



# The Open Psychology Journal

Content list available at: [www.benthamopen.com/TOPSYJ/](http://www.benthamopen.com/TOPSYJ/)

DOI: 10.2174/1874350101811010001



## RESEARCH ARTICLE

# Relative Gratification and Outgroup Prejudice: Further Tests On A New Dimension of Comparison

Juliette Gatto<sup>1</sup>, Serge Guimond<sup>2</sup> and Michaël Dambrun<sup>2,\*</sup>

<sup>1</sup>Department of Psychology, Université Clermont Auvergne, LESCORES, France

<sup>2</sup>Department of Psychology, Université Clermont Auvergne, LAPSCO CNRS, France

Received: October 20, 2017

Revised: January 2, 2018

Accepted: January 31, 2018

### Abstract:

#### Background:

Recent studies have shown that the opposite of Relative Deprivation, Relative Gratification (RG), also leads to negative intergroup attitudes. In previous investigations, RG was manipulated in terms of positive economic expectations.

#### Aims:

The aim of the present research was to examine whether the effect of RG is limited to an economic dimension or if it reflects a more general process that is observable in different domains of comparison. In the first experiment, we choose to gratify – or not – psychology students on a new dimension with an important social value: their intellectual abilities.

#### Conclusion:

As expected, participants of the RG condition expressed a significantly higher level of prejudice towards low status outgroups than participants of the control group. In the second study, we found support for a model in which ethnic identification and group-based dominance mediated the relationship between intelligence based RG and prejudice toward low status ethnic outgroups.

**Keywords:** Relative Gratification, Prejudice, Social Comparison, Intelligence, Relative Deprivation, V-curve Hypothesis

## 1. INTRODUCTION

Understanding intergroup tensions and the factors that contribute to prejudice is a fundamental problem that has attracted the attention of social psychologists for many years. After decades of research revealing that Relative Deprivation (RD) is a central variable in the explanation of intergroup prejudice [1] recent research suggest that the opposite of RD, the relatively ignored Relative Gratification (RG), is also an important determinant of prejudice [2]. Together, these two perspectives suggest a V-curve relationship in which both RD and RG are associated with greater prejudice (*i.e.* the V-curve Hypothesis [3].)

### 1.1. Relative Deprivation and Outgroup Prejudice

Relative deprivation theory is often considered as one of the central theories in the explanation of intergroup conflict and prejudice [4]. The major assumption of relative deprivation theory is that a person's or groups' satisfaction is only partially related to their objective circumstances but, rather, more focused on their condition relative to other persons or groups. In terms of prejudice, relative deprivation theory postulates that unfavorable comparisons can generate feelings of deprivation that motivate outgroup derogation. Relative deprivation has consistently been identified as being a strong and robust predictor of intergroup attitudes in a variety of countries [1, 5]. Higher levels of relative deprivation have been associated with greater levels of outgroup prejudice. Runciman (1966) has proposed a basic conceptual distinction

\* Address correspondence to this author at the Department of Psychology, Université Clermont Auvergne, LAPSCO UMR CNRS 6024, 34 avenue Carnot, 63037 France, Email: [michael.dambrun@uca.fr](mailto:michael.dambrun@uca.fr)

between two major types of RD: egoistical RD and fraternal RD [6]. While the former refers to an individual who feels deprived because he or she is less well-off than others, the latter concerns individuals who feel that their ingroup is deprived relative to an outgroup, regardless of their own personal deprivation. Research comparing the role of these two types of RD has revealed that fraternal or group RD is the strongest predictor of intergroup attitudes and behaviors [5]. In sum, research on relative deprivation has concluded that an unfavorable (intergroup) comparison generates a feeling of dissatisfaction that can lead to prejudice. However, research over the last decade suggests that favorable comparisons can also lead to hostile intergroup attitudes. It appears that favorable comparisons resulting in a state of relative gratification can also play an important role in the emergence of negative intergroup attitudes [7].

### 1.2. Relative Gratification and Outgroup Prejudice

The first experimental tests of the effects of RD and RG on prejudice were reported by Guimond and Dambrun (2002). In a series of experiments, they manipulated both relative deprivation and relative gratification by confronting students' participants with declining (relative deprivation) or improving (relative gratification) personal employment opportunities (study 1) and group employment opportunities (study 2) [8]. For example, in the second study, the students were led to believe that their ingroup (psychology students) would be much worse off in terms of employment opportunities in the future (employment group relative deprivation condition) than an outgroup (students in law), or much better off (employment group relative gratification condition). Following the manipulation, attitudes towards various outgroups were measured. Consistent with previous research, RD increased participants' prejudice level towards foreigners.

This was not the main contribution of the study. Indeed, it was found that compared to a control condition, the RG condition also significantly increased outgroup prejudice. In fact, the evidence for the effect of RG on intergroup hostility was even more pronounced than for the effect of RD. Not only the effect of RG significantly affected a more important number of outgroup targets, but the percentage of explained variance of the effects was also larger. Because the only empirical evidence of a causal effect of RG on outgroup prejudice stemmed from this single experiment, it raised the possibility that it reflected a laboratory artifact. Using a representative sample of South Africans, one of the main objectives of Dambrun and *etal.* (2006) was to test the ecological validity of the effect of RG on intergroup hostility.

Relative deprivation theory proposes a linear relationship between the perception of relative economic conditions and negative intergroup attitudes. However, the integration of the relative gratification perspective suggests a V-curve or bilinear relationship in which both RD and RG are associated with greater outgroup prejudice [9]. Dambrun *et al.* (2006) tested both the linear and the bilinear functions with a large representative national sample from South Africa ( $n = 1600$ ). They found strong support for the bilinear equation in which the x-axis was scored from -2 (gratification) to +2 (deprivation; 0 meaning neither gratified, nor deprived) and where the Y-axis was rated from 0 (lack of prejudice) to 10 (high prejudice). As hypothesized, this V-curve relationship revealed that both relative gratification and relative deprivation were associated with greater levels of prejudice towards both African and Western immigrants in South Africa. While the general linear function was relatively poorly related to intergroup attitudes, the bilinear function accounted for a significantly greater percentage of the explained variance.

The results of Dambrun *et al.* (2006) were the first to demonstrate the relevance of relative gratification to understand outgroup hostility in the « real » world. However several limitations still exist. Firstly, RG has been manipulated [8] and measured [7] at the economic level. We do not know yet whether the effect of RG on prejudice is limited to this domain or if it reflects a more general social-psychological process that would be observable in different domains of comparison. Study 1 was specifically designed to test the effect of RG involving an entirely new comparison dimension on prejudice. Secondly, the processes underlying the effect of RG need to be investigated and identified. Under this perspective, in study 1, we will consider the extent to which the effect of RG on prejudice may be moderated by the status of the outgroup that is the target of prejudice. A second study was designed to identify some of the mediating processes of the effect of RG on outgroup hostility.

### 1.3. Further Tests of Relative Gratification on a New Dimension of Comparison

A comparison dimension underlies the perception and the feeling of relative gratification. An important distinction was made between a cognitive and an affective/emotional component in RD [10, 11]. Thus, Smith *et al.* (2012) define RD as “the judgment that one is worse off compared to some standard accompanied by feelings of anger and resentment” (p. 203). In similar ways, we suggest that RG is the judgment that one is better off compared to some

standard together with related feelings of satisfaction and contentment. Indeed, Guimond and Dambrun (2002) showed, in two experiments, that participants in the RG condition did not simply express more prejudice, they also expressed significantly greater levels of satisfaction compared to the control group. If there were any doubts as to whether RG could in fact be simply another form of RD, these findings should definitely dispel them. Whereas all types of RD refer to some form of discontent, this does not appear to be the case when one considers RG (see, however, the typology of reactions to relative advantage proposed by Leach, Snider & Iyer, 2002 [12]).

In the present research, our focus is on the temporal and/or social comparative dimension on which one is better off. This dimension can be more or less socially relevant. Dambrun (2011) proposed that the more the dimension of comparison will be socially relevant, the more the psychological consequences will be important [13]. A relevant dimension is a dimension with a strong social implication. The dimension of comparison must have a positive social value. For social dominance theorists [14], a positive social value means the possession of political authority, power, wealth, status, and material and economic resources. The economic dimension of comparison involved in the previous studies of RG depicted above definitively belongs to the category proposed by Sidanius and Pratto (1999). However, these authors mainly focus on relatively exogenous social objects with a positive social value. Dambrun (2011) proposed to add more endogenous social objects also having an important positive social value such as intelligence and human values reflecting a high level of development (*e.g.*, universalism, benevolence [15]). Intelligence has a strong positive social value for at least two reasons: first, it gives to each individual an index of his or her intrinsic quality and second, it permits a meritocratic repartition of exogenous social objects who have a positive social value in the society such as material and economic resources [16]

A second reason leads us to choose intelligence as a relevant dimension of comparison. This reason stems from the literature on genocide and mass killing. Many analysts and scholars of genocide have identified the perception of “ingroup intelligence superiority” as a variable involved in the genesis of intergroup hostility [17 - 19]. For example, Staub [18] indicates that the Nazis considered the “Aryan race” as pure and superior to others on several dimensions such as culture and intelligence. The « white superiority » ideology has been related to various manifestations of intolerance in United States [20] or in South Africa [21]. Each time, the perception that the ingroup has superior intellectual abilities is related to derogation of the relevant outgroups. Because social-historical analyses do not permit causal inferences, it is necessary to manipulate experimentally the perception of « ingroup intelligence superiority».

For all these reasons, we choose to study the relation between relative gratification on the dimension of ingroup intelligence and various relevant measures of outgroup prejudice. In study 1, RG was experimentally manipulated in order to evaluate the causal effect of « ingroup intelligence » RG on outgroup derogation. In study 2, the perception of gratification on the dimension of ingroup intelligence was measured on a larger sample and, then, its relationships with various relevant dependent variables were analyzed.

#### 1.4. The underlying Processes of the Effect of Relative Gratification on Outgroup Prejudice

The study of the reasons why RG leads to outgroup prejudice is of primary importance [2, 22, 23]. Dambrun *et al.* (2006) began by looking at the mechanism of group identification. Following social identity theory [24], because people tend to identify more strongly with the group to which they belong than with outgroups, they postulate that an ingroup favorable comparison resulting in RG may foster ingroup identification. When people feel satisfied with their group circumstances (*e.g.* economic group improvement), they may feel more pride in their own group and more attracted to it [25]. This should result in stronger ingroup identification among people perceiving relative gratification. Because stronger ingroup identification is associated with increases in ingroup bias and outgroup derogation [26], Dambrun *et al.* (2006) predicted and found support for a mediation model in which ethnic identification mediates the relationship between RG and prejudice toward African and Western immigrants. Recently, Dambrun and Taylor (2013) found an additional support for the mediating role of social identification [27]. They found that national pride significantly mediates the relationships between life satisfaction (*i.e.* personal RG) and prejudice toward ethnic outgroups in Western Europe. Across past studies, it seems that the induction of RG leads the participants to spontaneously structure the intergroup context at the inter-ethnic level, a very salient categorization in memory [28], ethnicity being also one of the main targets of group identification [29,30]. In addition, the stakes of power and dominance within society are closely related to the asymmetric relationships between the ethnic categories [14]. For these reasons, we will focus on ethnic/national identification. Finally, because national/ethnic identification has been identified as a significant mediating variable in the relation between RG and prejudice, we decided to test the extent to which it mediates the relationship between « ingroup intelligence » RG on outgroup prejudice (study 2).

Another mediating process is suggested by Duckitt's dual process model [31]. Duckitt and his colleagues argue that dual motivational and cognitive processes underlie two distinct dimensions of prejudice. Specifically, "threat-control driven and security motivation and competitively driven dominance or superiority motivation" (Duckitt, Wagner, du Plessis, & Birum, 2002, p. 88 [32]) correspond to two independent processes that underlie prejudice. While the first process mainly refers to threat and fear, the second one is more related to dominance, status and power. Relative gratification on the dimension of intelligence (*i.e.*, « ingroup superiority intelligence ») appears to be closely related to the second process involving superiority motivation. Individuals perceiving themselves in a superior position may be motivated to justify and maintain such superiority. However, maintaining such a position implies the utilization of strategies that require members of « superior » groups to derogate those of « inferior » groups. This rationale matches well with social dominance theory [14]. According to this perspective, the existence of intergroup prejudice would be due to the endorsement of legitimizing myths that accentuate the social hierarchy and legitimate the unequal relations between "inferior" and "superior" groups. Social Dominance Orientation (*i.e.* SDO), a construct proposed by social dominance theory, is defined as: « the degree to which individuals desire and support group-based hierarchy and the domination of « inferior » groups by « superior » groups » (Sidanius & Pratto, 1999, p. 48 [14]). Numerous studies have demonstrated that the group dominance ideology is strongly related to outgroup prejudice [33, 34]. Jost and Thompson [35] demonstrated that two factors underlie SDO: group-based dominance (GBD) and opposition to equality (OEQ). The ideology of the domination of « inferior » groups by « superiors » is well captured by GBD [35]. Thus, we predict that collective RG on the dimension of intelligence (*i.e.* perception of « ingroup superiority intelligence ») would lead to endorse more strongly the ideology of group-based dominance (GBD), resulting in the derogation of « inferior » groups. In other words, we predict that GBD would mediate, at least partially, the relationship between « ingroup intelligence » RG and prejudice toward « inferior » outgroups. We tested this mediating hypothesis in study 2. However, it also seems reasonable to assume that relatively gratified individuals could also oppose equality (OEQ) because equality threatens their privileged position. Thus, RG on the dimension of intelligence would result in greater OEQ. These predictions are consistent with past findings showing that RG significantly enhances SDO (for economic RG [8]).

Finally, in study 1, we examine the extent to which the effect of RG on prejudice may be moderated by the status of the outgroup that is the target of prejudice. From our perspective, a favorable comparison on the dimension of intelligence would lead people to perceive relative gratification, which in turn would motivate them to support ideologies that maintain their relative advantage. Crocker, Major and Steele (1998) have argued: "people of higher status may stigmatize those of lower status to justify their advantages" (p. 509 [36]). This assumption is consistent with past findings [7, 8, 37]. The perception of intelligence RG would motivate individuals to justify and legitimate the status quo and the existing social hierarchy. Prejudice towards low status groups is a tool used to justify or to legitimize inequality that favors one's own group. Thus, to the extent that individuals who perceive intelligence RG see themselves in an advantageous position they want to maintain, the more they would perceive RG, the more they would express prejudice towards low status groups. Prejudice towards high status groups would not be related to the perception of intelligence RG.

### 1.5. Study 1

This study was mainly devoted to test the causal effect of "ingroup intelligence" RG on prejudice toward outgroups of different status. Thus, we experimentally manipulated RG and, then, observed its effect on prejudice toward various outgroups. In this experiment, we induced a positive intergroup comparison. Because an intergroup comparison involving an ethnic minority such as the Arabs would have been sensitive in France, we choose to manipulate a positive intergroup comparison in the academic context. Thus, we led psychology students to compare favorably their academic major ingroup to an academic major outgroup (*i.e.* law students). We assessed the attitudes of the participants toward various ethnic<sup>1</sup> and academic major<sup>2</sup> outgroups perceived both as "superiors" (*i.e.* the Swiss, the English, the Japanese, students in law, in mathematics, in economics) and as "inferiors" (*i.e.* the Arabs, the Turks, students in philosophy). Consistent with the hypothesis that the effect of RG on prejudice is moderated by outgroup status, we predicted that RG would increase prejudice toward "inferior" outgroups, but not toward "superior" ones.

<sup>1</sup> We conducted a complementary study ( $n = 33$ ) in which we assessed how the participants perceived the social status of each ethnic groups. They were asked to rate on a 7-point scale the extent to which they perceived a very low (1) or very high (7) social status toward their ethnic ingroup (*i.e.* the French), and toward several ethnic outgroups (*i.e.* the Arabs, the Turks, the Swiss, the English, and the Japanese). The Turks ( $M = 3.52$ ) and the Arabs ( $M = 3.67$ ) were associated to the lowest social status. They differed significantly from the Japanese ( $M = 4.94$ ), the English ( $M = 5.33$ ) and the Swiss ( $M = 5.55$ ), which were associated to a higher social status ( $M_{low\ status} = 3.59$  ;  $M_{high\ status} = 5.27$  ;  $t(32) = 9.63, p < .001$ ). The ethnic ingroup (*i.e.* the French;  $M = 5.06$ ) also was associated to a higher social status than the Turks and the Arabs ( $t(32) = 7.24, p < .001$ ). The difference between the ethnic ingroup and the three high status outgroups was not significant ( $t(32) = 1.25, p > .22$ ).

## 2. METHODS

### 2.1. Participants

60 French students at the University Blaise Pascal were recruited for the study. Their average age is 19.6 years old and 95% of the participants are females.

### 2.2. Procedure

Participants were randomly assigned to a RG condition or to a control group. In all conditions, participants were told that they would be involved in a study on social perception and that they would be asked to fill out a questionnaire. Before carrying out this task, a 2-page folio was given to all participants. This outlet contained various questions (including the manipulation check and filler items) on how the participants perceived law and psychology students (intelligence, *etc.*). This allows us to induce the same social categories salience among all the participants. In addition, at the beginning of the outlet, participants in the RG condition were made aware of an official report from “Student Services”. This report stated that several studies had compared the intellectual abilities of psychology students and law students. In France, the status of law students is higher than that of psychology students, the latter holding quite a low status within the student community. The results of this fictitious report were straightforward; psychology students were more intelligent than law students. Indeed, on several intelligence tests (*i.e.* QI, *etc.*), graphs showed mean scores substantially higher for psychology students compared to law students. This evidence was presented in the form of a four-page report containing several cues suggesting that it was done by an official body. In the control condition, the participants were not given feedback on intelligence. Because a report including an explicit comparison between psychology and law student, even indicating a similar level of intelligence, would have influence the participants and thus would have impair the controlling nature of this condition, we chose to not expose participants of this condition to this official report. Nonetheless, the psychology and law academic major categories were made salient in the outlet. In addition, all participants indicated their expectations concerning the difference in intelligence between students of these two academic major (*i.e.* manipulation check).

### 2.3. Measures

First, prejudice towards Arabs was measured using a 7 point-scale comprising 16 items (*e.g.* «The rate of criminality would be lower if Arabs were sent back to their countries of origin ») that had been validated in other studies [38, 39]. The reliability of the scale was satisfactory ( $\alpha = .88$ )<sup>3</sup>. Higher scores indicated greater prejudice. As a second measure, participants were asked to rate on a 7-point scale the extent to which they were unfavorable (1) or favorable (7) toward their ethnic ingroup, the French, toward several low status ethnic outgroups (*i.e.* the Arabs and the Turks) and toward three high status ethnic outgroups (*i.e.* the Swiss, the English, and the Japanese)<sup>1</sup>.

As a third measure, participants were asked to rate on a 7-point scale the extent to which they were unfavorable (1) or favorable (7) toward their academic major (*i.e.* psychology), toward one low status academic major outgroup (*i.e.* philosophy), and toward three high status academic major outgroups (*i.e.* law, economics, and mathematics)<sup>2</sup>. Finally, as a manipulation check, participants were asked to evaluate the intellectual abilities of psychology and law student on one item (*i.e.* “Psychology students have superior intellectual abilities than law students”).

<sup>2</sup> We conducted a complementary study ( $n = 33$ ) in which we assessed the perceived prestige of each academic major. The participants were asked to rate on a 7-point scale the extent to which they perceived a very low (1) or very high (7) prestige toward their academic major ingroup (*i.e.* psychology), and toward several academic major outgroups (*i.e.* philosophy, mathematics, law and economy). Philosophy ( $M = 4.27$ ) was associated to the lowest prestige. It differed significantly from the academic majors of economy ( $M = 4.94$ ), mathematics ( $M = 5.12$ ) and law ( $M = 5.52$ ), which were associated to greater prestige ( $M_{high\ status} = 5.19$ ;  $t(32) = 3.36, p < .002$ ). The academic major ingroup (*i.e.* psychology;  $M = 4.88$ ) also was associated to greater prestige than the academic major of philosophy ( $t(32) = 2.50, p < .018$ ). Finally, the difference between the academic major ingroup and the three high status academic majors was marginally significant ( $t(32) = 1.81, p < .08$ ).

<sup>3</sup> An exploratory factor analysis with varimax rotation of the 16 items was realized. A Cattell scree test revealed a single factor solution. The Kaiser measure of sampling adequacy was .81. The single factor accounted for 37,54% of the total variance. There was a clear break (*i.e.* cutoff point) between the first factor (Eigenvalue = 6.01) and the second factor (Eigenvalue = 1.54). All items loaded appropriately on a single factor (factor loadings ranged from .42 to .74).

### 3. RESULTS

#### 3.1. Manipulation Check

An analysis of variance revealed that the participants in the RG condition were more likely to agree that the abilities of psychology students were higher than those of law students ( $M = 3.26$ ) relative to the participants in the control condition ( $M = 2.56$ ;  $F(1, 58) = 4, p = .05, \eta^2 = .064$ ).

#### 3.2. Prejudice Towards Arabs

On the 16-item prejudice scale, respondents in the RG condition showed a significantly higher level of negative attitudes towards Arabs ( $M = 2.99$ ) than the control group ( $M = 2.46$ ;  $F(1, 57) = 6.68, p < .012, \eta^2 = .105$ ).

#### 3.3. Attitudes Toward Ethnic Ingroup and Ethnic Outgroups

First, participants evaluated their ethnic ingroup (*i.e.* French) similarly in the RG condition ( $M = 5.63$ ) and in the control condition ( $M = 5.79$ ;  $F(1, 57) < 1$ ). Second, they evaluated the low status outgroups more negatively in the RG condition than in the control condition. Specifically, Arabs were evaluated less positively in the RG condition ( $M = 4.66$ ) than in the control condition ( $M = 5.28$ ;  $F(1, 57) = 5.16, p = .027, \eta^2 = .083$ ). Similarly, Turks were evaluated more positively in the control condition ( $M = 5.07$ ) than in the RG one ( $M = 4.53$ ;  $F(1, 57) = 4.07, p < .049, \eta^2 = .067$ ). Third, we examined how participants evaluated high status ethnic outgroup in each condition. The analyses revealed non-significant differences between the two experimental conditions. Swiss, English and Japanese all were evaluated positively and similarly in both conditions (respectively  $M_{RG} = 5.27/M_{CO} = 5.36, M_{RG} = 5.07/M_{CO} = 4.93, M_{RG} = 5.03/M_{CO} = 4.97$ ; all  $F_s < 1$ ). A 2 (condition) X 2 (outgroup status) ANOVA<sup>4</sup> with repeated-measures on the last factor yielded the predicted interaction effect,  $F(1, 57) = 6.94, p < .011, \eta^2 = .109$  (Fig. 1). Decomposition of this interaction revealed that low status ethnic outgroups were evaluated more negatively in the RG condition ( $M = 4.60$ ) than in the control condition ( $M = 5.17$ ;  $t(57) = 2.28, p < .026$ ). Participants evaluated similarly high status ethnic outgroups in each condition ( $t < 1$ ). Finally, while low and high status outgroups were evaluated positively and similarly in the control condition ( $t < 1$ ), participants evaluated low status ethnic outgroups ( $M = 4.60$ ) significantly more negatively than high status ethnic outgroups ( $M = 5.12$ ) in the RG condition ( $t(29) = 3.18, p < .003$ ).

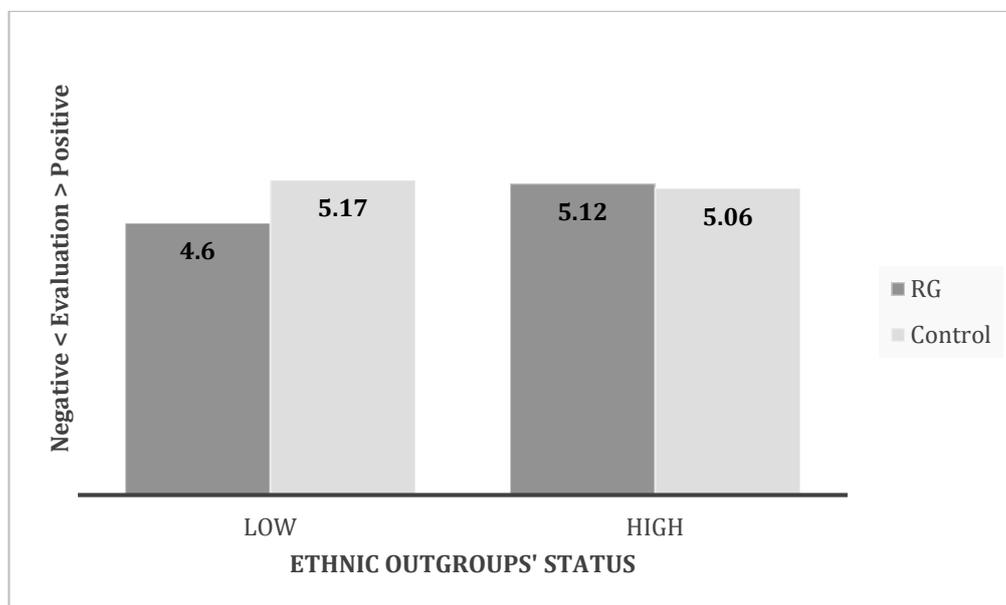


Fig. (1). Significant interaction effect between ethnic outgroups' status and the experimental manipulation of "intelligence" RG.

#### 3.4. Attitudes Toward Academic Major Ingroup and Academic Major Outgroups

First, participants evaluated their academic major (*i.e.* psychology) similarly in the RG condition ( $M = 5.57$ ) and in

<sup>4</sup> A 2 (condition) X 5 (ethnic outgroups: Turks, Arabs, Swiss, Japanese, Americans) ANOVA with repeated-measures on the last factor revealed the

same basic findings.

the control condition ( $M = 5.79$ ;  $F(1, 57) < 1$ ). Second, they evaluated philosophy (the low status outgroup) more negatively in the RG condition ( $M = 4.90$ ) than in the control condition ( $M = 5.55$ ;  $F(1, 57) = 4.26$ ,  $p < .044$ ,  $\eta^2 = .069$ ). Third, we examined how participants evaluated high status academic major outgroups in each condition. The analyses revealed non-significant differences between the two groups. The fields of law, economics and mathematics were evaluated positively and similarly in both conditions (respectively  $M_{RG} = 5.16/M_{CO} = 5.34$ ,  $M_{RG} = 5.23/M_{CO} = 5.31$ ,  $M_{RG} = 5.00/M_{CO} = 5.38$ ; all  $F_s < 1.22$ ). However, in this case, the 2 (condition) X 2 (academic major status) ANOVA<sup>5</sup> with repeated-measures on the last factor failed to yield a significant interaction effect,  $F(1, 57) = 2.39$ ,  $p < .13$ ,  $\eta^2 = .04$ .

### 3.5. Discussion

Confirming the effectiveness of our manipulation, participants in the RG condition were more likely to agree that the abilities of psychology students were higher than those of law students compare to the control condition. As predicted, participants of the RG condition were more prejudiced than those of the control condition. Specifically, they expressed significantly greater prejudice toward the Arabs, the Turks and students in philosophy. The percentage of explained variance varies from 6% to 10.5%, ranking these effects as moderate. On the other hand, participants of the RG condition did not express more prejudice toward the Swiss, the English, the Japanese and students in valued academic major such as mathematics, law and economics, than participants of the control condition.

These results constitute the first experimental evidence that the effect of relative gratification on prejudice is not limited to the economic dimension of comparison. The fact that manipulating RG on an entirely new dimension provides similar findings is a first step in the direction of showing that the effect of relative gratification on prejudice reflects a general psychological process. Second, these results fit well with social dominance theory [14]. As predicted, the induction of “ingroup intelligence” RG leads to prejudice only toward “inferiors” outgroups. Outgroups perceived as “superiors” or being valued in the social hierarchy were not derogated by participants of the RG condition. This suggests that group-based dominance would mediate the effect of RG on prejudice toward “inferior” outgroups. We will test this hypothesis in the next study.

### 3.6. Study 2

In study 1, because an explicit comparison of intelligence involving an ethnic minority would have been case sensitive, we chose to manipulate a positive intergroup comparison in the academic domain. However, this domain was far from the actual social and political French issues. Thus, in study 2, we decided to measure rather than manipulate RG on the intelligence dimension. We assessed how participants perceived the intellectual abilities of their national ingroup (*i.e.* the French) and how satisfied they were about this. Because in the context of a questionnaire including prejudice measures, an explicit comparison of intelligence with a relevant ethnic minority would have been case sensitive (*e.g.* “I consider that the French have higher intellectual abilities than the Arabs”), we chose to only measure intragroup RG. However, in a complementary study, we controlled that our two-item measure of intragroup RG (without any explicit comparison) was based on relevant implicit social comparisons<sup>6</sup>. Prejudice toward “inferior” outgroups constituted our

<sup>5</sup> A 2 (condition) X 4 (academic major: law, economy, mathematics, philosophy) ANOVA with repeated-measures on the last factor revealed the same basic findings.

<sup>6</sup> In the same complementary study that we presented in the above footnotes ( $n = 33$ ), we examined the relationships between our 2-item measure of intragroup RG and various relevant explicit intergroup comparisons. First, the participants were asked to complete the measure of intragroup RG on the intelligence dimension. Then, they were asked to rate on a 7-point scale the extent to which they are satisfied (from totally unsatisfied (1) to fully satisfied (7)) when they compare the intellectual abilities of the French to various outgroups (*i.e.* the North Americans, the other Europeans, the Asian people, and the African people). Two interesting results were found. First, participants were more satisfied when they compared the intellectual abilities of the French to the ones of African people ( $M = 5.12$ ) than when they compared French intellectual abilities to the ones of Asian people ( $M = 3.79$ ,  $t(32) = 4.93$ ,  $p < .001$ ), North Americans ( $M = 4.12$ ,  $t(32) = 4.60$ ,  $p < .001$ ), and other Europeans ( $M = 4.33$ ,  $t(32) = 3.32$ ,  $p < .002$ ). They also were significantly less satisfied when they compared their ingroup to Asians than to other Europeans ( $t(32) = 2.87$ ,  $p < .01$ ). Other differences were not statistically significant. Second, and more importantly, the more the participants perceived intragroup RG on the intelligence dimension, the more they reported satisfaction when they compared their ingroup to North Americans ( $r = .69$ ,  $p < .001$ ), African people ( $r = .65$ ,  $p < .001$ ), other Europeans ( $r = .63$ ,  $p < .001$ ) and Asian people ( $r = .50$ ,  $p < .003$ ). In fact, a multiple regression analysis revealed that two intergroup comparisons were robustly related to intragroup RG. When we entered the four intergroup comparisons as independent variables and the intragroup RG as a dependent variable, only the comparison to North Americans ( $\beta = .39$ ,  $p < .01$ ) and the comparison to African people ( $\beta = .28$ ,  $p = .054$ ) continue to predict the intragroup RG measure. The comparisons to Asians ( $\beta = .10$ ,  $p > .51$ ) and to other Europeans ( $\beta = .24$ ,  $p > .14$ ) did not longer predict the intragroup RG. Thus, the intragroup RG measure is based on relevant implicit intergroup comparisons; at least one involving a dominant group (*i.e.* the North Americans) and at least one involving a more dominated continent (*i.e.* Africa).

main dependent variables. Finally, in order to test our mediating hypotheses, we included a measure of national identification and the social dominance orientation scale.

## 4. METHOD

### 4.1. Participants

290 students at the University Blaise Pascal were recruited for the study. Their average age is 20.59 years old and 90% of the participants are females.

### 4.2. Procedure

At the beginning of a lecture, participants were asked to fill out an anonymous questionnaire on social perceptions.

### 4.3. Measures

First, two items were used to assess “intelligence” RG (*i.e.* “ I consider that the French have high intellectual abilities”, “When I think about the intellectual abilities of the French, I feel satisfied”;  $r = .49, p < .001$ ). These two items assessed intragroup relative gratification on the dimension of intelligence at the present moment. Then, the two items were averaged. Higher scores indicated greater perception of RG. Second, we measured prejudice using two scales: the generalized prejudice toward foreigners scale [40] ( $\alpha = .90$ ) and with 8 items from the prejudice towards Arabs scale used in study 1;  $\alpha = .82$ ). These two scales were positively and significantly correlated ( $r = .73, p < .001$ ). On both scales, higher scores indicated greater prejudice. Third, we incorporated the full social dominance orientation scale of Pratto & al (1994) into the questionnaire. This scale comprised 16 items ( $\alpha = .88$ ) and two components: Group-Based Dominance (GBD) and Opposition to Equality (OEQ). Higher scores indicated greater orientation toward social dominance. Finally, we measured national identification (*i.e.* identification with the French) using a 10-item scale that had been validated in other studies [38]. The reliability of the scale was satisfactory ( $\alpha = .87$ ). Higher scores indicated greater national identification.

## 5. RESULTS

### 5.1. Relationships Between “Intragroup Intelligence” RG and the Various Dependent Variables

In order to examine the relationships between the measure of “intelligence” RG and the various dependent variables, we computed a correlation analysis. Results are depicted in Table (1). As predicted, intragroup RG was correlated positively and significantly with both prejudice toward foreigners ( $r = .24, p < .001$ ) and prejudice toward Arabs ( $r = .23, p < .0001$ ). The more the participants felt the French gratified on intellectual abilities, the more they expressed negative attitudes towards foreigners and Arabs, and reciprocally. Social Dominance Orientation (SDO) also was significantly correlated with intragroup “intelligence” RG ( $r = .14, p < .015$ ). However, while Group-Based Dominance (GBD) was significantly related to intragroup RG ( $r = .18, p < .003$ ), the second component of SDO, namely Opposition to Equality (OEQ), was not related significantly to it ( $r = .08, p > .16$ ). In other words, the more the participants felt the French gratified on intellectual abilities, the more they endorsed group-based dominance ideology, and reciprocally. Identification with the French was positively and significantly correlated with intragroup “intelligence RG” ( $r = .39, p < .001$ ). The more the participants felt the French gratified on intelligence, the more they were identified to the French, and reciprocally. Finally, both GBD and national identification were positively and significantly related to prejudice toward foreigners (respectively,  $r = .41, p < .001$ ; and  $r = .31, p < .001$ ) and prejudice toward Arabs (respectively,  $r = .48, p < .001$ ; and  $r = .24, p < .001$ ). GBD and national identification correlated with each other ( $r = .19, p < .001$ ).

**Table 1. Relationships between the various variables (study 2).**

–	1	2	3	4	5	6
1. Intragroup Intelligence RG	–	–	–	–	–	–
2. Prejudice toward foreigners	.24***	–	–	–	–	–
3. Prejudice toward Arabs	.23***	.73***	–	–	–	–
4. SDO	.14*	.52***	.59***	–	–	–

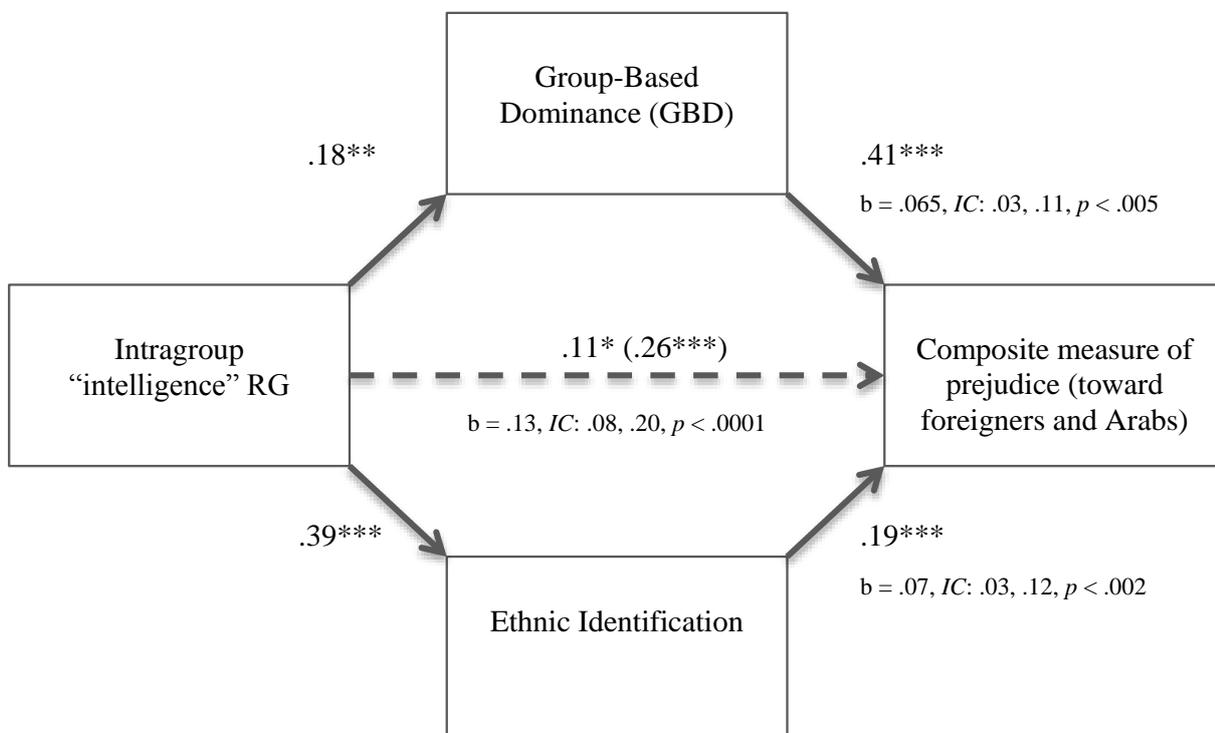
(Table 1) contd....

–	1	2	3	4	5	6
5. GBD	.18**	.41***	.49***	.91***	–	–
6. OEQ	.08	.53***	.59***	.90***	.65***	–
7. Ethnic identification	.39***	.31***	.24***	.16**	.19***	.10

Note: \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ ;  $n = 290$

### 5.2. Multiple Mediation Analyses

Following the procedure advocated by Preacher and Hayes (2008; 5000 samples and confidence intervals = 95%), we tested a multiple mediation model in which both GBD and national identification mediate the relationship between intragroup “intelligence” RG and prejudice. Because the measure of prejudice toward foreigners and the scale prejudice toward Arabs were highly inter-correlated and because all items from these two scales load a single factor<sup>7</sup>, we computed this multiple mediation analysis with a composite measure of prejudice (as a DV), in which all items of the two scales of prejudice were averaged (Fig. 2).



**Fig. (2).** Group-based dominance and ethnic identification as two independent mediators of the relationship between intragroup “intelligence” relative gratification and the measure of composite prejudice (toward foreigners and Arabs).

When both GBD and ethnic identification were statistically controlled, the relationship between intragroup “intelligence” RG and the composite measure of prejudice was significantly reduced (total indirect effect:  $b = .13$ ,  $SE = .03$ ,  $IC: .08, .20$ ;  $z = 4.17$ ,  $p < .001$ ) but remained statistically significant (direct effect the IV on the DV:  $b = .10$ ,  $SE = .05$ ,  $IC: .001; .20$ ;  $t = 1.99$ ,  $p = .048$ ; total effect of the IV on the DV:  $b = .23$ ,  $SE = .05$ ,  $IC: .13; .34$ ;  $t = 4.48$ ,  $p < .001$ ). Both GBD and ethnic identification significantly mediated this relationship (respectively,  $b = .065$ ,  $SE = .02$ ,  $IC: .03, .11$ ;  $z = 2.83$ ,  $p < .005$ ; and  $b = .07$ ,  $SE = .02$ ,  $IC: .03, .12$ ;  $z = 3.11$ ,  $p < .002$ ). This model explains more than 26% of variance in term of prejudice ( $\eta^2 = .267$ ).

<sup>7</sup> An exploratory factor analysis with varimax rotation of the 23 items was realized. A Cattell scree test revealed a single factor solution. The Kaiser measure of sampling adequacy was .93. The single factor accounted for 40,56% of the total variance. There was a clear break (i.e. cutoff point) between the first factor (Eigenvalue = 9.33) and the second factor (Eigenvalue = 1.59). All items loaded appropriately on a single factor (factor loadings ranged from .30 to .77).

## 6. DISCUSSION

Using another methodology, we found evidence for a significant relationship between RG on the dimension of intelligence and outgroup prejudice. Because this second study was correlational, causality cannot be inferred. However, the results of this second study are entirely consistent with those of the laboratory experiment conducted in study 1. Intragroup “intelligence” RG was positively and significantly related to prejudice toward foreigners and Arabs. The size of the correlations coefficients was ranked from small to moderate.

The main contribution of this second study consists in the exploration of the relationship between “intelligence” RG, national identification and Social Dominance Orientation (SDO). First, it appears that national identification was positively and significantly related to intragroup RG. Concerning SDO, only the GBD component correlated positively and significantly with RG. The correlation between OEQ and RG did not reach the statistical level of significance. Finally, both national identification and GBD emerge as two significant and independent mediators of the relationship between RG and outgroup prejudice.

### 6.1. General Discussion

Over the past several decades, research on relative deprivation has concluded that unfavorable comparisons generate feelings of dissatisfaction, and these lead to outgroup prejudice and intergroup hostility. The results of the present research suggest that favorable comparisons can also lead to hostile attitudes toward outgroups. It has long been argued that prejudice and intergroup hostility are mainly the result of negative experiences, such as negative feedback, frustration, economic threat, threat to identity, and threat to self-esteem [41 - 44]. Our results do not contradict this perspective. They do suggest, however, that favorable comparisons resulting in a state of relative gratification can also play an important role in the emergence of outgroup prejudice. The evidence also suggests that the status of the outgroup target is a moderator of the effect of RG on prejudice. Thus, relative gratification may improve substantially our understanding of prejudice and intergroup conflict.

#### 6.1.1. Intragroup Intelligence based RG and Its Underlying Processes

Since the first studies highlighting the effect of relative gratification [8], significant headway has been made. The RG manipulation of Guimond *et al* Dambrun involved both a socio-economic context and a positive expectation in the future. In study 1 of the present research program, RG involved neither a socio-economic context, nor a temporal comparison. It only involved a positive comparison on an entirely new dimension of comparison (*i.e.* intelligence) in the present moment. Thus, it appears that the effect of RG is not circumscribed to the socio-economic context. Indeed, a manipulation of RG on ingroup intellectual abilities shows similar effects to those initially observed. It is therefore likely that the effect of RG reflects a general process. This has led Dambrun (2011) to formalize the general process of RG on outgroup prejudice. This formalization can be summarized here in two main steps: first, a social and/or temporal favorable comparison results in the perception and feeling of relative gratification. Second, RG on a relevant social dimension (involving an exogenous or endogenous positive social value), through several social-psychological mechanisms, can favor the genesis of negative attitudes toward outgroups. Thus, it seems possible to generalize the effect of RG on outgroup prejudice to other relevant dimensions of comparison such as human values [45, 46]. It has been demonstrated that some values are perceived as reflecting a high level of human development (*e.g.* pro-social values) whereas other values are more perceived as primitive (*e.g.* hedonism [15]). Thus, gratifying people on pro-social values would lead to outgroup prejudice, whereas gratifying people on hedonism would not. We plan to test this prediction in the future. This would help to identify the boundaries of the RG effect. This approach and the present results also raise the limits of the effects of relative deprivation and invite researcher to also investigate the unexplored dimensions of RD as well.

An important aim of the current research was to explore the mechanisms underlying the effect of intragroup “intelligence » RG on outgroup prejudice. Specifically, we hypothesized that both social identification and group-based dominance would mediate the relationship between intragroup RG and prejudice. First, and as expected, the more the participants perceived intragroup RG on the dimension of intelligence, the more they identified with the French, resulting in greater negative attitudes toward low status outgroups. Independently, the more they perceived intragroup RG, the more they endorse the Group-Based Dominance (GBD) ideology, also resulting in greater negative attitudes toward low status outgroups. Following the multiple mediation procedure advocated by Preacher and Hayes (2008) [46], we found a strong support for the model in which both ethnic identification and GBD mediate independently and significantly the relationship between intragroup “intelligence » RG and outgroup prejudice. The support for the

mediating role of ethnic identification is quite consistent with previous results of Dambrun *et al.* (2006 [3]; see also Dambrun & Taylor, 2013 [27]).

Through study 1 and study 2 we also found evidence for the central role of social dominance. First, intragroup “intelligence” RG increases prejudice only towards “inferiors” outgroups. Second, study 2 indicates that the ideology of group-based dominance plays a mediating role between intragroup RG and prejudice. Together these results are consistent with the idea that in a situation of RG, individuals may enter in a process of justification and legitimation of their advantaged position. When people are in a state of group relative gratification, they find themselves in a privileged position [47]. It has long been argued that greater prejudice towards outgroups may emerge in an attempt to justify and maintain ingroup privileges [36]. Results of the present research clearly support this hypothesis. However, a distinct but related process to the endorsement of GBD may participate to this phenomena. Perceiving ingroup superiority on the dimension of intelligence may lead to the endorsement of meritocratic beliefs that participate to the justification/legitimation of the status quo and intergroup dominance [48, 49]. To the extent that intelligence reflects an intrinsic quality that provides moral justification of social inequalities, those perceiving ingroup superiority on this dimension may endorse meritocracy as a justification of their advantages. Future research may examine this prediction. The current study adds to the growing body of research examining the underlying processes of the effect of RG in which various processes such as fear for future wealth [23], fear of losing advantage and existential guilt have been identified to play a key role [22].

### 6.1.2. Limitations and Future Directions

On the methodological side, the limitations of the present studies, and of previous research on RG, need to be acknowledged. We distinguished between high and low status outgroups in study 1. We conducted a complementary study to examine such a distinction<sup>1,2</sup>. This independent data set confirms past research on the hierarchical nature of academic disciplines [50] and about the status of various nations [51]. Nevertheless, a more systematic analysis of various types of outgroups can and should be developed. For example, Fiske and Cuddy (2006) have shown how 15 countries of the European Union are distributed along a status continuum with Germany, the United Kingdom and France being high status, Greece and Portugal being low status and other countries being in between (*e.g.* Belgium, Italy). An important implication of our results that should be tested in the future is that RG would not have the same effect on attitudes towards these various national outgroups. Another methodological limitation concerns the lack of explicit comparison in the measure of RG used in study 2. It has been extensively demonstrated that to evaluate a personal or group situation, people spontaneously engage a social comparison process [52-54]. Because we cannot know which comparison they used to answer the intragroup RG measure in study 2, we conducted a complementary study to examine this issue<sup>6</sup>. As expected, our intragroup RG measure based on relevant implicit intergroup comparisons; at least one involving a dominant group (*i.e.* the North Americans) and at least one involving a more dominated continent (*i.e.* Africa). The former, involving North Africans, could be responsible of the effect of intragroup RG on prejudice, observed in study 2. Future research should examine this possibility. Concerning the external validity of our results, because only students served as participants, it would be important to replicate the present studies with more representative samples.

## CONCLUSION

Finally, by showing a link between “intelligence” RG and the derogation of low status outgroups, the present research also has implications for the understanding of genocide and torture behaviors. While racial superiority has been identified as a key factor in the emergence of extreme social behaviors, few studies have attempted to test it experimentally. The present research represents a first step in this direction. While study 1 demonstrates a causal relation between the perception of ingroup superiority and hostility toward low status outgroups, study 2 confirms this relation and identifies some of the underlying processes. However, future research may go one step further by examining the causal relation between ingroup “intelligence » RG and hostile *behaviors*. To the extent that some recent developments in social psychological science make possible the study of extreme social behaviors through immersive environments, future research could try to articulate the perspective of RG with the study of torture involving a low status outgroup member victim (see for example Dambrun & Vatiné, 2010 [55]).

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

**HUMAN AND ANIMAL RIGHTS**

No Animals/Humans were used for studies that are base of this research.

**CONSENT FOR PUBLICATION**

Not applicable.

**CONFLICT OF INTEREST**

The authors declare no conflict of interest, financial or otherwise.

**ACKNOWLEDGEMENTS**

Declared none.

**REFERENCES**

- [1] Pettigrew TF, Christ O, Wagner U, Meertens RW, Van Dick R, Zick A. Relative deprivation and intergroup prejudice. *J Soc Issues* 2008; 64: 385-401.  
[<http://dx.doi.org/10.1111/j.1540-4560.2008.00567.x>]
- [2] Anier N, Guimond S, Dambrun M. Relative deprivation and gratification elicit prejudice: Research on the V-curve hypothesis. *Current Opinion in Psychology* 2016; 11: 96-9.  
[<http://dx.doi.org/10.1016/j.copsyc.2016.06.012>]
- [3] Dambrun M, Taylor DM, McDonald DA, Crush J, Méot A. The relative deprivation-gratification continuum and the attitudes of South Africans toward immigrants: A test of the V-curve hypothesis. *J Pers Soc Psychol* 2006; 91(6): 1032-44.  
[<http://dx.doi.org/10.1037/0022-3514.91.6.1032>] [PMID: 17144763]
- [4] Jones M. *Social Psychology of Prejudice*. Englewood Cliffs, NJ, US: Prentice-Hall 2002.
- [5] Pettigrew TF, Meertens RW. Subtle and blatant prejudice in western Europe. *Eur J Soc Psychol* 1995; 25: 57-75.  
[<http://dx.doi.org/10.1002/ejsp.2420250106>]
- [6] Runciman WG. *Relative deprivation and social justice: A study of attitudes to social inequality in twentieth-century England*. Berkeley: University of California Press 1966.
- [7] Dambrun M, Guimond S, Taylor DM. The counter-intuitive effects of relative gratification on intergroup attitudes: Ecological validity, moderators and mediators. In: Guimond S, Ed. *Social comparison and social psychology: Understanding cognition, intergroup relations and culture*. Cambridge, England: Cambridge University Press 2006; pp. 206-27.
- [8] Guimond S, Dambrun M. When prosperity breeds intergroup hostility: The effects of relative deprivation and relative gratification on prejudice. *Pers Soc Psychol Bull* 2002; 28: 900-12.  
[<http://dx.doi.org/10.1177/014616720202800704>]
- [9] Grofman BN, Muller EN. The strange case of relative gratification and potential for political violence: The V-curve hypothesis. *Am Polit Sci Rev* 1973; 57: 514-39.  
[<http://dx.doi.org/10.2307/1958781>]
- [10] Guimond S, Dubé-Simard L. Relative deprivation theory and the Quebec nationalist movement: The cognition emotion distinction and the personal-group deprivation issue. *J Pers Soc Psychol* 1983; 44: 526-35.  
[<http://dx.doi.org/10.1037/0022-3514.44.3.526>]
- [11] Smith HJ, Pettigrew TF, Pippin GM, Bialosiewicz S. Relative deprivation: A theoretical and meta-analytic review. *Pers Soc Psychol Rev* 2012; 16(3): 203-32.  
[<http://dx.doi.org/10.1177/1088868311430825>] [PMID: 22194251]
- [12] Leach CW, Snider N, Iyer A. *Poisoning the conscience of the fortunate?": The experience of relative advantage and support for social equality. Relative Deprivation: Specification, development and integration*. Cambridge, UK: Cambridge University Press 2002; pp. 136-63.
- [13] Dambrun M. *Toward a theory of relative gratification and its consequences for outgroup prejudice Habilitation à diriger des recherches, Des relations intergroupes au bonheur: étude de leur régulation socio-psychologique*. Clermont-Ferrand, France: Université Blaise Pascal 2011.
- [14] Sidanius J, Pratto F. *Social Dominance*. Cambridge: Cambridge University Press 1999; pp. 1-20.  
[<http://dx.doi.org/10.1017/CBO9781139175043>]
- [15] Struch N, Schwartz SH. Intergroup aggression: Its predictors and distinctness from in-group bias. *J Pers Soc Psychol* 1989; 56(3): 364-73.  
[<http://dx.doi.org/10.1037/0022-3514.56.3.364>] [PMID: 2926634]
- [16] Flynn JR. *IQ trends over time: intelligence, race, and meritocracy. Meritocracy and economic inequality*. Princeton, NJ: Princeton University Press 2000; pp. 35-60.
- [17] Kuper L. *Theories of Genocide*. *Ethn Racial Stud* 1981; 4: 320-33.  
[<http://dx.doi.org/10.1080/01419870.1981.9993342>]

- [18] Staub E. The roots of evil: The origins of genocide and other group violence. Cambridge: Cambridge University Press 1989.
- [19] Tinker GE. Missionary conquest: The gospel and Native American cultural genocide. Fortress Press 1993.
- [20] Brinson SL. The myth of white superiority in Mississippi Burning. *South Commun J* 1995; 60: 211-21. [<http://dx.doi.org/10.1080/10417949509372980>]
- [21] Manning J. Racism in three dimensions: South African architecture and the ideology of white superiority. *Soc Identities* 2004; 10: 527-36. [<http://dx.doi.org/10.1080/1350463042000258944>]
- [22] Moscatelli S, Albarello F, Prati F, Rubini M. Badly off or better off than them? The impact of relative deprivation and relative gratification on intergroup discrimination. *J Pers Soc Psychol* 2014; 107(2): 248-64. [<http://dx.doi.org/10.1037/a0036704>] [PMID: 24797059]
- [23] Jetten J, Mols F, Postmes T. Relative deprivation and relative wealth enhances anti-immigrant sentiments: The V-Curve Re-Examined. *PLoS One* 2015; 10(10): e0139156. [<http://dx.doi.org/10.1371/journal.pone.0139156>] [PMID: 26461497]
- [24] Tajfel H, Turner JC. The social identity theory of intergroup behaviour. *Psychology of intergroup relations*. Monterey, CA: Brooks-Cole 1979; pp. 33-47.
- [25] Doosje B, Spears R, Ellemers N. Social identity as both cause and effect: The development of group identification in response to anticipated and actual changes in the intergroup status hierarchy. *Br J Soc Psychol* 2002; 41(Pt 1): 57-76. [<http://dx.doi.org/10.1348/014466602165054>] [PMID: 11970774]
- [26] Perreault S, Bourhis RY. Ethnocentrism, social identification and discrimination. *Pers Soc Psychol Bull* 1999; 25: 92-103. [<http://dx.doi.org/10.1177/0146167299025001008>]
- [27] Dambrun M, Taylor DM. The counterintuitive association between life satisfaction and racism. *SAGE Open* 2013; 3 [<http://dx.doi.org/10.1177/2158244013505756>]
- [28] Ito TA, Urland GR. Race and gender on the brain: Electroocortical measures of attention to the race and gender of multiply categorizable individuals. *J Pers Soc Psychol* 2003; 85(4): 616-26. [<http://dx.doi.org/10.1037/0022-3514.85.4.616>] [PMID: 14561116]
- [29] Frable DE. Gender, racial, ethnic, sexual and class identities. *Annu Rev Psychol* 1997; 48: 139-62.
- [30] Phinney J S. Ethnic identity in adolescents and adults: Review of research. *Psychol Bull* 1990; 108: 499-514.
- [31] Duckitt J. A cognitive-motivational theory of ideology and prejudice. *Advances in Experimental Social Psychology* San Diego: Academic Press 2001; 33: pp. 41-113.
- [32] Duckitt J, Wagner C, du Plessis I, Birum I. The psychological bases of ideology and prejudice: Testing a dual process model. *J Pers Soc Psychol* 2002; 83(1): 75-93. [<http://dx.doi.org/10.1037/0022-3514.83.1.75>] [PMID: 12088134]
- [33] Pratto F, Sidanius J, Stallworth LM, Malle BF. Social dominance orientation: A personality variable predicting social and political attitudes. *J Pers Soc Psychol* 1994; 67: 741-63. [<http://dx.doi.org/10.1037/0022-3514.67.4.741>]
- [34] Sibley CG, Robertson A, Wilson MS. Social dominance orientation and right-wing authoritarianism: Additive and interactive effects. *Polit Psychol* 2006; 27: 755-68. [<http://dx.doi.org/10.1111/j.1467-9221.2006.00531.x>]
- [35] Jost JT, Thompson EP. Group-based dominance and opposition to equality as independent predictors of self-esteem, ethnocentrism, and social policy attitudes among African Americans and European Americans. *J Exp Soc Psychol* 2000; 36: 209-32. [<http://dx.doi.org/10.1006/jesp.1999.1403>]
- [36] Crocker J, Major B, Steele C. Social stigma. *Handbook of social psychology*. 4<sup>th</sup> ed. New York: McGraw-Hill 1998; Vol. 2: pp. 504-53.
- [37] Guimond S, Dambrun M, Michinov N, Duarte S. Does social dominance generate prejudice? Integrating individual and contextual determinants of intergroup cognitions. *J Pers Soc Psychol* 2003; 84(4): 697-721. [<http://dx.doi.org/10.1037/0022-3514.84.4.697>] [PMID: 12703644]
- [38] Dambrun M. Does social dominance generate prejudice? Integrating individual and contextual determinants of intergroup cognitions. *J Pers Soci Psychol* 2001; 84: 697-721.
- [39] Dambrun M. Understanding the relationship between racial prejudice and support for the death penalty: The racist punitive bias hypothesis. *Soc Justice Res* 2007; 20: 228-49. [<http://dx.doi.org/10.1007/s11211-007-0040-1>]
- [40] Dambrun M, Guimond S. La théorie de la privation relative et l'hostilité envers les Nord-Africains. *Rev Int Psychol Soc* 2001; 14(1): 57-89.
- [41] Brown RJ. Prejudice: Its social psychology. Oxford: Blackwell 1995; pp. 1-167.
- [42] Cialdini RB, Richardson KD. Two indirect tactics of image management: Basking and blasting. *J Pers Soc Psychol* 1980; 39(3): 406-15. [<http://dx.doi.org/10.1037/0022-3514.39.3.406>]
- [43] Dollard J, Miller NE, Doob LW, Mowrer OH, Sears RR. Frustration and aggression. New Haven, CT: Yale University Press 1939.

- [http://dx.doi.org/10.1037/10022-000]
- [44] Fein S, Spencer SJ. Prejudice as self-image maintenance: Affirming the self-through derogating others. *J Pers Soc Psychol* 1997; 73: 31-44. [http://dx.doi.org/10.1037/0022-3514.73.1.31]
- [45] Schwartz SH. Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology* Orlando, FL: Academic 1992; 25: pp. 1-65. [http://dx.doi.org/10.1016/S0065-2601(08)60281-6]
- [46] Preacher KJ, Hayes AF. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav Res Methods* 2008; 40(3): 879-91. [http://dx.doi.org/10.3758/BRM.40.3.879] [PMID: 18697684]
- [47] Kawakami K, Dion KL. Social identity and affect as determinants of collective action: Toward an integration of relative deprivation and social identity theories. *Theory Psychol* 1995; 5: 551-77. [http://dx.doi.org/10.1177/0959354395054005]
- [48] LeBlanc J, Beaton AM, Walker I. The downside of being up: A new look at group relative gratification and traditional prejudice. *Soc Justice Res* 2015. [http://dx.doi.org/10.1007/s11211-015-0233-y]
- [49] McCoy SK, Major B. Priming meritocracy and the psychological justification of inequality. *J Exp Soc Psychol* 2007; 43: 341-51. [http://dx.doi.org/10.1016/j.jesp.2006.04.009]
- [50] Monteil J-M, Huguet P. *Social context and cognitive performance: Towards a social psychology of cognition*. East Sussex, UK: Psychology Press 1999.
- [51] Fiske ST, Cuddy AJ. Stereotype content and relative group status across cultures. *Social comparison and social psychology: Understanding cognition, intergroup relations and culture*. Cambridge, England: Cambridge University Press 2006; pp. 249-63.
- [52] Festinger L. A theory of social comparison processes. *Hum Relat* 1954; 7: 117-40. [http://dx.doi.org/10.1177/001872675400700202]
- [53] Guimond S. *Social comparison and social psychology: Understanding cognition, intergroup relations, and culture*. Cambridge University Press. 2006; 110: pp. 472-89.
- [54] Mussweiler T. Comparison processes in social judgment: Mechanisms and consequences. *Psychol Rev* 2003; 110: 472-89.
- [55] Dambrun M, Vatiné E. Reopening the study of extreme social behaviors: Obedience to authority within an immersive video environment. *Eur J Soc Psychol* 2010; 40: 760-73.

---

© 2018 Gatto *et al.*

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: (<https://creativecommons.org/licenses/by/4.0/legalcode>). This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.