Exploring the Role of Accountability on Minimal Group Favoritism: Social Identity and Interdependence Accounts

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Abstract

Ingroup favoritism is a widely observed phenomenon with far-reaching consequences. Although a popular topic of research, competitive testing of different explanations has arguably dominated over understanding under what conditions these explanations function. This study investigates how two foundational explanations, social identity and interdependence, influence ingroup favoritism within the Minimal Group Paradigm (MGP) by exploring the role that accountability plays in this context. To do so, a 2(Group Type: Social identity-based vs Interdependence-based) x 2(Accountability: yes vs no) between-participants design (N = 249) was used, sampling both from the SONA pool and Prolific. Results confirmed ingroup favoritism in all conditions. The interaction effect between group type and accountability was not significant, however, a crossover pattern was observed where accountability decreased ingroup favoritism in the social identification condition but increased it in the interdependence condition. Analysis of pictorial measures of self-categorization (self-ingroup overlap, ingroup-outgroup overlap) provided further insights into the nature of the ingroup favoritism results. Accountability exerts a complex, context-dependent influence as a surveillance mechanism, altering identification and group boundaries. As the accountability manipulation was not successful, future research should refine the manipulation and explore these nuanced dynamics further.

Keywords: Ingroup Favoritism, Minimal Group Paradigm, MGP, Accountability, Interdependence, Social Identity, Individualism, Collectivism, Political Orientation

Exploring the Role of Accountability in Minimal Group Favoritism: Social Identity and Independence Accounts

Why do we favor members of our own group? This question is central to social psychology and drives extensive theoretical debate regarding the mechanisms underlying ingroup favoritism. Exploring this topic further is vital in understanding the mechanisms behind discrimination and, therefore, helping combat it (Devine et al., 2012; Paluck & Green, 2009). While many explanations have been suggested (Hewstone et al., 2002; Spears & Otten, 2012), the core theoretical debate often centers on two foundational principles driving ingroup favoritism: social identity and interdependence. Social Identity Theory (SIT) posits that a key aspect of our self-concept is derived from group affiliations and attaching emotional meaning to them (Tajfel et al., 1979; Tajfel et al., 1971). Within this framework, ingroup favoritism is primarily driven by the motivation to achieve a positive group distinctiveness, a process often reinforced by adherence to emergent group norms (Iacoviello & Spears, 2021; Iacoviello & Spears, 2018; Iacoviello et al., 2023). Competing perspectives focus on interdependence and reciprocity, which suggest that favoritism stems from self-interest, where individuals favor ingroup members because they expect reciprocation of benefits (Rabbie & Horwitz, 1969; Yamagishi et al., 1999; Gaertner & Insko, 2000; Stroebe et al., 2005). The present study aims to investigate the conditions under which these explanations elicit ingroup favoritism within the Minimal Group Paradigm (MGP), and the role that accountability plays in this context.

Background

While much progress has been made, there remains the question of "whodunit" (Spears & Otten, in press, p. 2), that is, identifying the mechanisms driving discrimination. the Minimal Group Paradigm (MGP) revolutionized understanding by demonstrating that discrimination could arise even in the absence of real conflicts of interest (as suggested by earlier theories like Sherif's Realistic Group Conflict Theory; Sherif, 1967), underlining that

the basis of discrimination might be even more pervasive than originally thought. A large variety of explanations have been proposed, which naturally invited comparative analysis, as researchers sought to determine which mechanism offered the most compelling account (Stroebe et al., 2005). It has since been widely acknowledged that these different explanations are not necessarily mutually exclusive (Everett et al., 2015; Hewstone et al., 2002; Hogg, 2007; Spears & Otten, in press). However, while this competitive testing advanced understanding, it inadvertently led to an underappreciation of the synergistic potential and nuanced operation of different mechanisms (Everett et al., 2015; Malloy & Kinney, 2017; Brown, 2000).

Aim

The present study aims to fill this gap by investigating how specific manipulations, shared identity versus interdependence, influence ingroup favoritism in the MGP. Furthermore, it explores the role of accountability (expected future interaction with ingroup members) as a moderator that could enhance or undermine the influence of these mechanisms. This leads to the following research question: *"Under what conditions do social identity and interdependence influence ingroup favoritism in the minimal group paradigm, and how does accountability moderate these effects?"* By manipulating these factors in a 2x2 design, we seek to identify the role of accountability in each explanation and clarify the joint contributions of the two explanations to ingroup favoritism. This approach not only advances understanding of the MGP but also provides insights into the complex interplay between group processes and individual-level factors.

Scientific Framework

I now elaborate on the scientific framework, detailing the theoretical models and established principles that guide our hypotheses and data interpretation.

Tajfel's Minimal Group Paradigm (MGP)

The Minimal Group Paradigm (MGP) offers a powerful and widely adopted approach to explore the fundamental dynamics of intergroup behavior (Brewer, 1979; Hewstone et al., 2002; Tajfel et al., 1971). Tajfel developed the MGP to isolate group processes while controlling for self–interest, essentially stripping away factors like personal relationships, shared history, and individual gain, that were traditionally thought to cause discrimination. Within this paradigm, Tajfel found that mere categorization into groups was sufficient to elicit ingroup favoritism and intergroup discrimination, a phenomenon he termed minimal ingroup bias (Tajfel et al., 1971). This finding challenged existing assumptions in the mid-20th century, which often attributed prejudice and discrimination primarily to factors like competition over scarce resources (Realistic Conflict Theory; Sherif, 1967) or pre-existing individual personality traits or social tensions (Adorno et al., 1950). The Minimal Group Paradigm (MGP) persists as a consistently effective and insightful tool for the study of intergroup prejudice and discrimination (Otten, 2016).

Given that the MGP effectively demonstrates ingroup bias arising from mere categorization, the question then becomes: *why* does this occur? The following sections will explore the two most prominent of these explanations, beginning with one of the earliest and most influential: Social Identity Theory.

Social Identity Theory (SIT)

Social Identity Theory (SIT) and Self-Categorization Theory (SCT) posit that our social identity arises from group memberships and the values and emotions that we connect to them (Tajfel et al., 1979; Tajfel et al., 1971). Achieving this social identity often involves processes of depersonalization where individuals see themselves as group exemplars rather than as individuals (Turner et al., 1987; Hornsey, 2008). Studies using the Minimal Group Paradigm (MGP) demonstrate that individuals favor their ingroup. Social Identity Theory

explains this as a drive to secure a positive social identity by making the ingroup distinct (Ellemers et al., 2002; Tajfel et al., 1971; Turner et al., 1987).

Distinctiveness is defined as a group's perceived uniqueness or difference from others (Abrams & Hogg, 1988; Tajfel et al., 1979). Research by Spears, Jetten, and Scheepers (2002; see also Spears et al., 2009) distinguishes between two motivations for achieving group uniqueness. 'Reactive distinctiveness' is typically pursued by established groups aiming to differentiate themselves from a specific, similar outgroup. In contrast, 'creative distinctiveness' is more pertinent to newly formed or minimal groups, where members actively seek to establish a novel identity. These studies found that ingroup bias was more pronounced in minimal groups. Here, the drive for creative distinctiveness is central, rather than in more established 'meaningful' groups (where distinctiveness might already be established or sought reactively). These findings support the idea that discrimination in minimal groups helps establish positive group distinctiveness, thereby giving meaning to group identity (Spears et al., 2009; Tajfel et al., 1971; Tajfel et al., 1979).

Beyond the drive for positive distinctiveness, a complementary normative account has also been integrated into the broader SIT framework. This perspective, notably explored by Iacoviello and Spears (2018), posits that ingroup favoritism in minimal groups can stem from individuals' willingness to comply with an inferred pro-discriminatory ingroup norm. People tend to infer that favoring their own group is the appropriate behavior, driven by a desire to be considered a "good group member" and to receive imagined approval from the ingroup (Iacoviello & Spears, 2021; Iacoviello & Spears, 2018; Iacoviello et al., 2023; Spears, 2021). This compliance is often, for symbolic reasons, related to the maintenance of the self-image (Iacoviello & Spears, 2021; 2018). The normative explanation reintegrates the role of social norms as a determining source of ingroup favoritism within SIT, complementing distinctiveness-

based explanations (Jetten et al., 1996). It is worth noting that while Tajfel (1971) initially considered a 'generic' norm explanation for ingroup bias, he dismissed it as circular; however, subsequent developments have more precisely integrated the role of norms within the SIT framework (see Spears & Otten, in press). It emphasizes how perceived norms, which can operate at both ingroup and superordinate levels, become particularly relevant when considering individual differences, such as cultural or political orientations, that might shape these normative expectations (Iacoviello et al., 2023).

Interdependence/ Reciprocity

Perspectives emphasizing interdependence and (bounded) reciprocity propose that ingroup favoritism stems from perceived self-interest, as individuals expect ingroup members to reciprocate benefits, even without direct interaction (Rabbie & Horwitz, 1969; Yamagishi et al., 1999; Gaertner & Insko, 2000; Stroebe et al., 2005). This view is supported by research showing that shared fate and outcome dependence can elicit intergroup bias (e.g., Rabbie & Horwitz, 1969).

The Behavioral Interaction Model (BIM) builds on this reasoning by proposing that discrimination in the minimal group paradigm is a rational, utilitarian response driven by expectations of reciprocity to maximize individual gain (Rabbie et al., 1989). The Reciprocity Hypothesis further distinguishes between unbounded reciprocity, favoritism based solely on expected direct returns, and bounded reciprocity, where social categorization (i.e., bounded by the ingroup) shapes these expectations, producing ingroup bias even without guaranteed reciprocation (Prentice et al., 1994; Yamagishi & Kiyonari, 2000). Bounded reciprocity suggests that people are especially likely to reciprocate favoritism toward ingroup members, a tendency supported by evidence that individuals expect ingroup members to favor each other with rewards. Ingroup favoritism is thus strong when individuals depend on ingroup members

for outcomes (Gaertner & Insko, 2000; Stroebe et al., 2005). Thus, *H1: Consistent with the Minimal Group Paradigm, ingroup favoritism will be present in both social identity-based and interdependence-based group formations(albeit for different reasons).*

Accountability

To further understand the conditions under which reciprocity-based motives primarily drive ingroup favoritism, it is important to consider factors that might amplify or clarify these motivations, or indeed distinguish between them. Accountability, particularly the expectation of future interaction with ingroup members, may serve as such a factor, increasing the salience of reciprocity norms and the social costs of violating them within the ingroup. This occurs by providing a route to check for reciprocity (i.e., through surveillance) that mitigates cheating or free-riding. Building on the interdependence and reciprocity perspective, and considering the potential role of accountability in highlighting these motives, we hypothesize that *H2: Accountability (specifically with interdependence) is positively associated with ingroup favoritism.*

The Minimal Group Paradigm typically lacks accountability due to participant anonymity and no expectation of future interaction, which contrasts with real-life social contexts (e.g., Tajfel et al., 1971). A crucial distinction in this context lies between accountability to one's own group (or ingroup) and accountability to members of another group (or outgroup). For instance, the Social Identity Deindividuation (SIDE) model (Postmes & Spears, 1998; Spears & Lea, 1994) suggests that identifiability to an outgroup can inhibit pro-ingroup actions due to concerns about disapproval or sanctions (Reicher & Levine, 1994; Spears & Lea, 1994). General principles indicate that accountability enhances behavior acceptable to the audience, which would explain greater reciprocity in the case of ingroup accountability (e.g., Jetten et al., 1996; Jetten et al., 2004). Consequently, introducing outgroup accountability into the MGP setting might attenuate or conceal ingroup favoritism

(Dobbs & Crano, 2001; Misch et al., 2021). This contrasts with accountability to ingroup members, which may heighten conformity to ingroup norms (Abrams & Hogg, 1990; Noel et al., 1995; Spears, 2021). The present research will look at this ingroup accountability, potentially increasing ingroup favoritism. Thus, the following hypothesis will be examined *H3: Accountability will moderate the effects between group type and ingroup favoritism, strengthening interdependence-based ingroup favoritism where reciprocity is the key mechanism.*

Although some research suggests that anticipated interaction may influence ingroup bias, evidence indicates that ingroup favoritism rooted in social identity is robust and not easily moderated by expectations of future accountability or interaction (Tajfel et al., 1979; Gaertner & Insko, 2000; van Dick et al., 2005). This leads to the additional hypothesis that: *H3a: The social identity-based ingroup favoritism will not be moderated by accountability.*

Exploratory moderators

In sum, many different mechanisms play a role in the phenomenon of minimal group bias, but what also must be taken into account are individual differences.

Political orientation has emerged as a significant factor influencing intergroup attitudes and behaviors. Iacoviello and Spears (2021) demonstrated that political orientation moderated how social norms translated into discrimination, with individuals identifying as right-wing exhibiting greater ingroup favoritism and left-wingers more likely to choose fairness strategies associated with the superordinate or human level of self-categorization. While political orientation guides adherence to different types of norms in everyday contexts (Iacoviello & Spears, 2018), its specific role as a moderator in distinguishing between ingroup favoritism driven by social identity versus interdependence motivations is less clear.

Prior research indicates a significant interplay between cultural orientation, individualism-collectivism (I-C), and intergroup biases. Studies have shown that the magnitude of ingroup favoritism can differ across cultural groups, suggesting that I-C may act as a moderating factor (Hamley et al., 2020). Further highlighting this complexity, a meta-analysis by Fischer and Derham (2016) revealed varied associations between I-C and ingroup bias across different studies. They suggest these variations might be driven by different underlying psychological mechanisms, such as a differing emphasis across cultures on the importance and nature of ingroup identification (Hinkle & Brown, 1990). Collectivistic cultures emphasize strong ties and clear boundaries around the ingroup (Singelis et al., 1995), which is linked to greater favoritism towards one's own group (Hinkle & Brown, 1990; Fischer & Derham, 2016). Given that interdependence is a core aspect of collectivistic groups (Capozza et al., 2000), this ingroup favoritism may become particularly strong when group members rely on each other. This leads to the following hypotheses: *H4, 5 (Exploratory): Cultural orientation (individualism/collectivism) and Political orientation will be explored as factors moderating the expression of ingroup favoritism/outgroup discrimination across conditions.*

Methods

Participants & Design

An online study was conducted via Qualtrics to test the previously stated hypotheses. Ethical approval was granted by the Ethics Committee of the Faculty of Behavioral and Social Sciences at the University of Groningen (PSY-2425-S-0189). The recruitment aim was set at a minimum of 200-240 participants, targeting 50-60 participants per condition (see Iacoviello & Spears, 2021). Recruitment initially ran over the SONA system. When this pool proved insufficient, we sought and received revised ethical permission to expand recruitment to Prolific (www.prolific.com), a platform for paid participants. A total of 252 participants

completed the study. Of these, 101 were recruited via SONA and 151 via Prolific. After data cleaning, a total of N=249 participants remained. SONA participants consisted mainly of first-year psychological students from both the English (international) and Dutch tracks. Prolific participants were sampled from people in the UK who were registered with Prolific. Of the participants, 57,6% identified as female and 42,4% as male. SONA participants received 0.6 SONA credits as compensation upon completing the survey, whereas Prolific participants were compensated with two pounds.

The present study investigated interdependence and social identity as explanations for ingroup favoritism and outgroup discrimination (in the MGP) using a 2 (group type: social identity-based vs independence-based) x 2 (accountability: yes vs no) between participants design (Figure 1). Participants were randomly assigned to these conditions, resulting in the following distribution: high social identity with no accountability (N = 67), high social identity with accountability (N = 60), high interdependence with no accountability (N = 70), and high interdependence with accountability (N = 50).

Figure 1

Experimental Design

2x2	Accountability - No (No future interaction)	Accountability - Yes (Future interaction)
Social identity - high (similar)	High Social Identity and no Accountability	High Social Identity and Accountability
Interdependence - high (different/complementary)	High Interdependence and no Accountability	High Interdependence and Accountability

Procedure

Upon starting the survey, participants were first presented with an information form detailing the study. Following this, they were asked for consent, which they could either give or decline. Prolific participants were asked to verify the accuracy of their automatically pre-filled Prolific ID. Next, participants encountered the first manipulation, an introduction text, designed to foster either social identity or interdependence (Appendix A). For the social identity condition, participants were informed they were being grouped with individuals who shared similarities with them. Conversely, for the interdependence condition, they were told their group comprised individuals with different, complementary strengths. Additionally, accountability was manipulated (high/ low), creating the four conditions.

Participants then answered a standard set of initial questions, beginning with an item assessing gender. This was followed by the Political Orientation Scale (Choma & Haffer, 2009; see Appendix B), which will be analyzed as an exploratory variable. Subsequently, participants responded to eight items adapted from Locksley, Ortiz, and Hepburn's (1980) Thinking Styles test and Van Bavel and Cunningham's (2012) Personal Orientation Test. Examples of these items include “I focus more on details than on the bigger picture” and “I would describe myself as more structured than spontaneous.” The purpose of these particular questions was to lead participants to believe their characteristics were being assessed in line with the group type manipulation. Following these (bogus) items, participants answered four questions assessing individualism and four questions assessing collectivism (Appendix A); these measures of cultural orientation will be analyzed as a second exploratory variable.

After completing these questions, participants saw a “loading” screen, intended to give the impression that their responses were being analyzed. All participants then received fabricated “results” that categorized them into a group. Participants in both the social identity and interdependence conditions were informed that they were assigned to a group named

'Group Dusek' and that the other group was 'Group Tausig', and that these had no further meaning. The name of their group and the nature of their group formation were presented in bold text to enhance salience.

The resource allocation task followed. First, the allocation matrices were explained, with ingroup ('Group Dusek') and outgroup ('Group Tausig') designations again emphasized in bold. Examples were provided to clarify different allocation scenarios (see Appendix C). Participants then completed six resource allocation matrices, in each instance deciding how to distribute resources between one anonymous member of their ingroup and one anonymous member of the outgroup. After the allocation task, participants answered two pictorial questions using overlapping circles based on Schuber and Otten (2002) (Appendix A) to assess their identification: one regarding the overlap between themselves and their ingroup, and another concerning the perceived overlap between their ingroup and the outgroup. Subsequently, participants responded to several questions serving as manipulation checks (Appendix D).

Finally, participants were fully debriefed, receiving complete information about the study's true purpose and procedures. Based on this comprehensive debriefing, they were asked to provide their final consent for their data to be used.

Materials & Measures

Ingroup favoritism

Matrices were adapted from (Tajfel et al., 1971), as used in Iacoviello and Spears (2021) (Appendix C). They required participants to assign points between one ingroup member (excluding the self, to rule out self-interest) and one outgroup member.

Social Identity

Half of the participants were exposed to social identity manipulation. In the introduction text, participants will first be informed that they will be grouped with individuals

who show similar preferences to maximize the likelihood of shared views and perspectives. After completing the questions, they were told that based on their earlier responses and those of others, a computer algorithm categorized them into one of two groups. Here, the basis of their categorization is reiterated (see Appendix A). The variable social identification was assessed using a scale that demonstrated good internal consistency ($\alpha = 0.817$).

Interdependence

The other half of the participants were exposed to the interdependence/reciprocity manipulations. Again, they first received an introductory text that mentioned the basis of group categorization and later a results text that reiterates this. In the results text, participants were told that they were grouped with others who have different and complementary strengths, skills, and perspectives. Participants were also given some theoretical background on the idea behind this categorization, using the jigsaw puzzle as an example, and how this provides a basis for trust and reciprocity (see Appendix A). The variable interdependence has a Cronbach's Alpha of $\alpha = 0.558$.

Accountability

For the accountability manipulation, participants were informed that they would meet their fellow group members in person at a later stage of the study (accountability) or that they would not meet them (no accountability). For Prolific participants, it was emphasized that this meeting would be conducted online to ensure its plausibility.

Exploratory variables

Participants also answered questions regarding their political orientation (left- / right-wing) and their cultural orientation (collectivistic/ individualistic), which were measured as exploratory variables (Appendix A). Political orientation was measured based on three questions from the Political Orientation scale by Choma and Haffer (2009)($\alpha = 0.923$). Cultural orientation was measured based on eight questions that have been adapted from the

32-item Individualism and Collectivism Scale (INDCOL) developed by Singelis, Triandis, Bhawuk, and Gelfand (1995) (Appendix A) For the Individualism scale, Cronbach's Alpha was $\alpha = 0.531$, which improved to $\alpha = 0.613$ upon deleting one item. The Collectivism scale showed moderate internal consistency ($\alpha = 0.627$).

Manipulation checks

Several manipulation checks were included in the study. First, participants were asked to identify the basis for their group assignment to ensure they understood whether the manipulation targeted social identity or reciprocity. They also indicated their group membership (all should answer "Dusek") and whether they expected to meet fellow ingroup members, checking comprehension of the accountability manipulation.

Additional checks assessed social identity, interdependence, and accountability. To measure social identification, five items adapted from Leach et al. (2008) were used on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Social identification has a Cronbach's Alpha of $\alpha = 0.817$. Three adapted questions assessed (task) interdependence, focusing on participants' understanding that grouping was based on unique and complementary abilities. Interdependence has a Cronbach's Alpha of $\alpha = 0.558$. Items were carefully phrased to suit the minimal group paradigm and situation.

Results

This section presents the results of the current study, which sought to answer the question: "Under what conditions do social identity and interdependence influence ingroup favoritism in the minimal group paradigm, and how does accountability moderate these effects?" We first provide an overview of the descriptive statistics, followed by an evaluation of the manipulation checks, and conclude with the primary findings related to the study's hypotheses.

Descriptive statistics

Statistical analyses were performed using SPSS software. Participant data were excluded if consent was not given post-debriefing (n = 2) or if an implausibly short completion time was recorded (n = 1: 22 seconds). To ensure data quality, systematic differences in manipulation check failure rates were assessed across all conditions; no significant differences were found, leading to no further participant exclusions. This left 249 participants after data cleaning. 127 in the social identification (SI) conditions (68 in no accountability, 60 in accountability) and 120 in the interdependence (In) conditions (71 in no accountability, 50 in accountability)(See Table 1). In the following analysis, the variable of social identity/ interdependence will be referred to as “group type”.

Manipulation Checks

Several manipulation checks were carried out to verify the effectiveness of the experimental manipulations. For all chi-Square Tests of Independence, independence of observations was assumed, and expected cell frequencies were largely met, except where noted.

Basis of Group Allocation

Participants were asked, “Were you allocated to your group based on complementary differences or similar perspectives? A chi-square test revealed a highly significant association between condition and reported allocation basis, $\chi^2(3) = 106.07$, $p < .001$. Participants in shared identity conditions predominantly reported allocation based on similar perspectives, while those in interdependence conditions reported complementary differences, confirming a successful manipulation.

Comprehension Check

Next, Participants were asked: “What is the study you just participated in about?” A strong majority (79.0%) correctly identified the study as being about "allocating resources,"

and their understanding did not systematically differ across conditions, $\chi^2(3) = 1.59$, $p = .661$. This indicated a successful comprehension check.

Attention Check

The subsequent question asked participants: "Were you part of group Dusek or Tausig?". The attention check revealed no statistically significant association with condition (χ^2 (3) = 3.68, $p = .299$). Participants overwhelmingly and consistently identified with Group Dusek (97.2% across all conditions). Although the assumption of expected cell frequencies was violated due to low counts in the Tausig category, the strong practical significance suggests that the conclusion of "no difference" is likely robust.

Accountability Manipulation Check

Finally, participants were asked: "Do you expect to meet or interact with your group members later in the study?". A chi-square test found no statistically significant association between accountability and this expectation ($\chi^2(1) = 2.39$, p = .122), indicating the manipulation did not significantly influence participants' anticipation of future interaction, despite a numerical trend in the expected direction (Appendix E).

Social Identity Manipulation Check

Participants were asked five questions adapted from Leach et al. (2008), (e.g., 1-I feel a bond with my fellow group members; Appendix C) to assess Social identification. A 2x2 factorial ANOVA was conducted to examine the effects of group type and accountability on social identity scores. The main effect of group type was statistically significant, $F(1,245) = 15.44$, $p < .001$, with participants in the social identity condition ($M = 4.86$) reporting significantly higher social identity scores than those in the interdependence condition ($M = 4.39$). The main effect of accountability was not significant ($F(1,245) = 1.49$, $p = .223$). The interaction effect between group type and accountability was also not statistically significant

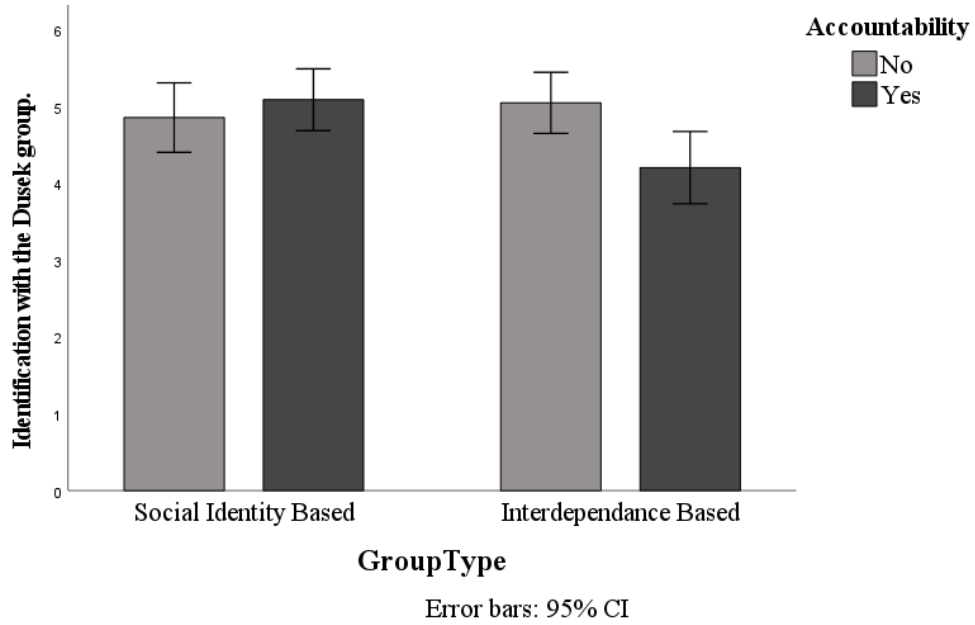
($F(1,245) = 0.01$, $p = .909$), indicating that the effect of group type on social identification was consistent across both accountability levels.

Pictorial Measures of Self-Categorization (Schubert & Otten, 2002)

Next, the two circle identification questions were assessed (Schubert & Otten, 2002). For both, Levene's Test of Homogeneity of Variances was met. The first Item assessed the inclusion of self in the ingroup (for personal/group self-overlap). A 2x2 factorial ANOVA revealed that neither the main effect of group type ($F(1,244) = 2.540$, $p = .112$) nor accountability ($F(1,244) = 1.973$, $p = .161$) was statistically significant. However, a statistically significant interaction effect was found between group type and accountability, $F(1,244) = 6.132$, $p = .014$, $\eta p^2 = .025$ (Figure 2). This interaction indicates that the effect of accountability on group identification depended on the group type. Specifically, for social identity groups, identification was slightly higher with accountability ($M = 5.08$) than without ($M = 4.95$), whereas for interdependence groups, identification was lower with accountability ($M = 4.20$) than without ($M = 5.04$). Simple effects analyses confirmed this pattern: while identification remained largely stable for social identity groups across accountability conditions, $F(1, 244) = 0.597$, $p = .441$, it significantly decreased with accountability for interdependence groups, $F(1, 244) = 7.255$, $p = .008$, indicating that the effect was primarily driven by the interdependence condition.

Figure 2

Interaction of Group Type and Accountability on Identification with Dusek (ingroup) Group



The second item assessed participants' identification overlap between their group and the outgroup (Appendix A). A 2x2 factorial ANOVA revealed no statistically significant main effect for group type, $F(1,244) = 1.201$, $p = .274$. However, a statistically significant main effect was found for accountability, $F(1,244) = 5.038$, $p = .026$. This indicates that, on average, participants in the no accountability condition ($M = 4.01$) reported significantly higher identification overlap with the outgroup compared to those in the accountability condition ($M = 3.54$). In sum, put another way, there was more intergroup differentiation (less overlap) in the accountability conditions. The interaction effect between group type and accountability was not statistically significant, $F(1,244) = 0.278$, $p = .598$.

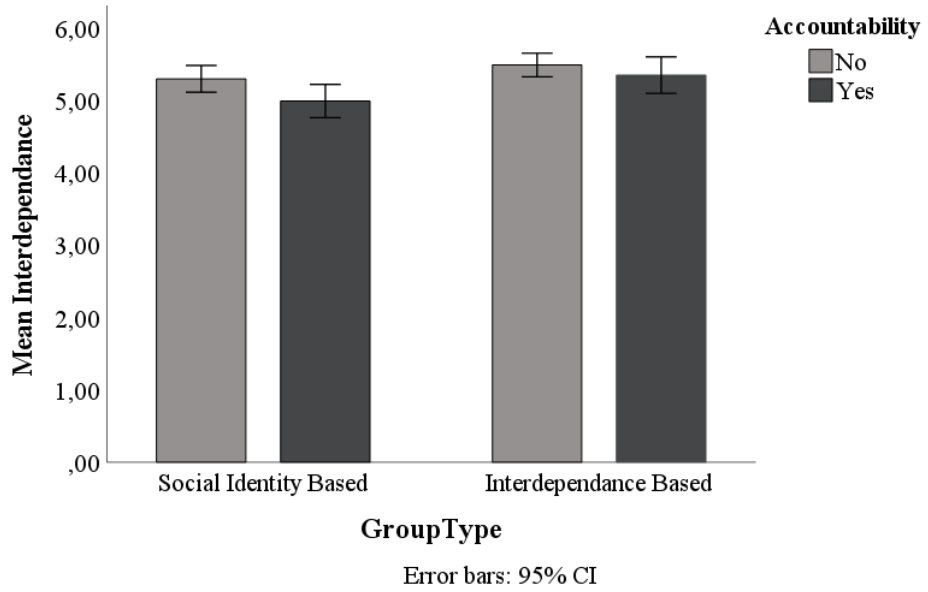
Interdependence Manipulation Check

Participants were asked three questions that were adapted such as: " In group tasks, I feel that I would be able to contribute something unique." A 2x2 factorial ANOVA revealed statistically significant main effects for both group type ($F(1,245) = 7.20$, $p = .008$, $\eta p^2 =$

0,029) and accountability ($F(1,245) = 4.74$, $p = .030$, $\eta p^2 = 0{,}019$). Participants in the interdependence conditions ($M = 5.42$) reported significantly higher interdependence scores than those in the social identity conditions ($M = 5.03$). Also, participants in the no accountability condition ($M = 5.40$) reported significantly higher interdependence scores than those in the accountability condition ($M = 5.17$, see Figure 3). The interaction effect between group type and accountability was not statistically significant ($F(1,245) = 0.67$, $p = .415$).

Figure 3

Estimated Marginal Means of Interdependence



Assumptions

For the 2x2 factorial ANOVA, assumptions were assessed. Independence of observations was met by the study design. Normality of residuals for ingroup favoritism was evaluated through visual inspection of histograms, Q-Q plots, and boxplots. Although a positive skew was observed, the large sample size ($N = 249$) contributes to the robustness of the ANOVA against this violation, as per the Central Limit Theorem. Homogeneity of variances was also assessed for all conducted ANOVAs through Levene's Test, with all

significance values exceeding .05. Therefore, the use of parametric tests was deemed appropriate across analyses.

Ingroup Favoritism

The primary dependent variable, ingroup favoritism, was assessed by taking the average points participants allocated to ingroup members and subtracting from the average points allocated to outgroup members (see Diehl, 1990). The score of ingroup favoritism was thus computed such that a positive score indicates ingroup favoritism, a negative score indicates outgroup favoritism, and 0 indicates equality. To assess Hypothesis 1 (*Consistent with the Minimal Group Paradigm, ingroup favoritism will be present in both social identity-based and interdependence-based group basis*) the average scores of ingroup favoritism across conditions was looked at. Ingroup favoritism was present in all conditions (see Table 1) with an overall mean of $M = 2.09$ ($SD = 3.49$). The highest ingroup favoritism was observed in the independence with accountability condition, with M = 2.44, closely followed by the social identity with no accountability condition, with $M = 2.41$ (Figure 4). Hence, H1 was supported.

Table 1

Mean Ingroup Favoritism Score by Group Type and Accountability Condition

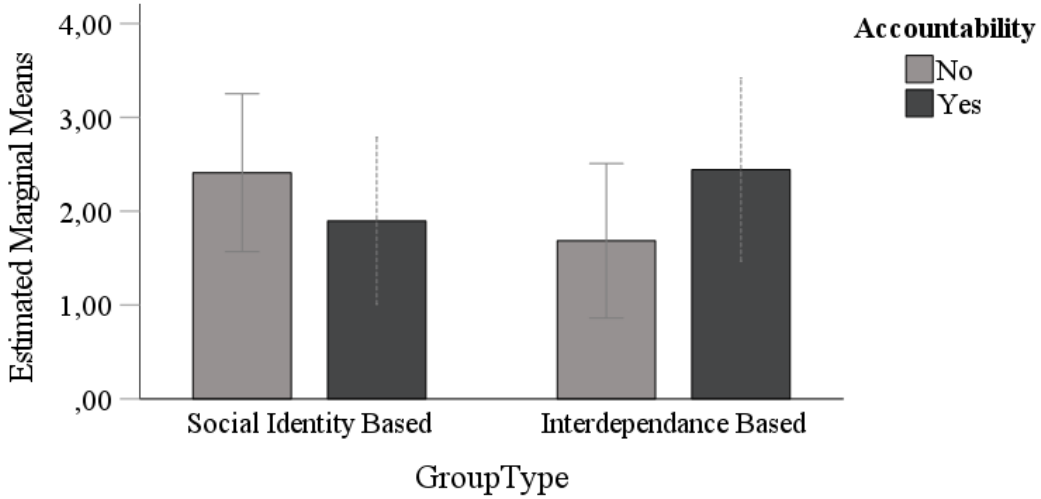
Group Type	Accountability	*M*	*SD*	*N*
Social Identity Based	No Acc	2,41	3,37	68
	Acc	1,90	3,71	60
	Total	2,17	3,53	128
Interdependence Based	No Acc	1,69	3,21	71

Group Type	Accountability	*M*	*SD*	*N*
	Acc	2,44	3,78	50
	Total	2,00	3,46	121

Note. *M* = Mean. *SD* = Standard Deviation. *N* = Participants.

Figure 4

Estimated Marginal Means of Ingroup Favoritism



Additionally a 2x2 ANOVA was conducted and revealed no statistically significant main effect for group type ($F(1,243) = 0.040$, $p = .842$). Thus, although ingroup favoritism was observed in all conditions, there were no significant differences based on group type.

Our second hypothesis (H2) predicted: *Accountability (specifically with interdependence) is positively associated with ingroup favoritism*. The interdependence with accountability condition showed an average ingroup favoritism score of 2.44 (SD = 3.78, N = 50). Looking at the 2x2 ANOVA results, the simple effect of accountability within the interdependence group type was not statistically significant (Mean Difference = -0.76, p = .243, see Table 2). For completeness, the simple effect of accountability within the social identity group type was also not statistically significant (Mean Difference = 0.51, p = .410, see Table 2). Thus although descriptive means showed a increase in favoritism from no accountability (M = 1.69) to accountability (M = 2.44) in the interdependence condition, this effect was not statistically significant. Hence, no support for H2 was found.

Table 2

Pairwise Comparisons of Ingroup Favoritism Score Between Accountability Conditions within Group Types

Group Type	(I) Accountability	(J) Accountability	Mean Difference	*SE*	*p*
Social ID	No ACC	ACC	0.51	0.62	.410
Interdependence	No ACC	ACC	-0.76	0.65	.240

Note. *SE* = Standard Error. *p* values adjusted using Bonferroni correction.

Our third hypothesis (H3) predicted: *Accountability will moderate the effects between group type and ingroup favoritism, strengthening interdependence-based ingroup favoritism.* .

The 2x2 ANOVA yielded a non-significant interaction effect between group type and accountability, $F(1,243) = 2.005$, $p = .158$. This effect was also very small ($\eta p^2 = .006$). This indicates that the effect of group type on the ingroup favoritism score does not reliably depend on the level of accountability (and vice versa). Specifically, the simple effect of group type within the no accountability condition was not statistically significant (Mean Difference = 0.73, $p = .226$), and the simple effect of group type within the accountability condition was also not statistically significant (Mean Difference = -0.55, $p = .416$), indicating that the level of ingroup favoritism did not significantly differ between social identity and interdependence groups under either accountability condition. Therefore, Hypothesis H3 was not supported by the data.

Additionally we hypothesized (H3a): *The social identity-based ingroup favoritism will not be moderated by accountability.* Examination of the simple effect of accountability within the social identification group revealed no significant difference in ingroup favoritism between the no accountability ($M = 2.41$, $SD = 3.37$) and accountability conditions ($M = 1.90$, $SD = 3.71$), $F(1,243) = 0.68$, $p = .410$. While a numerical trend showed slightly higher favoritism in the no accountability condition, the absence of a significant difference supports Hypothesis H3a.

Exploratory Analysis

As an exploratory analysis, the roles of cultural orientation (individualism/collectivism) and political orientation as potential moderators of ingroup favoritism across conditions were examined. Participants' scores on these scales averaged: Political Orientation ($M = 3.40$, $SD = 1.36$), Individualism ($M = 5.02$, $SD = 0.98$), and Collectivism ($M = 5.25$, $SD = 0.78$).

A General Linear Model was conducted to explore the effects of cultural and political orientation on ingroup favoritism. Homogeneity of variances was met for this model ($p =$

.256). For individualism, the main effect was statistically significant, $F(1, 231) = 5.45$, $p = .02$* (see Table 3), with an effect size of $\eta p^2 = .023$. This indicates that, controlling for other variables in the model, individualism positively predicts ingroup favoritism ($B = 0.487$). The main effect for collectivism was marginally significant, $F(1, 231) = 4.07$, $p = .045$* (see Table 3), with an effect size of $\eta p^2 = .017$. This indicates that, controlling for other variables, collectivism marginally, negatively predicts ingroup favoritism ($B = -0.622$). The main effect of political orientation was not significant, $F(1, 231) = .17$, $p = .68$, with an effect size of $\eta p^2 = .001$. The overall model, however, was not statistically significant, $F(15,231) = 1.22$, p = .26, explaining a very small proportion of variance in ingroup favoritism ($R^2 = .073$). This indicates that, collectively, the included variables did not significantly predict ingroup favoritism. No significant moderation effects were found. None of the hypothesized interaction terms involving group type, accountability, and the cultural or political orientation variables were found to be statistically significant.

Table 3

Tests of Between-Subjects Effects for Ingroup Favoritism Score

Source	*df*	*F*	*p*	ηp^2
Corrected Model	15	1.22	.260	.073
GroupType	1	0.34	.854	.000
Accountability	1	0.13	.715	.001
Individualism	1	5.45	.020*	.023
Collectivism	1	4.07	.045*	.017

Source	*df*	*F*	*p*	ηp^2
PolOrientation	1	0.17	.679	.001
GroupType × Accountability	1	3.02	.084	.013
GroupType × Individualism	1	2.26	.135	.010
GroupType × Collectivism	1	0.01	.98	.000
GroupType × PolOrientation	1	0.64	.426	.003
Accountability × Individualism	1	0.08	.779	.000
Accountability × Collectivism	1	0.52	.474	.002
Accountability × PolOrientation	1	0.02	.904	.000
Error	234			

Note. ηp^2 = partial eta-squared. * indicates p < .05., ** indicates p < .01.

Discussion

The present study aimed to investigate the conditions under which social identity and interdependence influence ingroup favoritism within the Minimal Group Paradigm, and how accountability might moderate these effects.

As predicted, ingroup favoritism was observed across all conditions. However, neither group type (social identity vs. interdependence) nor accountability had a significant main effect on ingroup favoritism. Furthermore, accountability did not consistently moderate the relationship between group type and favoritism, contrary to our predictions. However, some patterns that approached significance (trends) could be interpreted broadly in line with our theoretical analysis. The circle identification questions by Schubert and Otten (2002) revealed a significant interaction for self-ingroup overlap based on group type and accountability, with

accountability increasing identification in social identity groups but decreasing it in interdependence groups. Furthermore, accountability significantly reduced the perceived ingroup/outgroup overlap (i.e. increased intergroup differentiation) overall. Exploratory analyses also found no evidence that cultural or political orientations moderated the expression of this favoritism across the experimental conditions. Cultural orientation, however, did affect ingroup favoritism. Individualism positively predicted ingroup favoritism, and collectivism negatively predicted it.

The Role of Group Type

While both social identity-based and interdependence-based groups exhibited ingroup favoritism, as expected, group type did not have a significant main effect. This indicates that there is no significant difference in favoritism levels between these conditions. This finding could support the idea that social identity and interdependence, though distinct theoretical accounts (Hewstone et al., 2002; Spears & Otten, 2012) with different underlying mechanisms, can both explain ingroup favoritism. They appear to operate complementarily under different conditions, rather than being mutually exclusive explanations (Everett et al., 2015; Hogg, 2007; Spears & Otten, 2025).

The Role of Accountability

Consistent with its hypothesized role as a moderator, accountability also lacked a significant main effect on ingroup favoritism. This outcome can be best understood within the context of the observed crossover pattern between group type and accountability. Here, accountability appeared to have opposing influences on ingroup favoritism depending on the group type, which likely contributed to the absence of an overall main effect when averaged across conditions.

Indeed, while the interaction between accountability and group type was not statistically significant, the pattern suggested that accountability might increase it in

interdependence contexts (with the simple effect going in the predicted direction) but decrease favoritism in social identity contexts. That this interaction was non-significant could be attributed to the unsuccessful accountability manipulation, and/ or resulting from this, a lack of power. Furthermore, the interaction, though non-significant (p = .140) in the initial ANOVA, reached marginal significance (p = .084) in the General Linear Model, which incorporated additional covariates that explained additional variance. Therefore, exploring these preliminary findings is deemed appropriate to discuss the potential role of accountability in shaping ingroup favoritism.

We hypothesized that accountability would amplify ingroup favoritism in the interdependence condition, consistent with perspectives proposing that accountability strengthens reciprocity norms and the expectation of mutual benefits rooted in perceived self-interest and the expectation of reciprocated benefits (Rabbie & Horwitz, 1969; Yamagishi et al., 1999; Gaertner & Insko, 2000; Stroebe et al., 2005). Within this framework, accountability, particularly the expectation of future interaction with ingroup members, may serve as a factor increasing the salience of reciprocity norms and the social costs of violating them within the ingroup, thus strengthening reciprocity-based favoritism. The observed pattern indeed suggested a tendency for increased favoritism in this condition. Additionally, participants in the no accountability condition (M = 5.40) reported significantly higher interdependence scores than those in the accountability condition (M = 5.17), suggesting accountability may undermine interdependence, potentially by eroding trust. However, the pattern for ingroup favoritism suggests that this does not undermine the expectation to show ingroup favoritism, in line with reciprocity.

Conversely, for the social identity condition, we hypothesized that accountability would not significantly affect ingroup favoritism, aligning with research indicating that favoritism rooted in social identity is robust and not easily moderated by expectations of

future interaction (Gaertner & Insko, 2000; van Dick et al., 2005). Accountability, by its very nature, can create an external pressure and even mistrust that may alter internal group dynamics (Tetlock, 1992; Cvetkovitch, 1978). This contrasts sharply with social identity, which stems from internalizing group membership and its associated value (Tajfel et al., 1979; Tajfel, 1971). Moreover, the pattern that emerged suggested that, if anything, accountability reduced ingroup favoritism in this condition. This might hint towards accountability actually undermining the social identity basis for ingroup bias for this group type. In summary, this analysis is consistent with the idea that the social identity-based groups and interdependence-based groups appear to operate complementarily under different conditions, rather than being mutually exclusive explanations (Everett et al., 2015; Hogg, 2007; Spears & Otten, 2025).

In a social identity context, where behavior is typically driven by intrinsic group affiliation and depersonalized trust among members, an expectation of loyalty without needing individual checks the introduction of accountability could be seen as undermining this very trust (Brewer, 2008; Ellemers & de Gilder, 2024; Haslam, 2004; Spears, 2021). This shift may emphasize the individual level of accountability, where individuals are perceived as being checked for compliance, rather than acting purely from internalized collective identity. Such a dynamic, moving towards instrumental compliance, aligns with the concept of normative influence (Deutsch & Gerard, 1955; Spears, 2021).

Looking at the circle identification items by Schubert and Otten's (2002), accountability's role in shaping self-ingroup overlap (or identification) becomes evident. The statistically significant interaction between group type and accountability $p = .014$ highlights a pattern in the interdependence group under accountability. Specifically, for interdependence groups, identification was significantly lower with accountability (M = 4.20) than without (M = 5.04), $p = .008$. One possible explanation for this reduction in identification is that

accountability individualizes relations within the group, which clashes with the intended, bottom-up, interpersonal nature of interdependence-based groups. Conversely, in social identity groups, identification remained largely stable, and not significantly different, p = .441. This suggests that social identity groups, being founded on a top-down, shared identity rather than purely interpersonal relations (Brewer & Kramer, 1986; Hogg & Turner, 1985), may be inoculated against accountability's individualizing effect on identification. Crucially, this pattern observed for identification was not reflected in the pattern for ingroup favoritism. This divergence indicates that self-ingroup overlap and ingroup favoritism are distinct mechanisms, not necessarily operating in unison. Therefore, accountability, functioning as a means of surveillance, appears to differentially impact these separate aspects of group-related behavior. This aligns with previous research suggesting accountability can act in two ways: while it often reinforces identification in intrinsically valued social groups by making group norms salient (Ellemers & de Gilder, 2024; Haslam, 2004; Spears, 2025), it may undermine group identification in more instrumental or task-focused groups (like interdependence groups) by shifting members' focus toward external evaluation and individual performance, rather than collective identity (Ellemers & de Gilder, 2024; Haslam, 2004). This dynamic is consistent with social identity theory, which posits that identification is strongest when group membership is self-relevant and meaningful (Tajfel et al., 1979).

Consistent with this is the second circle identification question from Schubert and Otten (2002), assessing ingroup/outgroup overlap. While no main effect emerged for group type, accountability did have a significant main effect (p = .026). Participants in the accountability condition reported less perceived overlap between their ingroup and outgroup (i.e., more intergroup differentiation). This could indicate that accountability might lead to clearer group boundaries between groups. This is consistent with previous literature suggesting that accountability (to the ingroup at least, as here) sharpens group boundaries, as

individuals become more attuned to distinctions between ingroup and outgroup membership, leading to reduced perceived overlap and potentially less intergroup cooperation (Brewer, 2007; Tetlock, 1985). Schubert and Otten's (2002) work with pictorial identification measures further demonstrates that both identification and perceived group overlap are sensitive to contextual factors such as accountability and the nature of the group, supporting the idea that external pressures can alter internal group dynamics.

Exploratory Analyses

Looking at the exploratory analysis, political orientation did not significantly moderate the effects of group type or accountability on ingroup favoritism effects, contrary to our predictions. Previous research by Iacoviello and Spears (2021) suggested that political orientation moderated the link between social norms and discrimination, revealing how adherence to norms varied across the political spectrum. In this context, right-wing individuals exhibited greater ingroup favoritism, while those self-identifying as more left-wing were more inclined to support fairness, aligning with a superordinate norm of human equality. This might imply that while political leanings may directly influence intergroup attitudes, their moderating role within specific experimental manipulations of social identity and interdependence may be more limited than anticipated. Additionally, early research in political psychology disproportionately emphasized intergroup bias as a more right-wing/ conservative occurrence (eg, Adorno et al., 1950; Altemeyer, 1981). Ingroup favoritism and outgroup derogation are common across the political spectrum, as demonstrated by recent studies supporting the Ideological-Conflict Hypothesis (Brandt et al., 2014; Chambers et al., 2013). This hypothesis explains that both left- and right-wing individuals exhibit bias when their core values are threatened, though they direct it toward different targets and manifest it in distinct forms (Schepisi et al., 2019).

While cultural orientation (individualism-collectivism) was not found to moderate the effects of group type or accountability on ingroup favoritism, it did exert significant direct effects on ingroup favoritism. Specifically, individualism positively predicted ingroup favoritism, whereas collectivism negatively predicted it. This aligns with existing literature within the Minimal Group Paradigm (Hinkle & Brown, 1990). Individualism's observed positive association with ingroup favoritism could be understood as a consequence of its core tenets. By emphasizing personal choice and autonomy, individualism may facilitate the acceptance of even arbitrary-seeming group memberships. Within this framework, such group affiliations might serve as avenues for individuals to express their selfhood and affirm their unique identities, thereby contributing to a preference for their ingroup (e.g., Fischer & Derham, 2016; Hinkle & Brown, 1990; Singelis et al, 1995). Conversely, collectivism's negative association with ingroup favoritism in minimal groups may be due to its focus on more genuine interdependence and loyalty to meaningful, established groups (Capozza et al., 2000; Singelis et al., 1995). Collectivists typically reserve strong ingroup loyalty for real, enduring collectives, making them less likely to show bias in artificial settings that don't align with their deeper cultural values (Hinkle & Brown, 1990).

It's crucial to understand that while our study suggests individuals' cultural orientation (individualism-collectivism) is associated with the magnitude of ingroup favoritism, it doesn't claim individualism always increases or collectivism always decreases it. The relationship is context-dependent (Hamley et al., 2020). A meta-analysis by Fischer & Derham (2016) confirms these associations: individuals higher in collectivism can exhibit stronger ingroup favoritism when group boundaries are salient or the group is meaningful. On the other hand, individuals higher in individualism can exhibit more bias in more arbitrary groups and minimal group paradigms. This highlights that different psychological mechanisms drive

these differences (Fischer & Derham, 2016; see also Brewer & Chen, 2007; Yuki & Brewer, 2013)

Limitations & Future research

A primary limitation of the present study was the suboptimal salience of the accountability manipulation, as indicated by our manipulation checks. This limits the interpretability of findings directly related to accountability and may have contributed to the non-significant moderation effects observed. This lack of salience suggests the participants might not have read the texts containing the manipulations thoroughly enough. While our other manipulation checks were successful, this could have still had an effect. An additional limitation is that, for some measures (Individualism with $\alpha = 0.613$, Collectivism with $\alpha = 0.627$, and Interdependence with $\alpha = 0.558$), Cronbach's Alphas were lower than conventional thresholds, possibly due to adaptations of existing scales to fit this specific MGP context. This limits the internal reliability of these measures. Moreover, although our ANOVA is robust to non-normality with large samples, the positive skew and outliers in ingroup favoritism residuals are noted. A general limitation of the MGP paradigm itself is the artificiality, which limits direct generalizability to more complex, real-world intergroup dynamics. Some argue that its artificiality may not represent a neutral baseline but might foster ingroup favoritism (Dobbs & Crano, 2001).

The recruitment strategy, utilizing both the university SONA pool and the online Prolific platform, yielded a convenience sample. This approach means the generalizability of our findings may be limited primarily to similar populations. The combined sample likely exhibits certain demographic characteristics, with SONA participants typically being younger university students and Prolific participants representing a distinct online group. While this offers some diversity, it also implies that the sample is not fully representative of the broader population. Furthermore, while cultural orientation was examined, the individualism and

collectivism scales measured individual-level endorsement of cultural values rather than cultural-level differences, which limits the direct generalizability of these findings to cross-cultural comparisons between distinct societies.

Future research should prioritize refining the accountability manipulation to enhance its effectiveness and power, allowing for a more robust examination of its moderating role. Future research could explore alternative manipulation methods designed to capture attention more effectively. Studies could also attempt to differentiate between pure ingroup favoring and active outgroup derogation in this context, for example, by looking at the different resource allocation strategies. Replicating these findings in diverse cultural backgrounds and more ecologically valid contexts would strengthen external validity.

Conclusion

This study investigated how group formation (social identity vs. interdependence) and accountability influence ingroup favoritism within the Minimal Group Paradigm. As predicted, favoritism was consistently observed across all conditions, and the main effect of group type was not significant. However, accountability did not yield a significant main effect on favoritism, nor did accountability consistently moderate the relationship between group type and ingroup favoritism, contrary to our predictions.

Despite the lack of statistical significance for the primary favoritism measure, a crossover pattern was observed, suggesting that accountability might increase it in interdependence contexts but decrease favoritism in social identity contexts. This pattern, which approached marginal significance in a more inclusive General Linear Model, hints at accountability having complex, opposing effects on favoritism, though the suboptimal manipulation salience may have masked stronger effects. Clearer insights into accountability's role emerged from circle identification measures (Schubert & Otten, 2002). A statistically significant interaction for self-ingroup overlap revealed that ingroup accountability increased

identification in social identity groups but decreased it in interdependence groups. This highlights that ingroup favoritism and the overlap of self with the ingroup appear to be distinct mechanisms that do not necessarily operate in unison. Furthermore, ingroup accountability significantly reduced perceived ingroup/outgroup overlap, indicating it leads to clearer group boundaries. Collectively, these findings suggest that accountability acts as a surveillance mechanism, altering group identification and perceived boundaries in nuanced, context-dependent ways: potentially undermining identity in intrinsically-formed groups while shifting focus or reinforcing it in instrumental ones, and consistently sharpening intergroup distinctions.

Exploratory analyses found no evidence that political orientation moderated favoritism. However, cultural orientation did exert significant direct effects: individualism positively predicted favoritism, whereas collectivism negatively predicted it. This aligns with literature suggesting that individualism, emphasizing self-expression, may foster bias even in arbitrary minimal groups, while collectivism, focused on loyalty to meaningful collectives, may show less bias in such artificial settings, highlighting different psychological mechanisms.

In summary, this study supports ingroup favoritism's pervasive nature, driven independently by both social identity and interdependence. Crucially, it highlights accountability's nuanced influence, suggesting a different dynamic for favoritism in social identity versus interdependence-based groups. Future research should refine the accountability manipulation and explore this dynamic further.

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Appendix A

Manipulation Texts

1 - Social Identity and low Accountability

Introduction Text: Psychological research suggests that how people make decisions can be influenced by their individual attributes and group dynamics. To explore this, you will first complete a short questionnaire. Based on your responses, we will assign you to a group based on similarities between you and your group members. There are no right or wrong answers, so please respond as honestly as possible.

Results Text: Based on your earlier responses, and those of others, we have used a computer algorithm to distinguish two groups that maximizes the likelihood of **shared views and perspectives** within each group, and differences between the two groups. You have thus been categorized with other participants who expressed similar preferences. We have labeled this **"Group Dusek"** for the purpose of this study to simply designate your membership group in the following tasks and questions. The other participants have been categorised by this same algorithm/procedure, reflecting a different set of shared perspectives, and will be referred to as "Group Tausig" from here on.

2 - Social Identity and Accountability

Introduction Text: Psychological research suggests that how people make decisions can be influenced by their individual attributes and group dynamics. To explore this, you will first complete a short questionnaire. Based on your responses, we will assign you to a group based on similarities between you and your group members. In the second part of the study, you will meet your fellow group members of the Dusek group online (in a video call) to discuss allocation strategies. There are no right or wrong answers, so please respond as honestly as possible.

Results Text: Based on your earlier responses, and those of others, we have used a computer algorithm to distinguish two groups that maximizes the likelihood of **shared views and perspectives** within each group, and differences between the two groups. You have thus been categorized with other participants who expressed similar preferences. We have labeled this **"Group Dusek"** for the purpose of this study to simply designate your membership group in the following tasks and questions. The other participants have been categorised by this same algorithm/procedure, reflecting a different set of shared perspectives, and will be referred to as "Group Tausig" from here on.

3 - Interdependence and No Accountability

Introduction Text: Psychological research suggests that how people make decisions can be influenced by their individual attributes and group dynamics. To explore this, you will first complete a short questionnaire. Based on your responses, we will assign you to a group. Your group assignment will be based on differences that allow for complementary strengths within the group. There are no right or wrong answers, so please respond as honestly as possible.

Results Text: Based on your earlier responses and those of others, we have used a computer algorithm to distinguish two groups. You've been grouped with others who have **different and complementary strengths, skills, and perspectives** from you. This group is labelled **"group Dusek"** for the purpose of this study. The other participants have been grouped separately as "group Tausig", indicating separate complementary perspectives. This approach is inspired by the "jigsaw classroom" research, which emphasizes the value of diversity in group settings. Research has shown that when individuals with different skills and viewpoints collaborate, they can solve problems more creatively and effectively (Aronson, 1978). Each person brings something unique (part of the jigsaw puzzle) to the table, and by combining these differences, the group can tackle tasks from multiple angles. Think of it like a puzzle, each person's contribution is essential to completing the bigger picture. Research shows that

these complementary differences do more than improve outcomes, they strengthen interpersonal bonds as members recognize how others value their unique inputs (Page, 2007). This mutual relationship provides the basis for trust and reciprocity.

4 - Interdependence and low Accountability

Introduction Text: Psychological research suggests that how people make decisions can be influenced by their individual attributes and group dynamics. To explore this, you will first complete a short questionnaire. Based on your responses, we will assign you to a group. Your group assignment will be based on differences that allow for complementary traits within the group. In the second part of the study, you will meet your fellow group members of the Dusek group online (in a video call) to discuss allocation strategies. There are no right or wrong answers, so please respond as honestly as possible.

Results Text: Based on your earlier responses and those of others, we have used a computer algorithm to distinguish two groups. You've been grouped with others who have **different and complementary strengths, skills, and perspectives** from you. This group is labelled **"group Dusek"** for the purpose of this study. The other participants have been grouped separately as "group Tausig", indicating separate complementary perspectives. This approach is inspired by the "jigsaw classroom" research, which emphasizes the value of diversity in group settings. Research has shown that when individuals with different skills and viewpoints collaborate, they can solve problems more creatively and effectively (Aronson, 1978). Each person brings something unique (part of the jigsaw puzzle) to the table, and by combining these differences, the group can tackle tasks from multiple angles. Think of it like a puzzle, each person's contribution is essential to completing the bigger picture. Research shows that these complementary differences do more than improve outcomes, they strengthen interpersonal bonds as members recognize how others value their unique inputs (Page, 2007). This mutual relationship provides the basis for trust and reciprocity.

Appendix B

Measurement Items

Political Orientation scale (Choma & Haffer, 2009)

Measured on a 7-point Likert scale from very left wing to very right wing.

1- How would you describe your political orientation in general?

2- How would you describe your political orientation on social issues?

3- How would you describe your political orientation on economic issues?

Individualism/Collectivism Scale

Adapted from the 32-item Individualism and Collectivism Scale (INDCOL) (Singelis, Triandis, Bhawuk, & Gelfand, 1995), 7-point Likert scale from strongly agree to strongly disagree

Individualism

1- I feel it is important to assert my independence.

2- I feel it is important to do things my own way.

3- I prefer to be direct and forthright when discussing issues with others

4- I prefer to compete rather than cooperate.

Collectivism

5- I feel good when I cooperate with others.

6- I feel it is important to share with others.

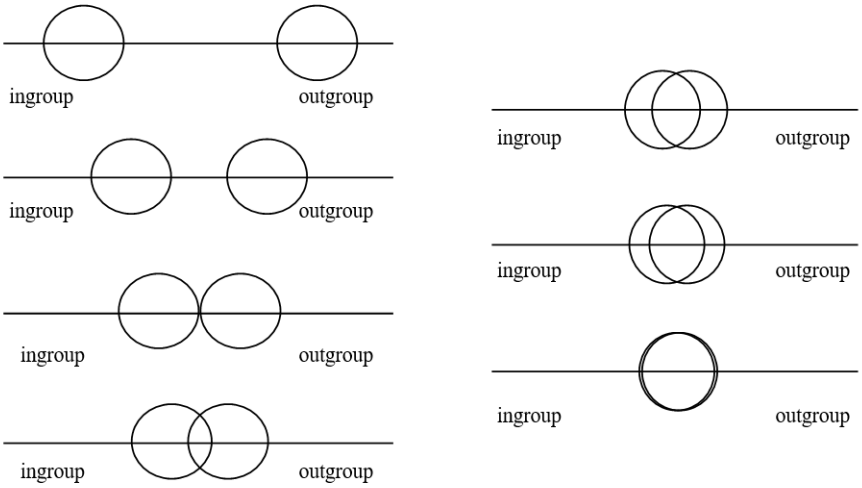
7- I would sacrifice my self-interest for the benefit of the group.

8- I respect decisions made by the group.

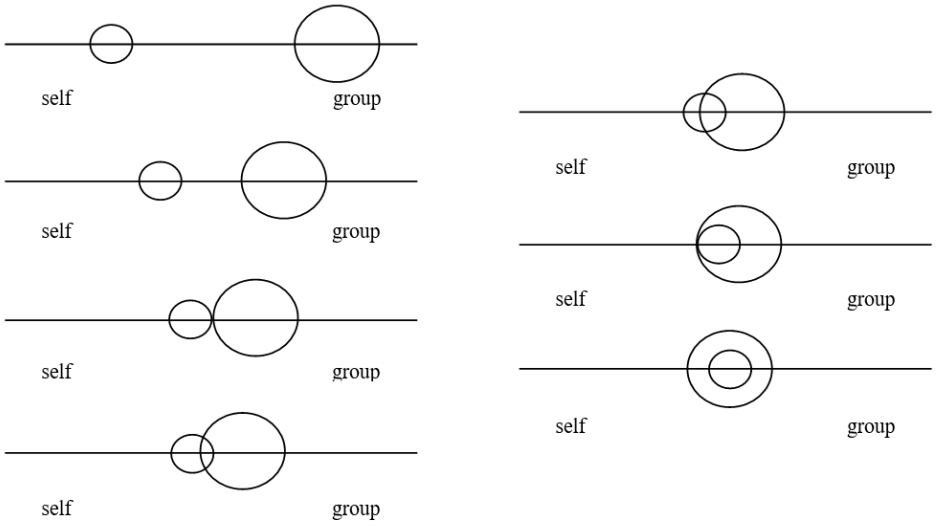
Circle Identification

Schubert and Otten, (2002)

(A) Assessment of Ingroup-Outgroup-Overlap



(B) Assessment of Self-Group-Overlap



Appendix C

Matrices

Matrices Introduction (adapted from Iacoviello & Spears (2021))

You will soon be asked to divide points between members of the group Dusek and members of the group Tausig, who are also participating in the survey. You should think of these points as having symbolic value (like cent coins, for example). In order to accomplish this task, you will be presented with a series of matrices. A matrix consists of 13 boxes, each containing two numbers. For each matrix, you are to award points to two other participants of the study. In this example, the top row of numbers within the boxes are the points to be awarded to Member 5 of Group Dusek, and the bottom row are points to be given to Member 7 of Group Tausig. After looking at each box of the matrix, you must choose only one box that represents your choice of how you wish to award the points.

To make your task easier, we have always put your group (Dusek) on the top row of the matrices and the other group (Tausig) on the bottom row.

Below is an example of how to use a matrix. Let us say you are faced with the following matrix. In addition to your group label (Dusek or Tausig), each of you has received a personal identification number.

	A	B	C	D	E	F	G	H	I	J	K	L	M
Points to Member 5 of Group Dusek	11	12	13	14	15	16	17	18	19	20	21	22	23
Points to Member 7 of Group Tausig	5	7	9	11	13	15	17	19	21	23	25	27	29

Now, suppose you are distributing points for Member 5 of Group Dusek and Member 7 of Group Tausig. Think carefully about all the numbers in the boxes. There are a variety of choices you can make. Let us say that you decide to choose box C:

13
9

This means that you decide to give 13 points to Member 5 of Group Dusek and 9 points to Member 7 of Group Tausig.

Alternatively, you might choose box G:

17
17

This means that you decide to give 17 points to each member.

Another option would be choosing box K:

21
25

This means that you decide to give 21 points to Member 5 of Group Dusek and 25 points to Member 7 of Group Tausig.

As you might have noticed, you are not allowed to choose different numbers from different boxes on the same matrix. In our example, you cannot give 11 points to Member 5 of Group Dusek and 29 points to Member 7 of Group Tausig.

Matrix questions

	A	B	C	D	E	F	G	H	I	J	K	L	M
Points to Member 219 of Group Dusek	19	18	17	16	15	14	13	12	11	10	9	8	7
Points to Member 377 of Group Tausig	1	3	5	7	9	11	13	15	17	19	21	23	25

A ○ B ○ C ○ D ○ E ○ F ○ G ○ H ○ I ○ J ○ K ○ L ○ M ○

	A	B	C	D	E	F	G	H	I	J	K	L	M
Points to Member 193 of Group Dusek	16	17	18	19	20	21	22	23	24	25	26	27	28
Points to Member 405 of Group Tausig	16	15	14	13	12	11	10	9	8	7	6	5	4

A ○ B ○ C ○ D ○ E ○ F ○ G ○ H ○ I ○ J ○ K ○ L ○ M ○

	A	B	C	D	E	F	G	H	I	J	K	L	M
Points to Member 223 of Group Dusek	1	3	5	7	9	11	13	15	17	19	21	23	25
Points to Member 169 of Group Tausig	7	8	9	10	11	12	13	14	15	16	17	18	19

A ○ B ○ C ○ D ○ E ○ F ○ G ○ H ○ I ○ J ○ K ○ L ○ M ○

	A	B	C	D	E	F	G	H	I	J	K	L	M
Points to Member 107 of Group Dusek	25	23	21	19	17	15	13	11	9	7	5	3	1
Points to Member 36 of Group Tausig	7	8	9	10	11	12	13	14	15	16	17	18	19

A ○ B ○ C ○ D ○ E ○ F ○ G ○ H ○ I ○ J ○ K ○ L ○ M ○

	A	B	C	D	E	F	G	H	I	J	K	L	M
Points to Member 87 of Group Dusek	19	18	17	16	15	14	13	12	11	10	9	8	7
Points to Member 417 of Group Tausig	25	23	21	19	17	15	13	11	9	7	5	3	1

A ○ B ○ C ○ D ○ E ○ F ○ G ○ H ○ I ○ J ○ K ○ L ○ M ○

	A	B	C	D	E	F	G	H	I	J	K	L	M
Points to Member 219 of Group Dusek	4	5	6	7	8	9	10	11	12	13	14	15	16
Points to Member 377 of Group Tausig	28	27	26	25	24	23	22	21	20	19	18	17	16

A ○ B ○ C ○ D ○ E ○ F ○ G ○ H ○ I ○ J ○ K ○ L ○ M ○

Appendix D

Manipulation checks

Basis of Group Allocation

1- Were you allocated to your group based on complementary differences or similar perspectives?

Comprehension Check

1 - What is the study you just participated in about?

Attention Check

1 - Were you part of group Dusek or Tausig?

Accountability Manipulation Check

1 - Do you expect to meet or interact with your group members later in the study?

Social identity

Adapted from Leach et al. (2008)

1-I feel a bond with my fellow group members.

2- I am glad to be in a group with my fellow group members.

3- I have things in common with the average person in our group.

4- The people in our group are similar to each other.

5- I expect to share opinions with the people in our group.

Interdependence

Loosely adapted from Li and colleagues (2021) and Van der Vegt and Bunderson (2005)

1- In group tasks, I feel that I would be able to contribute something unique.

2- Imagine you complete a task in your group: I would divide tasks based on each member's strengths and abilities.

3 - Imagine you completed a task in your group, I would rely on others in my group to complete the task effectively.

Appendix E

Accountability Manipulation Check

Expectation of future interaction by Group Type and Accountability Condition

Group Type	Accountability	*Expectation to meet or interact in the future*		
		Yes	*No*	*Total*
Social Identity Based	No Acc	18	50	68
	Acc	22	38	60
Interdependence Based	No Acc	21	50	71
	Acc	19	31	50
Total		80	169	249