Sears, 2002; McConahay, 1986). The idea of modern racism is that the expression of prejudice is influenced by the sociohistorical context. Nowadays, in most social contexts, is not considered acceptable to express blatant biased opinions about minority groups. Even though they are strongly related, classical and modern racism are conceptualised as different concepts (Nazar Akrami et al., 2000). Classical racism is typically more related to conservatism than modern racism (Nzar Akrami et al., 2006), which might mean that for people who are higher on classical racism than modern racism, the openness through RWA to prejudice path is more pronounced. Thus, it would have been interesting to either include both classical and modern prejudice in the DPM model or to consider them as moderators. Initially, we started to code for classical prejudice and modern prejudice separately; however, we realised that it was not always easy to make the distinction between the two. The articles that we coded used different terminology for classical prejudice (blatant, old-fashioned) and for modern prejudice (symbolic, subtle, racial resentment), but also used different definitions of these terms. It was thus very confusing to code the two concepts separately. For sake of parsimony and also for simplifying the coding, we decided not to consider the difference between the two concepts.

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The Challenging Task of Defining and Measuring Concepts.

The second limitation that needs some attention concerns the definition of cultural attitudes. A broader question that is at the heart of my thesis is the following: How should we define and measure cultural attitudes? I investigate this question in a more practical way in my second study, but it was central to the execution of the first study in my thesis. The search process of my meta-analysis required precise inclusion and exclusion criteria, among which were: does the study include measures cultural prejudice or cultural appreciation? It was quite challenging to answer this question for a lot of articles that we screened. Studies published on positive attitudes are not only rare, but also very different in terms of how they measure and conceptualise positive attitudes. The differences in measurement and conceptualisation are also present in assessing negative attitudes (prejudice). This problem of concept definition is not new and is not limited to the study of attitudes (Michell, 1997). Defining abstract concepts in psychology and other sciences is a delicate task that requires a lot of rigor and a very precise vocabulary in order to ensure its content validity (Cronbach & Meehl, 1955). It is also a problem that researchers often disagree on the definition of a given concept. To ease the screening process, we included all studies that had measures of concepts that corresponded to precise definitions of cultural prejudice and cultural appreciation, regardless of how the researchers decided to name their concept. The definition of cultural prejudice was the following: expresses itself in negative feelings, stereotyped thoughts, and behavioural intentions that would be at the disadvantage of an outgroup or members of an outgroup (Allport, 1954). The definition of cultural appreciation was the following: is conceptualized as a positive evaluation (feelings, thoughts, beliefs, and intentions of behaviors) that reflects goodwill for- and appreciation of an ethnocultural outgroup. Cultural appreciation is different from benevolent racism. Benevolent racism is a condescending attitude towards ethnocultural outgroups (Ramasubramanian &

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Oliver, 2007). Moreover, appreciation is a genuine positive attitude that is not expressed because of social desirability.

Defining and Measuring Cultural Prejudice and Cultural Appreciation.

Here I want to address in more details how the challenge of defining cultural attitudes was handled in the validation study. Even if this validation study had the intention of defining and measuring prejudice and appreciation as accurately as possible, the MICA, like any other psychometric measure, has limitations. In terms of defining prejudice and appreciation, I started with the idea that these attitudes were composed of behavioral, affect, and cognitive elements. Some researchers have challenged this conceptualisation recently, by saying that behaviors, affect, and cognition are the bases of attitudes, but are different than attitudes (Albarracín et al., 2018). Albarracín (2018) recently stated that attitudes are simply an evaluation of an object, a person, a group, or an idea. However, the conceptualisation of attitudes including behavior, affect, and cognition was adopted years ago and is still used by researchers (Breckler, 1984; Dovidio et al., 2010). The initial validation of the MICA scores shows that in two independent samples, appreciation can be measured with elements of behaviors, affect, and cognition. Our three facets had high loadings on the appreciation factors in both our independent samples. However, our behavior facet for prejudice did not have a high loading on the prejudice factor. Our prejudice factor was conceptualised as prohibiting intergroup behaviors between the ingroup of participants and the outgroup that they identified in the multi-outgroup instruction of the MICA. This conceptualisation might have led to some social desirability, as demonstrated with our second sample. Also, the behavioral element of attitudes is hard to define. According to Breckler (1984), overt verbal statements about behaviors and action tendencies can capture this dimension of attitudes. Behavioral intentions have been used to measure this dimension as well

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(Lu & Kim, 2017) and has been defined as the reaction to an object, a person, a group, or an idea (Ajzen, 1989). Researchers have long been interested in the relationship between attitudes and behavior (Glasman & Albarracín, 2006), which led to a distinction between attitudes (often measured with affect and cognition items) and discrimination (overt behaviors). Therefore, the behavioral element of attitudes is often defined as being distinct from overt behavior.

Nonetheless, recent research include behavioral intentions while evaluating and measuring attitudes (Croucamp et al., 2017; Lu & Kim, 2017). Whether I measured cultural attitudes properly depends on which definition of attitudes one decides to adopt. This is the case with much of our abstract concepts in psychology. Under the tripartite approach of attitudes, the MICA is appropriate in evaluating each basic component of attitudes. This claim is statistically and theoretically supported, as the MICA's factorial structure, validity, and reliability are supported by the data. The face validity (i.e., is the MICA measuring what it is supposed to measure) is supported by the evaluation of experts in the cultural psychology domain who revised all its items.

Future Directions

The two studies in my thesis provide some answers related to the study of cultural attitudes, but also opens to many interesting avenues. First, I want to discuss an idea that can help with the problem of defining concepts. Second, I suggest ways to extend the DPM-2 model in order to identify mechanisms of action to either reduce prejudice or increase appreciation. Third, I discuss some research questions for which the MICA would be a particularly useful psychometric tool.

As mentioned earlier, one of the main challenges I faced in both studies was to find (in the meta-analysis) and create (in the validation study) good and consistent definitions for cultural

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prejudice and cultural appreciation. An idea to help with the problem of concept definition would be to create an online repository of all concepts, their definition, and the tools that researchers use to measure them (Cousineau et al., in preparation). Each concept and definition could have a tag or a code, similar to the doi that we currently use for articles. If a given concept has more than one definition or measurement tool, the repository could create an association with the name of the concept and the many definitions/measurement tools it can have. Another code could be created to associate the tool used by the researcher to measure the concept. This could potentially simplify the work researchers in all domains. There are also different ways of conceptualizing and measuring personality. For example, Ekehammar and Akrami (2007) tested the relationships between personality and prejudice comparing factors vs. facets in three samples. They found that the tender-mindedness facet and the values facet were stronger predictor of prejudice than agreeableness and openness. Only the direct link was tested but one could test if using the facets instead of the factors in the DPM would change something regarding the indirect links in the model. =

Extending the DPM-2 model by adding moderators could help understanding the mechanisms of action that can reduce prejudice and/or enhance appreciation in people. For example, autonomous motivation could moderate the link between social dominance orientation (SDO) and prejudice and/or positive attitudes towards ethnocultural groups. Research suggests that people have different motives to be non-prejudiced (Legault et al., 2007) and that these differences have an impact on their way to manage interethnic or intercultural interactions (Butz & Plant, 2009). The autonomous motivation research has shown that using social pressure (i.e., promoting extrinsic motivation) in anti-prejudice campaign can increase prejudice while promoting personal valuing of diversity and equality (i.e., promoting intrinsic motivation)

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reduces prejudice (Legault et al., 2011). Greater motivation to act without prejudice has been found to be related to favorable attitudes towards contact with immigrants and indigenous people and to lower levels of social dominance orientation (Stürmer et al., 2013). This taxonomy and previous research results suggest that motivation to be non-prejudiced could play a protective role for people who are high on SDO by a) weakening the link between high SDO and high prejudice and b) weakening the link between high SDO and low appreciation. Intrinsic motivation could also increase the strength of the link between low SDO and low prejudice. On the other hand, extrinsic motivation to be non-prejudiced could strengthen the link between high SDO and low prejudice and the link between low SDO and low positive attitudes.

Intergroup contact could moderate the link between right-wing authoritarianism (RWA) and prejudice and/or openness and positive attitudes towards ethnocultural groups. Research supports the idea that intergroup contact can moderate the link between RWA and prejudice. More specifically, research suggests that positive intergroup contact can reduce prejudice in people who have high levels of RWA, whereas negative intergroup contact increases their level of prejudice (Dhont & Van Hiel, 2009). This shows that intergroup contact can mitigate underlying characteristics related to RWA (e.g., feelings of threat and anxiety; Altemeyer, 1998). Highly prejudiced people feel more trust, empathy, and closeness, and less threat and anxiety towards outgroups after intergroup contacts (Hodson, 2008). Meta-analytic findings show that intergroup contact is related to less prejudice (Pettigrew & Tropp, 2006). Researchers usually evaluate intergroup contact in terms of frequency and quality. More opportunities for intergroup contact reduce prejudice levels (Wagner et al., 2006). Cross-cultural friendships, considered as being high quality contacts, are related to low levels of prejudice (Pettigrew, 1998). In addition to reducing prejudice, intergroup contact may also be related to appreciation. Intergroup contact

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is effective not only in reducing prejudice, but also in enhancing positive feelings towards a given outgroup (Pettigrew & Tropp, 2006). This suggests that intergroup contact can mitigate prejudice and could also activate appreciation. Acculturation might play a role in the quality and number of contacts between majority and minority groups in a society. A study conducted in Germany found that when the minority group chooses marginalization or assimilation as an acculturation strategy, the majority group has more prejudice towards them (Zick et al., 2001). These two acculturation strategies might lead to less contact between groups and favorize more prejudice.

The MICA is a measure that has good psychometric properties and researchers will be able to use it to study the subtleties of intergroup dynamics. Studying prejudice often pertains to an ingroup that has a majority status in the society where the study takes places, whereas the outgroup has a minority status and is disadvantaged and/or marginalized (Bergh et al., 2016; Jost et al., 2004). For instance, the dual process model framework shows that prejudice towards marginalized and disadvantaged groups is related with personality measures (agreeableness and openness) and ideological attitudes (social dominance orientation and right-wing authoritarianism) (Sibley & Duckitt, 2008). The MICA will allow to study cultural attitudes from a majority group perspective as well as a minority group perspective. Indeed, members of minority groups can have prejudice against majority groups, a type of intergroup dynamic that has been less studied (Dovidio et al., 2010; Sidanius & Pratto, 2001). The multi-outgroup instructions would have to be modified to assess ingroup bias for two of the four possible combinations (majority ingroup with minority outgroup, majority ingroup with majority outgroup, minority ingroup with majority outgroup, minority ingroup with minority outgroup), but invariance testing could be interesting for future research. The MICA could also be used to

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test some assumptions of the Two-Dimensional Model of Attitudes (TDMA) as suggested by Pittinsky and Simon (2007). The TDMIA posits that negative and positive attitudes are distinct and that they have different antecedents and different consequences (Pittinsky, 2010). For example, helping behaviors seems be more related with more positive attitudes than less negative attitudes (Pittinsky et al., 2011a). The advantage of the MICA is that the items of each factor (prejudice and appreciation) were created while using the same definition of attitudes. The allophilia scale has no equivalent in terms of prejudice scale. If the two factors of the MICA can reveal distinct antecedents and consequences, the argument for considering prejudice and appreciation as two different concepts would be even stronger. The initial validation of the MICA scores shows that cultural prejudice and cultural appreciation are partially (not completely) distinct, as the correlation between the two factors was high, but far from perfect for our two independent samples.

Theoretical Implications and Contributions

My two empirical studies in my thesis showed that cultural appreciation and cultural appreciation are two negatively related, but distinct concepts. The first study of my thesis, the meta-analysis on the DPM-2, provides a theoretical contribution by successfully adding positive cultural attitudes as an outcome in the dual process model (Duckitt & Sibley, 2017). Prejudice against and appreciation for ethnocultural outgroups were thus considered as two separate outcomes while testing the extended DPM-2. As mentioned earlier, effect sizes between SDO and RWA with prejudice were stronger than for appreciation. This difference in effect size among antecedents suggests that prejudice and appreciation might be partly distinct concepts, as it was suggested by other scholars (Pittinsky et al., 2011b). The meta-analytic path analysis of the DPM-2 seem to support this claim. It shows that appreciation is related to the same

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personality antecedents and ideological attitudes than prejudice, but to a different extent for the RWA explanatory mechanism. Indeed, it seems like differences in appreciation are more explained by variations in the level of openness than the level of right-wing authoritarianism. Considering some moderators in this meta-analysis study allowed for a more refined explanation of the relationships between the variables in the DPM-2 model and provided some interesting insights for future research. Notably, it seems important to interpret the effect size while considering the occupation of participants (university students or non-students). Our study also shows that there are differences in effect sizes between studies that have used validated vs. homemade measures of cultural attitudes, which suggests that researchers should probably favor using validated measure. The meta-analysis also provides a systematic and quantitative review of all studies published on the relationships in the DPM-2 model up until January 2018.

The second study of my thesis, the initial validation of the Multi-outgroup Inventory of Cultural Attitudes scores, also provides support for the idea that cultural prejudice and cultural appreciation are negatively related, but distinct concepts. The initial validation of the MICA scores showed that the cultural prejudice factor is negatively, but not perfectly related to the cultural appreciation factor. This suggests that part of the variance in cultural prejudice can be explained by other variables than the lack of cultural appreciation and vice versa. The MICA has an improved content validity because items fall under each of the three components of attitudes (behaviors, affect, and cognition), which is not the case for most of the existing scales that measure attitudes towards ethnocultural groups. Measuring behavior intentions, feelings and thoughts on ethnocultural groups captures all the basic elements of attitudes (Breckler, 1984; Dovidio et al., 2010). It provides a more complete portrait of attitudes to include all elements than to include only some of them. The MICA also offers a practical contribution by being a

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validated psychometric tool to measure cultural attitudes and being usable with participants from any ethnocultural groups. Most existing cultural attitudes measures focus their items on one target group, which forces the researcher to exclude this target group from their pool of potential participants. This exclusion criteria ensure that the researcher does not measure ingroup prejudice. The MICA has a multi-outgroup set of instructions and items that are appropriate to measure outgroup attitudes for any ethnocultural target group. The MICA items are also not bound to the socio-historical context we are in now. This means that the items are related to situations that existed long before our time and will probably still exist in the future. The MICA items pertain to (1) behaviors that are related with relationships (friendships, romantic relationships, and family relationships), (2) to emotions that are evoked by the target outgroup, and (3) thoughts about the target outgroup.

Making the distinction between cultural prejudice and cultural appreciation is quite new and is an idea that has been pushed forward by a few scholars in the last 10 years (Pittinsky et al., 2011a; Stürmer et al., 2013). However, it is not common practice in social psychology to consider them as separate concepts. Lowering prejudice to a certain degree will not necessarily equate in leveling up cultural appreciation to the same degree. This notion is extremely important as it encourages us to consider that we have two different channels to act on when it comes to intergroup relationships. One might want to focus on reducing prejudice first, because prejudice can be harmful and can lead to discrimination (Ajzen & Fishbein, 2005). However, one might also want to go further than preventing discrimination by fostering positive feelings between groups through increasing appreciation.

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Epilogue: Is Cultural Appreciation as Complicated as Writing an Opera?

I started this dissertation with a quote from the play *Amadeus*. This quote describes beautifully how, when Mozart was writing an opera, he accounted for the different characteristics of a variety of musical instruments, to use their individual sound and create a sound that is entirely new, a sound that is beautiful and almost magical. Using this as an analogy for cultural appreciation, I started this doctoral journey with the idea that people who appreciate diversity can make the best of cultural diversity in their lives by taking the differences in individuals that they encounter and integrating these differences to create a new and harmonious comprehension of their social world. First, it was important to establish how cultural appreciation was measured in the scientific literature. Defining a concept implies to establish what it is and what it is not. My meta-analysis helped me to clarify both. Cultural appreciation in the present literature is often defined as warmth towards an ethnocultural outgroups, as measured by attitudinal thermometers (Campbell & Herman, 2010; Duckitt & Sibley, 2007). Cultural appreciation is also often measured with items that pertain to affect towards ethnocultural groups (e.g., using the allophilia scale; Pittinsky, 2010; Pittinsky et al., 2011a). My meta-analysis showed that cultural appreciation is at least partly distinct from having low cultural prejudice. Partly distinct, because the usual personality and ideological attitudes, which are usually related with cultural prejudice, were also related to cultural appreciation, but to a lesser extent. Also, my meta-analysis showed that extraversion might be an additional personality correlate for cultural appreciation compared to cultural prejudice. The initial validation of the MICA scores allowed me to measure cultural appreciation while considering both the theoretical and empirical work that has been published on allophilia, xenophilia, tolerance and other related concepts. In my thesis, cultural appreciation goes beyond tolerance and is defined as a general positive evaluation (feelings, thoughts, and beliefs) that reflects goodwill and appreciation of members of an

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ethnocultural outgroup. This appreciation is expressed through positive feelings, thoughts, and behavioural intentions towards members of an ethnocultural outgroup. This definition implies that people who appreciate cultural diversity feel, think, and have the intention to act in ways not only supports, but celebrates diversity. This initial validation of the MICA scores shows that these people seem to exist. However, do they integrate diversity perfectly like Mozart integrates the diversity of notes in his majestic operas? Probably not, because the interplay of cultural appreciation and cultural prejudice is complicated, and most people will play false notes as some point in their lives. To better understand this nuance, it is important to pursue research on the psychological mechanisms that can optimize appreciation as well as the ones that can reduce cultural prejudice.

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