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The Functional and Identity Indispensability Scale (FIIS)

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Abstract

This research further elaborated the concept of indispensability by developing and testing a new measure, the Functional and Identity Indispensability Scale (FIIS), to assess two dimensions on which groups can claim indispensability: functional indispensability and identity indispensability. In Study 1 we developed and validated the FIIS with a sample of 452 American college students. Results showed the expected two-factor structure and supported the prediction that identity and functional are two distinct, but related, forms of indispensability. FIIS showed a consistent structure across majority and minority members and the reliability of the two subscales was good. In Study 2, a sample of 154 White-American citizens evaluated the perceived indispensability (FIIS) of three minority groups: African-Americans, Hispanic-Americans, and Asian-Americans. Results showed the scale's sensitivity. Participants attributed greater identity (vs. functional) indispensability to African-Americans, whereas the pattern was reversed for Asian-Americans. No differences were found for Hispanic-Americans. Criterion validity was supported by a) positive associations with competence and warmth, b) negative associations with negative emotions and with social distance towards all minority group targets. The psychometric properties of the FIIS suggest its potential to be valuable addition to the existing literature on common identities and intergroup relations.

Keywords: identity indispensability, functional indispensability, common identity, majority groups, minority groups

Introduction

Despite the strong evidence showing that minority groups actively contribute to societies in several domains (e.g., labor market flexibility, social contributions, innovation and economic growth), their full integration is often jeopardized by threat and low social acceptance in situations of close interpersonal relationships. However, social psychological research on intergroup attitudes did not traditionally focus on a functional perspective, where minority groups may be seen, and see themselves, to offer important and significant contributions to the society. Rather, most research focused either on the perspective of the majority groups, looking at how prejudice can be reduced, or on the perspective of the minority groups, looking at the promotion of collective awareness to challenge social inequalities (Dixon, Durrheim, Tredoux, Tropp, & Clack, 2010).

The current research takes a functional approach that looks at the relation between minority and majority groups. We elaborated on a novel approach through which immigrants may be seen (and see themselves) as offering important social and economic contributions, that in turn can impact both attitudinal and adaptation outcomes (Guerra, Gaertner, António, & Deegan, 2015). Previous research showed that different forms of perceived indispensability of immigrants were associated with belonging to the same host country national group, thus reducing social distance, but did not examine the full validity of the two suggested dimensions (Guerra et al., 2015). The current research extends previous research by developing and testing a new measure, the Functional and Identity Indispensability Scale (FIIS), to assess two dimensions on which groups can claim indispensability: functional indispensability, by which groups can perceive themselves, and be perceived by others, as contributing some benefit to the host society (Guerra, António, Deegan, & Gaertner, 2013, Guerra, et al., 2015), and identity indispensability, by which groups can perceive themselves and be perceived as contributing to a host society's identity (Ng Tseung-Wong & Verkuyten,

2010; Verkuyten, Matinovic, & Smeekes, 2014). The current studies focused on minority and majority relations, however, we wish to highlight that the scope of the FIIS is broader and it can apply to other social contexts (e.g., immigrant and host country groups, merger situations, age groups, etc.). For instances, given the high unemployment rate among youth in Europe (above 40% in Italy, Greece, or Spain, OECD 2016), it is likely that young and older people think about their group indispensability/contributions when competing in the job market, or even when reading articles about the future and stability of the social security system.

Types of indispensability that influence intergroup relations

Although we can trace the concept of *indispensability* back in the early twentieth century, specifically on the work of the anthropologist Bronislaw Malinowski, the concept is relatively new in social psychology. The original formulation by Malinowski referred to the idea that “every type of civilization, every custom (...) fulfills some vital function, has some task to accomplish, represents an indispensable part within a working whole” (as cited in Merton, 1968). In social psychological literature, the concept of indispensability was primarily proposed as the perception that a group is a *necessary* element for defining a superordinate group (Ng Tseung-Wong & Verkuyten, 2010). Mirroring the original definition proposed by Malinowski, indispensability referred to the notion of all groups being necessary parts of superordinate category. The efficacy of creating superordinate identities to ameliorate conflictual intergroup relations has a long tradition in social psychology (Gaertner & Dovidio, 2012). Because categorization is a basic process that is fundamental to intergroup bias, social psychologists have proposed different strategies to alter categorization that consequently reduce intergroup biases. Among others, the common ingroup identity model (Gaertner, Mann, Dovidio, Murrell, & Pomare, 1989; Gaertner, Dovidio, Guerra, Hehman, & Saguy, 2016) proposed that recategorizing groups as either a single common group (e.g., a

nation), or a more complex dual-identity representation, in which earlier group identities remain salient within the context of an inclusive superordinate identity, positively influences intergroup attitudes and behaviors (Dovidio, Gaertner, & Saguy, 2009). There is strong evidence for the benefits of promoting inclusive common identities and, recently, research has been focusing on the conditions that illustrate when and why common identities are most efficacious (Gaertner, et al., 2016). Less research, however, has focused on the factors that can elicit common identities. Since the seminal studies in 1989 and 1990, few studies have explored new intergroup factors that can promote the development of common identities. Subgroups' perceived indispensability to the common category is also a promising tool to promote common inclusive identities (Guerra et al., 2015; Verkuyten, et al., 2014). By elaborating on the construct of indispensability, the current studies offer also new insights to the larger prejudice-reduction and common identity literature.

Despite the strong empirical support found for the efficacy of inducing superordinate identities, other work showed that dual-identities (i.e., a form of common identity) also increased intergroup bias. According to the ingroup projection model (Waldzus, Mummendey, Wenzel, & Weber, 2003), creating dual-identities allows members of each subgroup to define the common identity ethnocentrically as more similar to their subgroup than to another subgroup. This perceived relative ingroup to outgroup prototypicality has been related to more negative attitudes toward other subgroups (Wenzel, Mummendey, & Waldzus, 2007).

The first social-psychological conceptualization of ingroup indispensability was built upon the ingroup prototypicality assumption. However, it was defined as a different, but related, construct, suggesting that perceived relative indispensability for a common identity could be considered as an additional process of ingroup projection (Verkuyten & Martinovic, 2015). Specifically, Verkuyten and Martinovic (2015) proposed that "Indispensability is

more likely for a category representation that is compositional and in which the different parts make up the overarching whole. Membership in compositional categories is not necessarily determined by prototypical similarity or resemblance but rather by indispensability of its diverse and dissimilar components” (p.2). The first studies conducted to contrast directly the effects of relative ingroup prototypicality and relative ingroup indispensability revealed that relative ingroup indispensability, like prototypicality, was associated with higher intergroup bias for both majority and minority groups (Ng Tseung-Wong & Verkuyten, 2010, Verkuyten & Khan, 2012; Verkuyten & Martinovic, 2015). Additionally, supportive of the ingroup projection approach, dual-identification was also related with higher relative ingroup indispensability (Ng Tseung-Wong & Verkuyten, 2010; Verkuyten & Khan, 2012).

Overall, research conducted with both majority and minority groups showed that relative ingroup indispensability and relative ingroup prototypicality are empirically distinct constructs that independently relate to negative outgroup attitudes. Nonetheless, perceived ingroup indispensability is also linked to positive intergroup outcomes. Recent research conducted with immigrant groups revealed that perceived ingroup indispensability to the national identity and to the functioning of the host society was associated with stronger endorsement of integrationist strategies (Guerra et al., 2013). Specifically, the more immigrants perceived themselves as indispensable to define the national identity of the host society, or as contributing to the economic and social functioning of the society, the more they endorsed common-identity representations, which related to a preference for social integration (Guerra et. al., 2013).

Considering the perceived indispensability of groups is a relatively novel approach to understanding the consequences of promoting the salience of common identities on intergroup relations. To date, only a few studies examined this idea and found either negative

or positive effects. That is, perceptions of relative ingroup indispensability are reasons for claiming ingroup superiority and exceptionalism (Ng Tseung-Wong & Verkuyten, 2010; Verkuyten & Khan, 2012; Verkuyten & Martinovic, 2015) and perceptions of outgroup indispensability relate to more inclusive representations and positive outgroup attitudes (Guerra et al., 2013, 2015; Verkuyten et al., 2014). The different effects of relative, ingroup and outgroup indispensability observed in several different national contexts (e.g., the Netherlands, Mauritius, Malaysia, Portugal, USA) stress the importance of further exploring this concept and its role for hindering or promoting more harmonious relations between ethnically diverse groups (e.g., immigrants and host societies).

In the current studies we extend previous research by proposing that different forms of indispensability are helpful to capture the complexity of multi-ethnic societies resulting from the increased flow of international and domestic migrants. We present two studies that address the development and validation of the Functional and Identity Indispensability Scale (FIIS).

Two dimensions of indispensability: Identity and functional. The original proposal of ingroup indispensability relied on a category approach, that is, the extent to which groups perceived themselves as complementary parts to define a common identity (Ng Tseung-Wong, & Verkuyten, 2010; Verkuyten et al., 2014; Verkuyten & Martinovic, 2015). Earlier we proposed that there might exist other dimensions where groups can claim to be indispensable. Specifically in the case of migration contexts, immigrants can be regarded as being indispensable or not, with regard to the economic and social contributions they make to the host society (Guerra et al., 2013, 2015). Building upon the tradition in social psychology of examining functional relations between (Sherif, Harvey, White, Hood, & Sherif, 1961) and within groups (Weber & Hertel, 2007), we propose an additional form of indispensability, functional indispensability, that reflects the perceived instrumentality of a group's

contribution to a desirable superordinate outcome. We relied on previous research on group motivational gains, specifically on the definition of social indispensability as the product of one's instrumentality and effort toward the group outcome (Hertel, Kerr, & Messé, 2000; Weber & Hertel, 2007). Social indispensability is proposed to trigger motivation gains within groups (Hertel, Niemeyer, & Clauss, 2008). The basic premise is that individuals, when working in a group, are sensitive to whether or not their effort is relevant for the group outcome. Thus, when group members feel their effort or performance is very important for the group outcome, i.e., indispensable, motivation increases. On the contrary, when group members perceived their efforts' as being dispensable this leads to motivation losses (Weber & Hertel, 2007). Several studies illustrated this social indispensability effect within groups (Weber & Hertel, 2007).

Based on this approach, we propose that groups can be regarded as indispensable in a functionally and socially advantageous way, such as contributing to the society's economy and prosperity, without necessarily being perceived as indispensable to the host society's national identity (e.g., in Guerra et al., 2015 Ukrainian immigrants were seen as contributing to society, but having lower levels of identity indispensability, which was expected given the lack of historical relations between the groups). On the other hand, groups can be highly relevant for the definition of national identity, for instance, ex-colonies for countries with a colonial past, and do not have any, current, significant economic or social contribution. Additionally, perceptions of indispensability between groups should be related to positive outcomes, as found for within group relations. The idea that contribution to society is an important factor in immigrants' social integration is also mirrored in sociological research on migration, specifically on research on structural integration (i.e., acquisition of rights and access to labor market, education, housing or welfare systems; Heckmann & Schnapper, 2003). For example, research showed that structural integration is positively related to

feelings of belonging and fitting in the host society, as well as to national identification (de Vroome & Verkuyten, 2015).

Current studies

Taken together, recent social psychological research on ingroup relative indispensability and on the effect of social indispensability on group motivation suggests that other forms of indispensability might be relevant in analyzing the social integration and intergroup dynamics of ethnically diverse groups, such as immigrants, immigrant descendants and host society members. Therefore, the goal of the current studies was to further elaborate the concept of indispensability by which groups can perceive themselves and be perceived as indispensable to a superordinate outcome. To do so, we a) developed a scale of group indispensability that assesses two dimensions, identity and functional, and b) provided preliminary evidence for the validity of the scale to be applied for in- and outgroup targets.

Study 1

The goal of Study 1 was to develop and provide preliminary evidence for the validation of a set of items to assess identity and functional indispensability among majority and minority ethnic groups: the Functional and Identity Indispensability Scale (FIIS). Specifically, we aimed at validating the factor structure of the FIIS, for ingroup and outgroup targets, and examine its sensitivity to detect differences between the two dimensions. We expect the scale to comprise items that assess ingroup and outgroup indispensability, regardless of participants' ethnic background. Therefore, we expect invariance in the scale's structure when comparing majority and minority groups.

Method

Participants. Our sample consisted of 452 college students (51.3% female) of different ethnic backgrounds, who self-identified as White-Americans ($n = 375$), African-

Americans ($n = 39$), Hispanic-Americans ($n = 21$) and Asian-Americans ($n = 17$). Ninety six percent of the sample consisted of American citizens and mean age was 18.96 years ($SD = 2.28$).

Procedure. American college student participants were enrolled in General Psychology courses, were recruited from the Psychology Department's subject pool and received credit toward the course's participation requirement (i.e., participation or readings option). Data were collected online using Qualtrics Software from participants in dorms or during scheduled laboratory sessions over three semesters (Fall 2012 until Fall 2013). All participants completing the survey were debriefed as to the purpose of the research and thanked for their participation.

Measure

Perceived Indispensability. Participants rated to what extent they agreed or disagreed with several items (1 = *Strongly Disagree* to 7 = *Strongly Agree*) expressing beliefs about the indispensability of their ethnic ingroup to the United States (i.e., the ethnic group with which they self-identified at the beginning of the survey) and about the indispensability of several outgroups to the US. Specifically, White-Americans rated each set of items for the three minority groups represented in the study (i.e., Asian-Americans, African-Americans and Hispanic-Americans), whereas each minority group member rated White-Americans as the outgroup. Two items were used from previous research assessing category indispensability ("[Ingroup]/[Outgroup] is an indispensable part of the US", "The United States, without [Ingroup]/[Outgroup], would not be the United States any longer", Verkuyten & Khan, 2012). The new items were developed during discussions with graduate and undergraduate students with diverse ethnic backgrounds. In these groups we discussed several ways in which groups (e.g., immigrants and other ethnic groups) could be indispensable to a given society. Fifteen topics emerged from these groups discussions', from which we selected the

most representative (i.e., the ones that were most mentioned) and developed a set of 23 items to measure both types of indispensability: identity indispensability (sample items: “The meaning of what it is to be an American would change if my group/[Outgroup] was not part of America”; “I would have a very different conception of the United States if my group/[Outgroup] was not part of the USA”) and functional indispensability (sample items: “The economic future of the US depends on contributions of my group/[Outgroup]”, “Without my group/[Outgroup], the US economy would be much weaker”).

Results

Scores on our scale pertained to the evaluation of the ingroup’s and the outgroup’s perceived indispensability towards the hosting society/national group (United States). We first conducted an Exploratory Factor Analysis (EFA) involving all 23 items pertaining the evaluation of the ingroup, considering the total sample of participants. To analyze the consistency of the FIIS across ethnic groups, we categorized participants as majority (Whites, $n = 375$) and minority (Non-Whites, $n = 77$) groups and tested for invariance with multigroup chi-square difference tests. To test whether the structure of the FIIS would be adequate to the evaluation of outgroups, we conducted Confirmatory Factor Analyses (CFA). Finally, to explore further the scale sensitivity, we tested for differences in mean scores on each indispensability dimension according to participants’ group.

Exploratory factor analysis and reliability

An EFA with principal components scoring extraction and *promax* rotation on the 23 items was conducted for the total sample (Table I). The number of retained factors was determined by scree plot analysis, and item loadings were taken from pattern matrices. Items with factor loadings $< .35$ in a single factor, or with factor loadings $\geq .35$ in more than one factor were removed from the analysis. The final structure of the scale comprises 12 items and the expected two factors were retained: (I) Identity indispensability and (II) Functional

indispensability (see Table 1 for details)¹. This structure shows high adequacy ($KMO = .93$) and 58.29% of the total variance accounted for. Items have moderate-to-high loadings on the respective factor ($> .57$). Both factors presented high reliability ($\alpha > .85$) with moderate-to-high corrected item-total correlations ($r > .58$). Also, both factors were highly correlated ($r = .67, p < .001$).

Confirmatory factor analyses: Ingroup evaluations

To test whether this structure is invariant across groups when scores pertained participants' ingroups (0 = minority and 1 = majority) we conducted multigroup analyses using Mplus (Muthén & Muthén, 2015) and robust maximum likelihood estimation to correct for non-normality in the data (MLR; Yuan & Bentler, 2000). Chi-square difference tests were conducted using the adjusted Satorra-Bentler scaled chi-square (Satorra, 2000).

Based on the standards established in the literature (Bentler, 1990), the configural model (Model 1) shows adequate fit, with moderate to high standardized regression paths between the items and their latent factors in both groups, $\lambda > .58$, all $p < .001$. Also, results show a highly significant correlation between identity and functional indispensability for both groups, $\phi > .54, p < .001$. This two-component structure showed a greater fit than a one-component structure (Model 2 vs. Model 1, $p < .001$). Importantly, this configural model is invariant across both groups, when compared to models in which factor loadings, variances, and co-variances were fixed (Models 3 vs. Model 1, $p = .130$; Model 4 vs. Model 1, $p = .102$) (Table II).

Confirmatory factor analyses: Outgroup evaluations

¹ Examples of items excluded from the final FIIS in the identity indispensability dimension are “My group is an essential part of the character of the USA” and “For me, my group embodies what it means to be American”, and in the functional indispensability dimension are “Most members of my group have jobs that are necessary for the American economic system to function” and “Members of my group hold influential economic positions”.

We conducted additional CFA to examine whether the structure of the FIIS is adequate when individuals evaluate outgroup members. Again, results show that our two-component structure has a better fit than a one-factor structure when White-Americans evaluate African-Americans (Model 6 vs. Model 5, $p < .001$), Hispanic-Americans (Model 8 vs. Model 7, $p < .001$), and Asian-Americans (Model 10 vs. Model 9, $p < .001$). Similar results were obtained when minority members evaluated White-Americans (Model 12 vs. Model 11, $p < .001$) (Table II).

Preliminary evidence of convergent validity

Two of the excluded items in the EFA referred to the only measure of indispensability available in the literature, i.e., the 2-item measure of category indispensability (Verkuyten & Khan, 2012). Because the two items were not included in the FIIS final structure we decided to use them to provide a preliminary test for FIIS convergent validity. Both identity and functional indispensability of the ingroup were positively related to the 2-item measure of ingroup category indispensability ($r_{\text{identity}} = .68, p < .001$; $r_{\text{functional}} = .63, p < .001$). The same pattern of findings was found for the outgroup ratings of identity ($r_{\text{African-Americans}} = .66, p < .001$; $r_{\text{Hispanic-Americans}} = .72, p < .001$; $r_{\text{Asian-Americans}} = .67, p < .001$) and functional ($r_{\text{African-Americans}} = .59, p < .001$; $r_{\text{Hispanic-Americans}} = .66, p < .001$; $r_{\text{Asian-Americans}} = .54, p < .001$) indispensability.

Scale sensitivity: Differences in ingroup perceived indispensability

We conducted a 2 indispensability (identity vs. functional) x 4 group (White-Americans vs. African-Americans vs. Hispanic-Americans vs. Asian-Americans) within-factor repeated measures ANOVA to examine the scale sensitivity, exploring overall differences between mean indispensability scores for participants' ingroup. Results show a marginal main effect of indispensability type, $F(1,448) = 2.98, MSE = 0.874, p = .085, \eta^2_p = .01$, such that participants perceived greater *identity* indispensability of their ingroup ($M =$

5.35, $SD = 0.97$) than *functional* indispensability ($M = 5.07$, $SD = 0.95$). The interaction between the indispensability and group was significant, $F(3,448) = 6.33$, $MSE = 1.89$ $p < .001$, $\eta^2_p = .04$, thus evidencing differences in perceptions of ingroup indispensability between the different ethnic groups. Table III shows the descriptive statistics for each group. Post-hoc analyses, using the Bonferroni criterion for significance, showed that White-Americans and African-Americans both reported higher identity than functional indispensability ($p < .001$). Asian-Americans revealed the opposite pattern, that is, higher functional than identity indispensability ($p = .014$). Finally, no differences between identity and functional indispensability were found for Hispanic-Americans ($p = .297$) (Table III).

Scale sensitivity: Majority's perceived indispensability for each target outgroup

To examine the scale sensitivity to perceptions of indispensability of outgroup members among the majority group, we conducted a 2 indispensability (identity vs. functional) x 3 group (African-Americans vs. Hispanic-Americans vs. Asian-Americans) within-factors repeated measures ANOVA. Results show a significant main effect of target, $F(2, 748) = 90.99$, $MSE = 62.51$, $p < .001$, $\eta^2_p = .20$, such that African-Americans were rated as the most indispensable group. The main effect of indispensability was not significant, $F(1,374) = 0.02$, $MSE = 0.01$, $p = .879$, suggesting no differences between both types of indispensability across outgroups. Importantly, there was an interaction between the factors, $F(2,748) = 203.53$, $MSE = 61.88$, $p < .001$, $\eta^2_p = .35$. Post-hoc analyses using the Bonferroni criterion for significance showed that African-Americans were perceived to have greater identity than functional indispensability ($p < .001$), whereas Asian-Americans were perceived to have greater functional than identity indispensability ($p < .001$). No differences were found for Hispanic-Americans ($p = .339$) (Table III).

Scale sensitivity: Minorities' perceived indispensability for the target outgroup

To examine how minority participants perceived White-Americans indispensability, we conducted a 2 indispensability (identity vs. functional) x 3 group (African-Americans vs. Hispanic-Americans vs. Asian-Americans) mixed-factor repeated measures ANOVA. Results showed only a main effect of indispensability, $F(1,74) = 23.66$, $MSE = 6.73$, $p < .001$, $\eta^2_p = .24$. The interaction between indispensability and group was not significant, $F(2,74) = 1.11$, $MSE = 0.32$, $p = .335$, $\eta^2_p = .03$. Post-hoc analyses using the Bonferroni criterion showed that White-Americans were perceived by all minority groups to have greater identity than functional indispensability (all $p < .001$) (see Table III).

Conclusions

The results supported the development and preliminary validity of the Functional and Identity Indispensability Scale. Findings showed the expected two-factor structure and supported the prediction that identity and functional are two distinct, but related, forms of indispensability. This scale showed a consistent structure across majority and minority members and both dimensions were perceived to be distinct aspects of indispensability. The reliability of the two subscales was good. Importantly, the two-factor structure was replicated for outgroup targets, suggesting that the FIIS can be applied for both ingroup and outgroups. Additionally, the FIIS was correlated with a previously used measure of indispensability (Verkuyten & Khan, 2012). Consistent with the theoretical conceptualization of the FIIS, these correlations were always stronger for the identity, than for the functional, indispensability sub-scale, thus suggesting that both measures tap into different aspects of the construct.

The FIIS also proved to have sensitivity to differentiate between the two dimensions for ingroup and outgroup targets. Indeed, among majority and minority groups, participants perceived differences in indispensability of their ingroup and also towards the outgroup. White-Americans and African-Americans perceived themselves to have higher identity than

functional indispensability. Asian-Americans presented the reversed pattern, and no differences were found among Hispanic-Americans. Interestingly, the exact same pattern was found for the evaluation of the outgroup. White-Americans rated African-Americans as having higher identity indispensability, whereas Asian-Americans were perceived as having higher functional indispensability. No differences were found for the Hispanic-American target. Expectedly, minorities evaluated the majority White-American target to have higher identity than functional indispensability and this pattern was similar across the three minority groups. Given the difference in the size of the groups, however, these latter results should be interpreted with caution. Nonetheless, these findings replicate previous research conducted with majorities showing that different minority immigrant groups were perceived as being indispensable for different reasons that, in part, reflect their functional contributions or historical relations with the host society (Guerra, et al., 2015). Next, we further explore majority group members' perceptions of outgroup indispensability and its consequences for intergroup relations.

Study 2

The major goal of Study 2 was to further test the sensitivity of our scale when evaluating outgroup targets. Specifically extending the findings of Study 1, in this second study we tested the scale with a non-student sample and included several established measures to provide additional evidence for convergent and criterion validity.

To provide evidence of convergent validity, we included measures of common and dual-identity representations (Gaertner & Dovidio, 2012) that have previously been associated with other indispensability measures (i.e., category indispensability, Verkuyten et al., 2014). As such, we expected that both the identity and the functional dimensions of the FIIS would be moderately associated with common and dual-identities representations. We also included measures of civic and ethnic citizenship representations (Reijerse, Van Acker,

Vanbeselaere, Phalet, & Duriez, 2012). Civic representations define citizenship in a more inclusive way and highlight the importance of active participation and contribution to the society following societal rules (Reijerse et al., 2012). Previous research showed that civic representations are related to prosocial orientations toward immigrants (Wakefield et al., 2011) and to more positive attitudes toward them (Reijerse et al., 2012; Yogeeswaran & Dasgupta, 2014). Thus, we predicted that the two dimensions of the FIIS would be positively related to civic representations. On the contrary, ethnic conceptions of national identity define citizenship as based on blood ties and shared ancestry and has been associated with more negative attitudes towards immigrants (Pehrson, Brown, & Zagefka, 2009; Pehrson, Vignoles, & Brown, 2009; Reijerse et al., 2012). Hence, we predicted that identity and functional indispensability would be negatively associated with ethnic conceptions of national identity. To provide evidence of criterion validity, we included several attitudinal (i.e., social distance, positive stereotypes) and emotional (i.e., negative emotions) measures established in the literature as being associated with intergroup biases and behaviors.

Overall, and based on previous research showing the positive effects of perceived outgroup indispensability on attitudes toward outgroups (Guerra, et al., 2015; Verkuyten, et al., 2014), we expect that perceiving the outgroup as indispensable, both in identity and functional domains, will be a) negatively related to negative intergroup emotions (Mackie, Devos, & Smith, 2000), b) positively associated with warmth and competence (Cuddy, Fiske, Glick, 2008), and c) negatively related to social distance (Guerra et al., 2015). Additionally, in line with the findings from Study 1 and with Guerra and colleagues (2015), we explored whether different groups can be perceived as being indispensable for different reasons that, in part, reflect their functional contributions or historical relations with the host society.

Method

Participants. Participants were 154 White-Americans citizens (86 female; 68 male) with a mean age of 35.34 years ($SD = 12.39$). Regarding education, 14% reported having a high school degree, 31% reported having some college experience, 45% had 2- or 4-year degrees, and only 7% had a doctor degree.

Procedure. The questionnaire was administered via MTurk and participants successfully completed the survey in exchange for US \$1.00 - \$3.00. The questionnaire started with standard demographics, after which participants completed a series of group-specific questionnaires for each of the target ethnic groups (i.e., African Americans, Hispanic Americans, and Asian Americans) presented in random order for each participant. For each group, participants completed first the Functional and Identity Indispensability Scale, followed by a series of additional evaluative judgments.

Measures

Functional and Identity Indispensability Scale. Participants rated to what extent they agreed or disagree (1 = *Strongly Disagree* to 7 = *Strongly Agree*) with 12 items assessing the indispensability of the 3 target groups (i.e., African-Americans, Hispanic-Americans, and Asian-American). Six items assessed identity indispensability ($\alpha_{\text{Asians}} = .92$; $\alpha_{\text{Hispanics}} = .90$; $\alpha_{\text{Africans}} = .89$) and six items assessed functional indispensability ($\alpha_{\text{Asians}} = .91$; $\alpha_{\text{Hispanics}} = .93$; $\alpha_{\text{Africans}} = .94$).

Group representations. Using items from previous research (Gaertner, Mann, Murrell, & Dovidio, 1989), participants indicated on a 5-point scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*) to what extent they felt like one-group (“When I think of [Outgroup] and [My group], I see them as one group of Americans) and two groups on the same team, i.e., dual-identity (“When I think of [Outgroup] and [My group], I see them as two groups on the same team). In both cases, [My group] was replaced by the ethnic group chosen at the beginning of the survey, i.e. White-Americans. These representations were assessed

separately towards each of the three target immigrant groups (i.e., [Outgroup] was replaced by each of the minorities groups: Africans-Americans, Hispanic-Americans and Asian-Americans).

Citizenship representations. Participants indicated, on a 5-point scale (1 = *Not important at all* to 5 = *Very important*), the importance of civic and ethnic aspects of citizenship for a person to be regarded as American (Reijerse et al., 2012). Five civic items referred to respect for rules, participation and political rights (e.g., “To what extent do you consider it important that someone who legally settles in America and who follows all basic rules, must receive the same rights as an American citizen?”; $\alpha=.81$). Three ethnic items focused on essentialist aspects of citizenship (e.g., “To what extent do you consider it important that a person has American ancestors?”; $\alpha=.89$).

Warmth and Competence. Participants indicated the percentage of the “outgroup target” (i.e., African-Americans, Asian-Americans and Hispanic-Americans) that was: friendly, warm, aggressive, hostile (negative items were reversed: $\alpha_{\text{Asian-Americans}}=.70$, $\alpha_{\text{Hispanic-Americans}}=.74$, $\alpha_{\text{African-Americans}}=.79$). Participants also indicated the percentage of the “outgroup target” (i.e., African-Americans, Asian-Americans and Hispanic-Americans) that was: capable, competent, intelligent, smart ($\alpha_{\text{Asian-Americans}}=.94$, $\alpha_{\text{Hispanic-Americans}}=.92$, $\alpha_{\text{African-Americans}}=.93$).²

Intergroup Emotions. Items were adapted from previous research (Mackie et al., 2000). Participants indicated to what extent they felt negative emotions (irritated, uneasy, anxious, afraid, angry) and positive emotions (at ease, content, satisfied) when they interacted with each of the three target outgroups (1 = *Not at all* to 5 = *Very much*). We reversed-score

² To test the factor structure of this measure, we conducted a CFA analysis for each target group and obtained relative and absolute goodness of fit indexes. For all target groups, the model with two separate factors presented better fit. Specific details are available by writing to the first author.

the positive items to have an index of negative emotions ($\alpha_{\text{Asian-Americans}}=.84$, $\alpha_{\text{Hispanic-Americans}}=.87$, $\alpha_{\text{African-Americans}}=.89$).

Social Distance Index. Based on previous research that used social distance as a measure of attitudes with ethnic groups (Binder et al., 2009; Hindriks et al., 2014), participants rated the extent to which they were favorable to have each of the target groups as classmates, teachers, neighbors, house guests, or in-laws (1 = *Not at all* to 5 = *Very much*). We reversed-scored the scale so that higher values mean more social distance toward the target-group ($\alpha_{\text{Asian-Americans}} = .93$; $\alpha_{\text{Hispanic-Americans}} = .91$; $\alpha_{\text{African-Americans}} = .95$).

Results

The descriptive statistics and correlations between the variables are shown in Table IV. Overall, both dimensions of indispensability and social distance were negatively correlated for each minority group targets (all $p < .001$).

Convergent validity

As predicted, both identity and functional indispensability were positively associated with common group representations for all target groups. Specifically, across all groups, functional indispensability was moderately related to both one-group (all $r > .16$, $p < .047$) and dual-identity (all $r > .18$, $p < .05$) representations. Identity indispensability was moderately associated with the one-group (all $r > .16$, $p < .05$), but not the dual-identity (all $r < .12$, $p > .130$), representation. As expected, results further show that, across target groups, both identity and functional indispensability were positively associated with civic representations of citizenship (all $r > .27$, $p < .001$), while negatively associated with ethnic citizenship (all $r > -.17$, $p < .032$). Overall, these results provide evidence for the construct validity of our measure.

Criterion validity

As expected, perceiving the target outgroups as indispensable was related to more positive stereotypes, less negative emotions and lower social distance. Overall, both identity and functional indispensability dimensions were positively related to warmth (all $r > .16$, $p < .044$) and competence (all $r > .18$, $p < .019$). The only exceptions were for the Asian-American target group, for which identity indispensability was not associated to either warmth or competence (both $r < .05$, $p > .429$) and functional identity was not related to warmth ($r = .13$, $p = .120$) (Table IV). Additionally, as expected, both dimensions of indispensability were negatively associated with negative intergroup emotions (all $r > -.23$, $p < .003$), and to social distance (all $r > -.34$, $p < .001$) (Table IV). That is, overall, higher identity and functional indispensability related to higher competence and warmth, and to less negative emotions and lower social distance. Altogether, these results provide strong evidence for the criterion validity of the FIIS.

Scale sensitivity: Perceived outgroup indispensability

Similar to Study 1, we examined overall differences between identity and functional indispensability scores for the targeted minority groups by conducting a 2 indispensability (identity vs. functional) x 3 target group (African Americans, Asian Americans, Hispanic Americans) within-factor repeated measures ANOVA. Replicating our previous findings, results showed a significant main effect of target, $F(2, 306) = 46.82$, $MSE = 40.50$, $p < .001$, $\eta^2_p = .23$, illustrating that African-Americans were again rated as the most indispensable group across both types of indispensability. The main effect of indispensability was not reliable, $F(1, 306) = 1.83$, $MSE = 1.04$, $p = .178$, suggesting no differences between identity and functional indispensability collapsing across target groups. Additionally, the results showed the expected interaction between target group and indispensability, $F(2, 306) = 93.84$, $MSE = 29.95$, $p < .001$, $\eta^2_p = .38$.

Pairwise comparisons using Bonferroni criteria for significance showed that African-Americans were perceived to have greater identity indispensability relative to functional indispensability ($p < .001$). This pattern was reversed for Asian Americans, such that they were perceived to have a greater functional indispensability than identity indispensability ($p < .001$). For Hispanic Americans no differences were found between identity and functional indispensability ($p = .231$) (Table IV).

Additional pairwise comparisons showed that African-Americans were perceived to have greater identity indispensability than Asian-Americans and Hispanic-Americans (both $p < .001$). Although African-Americans were not different from Asian-Americans in regards to functional indispensability ($p = .999$), they were perceived to have greater functional indispensability than Hispanic-Americans ($p = .027$). No differences were found between Asian-Americans and Hispanic-Americans in functional indispensability ($p = .199$) (Table IV).

Conclusions

In sum, replicating the findings of Study 1, groups were perceived as being differently indispensable regarding identity and functional, as assessed by the FIIS. These results provided further evidence of the scale sensitivity, by illustrating how different groups can be seen as being indispensable for different reasons. In part, this reflects the functional contributions or historical relations between minority groups and their host society (Guerra et al., 2015). Our results supported the applicability and validity of our measure to evaluate different outgroup targets, replicating and extending the findings from Study 1 with a non-student sample. Importantly, our findings provided further evidence of convergent and criterion validity, as both types of indispensability were significantly associated with related constructs such as common identity representations and citizenship conceptions, as well as to several established attitudinal (i.e., social distance, positive stereotypes), and emotional (i.e.,

negative emotions) measures, some of which have been previously associated with this theoretical construct in the literature (Verkuyten et al., 2014).

General Discussion

Considering the perceived indispensability of groups to a common identity is a novel approach to understanding the dynamics of promoting the salience of inclusive identities on intergroup relations. The current studies extended previous research by further developing the concept of indispensability and validating a new measure assessing different forms of indispensability: the Functional and Identity Indispensability Scale (FIIS). This is helpful to capture the complexity of multi-ethnic societies resulting from the increased flow of international migrants, and more broadly, relations between ethnic and non-ethnic majority and minority groups. Our findings build upon preliminary evidence with a pilot 23-item instrument (Guerra et al., 2015) and allowed us to obtain a scale comprising the core-items for the functional and for the identity indispensability constructs.

Taken together, the results of both studies supported the reliability and validity of the Functional and Identity Indispensability Scale. Consistent with our proposal, an EFA supported the predicted two-factor structure. Both subscales revealed good internal consistency. CFA multigroup analyses showed this structure to have a good fit and to be invariant between majority and minority groups and across evaluations of different outgroup targets. These findings indicated the applicability of our scale across ethnic majorities and minorities. Moreover, we presented preliminary evidence of convergent validity, by showing that our measure was positively associated with a 2-item measure previously used to assess category indispensability (Verkuyten & Khan, 2012). Study 2 further extended these results showing that the FIIS was moderately associated to other measures previously related to the construct of indispensability. Specifically, higher levels of perceived outgroup indispensability were, overall, positively related to more inclusive group representations (as

Verkuyten et al., 2014), as well as, to civic representations of citizenship. Additionally, Study 2 offered some support for criterion validity, revealing that both identity and functional indispensability were associated with more positive stereotypes towards minorities (e.g., warmth, competence), less negative emotions and lower social distance. Altogether, these findings support the validity of the Functional and Identity Indispensability Scale.

The current studies involved perceptions of indispensability of ethnic minority groups with immigrant origin whose members were, mostly, already American citizens. Even if this is a limitation of the current studies, recent research using a similar measure of indispensability (with a larger number of items in our scale) found similar findings involving immigrants and their descendants who do not yet have citizenship in the host society, and also among recently arrived immigrant groups (Guerra et al., 2015).

Implications and applicability

This research extends the scope of the novel approach of indispensability of groups illustrating that groups can be perceived as being indispensable on different dimensions involving the functioning of the host society and the national identity. In line with previous research, our findings supported the applicability of the FIIS for both majorities and minorities. Importantly, we think the FIIS has the potential to be applied to other comparison contexts that go beyond the ethnic majority/minority relations, and previous research supports this reasoning showing higher relative ingroup indispensability also between minority group comparisons' (Verkuyten & Martinovic, 2015). Given the importance of power and status differences in intergroup relations, future research should further explore the consequences of perceived indispensability among majorities and minorities.

Future research could also seek to gather evidence of predictive validity by experimentally manipulating indispensability and examine its impact on perceptions towards different ethnic groups. Additionally, it would be important to examine further if perceived

indispensability of groups improves intergroup relations in part because it changes the content of the stereotypes groups' hold about each other and the emotions they feel when interacting (Cuddy, Fiske, & Glick, 2007), as suggested by the correlations found in the current Study 2. We also think it is relevant to look for boundary conditions that might hinder or increase the positive effects of perceived outgroup indispensability. Previous research showed that the positive effects of both functional and identity indispensability are particularly stronger for majority groups who endorse a civic citizenship (Guerra et al., 2015). Research conducted with adolescents in Finland, however, showed that perceived ingroup realistic gains from immigration was negatively associated with implicit (but not explicit) attitudes towards Russian immigrants (Mähönen, Jasinskaja-Lahti, Liebkind, & Finell, 2011). Thus, it is also important to consider factors that can hinder the positive effects of functional indispensability. Specifically, future studies could explore if the positive effects of indispensability occur both in explicit and implicit attitudes, given that the latter can be more difficult to change and change more slowly (Rydell & McConnell, 2006). Additionally, it is important to explore other potential moderators such as age, given that the perception of realistic contributions can be affected by age biases (North & Fiske, 2016). Finally, future research could also test the validity of the FIIS with other national samples given that the current studies involved only US nationals. Previous research using a preliminary version of the FIIS involved other nationalities (i.e., Portuguese) and the two-factor structure was very much the same, but additional studies could include more diverse samples to strengthen the applicability of the scale.

The Functional and Identity Indispensability Scale can have strong practical implications as the two types of indispensability can be used as a tool to promote acceptance and harmony between groups, for example in campaigns and policies to reduce common stereotypes of immigrants as a threat to the society.

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