

Influence of abstract thinking style on morality and sociability attributed to immigrants by people with more conservative ideologies

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KEYWORDS

Thinking style
Stereotypes
Intergroup competition
Ideology

ABSTRACT

In current society, immigration is a reality that poses important challenges. Identifying factors that favor a more positive evaluation of immigrants could lead to new avenues of intervention to achieve more positive intergroup relationships and greater social well-being. Given that a more abstract thinking style promotes less focus on obstacles and difficulties, the aim of the present study was to examine the link between construal level and stereotype, focusing on people with a more conservative ideology, a population that tends to have a higher level of prejudice towards immigrants. We hypothesized that conservative people with a more abstract thinking style would report less negative stereotypes than those with a more concrete thinking style. In a sample of Spanish adults ($N = 1,208$, 60.1% women), we applied a questionnaire measuring thinking style, ideology, the degree to which immigrants are perceived as competitors, and the dimension of warmth (morality and sociability) of the stereotype content of that group. We found that more conservative people perceived, to a greater extent, immigrants as competitors and considered them less moral and sociable. However, the warmth (morality and sociability) attributed to immigrants was significantly higher for those conservative individuals who presented more abstract thinking style, with perceived competition as the mediating variable. As it is possible to induce a more abstract thinking style, the results of this study open a new avenue for intervention in promoting more positive attitudes toward immigrants, especially in more conservative people who tend to present more negative stereotypes towards this collective.

Influencia del estilo de pensamiento abstracto en la moralidad y sociabilidad atribuidas a los inmigrantes por personas con ideología más conservadora

PALABRAS CLAVE

Estilo de pensamiento
Estereotipos
Competición intergrupala
Ideología

RESUMEN

En la sociedad actual la inmigración es una realidad que plantea importantes retos. Conocer qué factores favorecen una evaluación más positiva de las personas migrantes puede ofrecer nuevas vías de intervención para lograr relaciones intergrupales más positivas y mayor bienestar social. Dado que un estilo de pensamiento más abstracto promueve una menor focalización en los obstáculos y dificultades, el objetivo fue profundizar en el vínculo entre estilo de pensamiento y estereotipo, centrándonos en personas con ideología más conservadora, una población que tiende a un mayor prejuicio hacia las personas migrantes. Hipotetizamos que las personas conservadoras con un estilo de pensamiento más abstracto informarían un estereotipo menos negativo que las de estilo más concreto. En una muestra de adultos españoles ($N = 1,208$, 60.1% mujeres) aplicamos un cuestionario midiendo estilo de pensamiento, ideología, grado en que se percibe a los inmigrantes como competidores y la dimensión de calidez (moralidad y sociabilidad) del contenido del estereotipo hacia ese grupo. Comprobamos que las personas más conservadoras percibían a los inmigrantes como más competidores y menos morales y sociables. La calidez (moralidad y sociabilidad) atribuida a los inmigrantes era significativamente mayor en las personas conservadoras con estilo de pensamiento más abstracto, siendo la percepción de competición la variable mediadora. Dado que es posible inducir a pensar con un estilo de pensamiento más abstracto, estos resultados abren una nueva vía de intervención para fomentar actitudes más positivas hacia los inmigrantes, especialmente en las personas más conservadoras, que suelen presentar estereotipos más negativos sobre este colectivo.

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Cite this article as: Caballero, A., Fernández, I., Laforêt, B., & Carrera, P. (2024). Influence of abstract thinking style on morality and sociability attributed to immigrants by people with more conservative ideologies. *Psychology, Society & Education*, 16(2), 1-10. <https://doi.org/10.21071/psyce.v16i2.17063>

Received: 21 March 2024. First review: 12 April 2024. Accepted: 26 July 2024.

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ISSN 1989-709X | © 2024. Psy, Soc & Educ.



Spain is one of the European countries that receives the most immigrants. In the third quarter of 2023, the country received 118,667 immigrants, mainly from Latin America and Morocco (INE, 2023). Despite the fact that increasing amounts of data show that all countries need immigration (World Bank, 2023), a large part of the news media tends to spotlight the negative consequences of immigration and, only to a lesser extent, points out the advantages to the economy and culture that the arrival of immigrants can have (see Ebert et al., 2018). This bias in the media regarding immigration influences the attitudes of citizens, making them more negative, and increasing the perception of immigration as a threat to the host population of that country (Burscher et al., 2015, Jacobs et al., 2016).

Perceiving immigration as a threat increases social conflicts and reduces the possibility of migrants fully integrating into host communities. For this reason, identifying strategies that facilitate a more positive perception of immigrants is a key factor in promoting a harmonious coexistence between groups of different cultural origins and general social well-being. In this research, we delve into some factors that can favor a more positive and less threatening image of immigrants, with special interest in knowing their role in social groups that traditionally report greater prejudice toward immigration, such as people with more right-wing or politically conservative ideologies (Altemeyer, 1998; Lipset & Raab, 1978; Napier & Jost, 2008; Sibley & Duckitt, 2013).

The study of the relationship between ideological factors and intergroup relations has a long tradition in social psychology. Since the classic work of Adorno et al. (1950) on authoritarianism, there has been great interest in knowing the factors that affect the relationship between ideology (analyzed from different approaches) and prejudice, and multiple lines of evidence agree that more conservative ideologies are the most intolerant toward minority outgroups (Napier & Jost, 2008). For this reason, in our work, we are interested in determining the influence of thinking style on negative stereotypes associated with minority outgroups, particularly among conservative populations, which are potentially more prejudiced compared to other populations.

Extensive previous research on the Stereotype Content Model (SCM; Fiske et al., 2002) offers a solid theoretical framework for exploring new variables that help to reduce the negative stereotypes and prejudices toward immigrants. In this classic model, two dimensions of evaluation of the outgroups are proposed: warmth and competence. Following the SCM, warmth helps us to anticipate a group's intention towards us, whereas competence helps us to know whether the group can carry out these intentions. These two dimensions are influenced by perceived status and competition, respectively. Thus, the model expects that the greater the perceived status of the outgroup, the more competence is attributed to the members of that group; the higher the perceived level of competition, the lower the level of warmth attributed to them. We want to emphasize that perceived competition refers to the fact that the amount of available resources is limited, in such a way that if one group accesses them, it prevents the other group from

accessing them. This asymmetry in resources is also known as the zero-sum and implies that the greater the perception that others will take away resources that we think belong to us, the less warmth we attribute to them. The SCM was further developed including emotions associated with stereotypes and facilitation-harm behaviors towards outgroups (Cuddy et al., 2007), resulting in the Behaviors from Intergroup Affect and Stereotypes map framework (BIAS map). Specifically, the combinations of the warmth and competence dimensions give rise to four types of stereotypes that induce the following emotions: pity (low competence and high warmth), envy (high competence and low warmth), contempt (low competence and warmth), and admiration (high competence and warmth). Some authors (Leach et al., 2007) highlighted the role of morality in defining this stereotype; subsequently, Fiske and collaborators (Kervyn et al., 2015) have also recognized the importance of this facet considering that the warmth dimension is made up of two subdimensions: morality (how trustworthy, honest and sincere we think that someone is) and sociability (how warm, friendly, and likable). The warmth dimension has shown primacy in social perception, mainly because it is more informative regarding whether the interaction with another person or group is a threat or benefit (Abele & Wojciszke, 2007; 2014; Cuddy et al., 2008; Ybarra et al., 2001). While warmth has been considered a priority by the authors of the SCM (Cuddy et al., 2008; Fiske, 2018; Fiske et al., 2007), current research indicates that the subdimension of morality is the most relevant for forming impressions of both people and social groups (Brambilla & Leach, 2014; Leach et al., 2007; 2015), recently giving rise to the moral primacy model (Brambilla et al., 2021). More recent work on the Spontaneous Stereotype Content Model (SSCM) confirms that when people are asked to spontaneously attribute characteristics to others, they most frequently use the dimension of warmth (morality then sociability) when thinking about others (Nicolas et al., 2022). Sociability and morality make specific contributions to the dimension of warmth, as Brambilla and collaborators (2021) mentioned, a person may be perceived as friendly but unfair and corrupt.

In this research, we are especially interested in knowing how the level of abstraction with which the group being evaluated is mentally represented, in our case, that of *immigrants in general*, favors a more positive stereotype. Construal Level Theory (CLT; Trope & Liberman, 2003) proposes that people can represent objects, events, and actions by focusing more on the details of *how* to perform the behavior, the context, and in the short-term (concrete mindset); or by focusing more on the final goals, *why* they perform a behavior, and its long-term consequences (abstract mindset). According to CLT, the level of mental representation is a continuous dimension with two opposite poles: concrete and abstract. The level of abstraction with which mental representations are made varies not only between people, but also within the same person according to the contextual circumstances, something that opens the possibility of changing the level of representation or thinking style to adapt to the circumstances at hand (Nguyen et al., 2020). CLT proposes a bidirectional relationship between psychological distance

(temporal, spatial, social, and probabilistic) and thinking style: the greater the psychological distance, the more abstract the mental representations; and the greater the level of abstraction in the mental representation, the greater the perceived psychological distance. Psychological distance is not the only way in which to modify thinking style; research in this theoretical area suggests other procedures, such as priming (e.g., Freitas et al., 2004; Fujita et al., 2006), messages that emphasize the characteristics of a concrete or abstract style (White et al., 2011), or even environmental manipulations that promote one thinking style over another style (Bülbül & Menon, 2010; Mehta et al., 2012) are also effective in changing it.

Of special interest for our research are results that indicate that an abstract thinking style favors focusing on the long-term, attending less to short-term contextual obstacles (Carrera et al., 2020). Likewise, an abstract thinking style promotes a more universal orientation, greater perspective taking, and empathy, all of which are factors that facilitate engaging in a greater number of prosocial behaviors towards others, including stigmatized groups (Levy et al., 2002).

If a more abstract thinking style can reduce the number of perceived difficulties and increase empathy toward outgroups, it is reasonable to hypothesize that it also promotes a more positive evaluation of these outgroups. This relationship is especially interesting if it occurs for people who show more prejudice toward immigrants, such as people with politically conservative ideologies (Altemeyer, 1998; Levy et al., 2002; Lipset & Raab, 1978; Napier & Jost, 2008; Sibley & Duckitt, 2013). Levy et al. (2002) showed that thinking style and ideology did not correlate and had different effects on the evaluation of stigmatized groups: while abstraction increased empathy toward these groups, which made it easier for them not to perceive others in a very negative way, ideology did not correlate with empathy, and the most conservative individuals perceived stigmatized groups more negatively.

The aim of this study was to examine the link between construal level and stereotype of immigrants, focusing on people with a more conservative ideology, we hypothesize the following: a) the most conservative people (versus progressive people) will hold a more negative stereotype of immigrants in terms of both the overall dimension of warmth and its facets of morality and sociability; b) as maintaining a more abstract thinking style promotes less attention to obstacles and difficulties, and perceived competition in the outgroup can be understood as an obstacle to achieving one's own goals, we expect that, in the group of more conservative people, the greater the abstraction, the lower the perceived competition from the outgroup; and c) finally, based on the relationships between the variables described, we expect that, in the group of more conservative people, the influence of a more abstract thinking style on the stereotype content towards immigrants will be mediated by lower perceived intergroup competition (the precursor of the warmth dimension in the SCM); in other words, we expect that the greater the level of abstraction in the thinking style of conservative people, the lower the perceived intergroup competition with the outgroup (immigrants) will be, and therefore the more positive the stereotypes held towards that social group.

Method

Participants

A sample of volunteers studying psychology at the National University of Distance Education (UNED; Spain) participated in this study in exchange for course credit. In order to assess a more general population, we used a snowball sampling procedure: students, as well as participating in the study themselves, also collected data from another adult (of a different gender). Before starting the survey, all participants signed a consent document that ensured the confidentiality and anonymity of their responses and reminded them that their participation was completely voluntary. The final sample was composed of 1,208 participants (726 women, 60.1%), with a mean age of 34.38 years ($SD = 10.65$, between 18 to 65 years old). Participants reported a medium perceived economic status ($M = 2.64$, $SD = 0.62$), and only 9% of participants were not born in Spain. The questionnaire included the following scales and questions in the following order.

Instruments

Thinking style was measured through the Behavioral Identification Form (BIF) from Vallacher and Wegner (1989). In this scale, 25 actions are presented, and participants are asked to choose between two definitions for each action. One option describes the action in concrete terms, focusing on *how* to perform it, while the other option describes the action in abstract terms, focusing on *why* it is performed. For example, participants must choose whether "eating" is best described as "getting nutrition" (abstract level; scored as 1) or "chewing and swallowing" (concrete level; scored as 0). The number of abstract descriptions selected by participants serves as a measure of the level of abstraction: higher scores indicate a more abstract thinking style. The reliability of the scale was satisfactory ($\alpha = .84$).

Stereotype content associated with immigrants was evaluated by analyzing the warmth component based on the BIAS map (Cuddy et al., 2007; and adapted to the Spanish context by López-Rodríguez et al., 2013). Each item was evaluated on a 5-point Likert scale (1 = *Not at all* to 5 = *Extremely*). The warmth component was subdivided into two factors (sociability and morality), and the following question was asked: "To what extent do you believe that immigrants are?" (warmth-sociability: *likable, friendly, and warm*; $\alpha = .88$) and warmth-morality (*trustworthy, honest, and sincere*; $\alpha = .83$). Since the warmth factor comprises two subdimensions, the score for this factor was also calculated considering the six items of morality and sociability together ($\alpha = .91$).

Perceived intergroup competition was evaluated from beliefs about perceived competition, in terms of zero-sum, between immigrants (outgroup) and their own group (ingroup; see Esses et al., 1998; Fiske et al., 2002). The scale was adapted to the Spanish context by Cuadrado et al. (2016). The measure consisted of three items (e.g., "The more power members in

this group have, the less power people like me are likely to have”), with each item evaluated using 5-point Likert scales (1 = *Totally disagree* to 5 = *Totally agree*). Higher scores indicate a greater belief that the outgroup (immigrants) competes for ingroup resources. In our study, satisfactory reliability was obtained ($\alpha = .87$).

Political ideology was evaluated through an item in which the participants selected the option with which they most identified on a 7-point Likert scale (with scores ranging from 1 = *Very politically liberal progressive* to 7 = *Very politically conservative*).

Sociodemographic data: gender, age, country of birth, perceived socioeconomic status (four-point scale from 1 = *Very bad* to 4 = *Very good*).

Procedure

A correlational study using a questionnaire was designed and completed online.

Data analysis

Using the SPSS statistical program (version 27), reliability analyses of each of measures (Cronbach’s alpha coefficient) were performed. To understand the relationships between the variables, bivariate correlation analyses were carried out. In addition, an analysis of variance was performed to identify differences between ideological groups.

To explore the influence of abstract thinking style on stereotype content through perceived intergroup competition in people with more conservative ideologies, we performed a set of moderate mediation analyses (Model 7; bootstrapping procedure with 10,000 resamples to generate confidence intervals of 95%) using the PROCESS macro (Hayes, 2018), in which the predictor variable was thinking style measured through the BIF scale; the mediating variable was the perception of intergroup competition –understood as the zero-sum–, the moderator variable was ideology, and the respective outcome variables were warmth, morality, and sociability in each model. All three moderated mediations models were replicated using only participants who were born in Spain ($n = 1,100$).

Results

We performed a correlation analysis between the variables of our study: thinking style, ideology, perceived intergroup competition, warmth, and its dimensions—sociability and morality (Table 1). The results show that thinking style significantly and positively correlated with stereotype: the higher the level of abstraction is, the more warmth, sociability, and morality attributed to immigrants. Political ideology significantly and positively correlated with intergroup competition: the greater the degree of conservatism is, a greater perceived intergroup competition. Additionally, political ideology significantly and negatively correlated with the stereotype content: with higher levels of conservatism, less warmth, morality, and sociability are attributed to immigrants. Perceived intergroup competition, as proposed by the SCM, negatively and significantly correlated with stereotype content: the greater the degree of perceived intergroup competition is, the lower the attribution of warmth (sociability and morality) to the outgroup.

To examine the effect of ideology on the rest of the variables, we divided the scores into three levels: 1-3 (progressive, $n = 770$, 63.74%), 4 (center, $n = 278$, 23.01%), and 5-7 (conservative, $n = 160$, 13.25%). Napier and Luguri (2013) justify this division when the sample is biased toward one of the ideological poles. Through analysis of variance, we compared the scores of the warmth component and its dimensions, morality and sociability, among the three ideological groups. Post-hoc comparisons were made among the three ideological groups using the Tukey-b test. Results showed that the most conservative people present a more negative stereotype of immigrants both in terms of global warmth and the subdimension of morality; there are statistically significant differences between the three ideological groups. Sociability follows the same direction, however the difference between the center and conservative groups is not statistically significant. Likewise, significantly higher scores were obtained for perceived intergroup competition for participants with more conservative ideologies (Table 2).

Considering the relationships between construal level, stereotypes, perceived competition and ideology, we propose that thinking style indirectly influences stereotypes associated with immigrants through perceived competition with this group and

Table 1

Means, standard deviations and correlations among thinking style, political ideology, perceived intergroup competition, warmth, sociability, and morality attributed to the outgroup

	<i>M (SD)</i>	Thinking style	Ideology	Intergroup competition	Warmth	Sociability
Thinking style	16.3 (5.01)	-				
Ideology	3.27 (1.16)	.06	-			
Intergroup competition	2.23 (1.02)	-.02	.48**	-		
Warmth	3.76 (0.77)	.06*	-.32**	-.45**	-	
Sociability	3.86 (0.79)	.06*	-.26**	-.4**	.94**	-
Morality	3.66 (0.83)	.06*	-.33**	-.45**	.95**	.79**

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

Table 2*Comparisons based on political ideology in terms of stereotypes and intergroup competition*

	Progressive		Center		Conservative		$F_{(2, 1207)}$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Intergroup competition	1.91 _a	0.86	2.6 _b	0.98	3.13 _c	0.99	151.3*
Warmth	3.92 _a	0.74	3.56 _b	0.75	3.36 _c	0.67	51.42*
Sociability	4 _a	0.77	3.67 _b	0.79	3.56 _b	0.72	33.77*
Morality	3.83 _a	0.79	3.45 _b	0.79	3.16 _c	0.8	59.68*

Note. Different subscripts in the same row indicate significant differences ($p < .05$) between comparison groups.

* $p < .001$.

that this indirect relationship is moderated by the ideologies of participants. Figures 1, 2 and 3 and Table 3 summarize the results of moderated mediation analysis.

As shown in Table 3 and Figure 1, the results reveal that there is a both a direct and a conditional indirect relationship between the thinking style and warmth attributed to immigrants. The model indicates that thinking style influences the attribution of warmth to immigrants, that is, thinking style promotes a more positive stereotype of this group, in two ways: through a direct effect (the greater the abstraction, the greater the attributed warmth) and through a conditional indirect effect (specifically, for participants with more conservative ideologies, ≥ 4 , a more abstract thinking style favors lower perceived intergroup competition, which increases the attribution of warmth to immigrants).

Similarly, in the case of sociability, the greater the abstraction, the greater the perceived sociability (direct effect). The conditional indirect effect shows that when participants are more conservative (≥ 3), those who are more abstract in thinking style perceive lower competition with people who are immigrants, which favors the attribution of a greater degree of sociability towards them.

Once again, the same explanatory model is repeated for the morality variable, revealing a similar relationship: a more abstract thinking style reduces the degree of perceived intergroup competition among the more conservative participants, which favors the attribution of greater morality to immigrants. The direct effect of thinking style on morality was almost significant.

Discussion

The objective of this study was to determine the role that thinking style plays in assessing the warmth attributed to immigrants. Our interest in the warmth component of stereotype is due to it being the component most related to the intention of cooperation or competition attributed to outgroups, which explains intergroup relations. We were interested in analyzing the relationship between thinking style and stereotype associated with one of the most relevant outgroups in the Spanish context: that is, immigrants, focusing on the potentially most prejudiced population, such as people with a more conservative ideology.

Considering our results, we can conclude that, as we expected, the most conservative people manifested a greater percep-

tion of competition with the outgroup (immigrants) and a more negative stereotype of that group.

Previous literature relating thinking style and intergroup bias shows apparently contradictory results. Milkman et al. (2012) and McCrea et al. (2012). proposed that abstraction favors greater discrimination and stereotyping, while Levy et al. (2002) and Luguri et al. (2012) concluded that greater abstraction reduces bias and prejudice. Since neither the dependent variables studied nor the measurement or manipulation of thinking style are the same, it is difficult to draw clear conclusions from the previous results. For this reason, in this research, we proposed exploring further the relationships between these variables, while examining mediators and moderators which could help to clarify these relationships.

Using, as an interpretive framework, CLT and SCM, and given that a more abstract thinking style is linked to less focus on the immediate difficulties of achieving objectives and the use of more inclusive categorizations, we hypothesized that more conservative people (who generally have more negative stereotypes toward outgroups) who present more abstract thinking styles would report less negative stereotypes towards immigrants than do those who maintain more concrete thinking styles, since abstraction favors a weaker perception of the difficulties associated with competition with the outgroup (immigrants).

This indirect conditional relationship between thinking style and stereotype was tested in three moderated mediation analyses, one for each dependent variable analyzed: the warmth dimension of stereotype and its two facets, sociability and morality.

Results support a direct effect of thinking style on stereotype, and then, as we expected, the results support an indirect (through the perceived competition with the outgroup) and conditional (depending on ideological orientation) relationship between thinking style and stereotype.

These results can be summarized in the following conclusions: 1) Thinking style influences stereotype towards immigrants through two ways: directly (the greater the abstraction, the more positive stereotype towards immigrants) and indirectly and moderated by ideology; 2) More conservative people manifested a greater perception of competition with immigrants and a more negative stereotype of these immigrants than do more progressive people: that is, more conservative people consider immigrants to be less warm, sociable, and moral; 3) In the group

of more conservative people, the most potentially prejudiced, those who maintained a more abstract thinking style, perceived less competition with immigrants; and 4) A lower level of perceived competition with immigrants favored a more positive stereotype of said group (greater warmth, both in sociability

and morality components), even in more conservative people, if they maintained more abstract thinking styles.

In other words, people with more conservative ideologies in general perceive immigrants as competitors to a greater extent and, consequently, value them as being less warm, moral, and

Table 3

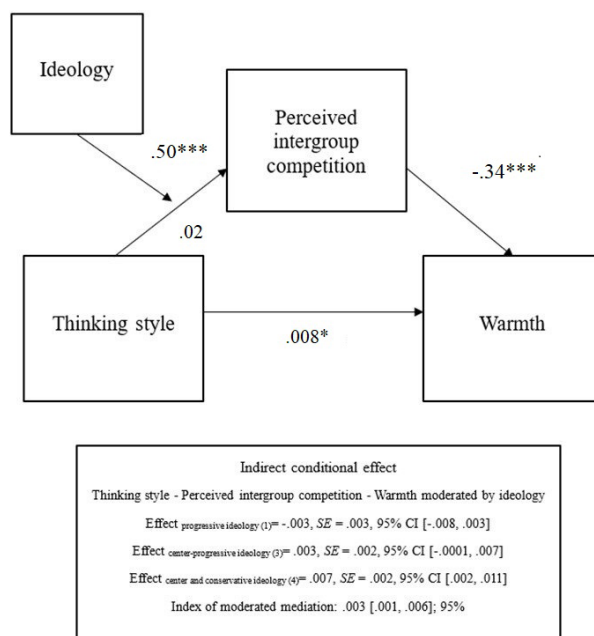
Moderated mediation analysis of warmth, sociability, and morality perceived in immigrants

$(R^2 = .24; F_{(3,1204)} = 127.10, p < .001)$				
<i>Mediating variable model: Perceived intergroup competition</i>				
<i>Predictor variables</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	0.91	0.2	4.62	< .001
Thinking style	0.02	0.01	1.49	.14
Political ideology	0.5	0.06	8.42	< .001
Style x ideology interaction	-0.01	< 0.01	-2.63	.01
$(R^2 = .20; F_{(2,1205)} = 154.08, p < .001)$				
<i>Dependent variable model: Warmth</i>				
<i>Predictor variables</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	4.38	0.08	54.39	< .001
Thinking style, direct effect	0.01	0.01	1.99	.05
Intergroup competition	-0.34	0.02	-17.39	< .001
<i>Conditional indirect effects of thinking style on warmth</i>				
<i>Mediator</i>	<i>Moderator</i>	<i>Effect</i>	<i>SE</i>	<i>Boot 95% CI</i>
Intergroup competition	Ideology: 1	-.003	.01	[-.008, .003]
Intergroup competition	Ideology: 3	.003	.01	[-.0001, .007]
Intergroup competition	Ideology: 4	.007	.01	[.002, .011]
Moderate mediation index: $ab = .003, SE = .001; 95\% CI [.001, .006]$				
$(R^2 = .16; F_{(2,1205)} = 114.88, p < .001)$				
<i>Dependent variable model: Sociability</i>				
<i>Predictor variables</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	4.42	0.09	51.96	< .001
Thinking style, direct effect	0.01	0.01	1.93	.05
Intergroup competition	-0.31	0.02	-14.98	< .001
<i>Conditional indirect effects of thinking style on sociability</i>				
<i>Mediator</i>	<i>Moderator</i>	<i>Effect</i>	<i>SE</i>	<i>Boot 95% CI</i>
Intergroup competition	Ideology: 1	-.003	.00	[-.007, .002]
Intergroup competition	Ideology: 3	.003	.00	[.0001, .006]
Intergroup competition	Ideology: 4	.006	.01	[.002, .010]
Moderate Mediation Index: $ab=.003, SE=.001; 95\% CI [.001, .005]$				
$(R^2 = .20; F_{(2,1205)} = 155.30, p < .001)$				
<i>Dependent variable model: Morality</i>				
<i>Predictor variables</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	4.38	0.08	49.74	< .001
Thinking style, direct effect	0.01	< 0.01	1.8	.07
Intergroup competition	-0.37	0.02	-17.48	< .001
<i>Conditional indirect effects of thinking style on morality</i>				
<i>Mediator</i>	<i>Moderator</i>	<i>Effect</i>	<i>SE</i>	<i>Boot 95% CI</i>
Intergroup competition	Ideology: 1	-.003	.00	[-.009, .003]
Intergroup competition	Ideology: 3	.004	.00	[-.0001, .008]
Intergroup competition	Ideology: 4	.007	.00	[.002, .012]
Moderate mediation index: $ab = .003, SE = .001; 95\% CI [.001, .006]$				

Note. Nonstandard coefficients B are included in the table. Confidence Interval (CI): if it contains 0, then it is not significant (Hayes, 2018).

Figure 1

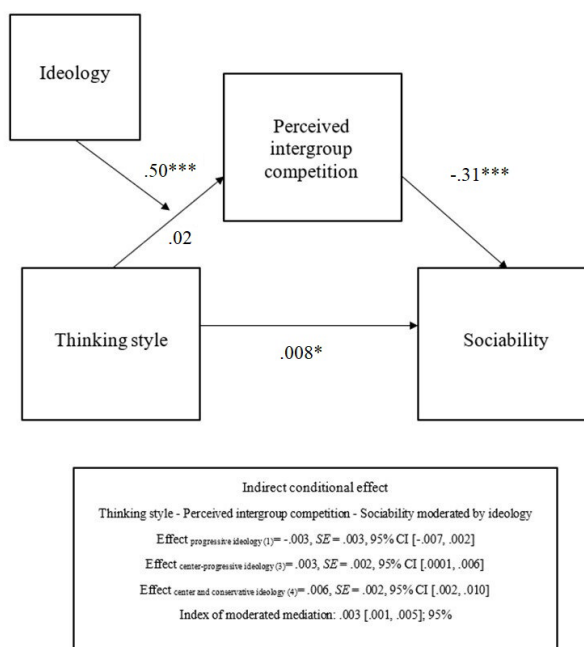
Moderated mediation model for warmth



* $p < .05$; *** $p < .001$.

Figure 2

Moderated mediation model for sociability

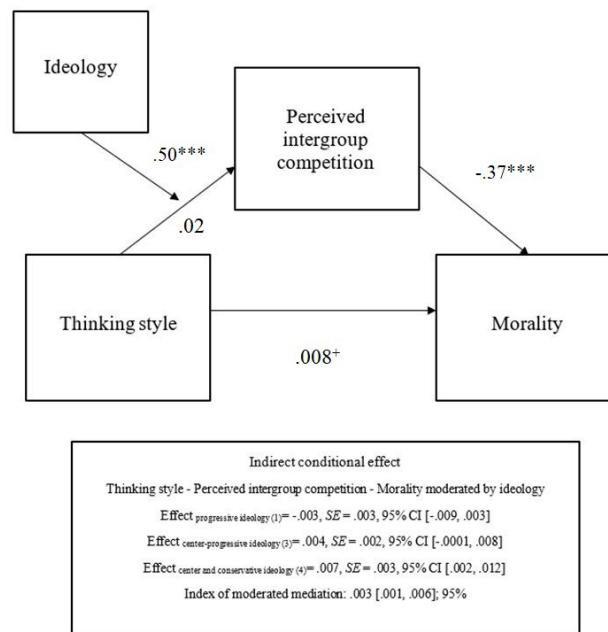


* $p < .05$; *** $p < .001$.

sociable. However, when more conservative people maintain more abstract thinking styles, this perceived level of competition is significantly reduced, resulting in a less negative evaluation of the warmth component and its subdimensions, sociability and morality. Conversely, thinking style does not seem to affect the perception of competition among more progressive

participants, probably because, in this group, participants have a lower level of perceived competition with immigrants, which favors a more positive stereotype of immigrants, independent of their thinking style.

In this study, thinking style was measured as a personal disposition through the BIF scale; however, thinking style is not an

Figure 3*Moderated mediation model for morality*

* $p \leq .07$, *** $p < .001$.

immovable trait, it can be modified or induced through various procedures. As it is possible to induce people to think with more abstract thinking style and given its demonstrated and relevant role in the prediction of a more positive stereotype of immigrants, these results allow us to envision new forms of intervention to foster more positive attitudes toward this outgroup. It is especially important that the results obtained in this study show that the role of the thinking style is particularly effective for people with more conservative ideologies, since this group tends to present the most negative stereotypes regarding immigrants and are also more reactive to classic interventions, such as awareness campaigns. The induction of a more abstract thinking style could have very positive effects on improving the perceptions of immigrants.

Limitations

Although the measure of ideological orientation used is very common in previous research, it is a single item. Therefore, future studies should test whether the relationships detected in this study can be replicated with other measures of variables traditionally linked to ideology, such as right-wing authoritarianism, social dominance, and voting preference. Similarly, thinking style is measured in this study. Although the relationships detected seem solid both theoretically and empirically, our design has the limitations of all correlational studies. Therefore, in future studies, it is necessary to analyze the impact of thinking style by experimentally inducing a more abstract or more concrete thinking style among participants.

Conclusions and implications

Previous research has associated conservative ideology with ethnic intolerance and greater prejudice towards outgroups (Levy et al., 2002; Napier & Jost, 2008). Our results have shown that a more abstract mindset reduces the perception of intergroup competition and generates more positive evaluations of outgroup's warmth, morality and sociability in people with a conservative ideology. The SCM (Fiske et al., 2002) and BIAS map (Cuddy et al., 2008) are well accredited models to explain the stereotype dimensions (warmth and competence) and their influence in intergroup behavior. Nicolas and colleagues (2022) have shown that people prioritize warmth when they evaluate others, especially if their goals are establishing personal relationships. For that reason, we have focused on the relationship between a more abstract mindset and warmth, including the facets of morality and sociability. While morality and sociability are included in the general dimension of warmth, they play unique and important roles in different social contexts, giving greater relevance to our results. In recent research, Nicolas et al. (2022) have shown that people pay more attention to targets' sociability when their goals are establishing personal close relationships, and more interest is paid to morality when they are making global impressions and structural evaluations. These differences are explained because sociability is focused on forming social connections with others (Brambilla et al., 2011) and morality is more related with threats to safety when considering relationships with outgroups (Brambilla et al., 2013). Further, while both facets are important in evaluation of others, morality shows primacy in impression development because it determi-

nes whether someone is beneficial or harmful for our material or/and psychological well-being (see Brambilla et al., 2011; Brambilla et al., 2013). Thus, morality and sociability make specific contributions to outgroup evaluations (Brambilla et al., 2021; Nicolas et al., 2022). In our study, the three models of moderated (ideology) mediation (intergroup competition), the general dimension warmth, and sociability and morality, were significant. Given that the results supported the influence of a more abstract thinking style in all three variables, the impact of thinking style can be expanded to a wide range of contexts (from close personal relationships to more structural evaluations). As thinking style can be fostered by different procedures (e.g., White et al., 2011) our results open a new potential line of psychosocial intervention to reduce intergroup conflicts, where inducing a more abstract thinking style could help more conservative people to perceive lower intergroup competition and then evaluate immigrants more positively in the SCM's dimensions of warmth, morality and sociability. In an increasingly culturally diverse and plural society, improving the appreciation for immigrants can promote healthier intergroup relationships and greater social well-being.

Author contributions

Conceptualization: A.C., P.C.
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Funding

This research was funded by MCIN /AEI /10.13039/501100011033 / FEDER, UE (ref: PID2022-137614NB-I00, Caballero and Carrera PIs).

Declaration of interests

The authors declare that they have no conflict of interest.

Data availability statement

The data are currently deposited at OSF. To see the data, go here: https://osf.io/hcxzk/?view_only=b265ea141e694e3693af230e6a616b5f

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