

ABSTRACT

Title of Thesis: DILUTING IDENTITY: APPLYING A GOAL SYSTEMIC THEORY OF GROUP IDENTIFICATION

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A goal systemic perspective of group identification that conceptualizes groups as means to goals is proposed. Four studies investigate the effect of equifinality set size (i.e., the number of alternative means available for a given goal) on group identification. Greater equifinality set sizes are hypothesized to dilute the perceived instrumentality of a given means, which is proposed to have implications for group identification. Studies 1 and 2 found evidence that accessibility of multiple groups facilitating the same goal weakens identification with a target group. Study 3 investigated this in the context of optimal distinctiveness paradigm, finding evidence that larger equifinality set sizes dilute identification with minority but not majority groups. Study 4 illustrated that the presence of alternative means to reduce uncertainty lessens identification with extreme groups, and that this effect was mediated by perceived instrumentality. Theoretical and practical implications of the proposed framework are discussed.

DILUTING IDENTITY: APPLYING A GOAL SYSTEMIC THEORY OF GROUP
IDENTIFICATION

By

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Chapter 1: Introduction

Humans are information processors equally eager to categorize as to connect (Fiske, 2000). In perhaps one of the most fundamental forms of categorization, there is a powerful inclination to demarcate the line between ‘us’ (the ingroup) and ‘them’ (the outgroup). Categorization of ingroups and outgroups, in turn, shapes attitudes, feelings, and behaviors (see Brewer, 1999; Hewstone, Rubin, & Willis, 2002; Mullen, Brown, & Smith, 1992 for reviews).

If group membership has profound impacts on behavior, there is great value to examining why and when people want to be members of groups in the first place. Indeed, deciphering the motivational bases of group identification, defined as feelings of belongingness coupled with a definition and evaluation of the self in terms of ingroup attributes (Cameron, 2004), is at the heart of understanding many phenomena (Tajfel, 1981). Efforts to identify the motivations underlying group identification have yielded several highly influential theories that view groups not as ends in themselves but as tools to meet members’ individual or collective goals (Yzerbet & Demoulin, 2010). The present research seeks to integrate this conceptualization of groups as means with a goal systemic framework to test the role interconnections among means and goals in group identification. In particular, a goal systemic framework will be used to examine how group identification is affected by the presence of alternative means to a given goal.

Chapter 2: Contemporary Theories of Group Identification

Numerous goals have been proposed as the underlying motivation for group identification including self-enhancement (Tajfel, 1974), uncertainty reduction (Hogg, 2007), and optimal distinctiveness (Brewer, 1991). Below, these theories of group identification are briefly reviewed before the proposed structural focus on group identification is introduced.

2.1 Social Identity Theory

First introduced to explain intergroup processes such as ingroup favoritism and prejudice, social identity theory has evolved over the years to be applied to group processes more generally (Hogg, 2000). Tajfel and his colleagues (Tajfel, 1981; Tajfel, Billig, Bundy, & Flament, 1971) sought to identify the minimal conditions that lead to biases in intergroup behavior and established the minimal group paradigm to do so. In this paradigm, participants are assigned to groups on an arbitrary basis such as whether they overestimate or underestimate the number of dots in a picture. After being categorized into different groups, participants are typically asked to perform a task that allows them to either show favoritism toward their ingroup or fairness toward the outgroup. Based on research using the minimal group paradigm, a great deal of evidence suggests that mere categorization is enough generate ingroup bias in people (for a review see Brown, 2000).

Tajfel and his colleagues explained these results by proposing their social identity theory (SIT). Tajfel and Turner (1979) assert that people are motivated to belong to groups that are distinctive from other groups and contribute to a positive social identity. People strive for a positive social identity because their self-concept is

linked to their identity as a group member, and this frequently leads to ingroup favoritism. Based on the relationship between self-esteem and social identity articulated in SIT, Abrams and Hogg (1988) derived the following two corollaries: (1) that successful intergroup discrimination enhances social identity and self-esteem, and (2) low or threatened self-esteem motivate intergroup discrimination in order to restore self-esteem. Empirical support for these particular corollaries is mixed (for reviews see Aberson, Healy, & Rome, 2001; Rubin & Hewstone, 1998); however, this may be due to methodological flaws including the use of measures of stable personal self-esteem rather than more appropriate measures such as implicit, state, or collective self-esteem (e.g., Crocker & Luhtanen, 1990; Farnham, Greenwald, & Banaji, 1999).

2.2 Uncertainty-Identity Theory

Uncertainty-identity theory is another approach to group identification that emerged from self-categorization theory, an extension of social identity theory that emphasizes the dynamic nature of the self-concept (Hogg & Mullin, 1999; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Self-categorization theory places the role of categorization at the forefront of understanding social identity processes, but does not fully address the motivations underlying the propensity to categorize. In contrast, uncertainty-identity theory accepts that categorization is fundamental to social identity and group attachment, but focuses on understanding the motivational foundations of categorization (Hogg, 2000, 2007). Hogg and Abrams (1993) concluded that the function of social categorization is to reduce uncertainty about one's self and the world, a fundamental need that produces a sense of stability and

predictability. Uncertainty is an aversive state that elicits attempts to minimize the feeling. One way to reduce uncertainty is to identify with a group, or categorize the self in terms of group membership. Consistent with self-categorization theory, uncertainty reduction theory argues that people undergo a process of depersonalization when identifying with a group during which they shed the individuality of their own cognitions, behaviors, and feelings to adopt those that are prototypical of their ingroup (Hogg & Hains, 1996). As such, group identification effectively reduces uncertainty because people are provided with clear norms for attitudes and behavior (Hogg, 2000).

The main postulates of uncertainty reduction theory have received substantive empirical support (e.g., Mullin & Hogg, 1999; van den Bos, van Aemijde, & van Gorp, 2006). Notably, people identify more with their political parties and task groups when they have been put in an uncertain mindset and their groups are highly entitative (Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007). People should be expected to identify more with a group that is highly entitative under uncertainty because these groups are characterized by high consensus and distinct boundaries, making them highly instrumental for reducing feelings of uncertainty. Similarly, societal uncertainty is associated with higher levels of extremism, which again provides clear ideology and agreement (e.g., Doty, Peterson, & Winter, 1991; McGregor, Haji, Nash, & Teper, 2008). Moreover, individuals high in the need for closure, a motivational state in which a person has low tolerance for ambiguity or uncertainty, exhibit attachment to autocratic leadership, adherence to group norms,

and rejection of deviates, all characteristics of extreme groups (Kruglanski, Pierro, Mannetti, & de Grada, 2006).

Not only do people tend to identify with groups more strongly when they are uncertain, but it has also been demonstrated that identifying with groups is associated with lower levels of uncertainty. Inzlicht, McGregor, Hirsh, and Nash (2009) demonstrated that the brain system associated with anxiety and uncertainty was less active in those who strongly identified with their religion and had strong convictions. This suggests that identifying with a group and adopting their normative beliefs is an effective means to reducing uncertainty.

2.3 Evolutionary Perspectives

Evolutionary perspectives on group attachment argue that human beings are ill-equipped to survive as individuals given threats from the physical environment and competitors for resources, necessitating coordination at a group level (Caporael, 1997; Brewer, 2004). Human reasoning is fallible and learning from personal experience slow; groups and cultures provide us with the advantage of knowing which behaviours are suitable for which situations through social learning (Boyd & Richerson, 2005). Essentially, these perspectives portray groups as ways to achieve evolutionary goals of survival and reproduction. Human beings are said to be faced with *obligatory interdependence* whereby the group provides a necessary buffer against a multitude of threats (Caporael & Brewer, 1995). As such, people who lived in groups had a better chance of surviving and passing on their genes, eventually leading to an adaptation of the preference for group-living (Caporael, Dawes, Orbell, & van de Kragt, 1989).

In contrast to general selection theories, multilevel theories of evolution propose that the unit of selection is not restricted to genes but can apply to other units, including individuals and groups (Caporael, 2001; Wilson, van Vugt, & O’Gorman, 2008). For proponents of this approach, the question of human evolution becomes one of *coordination*, of going beyond the sum of our parts (Kameda & Tindale, 2006). Multilevel theories offer unique insights by allowing for conflict and synergy among multiple levels of selection. For example, individual advantages might have to be sacrificed for advantages at the group level, which could eventually lead to stronger groups that are more effective for achieving survival goals (Caporeal et al., 1989; D. Wilson & E. Wilson, 2007). The concept of group selection whereby group-beneficial rather than individually beneficial traits are selected has been used to explain social psychological phenomena such as prosocial behaviour (McAndrew, 2002; Traulsen & Nowak, 2006), altruistic punishment (Boyd, Gintis, Bowles, & Richerson, 2003; Henrich, 2004), and gossip (Kniffin & D. Wilson, 2005).

From this evolutionary perspective, group identification acts a social glue that maintains group cohesion and cooperation, which in turn enhances chances of survival (Brewer & Caporael, 2006). Social identity helps people to distinguish between ingroup and outgroup members. As people begin to recognize their ingroup members and develop affinities toward them, they become more trustworthy of and willing to cooperate with them. For instance, Kramer and Brewer (1984) demonstrated that group identity improved management of resources in a simulated commons dilemma game. Furthermore, Van Vugt and Hart (2004) demonstrated that social identity is essential for maintaining group loyalty, even when individual

outcomes can be improved by leaving the group. Loyalty through social identification is beneficial at the group level because it lessens the chances that the group will lose vital resources as members exit.

2.4 Optimal Distinctiveness Theory

Optimal distinctiveness theory integrates evolutionary and cognitive elements to argue that people seek to find a balance between two competing and fundamental needs – assimilation and differentiation (Brewer, 1991). Optimal distinctiveness theory begins with the understanding that humans have evolved for group living because groups offer greater access to resources, protection, and information. The theory further proposes that certain group structures are required to maximize the advantages offered by groups, namely that the size of social groups needs to be large and inclusive enough to fully benefit from extended cooperation without being so large that feelings of interdependence become diluted (Brewer, 2007). Accordingly, the theory posits that the motivation to identify with optimal groups that balance the need for inclusion in social groups (assimilation) and the competing need for distinctiveness from others (differentiation) has evolved over time.

Optimal distinctiveness theory proposes that people are motivated to identify with groups based on the particular strengths of their needs for assimilation and differentiation at any one time and the level of inclusiveness of their group membership (Brewer & Pickett, 2002). Very small groups are distinctive but will fail to fulfill a person's goal of assimilating, whereas large groups offer assimilation without feelings of differentiation. Importantly, optimal distinctiveness is not conceptualized as a static characteristic of any group but instead as an interaction

between the strength of an individual's motivations for inclusiveness or differentiation at a given moment and the distinctiveness of a group (Brewer, 2012).

Researchers have found support for the main predictions derived from optimal distinctiveness theory as they relate to group preferences, behavioural strategies, and perceptions of groups. Pickett, Silver, and Brewer (2002) found that broad social categories and weak social relationships were more important to people with the need for assimilation than to those with the need for differentiation. Similarly, Badea, Jetten, Czukor, and Askevis-Leherpeux (2010) found a curvilinear relationship between needs and identification in which people identified more strongly with their ingroup when it provided a balance between assimilation and distinctiveness than when they felt that their ingroup was either too inclusive or not inclusive enough. Moreover, people were shown to use self-stereotyping as a way to fit in with their group when they feel the need to assimilate with their ingroup or when they are motivated to be distinct from an outgroup but not when there is no need arousal (Pickett, Bonner, & Coleman, 2002). Finally, the needs for both assimilation and differentiation enhance perceptions of in-group homogeneity and outgroup homogeneity because these characteristics allow people to see their ingroup as similar but also different from others (Pickett & Brewer, 2001).

Chapter 3: A Goal Systemic Framework of Group Identification

Central to each of the reviewed frameworks is the proposition that a different fundamental goal underlies the motivation for group attachment. SIT proposes that establishing a positively distinct social identity is the main motivation for group identification. In contrast, uncertainty identity theory argues that belonging to a group is instead a means to reduce uncertainty. Finally, optimal distinctiveness theory makes the argument that groups are means to achieving the balance between fitting in and feeling special. The common theme among each theory is that groups are viewed as a means to some end but only a restricted set of goals are of major interest. Whereas all of the proposed motivations underlying group identification could be valid the purpose of the present paper is to consider the structural properties of conceptualizing groups as means to goals rather than goal substance. One perspective that adopts a content-free framework with such advantages is the theory of goal systems.

Cognitive approaches to motivation, such as *goal systems theory* (Kruglanski et al., 2002), can be applied to identify the underlying mechanisms of group identification. Goal systems theory defines goals as structures represented in the mind that are associated with their corresponding means as well as to other goals. Accordingly, goals can be either consciously or unconsciously activated and result in goal-directed behavior. In addition, goal systems theory emphasizes structure and process over particular goal contents. It is a theory that can be applied to essentially any instance in which there is a goal and corresponding means, regardless of the

content of the goal or means. As such, the present research adopted this framework to treat groups as means and examine the dilution effect in the context of equifinality.

3.1 Equifinality and the Dilution Effect

Goal systems theory also proposes that several important phenomena occur because of a goal system's structure (Kruglanski et al., 2002; Kruglanski & Kopetz, 2009). More simply, goal systems theory argues that the patterns of connections among goals and means are meaningful. One of these phenomena concerns the number of means that lead to a particular goal, which is called an *equifinality* set. Equifinality is a structural property of goal systems that can be summarized by the phrase 'all roads lead to Rome'. For example, a student with the goal of physical fitness might think that joining a running group and lifting weights are two means to achieving this goal. In goal systemic terms, these two methods comprise the equifinality set of this student's goal to be physically fit.

A central feature of equifinality is that as the number of means connected to a goal increases, the weaker the association between any given means and that goal, (Kruglanski, Pierro, & Sheveland, 2011). This is similar to the "fan effect" in which the likelihood that a specific fact is recalled or retrieved upon the presentation of a construct is reduced as the number of distinct facts linked with a general mental construct increases (Anderson, 1974, 1983). Furthermore, weaker associations between a given means and a goal is manifested in perceptions of weaker instrumentality. That is, means are perceived as less effective when they are weakly associated with a goal, a phenomenon referred to as *the dilution effect*.

Evidence of the dilution effect in the goal systems literature was first supported when looking at the implications of a given means being associated with multiple goals, or multifinality (e.g., Kruglanski et al., 2013; Orehek, Mauro, Kruglanski, & van der Bles, 2012; Zhang, Fishbach, & Kruglanski, 2007). More recently, the dilution effect has also been explored as a consequence of equifinality. For example, Kruglanski et al. (2011) provided evidence of this dilution effect at the interpersonal level in an organizational context. More specifically, workers who identified more social means to achieve a work goal were less committed to each means (i.e., indicated less negative impact of the failure to use a means) than those who identified fewer means.

Bélanger, Schori-Eyal, Pica, Kruglanski, and Lafrenière (2014) also found support for the dilution effect through equifinal structures across five studies. In particular, perceptions of means effectiveness were reduced as equifinality set sizes increased, and this was related to the strength of association between a given means and a goal. While Kruglanski et al. (2011) and Bélanger et al. (2014) yielded evidence that equifinality dilutes perceived instrumentality of a means, neither examined how this could be applied to explain group phenomena.

Revisiting the role of groups as tools to achieve individual and collective goals, group membership can be reinterpreted as a means to these ends. Regardless of the specific content of an individual's goals, it seems plausible that a person will identify more with a group to the extent that the group can serve as a means to their various goals. However, the principle of equifinality suggests that the strength of identification will vary depending on the uniqueness of the contribution of group

membership as a means. In other words, identification with a group should be strongest when membership is a means to a goal with few alternative means.

3.2 Distinctions from Multiple Categorization and Social Identity Complexity

Closely related to the structure of interest to the present research, multiple categorization research seeks to understand how classification across multiple social identities affects perceptions of oneself and others (Crisp & Hewstone, 2007). Much of the multiple categorization literature is concerned with its implications for the perception of others (e.g., Stangor, Lynch, Duan, & Glass, 1992) and intergroup attitudes (e.g., Crisp, Hewstone, & Rubin, 2001; Hall & Crisp, 2005), but implications for the self and social identity have also been deduced. For example, Ellemers, Barreto, and Spears (1999) explored management of dual identities among immigrants who decreased identification with their native country and emphasized identification with their host country to avoid categorization as minority group members.

Related to multiple categorization, Roccas and Brewer (2002) posited that social identity complexity has implications for identity management and intergroup attitudes. Social identity complexity is defined as the nature of the representation of multiple ingroup identities, ranging from low complexity in which multiple identities are perceived to be highly overlapping and high complexity in which the differentiation between identities is acknowledged. Investigating the consequences of social identity complexity, Brewer and Pierce (2005) found that greater social identity complexity was associated with more tolerant attitudes and warmer affect toward racial and ethnic outgroups.

Of course, the goal systemic approach to group identification shares the focus on understanding the implications of multiple social identities as multiple categorization and social identity complexity research. However, the proposed approach differentiates itself from social identity complexity in its focus not only on the structure of identities, but also on underlying motivation or goal fulfilled by group membership. That is, goal systems theory argues that the relationship between the means, in this case group membership, and a goal are equally important as the cognitive structure of multiple means. Indeed, goal systems theory would posit that social identity complexity should have greater implications to the extent that the identities in question serve the same goal.

Importantly, Grant and Hogg (2012) found evidence of the dilution effect in group identification in the context of uncertainty-identity theory. After listing either two or four groups to which they belong, participants rated their level of identification with the focal group, nationality. Findings were consistent with uncertainty-identity theory and the dilution effect, as identification was highest when participants were under high uncertainty and when few identities were primed. While Grant and Hogg (2012) offer a direct test of the dilution effect on group identification, the goal systemic approach presented in the present research seeks to extend this finding by offering a general framework that can be applied to other theories of group identification and by providing an account for the mechanism underlying the dilution effect, instrumentality.

3.3 Hypotheses

In sum, several novel hypotheses can be derived from applying a goal systemic approach while also replicating findings of past research about uncertainty reduction and social identity theory. First, group identification should be stronger when an equifinality set is small. In other words, when a group is the only means to a goal, group identification will be stronger than when there are other means available to achieve the same goal. Secondly, this dilution effect should generalize across different types of groups and goals. Finally, this relationship should be mediated by the perceived effectiveness of the group as a means to achieve a goal.

Chapter 4: Study 1

Johnson et al. (2006) explored whether specific types of groups were associated with particular needs and goals, finding that affiliation and identity goals were distinct needs typically met by intimacy and social category groups, respectively. In light of the evidence that specific group types are associated with particular needs and goals, the principal objective of Study 1 was to test the dilution effect in group identification in across such goal domains. Consistent with the hypothesis of dilution derived from goal systems theory, identification with a given group should decrease when multiple groups that satisfy the same needs are made accessible. This study used a 2 (equifinality set size: 1 mean or 2 means) x 2 (group type: intimacy group or social category) between-subjects factorial design to investigate the dilution effect.

4.1 Method

4.1.1 Sample Size Determination and Participants

To estimate the sample size needed to detect the hypothesized effect, an a-priori power analysis was performed with G*Power 3.1.7 (Faul, Erdfelder, Lang, & Buchner, 2007). The power analysis assumed a medium-sized effect of $f = .20$ for an ANOVA analysis that included main effects and an interaction. The analysis revealed that a sample size of 199 was needed to achieve an 80% chance of detecting an effect. As such, we sought to recruit 200 participants for Study 1.

201 adult participants from the United States were recruited through the online survey service Mechanical Turk. Two participants were excluded from analyses for failing an attention check embedded within the questionnaire, leaving a

final sample of 199 ($M_{\text{age}} = 30.23$, $SD_{\text{age}} = 9.40$). The final sample consisted of 39.9% women. In addition, 74.4% identified as White/Caucasian, 10.6% as Asian, and 7.5% as African American/Black. Participants were compensated with 70 cents for their time.

4.1.2 Procedure

Participants read a message that presented the goal of either affiliation or sense of identity and either one or two groups that facilitate fulfillment of that goal. With respect to the goal of affiliation, connecting with family and exchanging support with a group of close friends, two types of intimacy groups, were be offered as means. With respect to a sense of identity, the uniqueness associated with your gender and the distinctiveness of being American, two examples of social category groups, were offered as means. In order to counterbalance the content of the target group, half of the participants in the single group conditions read an essay about one group in a given domain while the other half will read about the second group. Moreover, the order of presentation of the groups in the essay was counterbalanced in the two group conditions. After reading the essay, participants were asked to complete scales that measure the perceived instrumentality of the target group, their level of identification with the target group, and the extent to which they felt their self overlapped with the target group. Participants who read about two groups completed the measures in relation to the first group discussed in the message. After completion of the experiment, participants were forwarded to a debriefing page and thanked for their participation.

4.1.3 Measures

Group Identification. Group identification was measured with an adapted 14-item multidimensional scale (Appendix A) constructed to tap into group *solidarity*, *satisfaction*, *centrality*, *individual self-stereotyping*, and *in-group homogeneity* (Leach et al., 2008). Solidarity, satisfaction, and centrality load onto a higher-order factor representing *group-level self-investment* whereas individual self-stereotyping and in-group homogeneity load onto a factor representing *group-level self-definition*, providing a hierarchical model of group identification. However, given the very high correlations between the two higher-order dimensions ($> .70$), results were analyzed with an overall identification factor, and responses demonstrated sufficient internal consistency, $\alpha = .94$. Responses were provided on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Self-Group Overlap. Self-group overlap was measured with a scale based off the Inclusion of Other in Self scale initially developed to assess closeness in interpersonal relationships. This scale presents a series of images of the self and ingroup, each represented by a circle, with the circles increasing in physical closeness until they are overlapping. Participants are asked to select the image that best represents their degree of closeness to the target group.

Instrumentality. Instrumentality was measured with a 3-item scale asking participants to rate the extent to which they perceive their means (i.e., group membership) to be effective for reaching attaining their goal. These item were rated on a slider ranging from 1 (*not at all effective*) to 7 (*extremely effective*). The scale exhibited adequate internal consistency, $\alpha = .95$.

4.2 Results

Descriptive statistics for all group identification, self-group overlap, and perceived instrumentality are reported in Table 1 and correlations are reported in Table 2.

4.2.1 Group Identification

A two-way between subjects ANOVA was performed with identification as the dependent variable and equifinality set size and group type as the independent variables. The main effect of equifinality set size was significant, $F(1, 195) = 6.26, p = .01, \eta^2 = .03$. Consistent with our dilution hypothesis, participants who read about two groups reported less identification with the target group ($M = 4.89, SD = 1.11$) than those who read about only one group ($M = 5.27, SD = 0.99$), as illustrated in Figure 1. No main effect of group type was found, $F(1, 195) = 2.85, p = .09, \eta^2 = .01$. Furthermore, there was no significant equifinality set size x group type interaction, $F(1, 195) = 0.47, p = .49, \eta^2 = .002$.

4.2.2 Self-Group Overlap

A two-way between subjects ANOVA was also performed with self-group overlap as the dependent variable and equifinality set size and group type as the independent variables. Once again, a significant main effect of equifinality set size was found, $F(1, 195) = 4.75, p = .03, \eta^2 = .02$. As depicted in Figure 2, participants who read about two groups as means to a given goal indicated less self-group overlap with the target group ($M = 4.66, SD = 1.31$) than those who read about only one group ($M = 4.24, SD = 1.38$). No main effect of group type was found, $F(1, 195) =$

0.34, $p = .56$, $\eta^2 = .001$. Finally, there was no equifinality set size x group type interaction, $F(1, 195) = 0.57$, $p = .45$, $\eta^2 = .002$.

4.2.3 Instrumentality

A two-way between subjects ANOVA was performed on perceptions of group instrumentality as the dependent variable and equifinality set size and group type as the independent variables. Inconsistent with our dilution hypothesis, no significant main effect of equifinality set size was found, $F(1, 195) = 1.33$, $p = .25$, $\eta^2 = .007$. In addition, no main effect of group type was found, $F(1, 195) = 0.01$, $p = .92$, $\eta^2 = .001$. Finally, there was no equifinality set size x group type interaction, $F(1, 195) = 1.25$, $p = .27$, $\eta^2 = .006$.

4.3 Discussion

Results from Study 1 were consistent with our hypothesis that identification with a group will be diluted as an equifinality set size increases. Importantly, this study provided initial evidence of the generalizability of the dilution phenomenon to different types of groups. The finding that individuals only marginally identified with intimacy groups more than social categories differs from the findings of Lickel et al. (2000), but differences trended toward a similar pattern of results.

Notably, the dilution hypothesis was only supported in the case of identification and self-group overlap, and the hypothesized mediating role of instrumentality was not supported. The finding of no differences in instrumentality could be related to the unusual nature of asking questions about instrumentality in relation to group membership. Indeed, participants were offered the opportunity to provide open-ended comments during a pilot study, and several noted that it was odd

to think of group membership as being helpful to achieve some of these very abstract goals.

While this study provided some evidence for the dilution phenomenon, there is a possible alternative explanation. It could be argued that exposure to multiple groups in general, regardless of goal system structure, results in some dilution of identification. As such, a second study sought to rule out this alternative explanation.

Chapter 5: Study 2

Study 2 served to address a limitation of Study 1, the possibility that listing *any* additional groups in the message would result in dilution, irrespective of a particular goal system structure. Specifically, Study 2 sought to illustrate that larger equifinality sets alone explained the dilution effect on group identification found in Study 1, and making non-goal oriented group identities salient would not result in dilution.

5.1 Method

5.1.1 Sample Size Determination and Participants

Before collecting data, the sample size per cell was planned to be slightly greater than in Study 1, or about 60 people per condition. In accordance with this, 122 participants were recruited from Amazon's Mechanical Turk and compensated with 40 cents. One participant was excluded from analyses for failing to complete the survey. Of the final sample of 121 participants ($M_{\text{age}} = 29.01$, $SD_{\text{age}} = 8.01$), 35.5% were women. In addition, 78.5% identified as Caucasian/White, 11.6% as Asian, and 9.1% as African-American/Black.

5.1.2 Procedure and Measures

The same measures were used for identification ($\alpha = .93$), self-group overlap, and instrumentality ($\alpha = .92$) as in Study 1. Study 2 also followed a very similar procedure as Study 1. Participants read a message that presented the goal of identity and either a single means ($n = 58$) or two means ($n = 63$) to achieve identity (Appendix C). As in Study 1, the two identity groups presented to participants were nationality and gender. The target group of interest was counterbalanced and

participants who read about multiple identity groups completed measures in relation to the first group discussed in the message. In contrast to Study 1, however, participants in the single means condition read about one group associated with identity goals (i.e., a social category) and a second group associated with affiliation goals (i.e., an intimacy group). This was intended to control for differences that might arise simply by reading about additional groups. After reading about means to achieving an affiliation goal, participants then completed measures of instrumentality of the target group to achieving a sense of identity, identification with the target group, and self-group overlap.

5.2 Results

5.2.1 Group Identification

An independent samples *t*-test was performed with identification as the dependent variable and equifinality set size as the independent variable. Consistent with our hypothesis, results revealed that identification with the target group was significantly lower in the multiple means condition ($M = 4.67, SD = 0.88$) than the single means condition ($M = 5.03, SD = 0.97$), $t(119) = -2.13, p = .04, d = .39$. These results are summarized in Figure 3.

5.2.2 Self-Group Overlap

A second independent samples *t*-test was performed with equifinality set size as the independent variable and self-group overlap as the dependent variable. Inconsistent with the findings in relation to identification, there were no differences between the multiple means condition ($M = 4.19, SD = 1.41$) than the single means condition ($M = 4.43, SD = 1.54$), $t(119) = -0.89, p = .35, d = .16$.

5.2.3 Instrumentality

A final independent samples *t*-test was performed with instrumentality as the dependent variable. Inconsistent with our hypothesis, there was no difference in perceptions of the target group's instrumentality in the multiple means condition ($M = 4.83$, $SD = 1.29$) and the single means condition ($M = 4.76$, $SD = 1.35$), $t(119) = 0.28$, $p = .78$.

5.3 Discussion

Results from Study 2 suggest that dilution of identification with a target group requires that additional means exist within the same equifinality set. In other words, dilution of identification only occurred when multiple groups were associated with the same goal, and not when they were associated with different goals. This is consistent with our hypothesis that dilution occurs in part because each means, or group, is substitutable in an equifinal structure, rendering each means less instrumental to a given goal.

While comparisons of self-group overlap revealed no significant differences between conditions, mean differences were trending in the hypothesized direction. Finally, the measure of instrumentality again revealed no significant differences between conditions. This is consistent with the results of Study 1. Again, the insensitivity of our measure of instrumentality could be the result of difficulty among participants in interpreting the meaning of the questions.

Despite these findings, the dilution effect in identification with the target group was an encouraging result. Furthermore, a major aim of the present research is to examine whether principles derived from a focus on goal structure can apply across contemporary paradigms within group identification research. As such, additional

studies sought to test the generalizability of the dilution effect to the optimal distinctiveness and uncertainty identity paradigms.

Chapter 6: Study 3

Study 3 served to examine the principle of dilution in the context of optimal distinctiveness goals. According to previous research, individuals are motivated to identify with groups that satisfy the goals of optimal distinctiveness, and membership in minority groups is one way in which individuals can satisfy this goal (Leonardelli & Brewer, 2001). Whereas majority groups are too inclusive to achieve a balance between distinctiveness and assimilation, membership in minority groups tends to strike an optimal balance between the two needs. Given that membership in a majority group does not satisfy the goal of optimal distinctiveness, manipulating the accessibility of other groups that satisfy optimal distinctiveness was expected to have a weaker dilution effect on identification, if any. That is, identification with the majority group was expected to be moderately low regardless equifinality set. However, identification with a minority group was expected to be diluted in the presence of multiple available means to optimal distinctiveness. The study employed a 2 (group status: majority or minority) x 2 (equifinality set: single group or multiple) between-subjects design.

6.1 Method

6.1.1 Sample Size Determination and Participants

A priori sample size estimates were made according to the same assumptions as in Study 1. Once again, the goal was to recruit 200 participants; however, recruitment efforts fell short of this goal by the end of the semester and data were analyzed with this sample. 166 undergraduate students were recruited to participate in the study in exchange for course credit. Two participants were excluded from

analyses for incomplete data, leaving a final sample of 164 ($M_{\text{age}} = 20.36$, $SD_{\text{age}} = 3.88$). Of the final sample, 65% were women. In addition, 54% of the sample identified as White/Caucasian, 18% as Asian, and 14% as Black/African American.

6.1.2 Procedure

A minimal group paradigm was used to create conditions for social identification with novel groups. Similar to procedures used in classic minimal group paradigm studies, participants will be informed that assignment to their first group will depend on whether they overestimate or underestimate the number of dots (Gerard & Hoyt, 1974; Jetten, Spears, & Manstead, 1996). Participants asked to estimate the number of dots for seven figures, and were given a list of possible numbers for each, and selected a number from the list. Instructions emphasized that the task was intended to assess first impressions of the number of dots and participants were asked to refrain from trying to count the dots.

After completing the dot task, participants were informed that the experimenter was going to score their responses and give them feedback. In actuality, participants were given fake feedback that was determined by random assignment. More specifically, participants were randomly assigned to receive feedback that their particular perceptual style was part of a minority group (comprised of 20-25% of the population) or a majority group (comprised of 75-80% of the population), using materials adapted from Leonardelli and Brewer (Appendix D, 2001). Participants were also told that they would have more time to discuss their score after the experiment. Assignment as an overestimator/underestimator was counterbalanced within each group.

Following the feedback, participants were told that the next part of the study was intended to gather information about the personality traits associated with each perceptual style. During this part of the experiment, participants completed several filler scales and the manipulation of equifinality set. Participants either wrote about their membership in two groups that fulfilled the sense that some people were similar to their group but others were different (multiple means to optimal distinctiveness; adapted from Pickett & Brewer, 2001) or about their morning routine (minimal group is single means to optimal distinctiveness). Participants then completed the measures of ingroup bias, self-group overlap, and identification. Finally, participants were debriefed and thanked. The trait and allocation measures of ingroup bias were counterbalanced such that half the participants completed the trait measure first and the other half completed the allocation measure first.

6.1.3 Measures

Participants completed two measures of ingroup bias. An *allocation task* was used to measure the extent to which individuals would allocate greater rewards to ingroup members than outgroup members. Following instructions used in previous studies (e.g., Leonardelli & Brewer, 2001), participants were informed that the purpose of the task was to examine the underlying principles guiding alternative distributions of money, but it was made clear that no real money was at stake in the task. During the allocation task, participants were presented with three zero-sum allocation matrices (adapted from Tajfel et al., 1971; Matrix Type B in Experiment 1) in which the total allocation amount is fixed. As the allocation sum for one group increased, it necessarily decreased for the other group. The task was presented as a decision to allocate money to two individuals, one an overestimator and the other an

underestimator. As such, the task assessed the extent to which people are biased to award their ingroup more money at the expense of allocating fewer rewards to the outgroup. Finally, the instructions emphasized that many different principles of allocation were equally justifiable.

The second ingroup bias measure was a scale that assessed the extent to which traits were representative of either their ingroup or outgroup. The scale is composed of 20 items, 10 that reflect positive traits (e.g., friendly, sociable, happy) and 10 that reflect negative traits (e.g., unfriendly, cold, sad). The traits were identified as positive and negative in previous research (Otten & Wentura, 2001), and the scale exhibited adequate internal consistency, $\alpha = .88$. The measure instructs participants to indicate the extent to which each trait, on average, represents either an ingroup member or outgroup member and how strongly they think it is reflective of that particular group on a scale of 1 to 4. The task is presented as a forced choice between the ingroup and outgroup to increase the variability in responses.

6.2 Results

6.2.1 Group Identification

Descriptive statistics and correlations for all measured dependent variables are presented in Tables 3 and 4. A two-way between subjects ANOVA was performed with identification as the dependent variable and group status and equifinality set size as the independent variables. Results revealed a main effect of group size, suggesting that individuals identified more with a minority group ($M = 3.69, SD = 0.84$) than a majority group ($M = 3.26, SD = 0.77$), $F(1, 160) = 11.73, p < .01, \eta^2 = .06$. No main effect of equifinality set size was found, $F(1, 160) = 1.38, p = .24, \eta^2 = .01$. Finally,

the main effect of group size was qualified by a significant group size x equifinality set interaction, $F(1, 160) = 6.26, p = .01, \eta^2 = .03$.

To decompose the interaction effect, pairwise comparisons were performed to analyze simple effects with a Bonferroni adjustment to correct for multiple comparisons. When participants were not prompted to think of multiple identities, participants identified more strongly with their minimal group when it was described as a minority ($M = 3.91, SD = 0.83$) than when described as a majority group ($M = 3.17, SD = 0.77$), $F(1, 160) = 17.14, p < .001$. Consistent with our dilution hypothesis, when participants thought of multiple identities that fulfill a sense of optimal distinctiveness, there was no difference in identification between minority ($M = 3.45, SD = 0.81$) and majority ($M = 3.34, SD = 0.77$), $F(1, 160) = 0.44, p = .51$. Additional pairwise comparisons were conducted to assess the role of goal fulfillment in the dilution hypothesis. Results revealed that thinking of additional identities significantly diluted identification when they were assigned to a minority group, $F(1, 160) = 6.79, p = .01$, but not when participants were assigned to a majority group, $F(1, 160) = 0.88, p = .35$.

6.2.2 Self-Group Overlap

A two-way between subjects ANOVA was performed with self-group overlap as the dependent variable and group status and equifinality set size as the independent variables. Results revealed a non-significant main effect of group size, $F(1, 160) = 3.06, p = .08, \eta^2 = .02$. No main effect of equifinality set size was found, $F(1, 160) = 0.61, p = .43, \eta^2 = .003$. Finally, consistent with our hypothesis, there was a significant group size x equifinality set interaction, $F(1, 160) = 9.95, p < .01, \eta^2 = .06$.

To decompose the interaction effect, pairwise comparisons were performed to analyze simple effects with a Bonferroni adjustment to correct for multiple comparisons. Pairwise comparisons tests revealed that the dilution effect only occurred when the minimal group satisfied optimal distinctiveness conditions. Specifically, multiple means significantly diluted identity when they were assigned to a minority group, $F(1, 160) = 7.78, p < .01$, but not when participants were assigned to a majority group, $F(1, 160) = 2.80, p = .10$.

When participants not prompted to think of multiple identities, participants overlapped more strongly with their minimal group when it was described as a minority ($M = 4.65, SD = 1.15$) than when described as a majority group ($M = 3.65, SD = 1.21$), $F(1, 160) = 11.74, p < .01$. Consistent with our dilution hypothesis, priming individuals with thoughts of multiple identities that fulfill a sense of optimal distinctiveness attenuated the difference in self-group overlap between minority ($M = 4.13, SD = 1.41$) and majority ($M = 3.85, SD = 1.42$), $F(1, 160) = 1.01, p = .32$.

6.2.3 Ingroup Bias

Twenty participants completed the matrix task incorrectly and were excluded from data analysis, leaving a sample of 144 for analysis. A two-way between subjects ANOVA was performed with bias measured with the matrix task as the dependent variable and group size and equifinality set size as the independent variables. Results revealed no main effect of group size, suggesting that individuals identified more with a minority group, $F(1, 140) = 1.43, p = .23$. In addition, no main effect of equifinality set size was found, $F(1, 140) = 1.44, p = .23$. Finally, the group size x equifinality set interaction was non-significant, $F(1, 140) = 1.09, p = .30$.

One participant did not fully complete the trait-based ingroup bias scale and was excluded from the following analyses, leaving a final sample of 163. A two-way between subjects ANOVA was performed with the trait measure of bias as the dependent variable and group size and equifinality set as the independent variables. No main effect of group size was found, $F(1, 159) = 0.30, p = .58$. In addition, no main effect of equifinality set size was found, $F(1, 159) = 0.08, p = .77$. Finally, the interaction effect was non-significant, $F(1, 159) = 0.30, p = .58$.

6.3 Discussion

Results of Study 3 supported the dilution hypothesis in relation to two distinct forms of group attachment—group identification and self-group overlap. These results were consistent with our findings from Studies 1 and 2, and illustrated that the dilution hypothesis can be extended to the optimal distinctiveness paradigm. Secondly, when comparing between conditions in which only the minimal group was salient, Study 3 replicated findings from the optimal distinctiveness literature (e.g., Leonardelli & Brewer, 2001) that people identify more strongly with minority groups than majority groups. However, results from Study 3 did not reveal evidence that individuals should show greater ingroup bias toward minority groups, nor did they support the hypothesis that diluted group identification would also weaken ingroup bias. Nonetheless, identification was correlated with the allocation measure of bias, suggesting that increasing equifinality set size, thereby reducing identification, might impact ingroup bias in cases where identification is sufficiently reduced.

Chapter 7: Study 4

Study 4 extended the findings of the previous several ways. In contrast to the previous studies in which a goal was present among all participants, Study 4 experimentally instantiated a goal only for half of the participants, testing whether group identification is weak when no goal is activated. Furthermore, Study 4 aims to illustrate one of the practical implications of applying a goal systemic perspective to the question of group identification. More specifically, Study 4 seeks to replicate and extend a paradigm in research in which people identify more with extreme groups when experiencing uncertainty (Hogg, Meehan, & Farquharson, 2010) by demonstrating that this relationship is attenuated when individuals are given alternative methods of managing their uncertainty.

Study 4 employed a 2 (uncertainty: high or low) x 2 (equifinality set size: one mean or three means) between-subjects factorial design. Consistent with the designs commonly applied to test uncertainty identity theory, feelings of high uncertainty should induce the motivation to reduce that uncertainty. In addition, Study 4 sought to test the hypothesis that the perceived instrumentality of the target group mediates identification, and could account for the dilution effect.

7.1 Method

7.1.1 Sample Size Determination and Participants

The same assumptions made for Study 1 in an a priori power analysis were used to determine sample size. As such, 200 participants was set as the desired sample size. However, some piloting illustrated that participants were somewhat likely to only skim through certain materials from the experiment. Therefore, it was

planned to slightly over-recruit beyond the desired sample size to account for possible exclusions due to inattention.

207 undergraduate students were recruited and compensated with course credit and 14 of these participants were excluded for failing an attention check or skipping multiple items in a measure, resulting in a final sample of 193 ($M_{\text{age}} = 19.82$, $SD_{\text{age}} = 2.31$). Of the final sample, 78% were female participants. In addition, 60% identified as White/Caucasian, 22% as Asian, and 10% as African American/Black.

7.1.2 Procedure

To manipulate uncertainty level, participants were asked to write about three ways in which either the cost of tuition makes them feel uncertain about themselves and their future (high uncertainty) or three ways in which the cost of tuition makes them feel certain about themselves and their future (low uncertainty), a procedure adapted from previous uncertainty identity literature (Hogg et al., 2010). Following the prime, participants completed a manipulation check asking them to rate their uncertainty.

Participants were then presented with means to reduce uncertainty related to tuition. All participants were presented with a description of an extreme campus group that lobbies for changes to tuition. As in Hogg et al. (2010), extreme is operationalized as a group characterized by strong hierarchy and leadership, rigid norm enforcement, and single-minded pursuit of their goal. In the multiple means conditions, participants read two additional articles relevant to reducing uncertainty about tuition costs before finally reading the same article about a radical group. The first article described fundraising efforts on the part of the university's administration that aim to reduce the uncertainty surrounding tuition costs for students. The second

article described state legislation under review that would limit the maximum tuition increase in a year among Maryland's state universities. To ensure that participants viewed the activities presented in the these two articles as alternative *means* to reducing uncertainty about tuition, the articles emphasized the opportunities for students to be active in fundraising and supporting the legislation, respectively. Participants who were assigned to read only about the extreme campus group first read neutral educational articles about an unrelated topic before reading the target article describing Terps for Tuition Security.

Finally, participants were asked to rate the instrumentality of the campus group in reducing their uncertainty about tuition and their identification with the campus lobbying group. Following completion of the scale, participants will be debriefed and thanked for their participation.

7.1.3 Measures

A single-item manipulation check ('How *certain* did the things you wrote about make you feel about yourself') was given to participants to rate on a scale of 1 (*very uncertain*) to 9 (*very certain*). Instrumentality was measured with a 3-item scale asking participants to rate the extent to which they perceive their means (i.e., group membership) to be effective for reaching attaining their goal. These item were rated on a slider ranging from 1 (*not at all effective*) to 7 (*extremely effective*) and the scale exhibited adequate internal consistency, $\alpha = .83$. In addition, participants completed the same 14-item measure of identification as previous studies ($\alpha = .86$).

7.2 Results

7.2.1 Manipulation Check

An independent samples *t*-test was used to test for differences in the manipulation check. Results revealed a marginally significant difference in the level of certainty reported by those participants in the uncertain ($M = 4.61, SD = 1.73$) and those in the certain ($M = 5.09, SD = 2.01$), $t(191) = -1.78, p = .08$.

7.2.2 Group Identification

A two-way between subjects ANOVA was performed with identification with the campus group as the dependent variable and uncertainty and equifinality set size as the independent variables. The main effect of uncertainty was non-significant, $F(1, 190) = 1.53, p = .22, \eta^2 = .007$. In addition, the main effect of equifinality set size was also non-significant, $F(1, 190) = 2.34, p = .13, \eta^2 = .01$. However, there was a significant interaction effect of uncertainty by equifinality set size, $F(1, 190) = 5.52, p = .02, \eta^2 = .03$.

To decompose the interaction effect, pairwise comparisons were performed to analyze simple effects with a Bonferroni adjustment to correct for multiple comparisons. Consistent with the dilution hypothesis, participants identified more with the extreme group when it was the only means presented ($M = 4.16, SD = 0.54$) than when alternative means were presented ($M = 3.75, SD = 0.61$), $F(1, 190) = 7.85, p < .01$. However, there were no differences in identification between the single means ($M = 3.78, SD = 0.91$) and multiple means condition ($M = 3.87, SD = 0.79$) for participants under certainty, $F(1, 190) = 0.32, p = .57$.

Further pairwise comparisons revealed that results were consistent with uncertainty-identity theory. When presented with only the campus group as a relevant means to reducing uncertainty about tuition, participants in the high uncertainty condition identified more strongly with the group ($M = 4.16, SD = 0.54$) than those in

the low uncertainty condition ($M = 3.78$, $SD = 0.92$), $F(1, 189) = 6.35$, $p = .01$.

Consistent with the dilution hypothesis, however, among those presented with multiple means to reduce uncertainty about tuition, there was no significant difference in identification between participants under high ($M = 3.77$, $SD = 0.60$) and low uncertainty ($M = 3.87$, $SD = 0.79$), $F(1, 189) = 0.49$, $p = .48$.

7.2.3 Instrumentality

A two-way between subjects ANOVA was performed with instrumentality of the campus group as the dependent variable to test the interaction effect of uncertainty and equifinality set size. First, there was a non-significant main effect of uncertainty, $F(1, 189) = 0.76$, $p = .39$, $\eta^2 = .004$. Second, there was a marginally significant main effect of equifinality set size, $F(1, 189) = 3.74$, $p = .06$, $\eta^2 = .02$. Importantly, this marginal main effect was qualified by a significant interaction of uncertainty by equifinality set size, $F(1, 189) = 6.54$, $p = .01$, $\eta^2 = .03$.

To decompose the interaction effect, pairwise comparisons were performed to analyze simple effects with a Bonferroni adjustment to correct for multiple comparisons. Consistent with the mediation hypothesis, participants perceived the extreme group to be more instrumental for reducing uncertainty when the group was the only means presented ($M = 4.89$, $SD = 0.87$) than when alternative means were presented ($M = 4.30$, $SD = 0.90$), $F(1, 191) = 8.85$, $p < .01$. However, there were no differences in identification between the single means ($M = 4.84$, $SD = 1.25$) and multiple means condition ($M = 4.53$, $SD = 0.99$) for participants under certainty, $F(1, 191) = 0.19$, $p = .67$. These findings are summarized in Figure 7.

When presented with only the campus group as a relevant means to reducing uncertainty about tuition, participants in the uncertainty condition reported that the

group was more effective ($M = 4.93, SD = 0.83$) than those in the certainty condition ($M = 4.44, SD = 1.25$), $F(1, 189) = 5.85, p = .02$). Consistent with the dilution hypothesis, however, among those presented with multiple means to reduce uncertainty about tuition, there was no significant difference in perceptions of effectiveness between participants under uncertainty ($M = 4.29, SD = 0.90$) and those under certainty ($M = 4.53, SD = 0.99$), $F(1, 189) = 1.44, p = .23$.

7.2.4 Mediation Analyses

I have already demonstrated that the effect of uncertainty on identification depends on the number of available means to reduce uncertainty. Next, the mediating role of instrumentality in the relationship between the interaction effect of uncertainty and equifinality set size on identification will be tested. To this end, Hayes' (2013) Process macro was employed to test a mediated moderation model in which uncertainty was the independent variable, equifinality set size the moderator, instrumentality the mediator, and identification the dependent variable. This macro provides multiple regression analyses, an indirect effect of the interaction term on identification through instrumentality, and two conditional indirect effects of uncertainty on identification through instrumentality. More specifically, the conditional indirect effect analyses provide an estimate of the indirect effect when a single means is available and an indirect effect when multiple means are available, which allows us to better interpret the meaning of the interaction effect. Given that uncertainty is only related to identification when a single means (vs. multiple means) is available, we expect instrumentality to mediate the effect of uncertainty on identification only under this condition. Uncertainty and equifinality set were effects coded and continuous variables were standardized for analyses.

First, multiple regression analyses tested the relationships between the independent variables and the mediator, perceived instrumentality. Regression analyses revealed a non-significant main effect of uncertainty on instrumentality ($b = .06, p = .39$), a marginally significant main effect of equifinality set on instrumentality ($b = -.14, p = .06$), and a significant uncertainty x equifinality set interaction ($b = -.18, p = .01$). Second, multiple regression analyses tested the relationships between the independent variables and identification, controlling for the mediator. When controlling for main effects and the interaction effect of the independent variables, instrumentality significantly predicts identification ($b = .34, p < .001$). The main effects of uncertainty ($b = .07, p = .29$) and equifinality set ($b = -.06, p = .40$) remained non-significant. Importantly, the interaction effect of uncertainty x equifinality set became non-significant, suggesting that instrumentality fully mediated the relationship between the interaction and identification.

Finally, to directly assess our mediation hypotheses, we also examined the indirect effect of the uncertainty x equifinality set interaction on identification through instrumentality. Bootstrapping results revealed a significant indirect effect of the interaction through instrumentality, 95% CI [-.13, -.01], consistent with our hypotheses. To better understand the meaning of this finding, we also examined the results of the conditional indirect effect analyses. Results revealed a significant indirect effect when participants were presented with only one available means to reduce uncertainty, 95% CI [.01, .18]. However, the indirect effect was non-significant when multiple means were available, 95% CI [-.12, .02]. These findings were consistent with our dilution hypothesis, which states that uncertainty should

only be related to identification with an extreme group when a single means is available.

7.3 Discussion

Results from Study 4 supported our hypothesis that identification with a group would be diluted with the introduction of alternative means in the context of extreme groups. In addition, our findings were consistent with uncertainty-identity theory because participants' identification with the extreme group was always low when they were not under uncertainty (Hogg et al., 2010). Most importantly, results from Study 4 supported the hypothesis that dilution occurred because participants perceived the extreme group to be less instrumental to achieving certainty when presented with alternative means, consistent with findings about the dilution effect in other contexts (e.g., Zhang et al., 2007). Finally, Study 4 illustrated that identification with a group can be diluted even when the other available means are not groups. In previous studies, the alternatives always consisted of groups, but the present study demonstrates that the same effect can be achieved with means more generally.

Chapter 8: General Discussion

The present research evinced support for a new framework to conceptualize group identification. Applying a goal systemic framework to group identification, results across four studies found support for the dilution effect in equifinal means-goal structures, with some evidence suggesting that perceptions of instrumentality mediate this effect. Notably, the dilution effect was found across different types of groups and paradigms within the group identification literature, suggesting that a structural approach can apply to a considerable range of goals and means.

Overall, results were consistent with several contemporary theories of group identification. Results from Study 2 in which identification with a given group was diluted when another type of group was made accessible were consistent with functional theories of group identification that contend different types of groups are associated with different needs (e.g., Johnson et al., 2006). Our finding in Study 3 that identification was only diluted in the case of minority groups was consistent with previous findings in the optimal distinctiveness literature (Leonardelli & Brewer, 2001). Furthermore, findings in Study 4 that identification with an extreme group was diluted only when under uncertainty and always low under conditions of certainty were consistent with uncertainty-identity theory (Hogg et al., 2007). While the present research replicated key aspects of previous group identification research, the introduction of the dilution effect in these paradigms offers an extension of the extant literature. These findings bolster the argument that a goal systemic framework of group identification with a focus on the structure of means-goals relationships can

accommodate the principals of other theories of identity while offering novel avenues for research.

The present research also converged with findings in the broad goal systems literature. In particular, dilution within an equifinal structure in the context of groups replicated patterns found in the interpersonal context (Kruglanski et al., 2011) and other goal contexts (Bélanger et al., 2014). In addition, results from the present research provided additional support for the role of perceived instrumentality as the underlying mechanism of the dilution effect, as previously identified in research (Zhang et al., 2007). However, the present research is also one of the first systematic applications of goal systems theory to the context of groups.

8.1 Theoretical and Practical Applications

Adopting a goal systemic perspective broadens the current landscape of theories that seek to explain group attachment and identification by stressing structure. By posing questions about how group attachment is affected by interrelationships among other means and goals in an individual's goal network, the goal systemic approach offers a novel direction for research that has focused to a great extent on defining important goal contents. Importantly, it adds further understanding of how context contributes to differences seen in group attachment even if individuals are motivated by a common goal.

A major strength of a goal systemic approach to group identification is the flexibility it offers in the types of groups that can be examined and the many different environments to which it can be applied. Not only may different groups fulfill different needs (Johnson et al., 2006), but broader social and cultural contexts should

likely shape the types of goals and means that are appropriate for particular people. Within cultures, constraints such as gender roles can determine the kinds of goals emphasized by men and women, which might then be reflected in patterns of group identification and attachment (Wood & Eagly, 2002).

Similarly, cross-cultural differences in social norms and values should also be reflected in differences in the goals that motivate people to identify with groups. For example, individuals from cultures that are characterized by strong uncertainty avoidance might be especially likely to turn to groups in an effort to reduce uncertainty (Hofstede, 2001). Despite the substantial differences in values and goals that can be seen across contexts, the content-free nature of a goal systemic approach to group identification allows for accommodation of such diversity because of its focus on structure.

The prospect of means substitution as applied to group attachment presents important practical implications. As Study 4 suggests, the principles of a goal systemic theory of group identification provide can offer ways of encouraging people to disengage from extreme groups. For example, theorists have identified several possible motivations that underlie membership in terrorist groups including seeking emotional and social support (Sageman, 2004), resistance to foreign occupation (Pape, 2005), and a general quest for significance (Kruglanski, Chen, Dechesne, Fishman, & Orehek, 2009; Kruglanski et al., 2013). The principle of dilution implies that increasing availability of alternative means to these goals would lessen members' identification with and commitment to such a group. More generally, the dilution of

group identification that is proposed to accompany large equifinality set sizes has implications for real-world groups that could be capitalized upon.

8.2 Other Forms of Structure

Certainly, patterns of means-goal relationships are but one form of structure that is of interest in the study of group identification. For example, group entitativity could be considered a form of structure—the structure of a group’s composition and cohesiveness. While independent of a particular type of motivation to identify with a group, group identification tends to increase as perceived entitativity of an ingroup increases (Castano, Yzerbet, & Bourguignon, 2003). Similarly, embeddedness in a group, or the structure of one’s ties to a group, should also play a role in shaping group identification (Rao, Davis, & Ward, 2000; White, 1992). Importantly, group entitativity and embeddedness represent very different forms of structure than was investigated in the present research.

8.3 Future Directions

The present research explores only the role of equifinality in group identification, and there remains much to investigate in the integration of goal systems theory and group identification. Also worth examining is how membership in a group that serves multiple goals (i.e., a multifinal group) affects identification. If consistent with other goal systems literature (e.g., Zhang et al., 2007), identification with a multifinal group should be lower than with a unifinal group when only a single goal is made accessible. Another goal systemic phenomena that would be interesting if applied to the group context is that of emotional transfer (Fishbach et al., 2004). More specifically, the extent to which affect associated with goal attainment is

transferred to the relevant groups could be explored. This may be especially interesting in cases of goal attainment where individuals may be inclined to dissociate themselves from a group if negative affect is transferred.

In addition, possible moderating factors should also be explored. One likely moderator is the distinctiveness of the equifinal means. The more distinct the means, or groups, the more dilution should occur (Bélanger et al., 2014). Indeed, Grant and Hogg (2012) already found some evidence of this, demonstrating that perceiving multiple group identities as being distinct fostered weaker identification with a given group than perceiving the identities as being overlapping. In addition, cultures in which there are few options to identify with alternative groups might experience chronically strong associations between particular groups and means that attenuate the dilution effect. It would be interesting to investigate if this would be the case in cultures with low relational (Schug, Yuki, Horikawa, & Takemura, 2009) or residential mobility (Oishi, 2010). It should also be explored whether membership and identification with a given group can become an end in and of itself. For instance, Swann, Gómez, Seyle, Morales, and Huici (2009) explored the concept of identity fusion in personal and social identities become functionally equivalent. Such fusion might represent a case in which the dilution effect would be attenuated, as identification with a group becomes less a function of instrumentality to an overarching goal.

8.4 Conclusion

A goal systemic theory of group identification represents a profitable joining of motivation and cognition to understand why people identify with groups. This

perspective recognizes that people treat groups as means to different goals, some of which have already been explored by contemporary theories of group identification; however, it extends the literature with a focus on cognitive properties of goal structures. The phenomenon of dilution that occurs when multiple means serve the same goal is but one of the novel insights that is offered by turning attention to general cognitive principles. The present research contributes to forging a stronger integration of cognitive and motivational perspectives on group identification, presenting new directions for the literature on group identification.

Table 1

Study 1 means and standard deviations by condition

	<i>n</i>	Identification	Self-Group Overlap	Instrumentality
<u>Intimacy</u>				
<u>Group</u>				
One means	51	5.34(0.93)	4.65(1.37)	5.13(1.22)
Two means	48	5.07(1.31)	4.38(1.36)	5.13(1.43)
<u>Social</u>				
<u>Category</u>				
One means	50	5.19(1.05)	4.68(1.25)	5.31(1.12)
Two means	50	4.72(0.87)	4.12(1.39)	4.92(0.94)

Table 2

Study 1 bivariate correlations

	1	2	3
1. Identification	(.93)		
2. Self-Group Overlap	.70***	-	
3. Instrumentality	.69***	.55***	(.95)

Note: Cronbach's alpha is reported on the diagonal. *** $p < .001$.

Table 3

Study 2 bivariate correlations

	1	2	3
1. Identification	(.93)		
2. Self-Group Overlap	.32***	-	
3. Instrumentality	.61***	.40***	(.92)

Note: Cronbach's alpha is reported on the diagonal. *** $p < .001$.

Table 4

Study 3 means and standard deviations by condition

	<i>n</i>	Identification	Overlap	Allocation Bias	Trait Bias
<u>Majority Group</u>					
Single means	37	3.17(0.77)	3.65(1.21)	1.44 (4.26)	4.90 (0.92)
Multiple means	45	3.34(0.77)	4.13(1.41)	1.52(2.44)	4.77(1.10)
<u>Minority Group</u>					
Single means	43	3.91(0.83)	4.65(1.15)	0.28(2.88)	4.73(0.88)
Multiple means	39	3.45(0.81)	3.85(1.42)	1.44(2.66)	4.77(1.00)

Note: Sample sizes for allocation bias and trait bias measures differ slightly due to additional exclusions of those who completed the ingroup bias tasks incorrectly.

Table 5

Study 3 bivariate correlations

	1	2	3	4
1. Identification	(.91)			
2. Self-Group Overlap	.27***	-		
3. Allocation Bias	.27**	-.03	(.84)	
4. Trait Bias	.02	.05	.04	(.88)

Note: Cronbach's alpha is reported on the diagonal. ** $p < .01$, *** $p < .001$.

Table 6

Study 4 means and standard deviations by condition

	<i>n</i>	Identification	Instrumentality
<u>Uncertainty</u>			
Single means	51	4.16(0.54)	4.89(0.87)
Multiple means	45	3.75(0.61)	4.30(0.90)
<u>Certainty</u>			
Single means	50	3.78(0.92)	4.44 (1.25)
Multiple means	48	3.87(0.79)	4.53(0.99)

Note: One additional participant was included in the instrumentality analyses because the individual missed an item in the identification measure, making the uncertainty and single means condition have a sample size of 52.

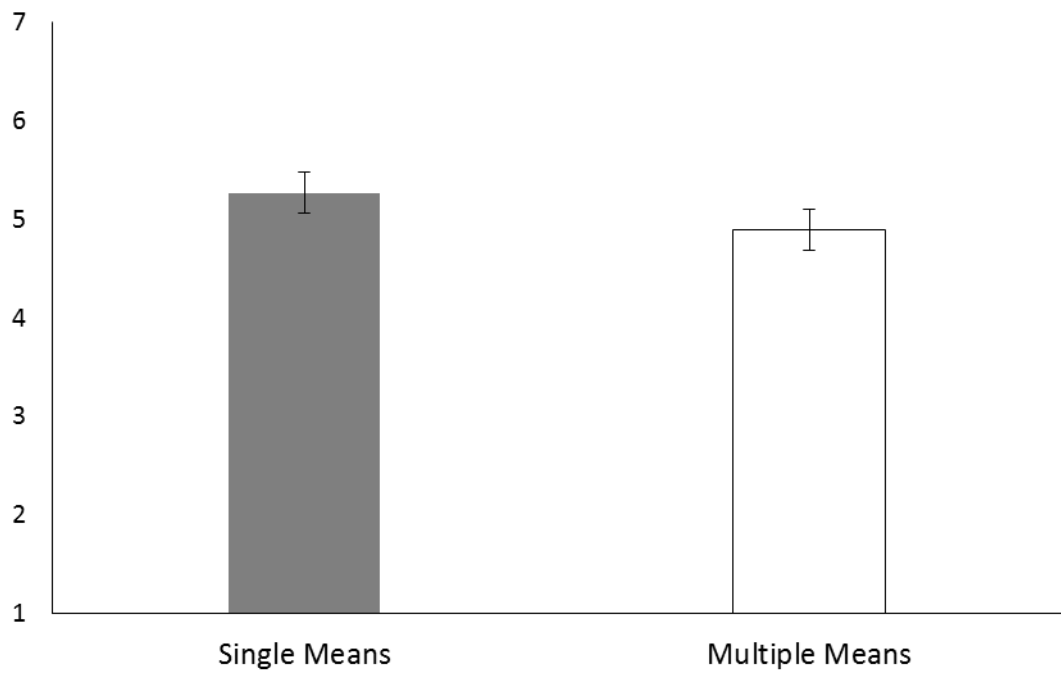


Figure 1. Mean level of identification by number of means presented. Bars represent 95% confidence interval of means.

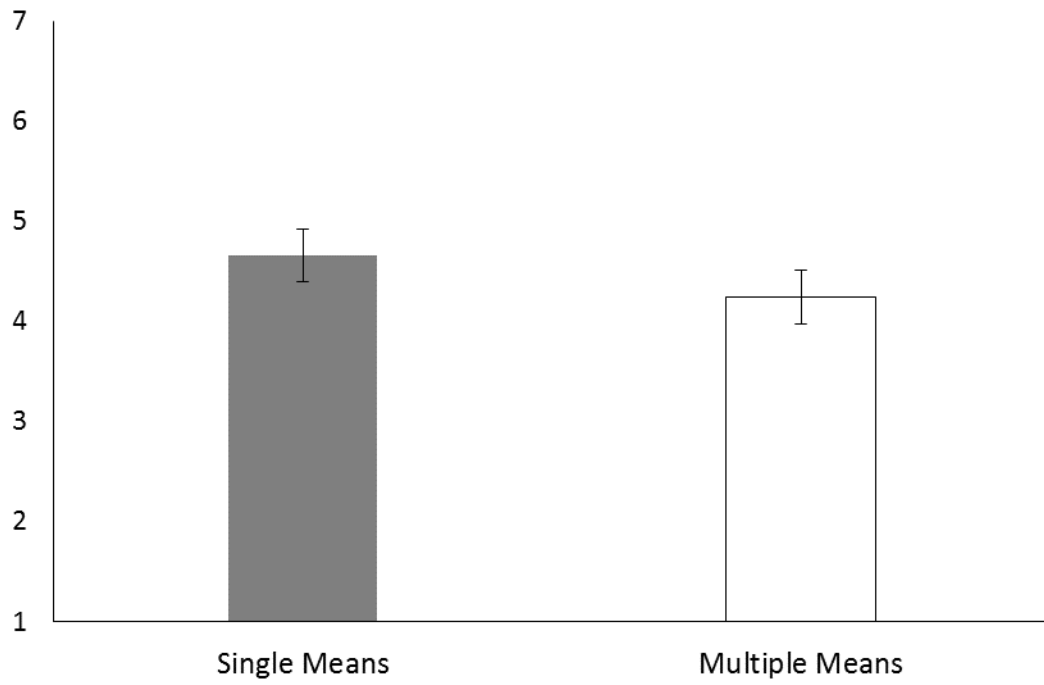


Figure 2. Mean level of self-group overlap by number of means presented. Bars represent 95% confidence interval of means.

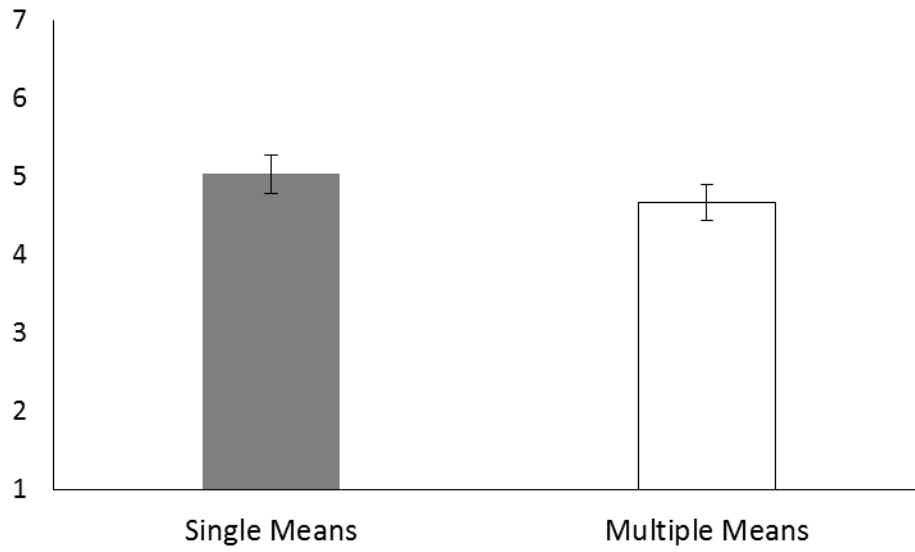


Figure 3. Mean level of identification by number of means presented. Bars represent 95% confidence interval of means.

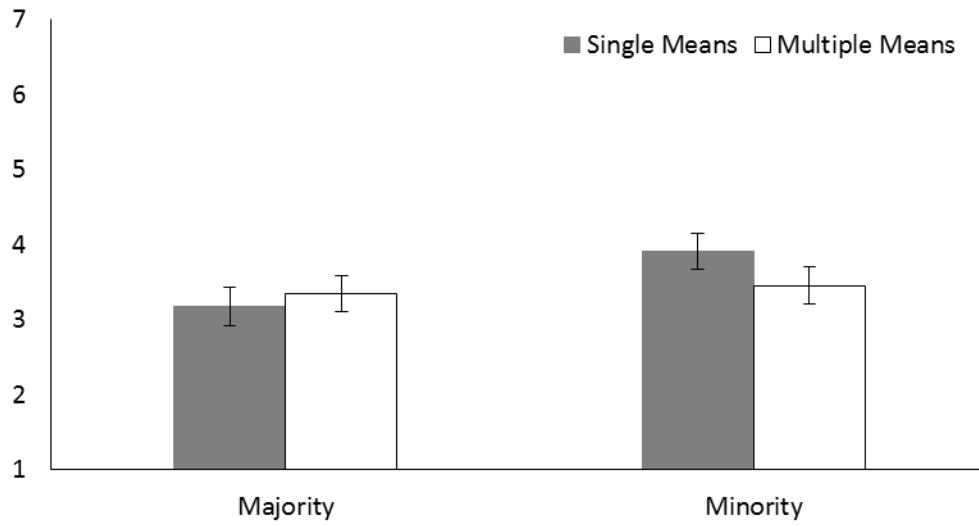


Figure 4. Mean level of identification as a function of group size and equifinality set.

Bars represent 95% confidence interval of means.

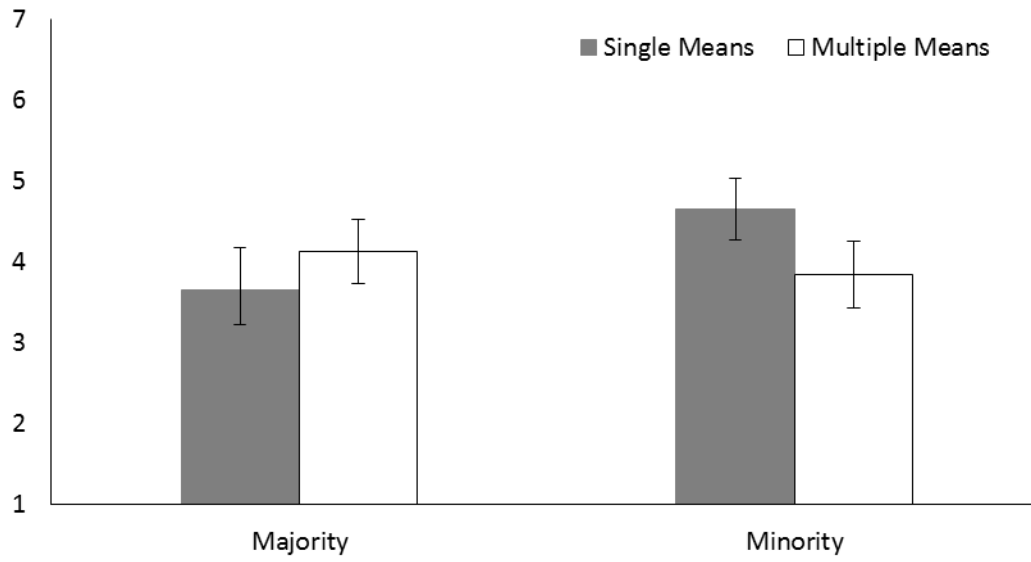


Figure 5. Mean level of self-group overlap as a function of group size and equifinality set. Bars represent 95% confidence interval of means.

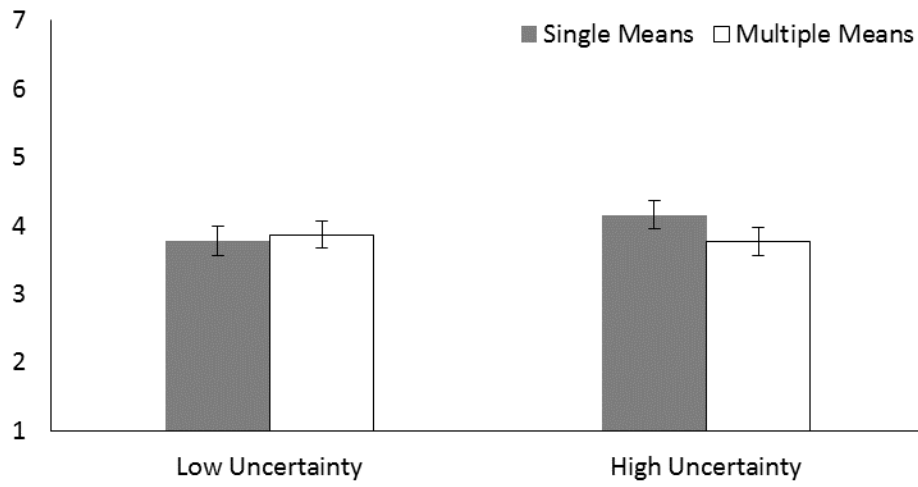


Figure 6. Mean level of identification as a function of group size and equifinality set.

Bars represent 95% confidence interval of means.

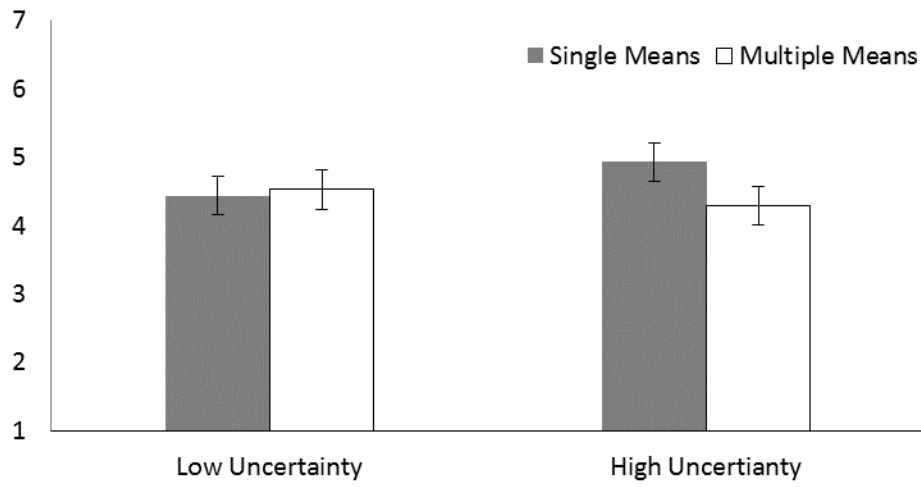


Figure 7. Mean level of instrumentality as a function of group size and equifinality set. Bars represent 95% confidence interval of means.

Appendices

Appendix A

Items Measuring Group Identification (Leach et al., 2008)

(Group-Level) Self-Investment

Solidarity

1. I feel a bond with [In-group].
2. I feel solidarity with [In-group].
3. I feel committed to [In-group].

Satisfaction

4. I am glad to be [In-group].
5. I think that [In-group] have a lot to be proud of.
6. It is pleasant to be [In-group].
7. Being [In-group] is an important part of how I see myself.

Centrality

8. I often think about the fact that I am [In-group].
9. The fact that I am [In-group] is an important part of my identity.
10. Being [In-group] is an important part of how I see myself.

(Group-level) Self-definition

Individual Self-Stereotyping

11. I have a lot in common with the average [In-group] person.
12. I am similar to the average [In-group] person.

Ingroup Homogeneity

13. [In-group] people have a lot in common with each other.
14. [In-group] people are very similar to each other.

Appendix B

Affiliation Goal

Multiple Means

Psychologists are consistent in their insistence that people need to experience a sense of affiliation with others for the benefit of their mental and physical health. A sense of affiliation is characterized by feelings of support and connectedness, creating a sense of comfort. Psychologists propose that connecting with family or exchanging support with a small group of friends from work/school are both good methods of achieving this sense of affiliation.

Family

Psychologists are consistent in their insistence that people need to experience a sense of affiliation with others for the benefit of their mental and physical health. A sense of affiliation is characterized by feelings of support and connectedness, creating a sense of comfort. Psychologists propose that connecting with family is a good method of achieving this sense of affiliation.

Friends

Psychologists are consistent in their insistence that people need to experience a sense of affiliation with others for the benefit of their mental and physical health. A sense of affiliation is characterized by feelings of support and connectedness, creating a sense of comfort. Psychologists propose that exchanging support with a small group of friends from work/school is a good method of achieving this sense of affiliation.

Identity Goal

Multiple Means

Psychologists are consistent in their insistence that people need to experience of sense of shared identity with others for the benefit of their mental and physical health. A sense of identity is characterized by feelings of shared uniqueness, creating a sense of distinctiveness from other groups of people. Psychologists propose that thinking about the unique attributes you share with other members of your gender or thinking about how being American makes you distinct from other groups are both potential methods of achieving a sense of identity.

Gender

Psychologists are consistent in their insistence that people need to experience of sense of shared identity with others for the benefit of their mental and physical health. A sense of identity is characterized by feelings of shared uniqueness, creating a sense of distinctiveness from other groups of people. Psychologists propose that thinking

about the unique attributes you share with other members of your gender is a good method of achieving a sense of identity.

American

Psychologists are consistent in their insistence that people need to experience of sense of shared identity with others for the benefit of their mental and physical health. A sense of identity is characterized by feelings of shared uniqueness, creating a sense of distinctiveness from other groups of people. Psychologists propose that thinking about the unique attributes you share with other members of your gender or thinking about how being American makes you distinct from other groups are both potential methods of achieving a sense of identity.

Appendix C

Psychologists are consistent in their insistence that people need to experience of **sense of shared identity with others for the benefit of their mental and physical health.** A sense of identity is characterized by feelings of shared uniqueness, creating a sense of distinctiveness from other groups of people.

Psychologists propose that thinking about the unique attributes you share with other members of your **gender** is a good method of achieving a sense of identity.

Other groups might help you achieve different goals. For example, your family can help you achieve goals of affiliation.

Appendix D

Please take a moment and think of times when you felt that you were part of a group similar to some groups around you but different from others. In other words, think of times and situations where you knew that there were some people around that were very much like yourself but that there were other people around that were different from you. Please write a brief description of two memories of such times.

Appendix E

Great Expectations raises \$1 billion

By Lauren Kirkwood

Thursday, February 7, 2013

Most of the donations are earmarked by donors for specific use, such as a scholarship program for students, Remington said. Student support is the largest priority, with more than \$300 million worth of gifts and pledges going toward scholarships and other programs for students. With more funding available for scholarships and students in general, students should feel more certain about the affordability of attending Maryland's flagship university.

Along with staff members and volunteers, many college deans have been heavily involved in fundraising efforts, Remington said. Since much of the money raised will be used to enhance the educational experience for students, Education College Dean Donna Wiseman said the campaign has been a top priority.

"Much of the money that we get through this campaign goes into scholarships, so really students are the beneficiaries," Wiseman said. "There may be some money that supports some research programs, but the major part of development money goes into scholarships."

"The money from this campaign really helps the Smith School because it provides scholarships for our undergraduate and MBA students, allows us to attract top Ph.D. students ... enables us to provide really great career services to our students, retain our top faculty with endowed professorships, and build out our physical infrastructure with state-of-the-art technology," he wrote in an email.

Students can get involved in the efforts in several ways, including volunteering at "Great Expectations" events and helping to contact alumni. Interested students should contact the administrative support team for more info about getting involved.

Maryland legislature set to pass tuition cap

By Jim Bach

Monday, February 4, 2013

In an effort to ensure higher education remains affordable in an uncertain economic climate, state legislators are giving a final push to pass a bill Monday that would cap tuition increases and mandate funding for the University System of Maryland. Under the proposals in the bill, state educational institutions can increase tuition fees, but the magnitude of the increase will be limited each year, giving students greater financial certainty when planning for the future.

Many state lawmakers have rallied behind the bill, noting they think it will fare well in the essential to guarantee students greater financial security, especially as economic conditions improve and more residents reenter the labor force.

"It was a bipartisan bill," said Sen. Karen Montgomery (D-Montgomery). "I generally see it being a very positive force."

Legislators have said that higher education should always remain affordable, regardless of the state's economic condition. Since tuition will increase in accordance with median family income, [Sen.] Raskin said the statute will give students more clarity.

"Essentially the goal is to improve the ability of students to plan on what their tuition cost will be," he said.

Sen. Jim Rosapepe (D-Anne Arundel and Prince George's), who introduced the bill, expressed pride in Maryland's decision to move forward with students' best interest in mind. While the bill has not yet passed, state legislators are very confident that a majority of the legislature is in favor of the cap. He encourages students to get involved in the effort by contacting their state representatives.

Campus Group Taking Action on Rising Tuition

By Jordan Murray

Friday, February 8, 2013

Terps for Tuition Security (TTS) are a growing campus group that was first organized to lobby for changes to increasing tuition costs and college fees. They are very organized, and their leader Craig Foster has worked hard to develop a system to coordinate the actions taken by group members. Group members are assigned to different positions within the group and each position has very clear guidelines for action that allow them to pursue their goal single-mindedly.

"Currently, there are three levels of positions with different roles," explained Foster. "We have portfolio leaders who are responsible for different kinds of tasks, like one that handles strategies directed toward university administration and another that is responsible for lobbying the state government."

These portfolio leaders work directly under Foster, and also have a group of lower-level members working under them. Foster is proud of the diversity of their members who share a common dedication to their goal of reducing tuition fees in order to provide all students with greater financial and educational security.

Some might say that the tactics endorsed by TTS, including loud rallies and walk-outs, are almost radical. Among other attempts to get the university's attention, members of TTS have routinely tried to interrupt university meetings and attend events organized by Deans to have their voices heard.

"We'll stop at nothing to ensure that everyone has the opportunity to study," Foster added.

Members are expected to participate in all the major events organized by the group, and face being reprimanded if they do not. If any member misses more than two major events in the year, they have to organize an event on their own or face expulsion from the group. However, this rarely happens because the group is cohesive and works well together as an entire organization -- something they believe gives them an edge in achieving their goals for reducing tuition rates.

Appendix F

Pilot Study 1

The purpose of Pilot Study 1 was to extend the findings of Pierro et al. (2011) into the group domain. Whereas Pierro et al. (2011) found that greater numbers of means available to a goal was associated with less commitment to a given means in the interpersonal context, we sought to illustrate that this dilution effect can be extended to group identification. In addition, Pilot Study 1 sought to test the mediating role of perceived instrumentality in the relationship between equifinality set size and group identification. Group identification was expected to be higher among those who generate fewer means for their goal. Furthermore, this effect was predicted to be mediated by the perceived instrumentality of the corresponding group means listed.

Method

Participants

One hundred ten participants were recruited online to participate in the study. Participants were students compensated with course credit. Eight participants were excluded from final analyses because they failed to complete the experiment, leaving a final sample of 102. Of the final sample, 62% were women ($M_{\text{age}} = 19.64$, $SD_{\text{age}} = 1.50$).

Measures

Identification. Group identification was measured with an 8-item scale used in previous research (Hogg et al., 2007; Hogg et al., 2010). This scale includes items asking participants as their desire to get to know the group's members, to join the

group, and their personal similarity to the group and its members. Response categories for the scale range from 1 (*Not very much*) to 9 (*Very much*) and the scale exhibited adequate internal consistency, $\alpha = .95$.

Instrumentality. The perceived instrumentality of the group was measured with a single-item slider scale that asked participants to rate the extent to which being a member of their group is effective in helping them achieve their goal, consistent with previous research (Zhang et al., 2007). The slider scale ranged from 1 (*Not very much*) to 9 (*Very much*).

Entitativity. Perceived entitativity was measured with a single question that participants responded to on a slider scale ranging from 1 (*Not very much of a group*) to 9 (*Very much a group*).

Procedure

All participants were asked to think about a personal goal that they would like to achieve within six months. When listing their goal, participants did not know how many means they will be required to generate to prevent them from selecting goals based on how easy it is to generate means. All participants were then asked to list a task-oriented group to which they belong that helps them achieve their goal. Following the definition of Lickel et al. (2000), participants were told that a task-oriented group is a group whose main purpose is related to some kind of task (e.g., a study group or sports team). Participants assigned to the single means condition were only asked to list this one means. Participants assigned in the 3 means condition were asked to list two additional, distinct means that also serve to achieve that goal. These means could consist of groups, other individuals, things, or activities. Finally,

participants in the 5 means condition were asked to generate 4 additional means to the same goal. To ensure that participants had all listed means accessible while completing the scales of interest, participants were presented with a reminder of what they listed just before completing scales that measure the perceived instrumentality and group identification. Both scales were assessed in relation to the first group that participants listed.

Results

Identification. A one-way ANCOVA was conducted with group identification as the dependent variable, equifinality set size as the independent variable, and perceived entitativity entered as a covariate. Results revealed a significant effect of entitativity on identification, $F(1, 95) = 61.74, p < .001, \eta^2 = .35$. However, no effect of equifinality set size was found, $F(1, 95) = 2.19, p = .12, \eta^2 = .03$. Furthermore, an examination of the descriptive statistics of group identification across the single means ($M = 6.54, SD = 1.67$), three means ($M = 7.53, SD = 1.26$), and the five means ($M = 7.72, SD = 1.50$) conditions revealed that differences were trending toward the opposite of predicted dilution pattern.

Instrumentality. Despite not finding the expected results in relation to group identification, I proceeded to test for differences in the perceived instrumentality of the target group. A second one-way ANCOVA performed with instrumentality as the dependent variable revealed a similar pattern of results as with group identification. A significant effect of entitativity on instrumentality was found, $F(1, 94) = 9.80, p < .01, \eta^2 = .09$. Once again, no effect of equifinality set size was found, $F(1, 94) = 1.60, p = .21, \eta^2 = .03$.

Discussion

Findings from Pilot Study 1 failed to support our hypothesis that the dilution effect would extend to the group setting. Although the study was unsuccessful, it is likely that findings were inconsistent due to the methodology. Specifically, participants generated a heterogeneous set of goals and means despite trying to restrict the type of target group to a task group. As such, differences in the characteristics of groups listed might have obscured any dilution effect. Furthermore, some participants might have listed a target group only weakly associated with their personal goal if they chose a goal that was mainly associated with non-group means, a drawback of only asking participants to generate means after having already had them list a goal. In general, the task of listing a group whose membership facilitates achievement of a particular goal might have been a more difficult task than listing coworkers who help you achieve a work goal as in Pierro et al. (2011). Given the plausibility of methodological accounts for the non-significant findings of Pilot Study 1, further studies were conducted to test the dilution effect in other paradigms.

Pilot Study 2

The purpose of Pilot Study 2 was to test materials for a study testing dilution in an uncertainty-identity theory paradigm as carried out in Study 4. The uncertainty manipulation used was drawn from previous research (e.g., Hogg et al., 2010), therefore the major aim was to test the effectiveness of the means manipulation. The study followed the full design of Study 4, employing a 2 (uncertainty: high or low) x 2 (equifinality set size: single means or multiple means) between-subjects factorial

design. We expected to see stronger dilution of identification under conditions of high (vs. low) uncertainty.

Participants

Fourty-seven participants were recruited to pilot study materials. Participants were compensated for participation with course credit or were volunteers recruited through a snowballing method. Given that this study was intended only to pilot materials, age and gender information was not collected from participants.

Procedure and Measures

The procedure of Pilot Study 2 followed the procedure of Study 4 except for some differences in the stimuli of the articles. The main difference between the articles presented in Pilot Study 2 and those in Study 4 was that the pilot articles did not emphasize how students could participate in each activity to the same extent. Group identification was measured with the same scale as in Pilot Study 1 ($\alpha = .93$).

Results

A two-way ANOVA was performed in which level of uncertainty and equifinality set size were independent variables and identification with the extreme campus group was the dependent variable. Results revealed a non-significant main effect of uncertainty, $F(1, 42) = 0.80, p = .38, \eta^2 = .02$. In addition, there was no main effect of equifinality set size, $F(1, 42) = 0.13, \eta^2 = .002$. Finally, analyses revealed an interaction effect of uncertainty x equifinality set size that was approaching significance, $F(1, 42) = 2.79, p = .10, \eta^2 = .07$. Given that the small sample size of the pilot study reduced the power for detecting a significant interaction effect, I examined the patterns of means in each condition to determine if they were consistent with our

dilution hypothesis. Among those in the low uncertainty condition, identification was trending toward being greater in the single means condition ($M = 5.14$, $SD = 1.17$) than in the multiple means condition ($M = 4.23$, $SD = 1.45$). Furthermore, among those high in uncertainty, identification was trending toward being lower in the single means condition ($M = 3.99$, $SD = 1.47$) than the multiple means condition ($M = 4.58$, $SD = 1.83$). These results were inconsistent with the pattern of results we expected, trending toward evidence of dilution under conditions of low uncertainty and not high uncertainty.

Discussion

Evidence from Pilot Study 2 suggested that the means manipulation was, most likely, not strong enough to induce hypothesized dilution effect. This might have occurred because the means described in the multiple means conditions did not emphasize how participants could contribute, thereby lessening the impact of each “means” on perceptions of the target group. Another possibility is that the non-group means described in the articles were not sufficiently associated with reducing uncertainty surrounding tuition. As such, materials were refined before launching Study 4 to communicate how individuals can participate in each means and how each group or activity is targeted at specifically reducing uncertainty.

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