

PREFERENCE-CATEGORIZATION: HOW GROUP MEMBERSHIP AND LIKING
AFFECT EVALUATIVE SCALE PREFERENCE

A Dissertation

by

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Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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May 2017

Major Subject: Psychology

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ABSTRACT

Previous research examining the preference-categorization effect shows that people make finer categorical distinctions for liked (vs. disliked) objects. This includes people's evaluative ratings using likert-type rating scales. While previous research has focused on consumer products, the current research examined whether findings from the preference-categorization effect apply to how individuals rate other people. Experiment 1 provided initial evidence that the preference-categorization effect applies to interpersonal ratings by showing that people prefer more evaluative scale points when rating liked (vs. disliked) others. Experiment 2a, 2b, and 2c replicated this effect using in-group and out-group members and pre-constructed rating scales to eliminate vocabulary knowledge as a possible confound. Additionally, these studies found mixed evidence that duration of in-group membership and in-group identity influence the preference-categorization effect. Experiment 2a found that the longer a person has been a member of the in-group, the stronger they display the preference-categorization effect. Experiment 2c showed that the stronger a person's in-group identity, the more scale points they preferred when rating in-group members. However, these findings were not replicated in the other current studies. Furthermore, these studies found no relationship between scale selection and other group identity measures, affect, or need for cognition. Experiment 3 examined the relationship between the preference-categorization effect and out-group homogeneity effect. Although there was evidence of both of these effects,

no relationship was found between the two measures. Together, these studies suggest a preference-categorization effect for ratings of group members in that people prefer more rating scale points when rating both liked (vs. disliked) and in-group (vs. out-group) members.

CONTRIBUTORS AND FUNDING SOURCES

This work was supervised by a dissertation committee consisting of Dr. Smallman (advisor and committee chair), Dr. Lench, and Dr. Schmeichel of the Department of Psychology and Dr. Kan of the Department of Marketing. All work for the dissertation was completed independently by the student.

There are no outside funding contributions to acknowledge related to the research and compilation of this document.

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1. INTRODUCTION

People use rating scales almost every day, whether they are evaluating the movies they watch, the products they buy, or the restaurants they dine in. Usually, customers use the same evaluative scale regardless of whether they like or dislike the product they are rating. However, prior research suggests that people may prefer different evaluative scales depending on their preferences (e.g., how much they like vs. dislike something). Some research suggests that people prefer more evaluative scale points when rating liked items compared to disliked items (Smallman & Becker, in prep; Smallman & Becker, in press; Smallman, Becker, & Roese, 2014). It is plausible that this effect may also apply to how individuals rate other people. Though the evaluation of others may typically be more informal or implicit (e.g., people watching or first impressions), we are sometimes called to make more formal assessments of other individuals (e.g., students completing course evaluations of their professors or businesses conducting performance appraisals of employees). The current research examines whether people prefer the same number of evaluative scale points when rating liked versus disliked individuals and in-group versus out-group members.

There has been extensive research on the number of evaluative rating points necessary for measuring attitudes, with the general consensus that 5 to 7 scale points provide the adequate amount of reliability (Garner, 1960; Komorita & Graham, 1965; Weng, 2004). Additionally, some research shows that these scales should be bipolar and balanced with equal responses on either side of a neutral midpoint (Himmelfarb, 1993; Krosnick, Judd, & Wittenbrink, 2005). These studies focus on the psychometric

properties of scale construction, but we should also consider the types of evaluative scales customers want based on their preferences. Recent research shows that a person's affective appraisal of objects influences the kind of evaluative scale they would prefer to use when rating those objects. That is, people prefer a different number of rating scale points depending on whether they are rating liked or disliked objects. Termed the preference-categorization effect (Smallman & Becker, in prep; Smallman & Becker, in press; Smallman et al., 2014; Smallman & Roese, 2008), participants see more distinctions among items, create more nuanced groupings, and prefer more differentiated evaluative scales when interacting with liked (vs. disliked) objects.

Previously, the preference-categorization effect has been examined using a variety of consumer products (e.g., music, food, movies, and clothing). The current research applies these findings to how individuals rate other people. Prior research from the out-group homogeneity effect (OHE) and cross-race effect (CRE) finds that individuals see out-group members as more similar to each other than in-group members (Jones, Wood, & Quattrone, 1981; Mullen & Hu, 1989). Connecting those findings to the preference-categorization effect, I hypothesized that people would prefer more differentiated evaluative scales when rating liked or in-group members compared to disliked or out-group members.

1.1 The Preference-Categorization Effect: Traditional and Evaluative

The preference-categorization effect states that individuals make more nuanced distinctions for preferred objects (Smallman & Becker, in prep; Smallman & Becker, in press; Smallman et al., 2014; Smallman & Roese, 2008). Thus, when asked to sort

objects into categories, people create more nuanced categories for liked (vs. disliked) objects (Smallman & Roese, 2008). For example, a wine lover would probably categorize wines into styles, region, vineyards, and vintages. However, someone who hates wine may only see them as reds or whites. In addition to categorizing liked and disliked objects differently, people prefer more scale points on an evaluative scale (e.g., likert rating scales) when rating liked (vs. disliked) objects. For example, a romantic comedy fan rating romantic comedies would prefer to use a scale with many evaluative scale points (e.g., a 5-star rating scale with “Okay”, “Good”, “Really Good”, “Great”, and “Best”). Conversely, a person who hates romantic comedies would only need a few scale points to express their opinion (e.g., a 2-star rating scale with “Bad” and “Worst” as point labels).

The link between preference and categorization seems to be, in part, driven by the pleasure people get from engaging with their preferences. Pleasurable feelings encourage individuals to engage repeatedly with their preferences, and this repeated exposure increases the pleasure one gets from their preferences. This mechanism is supported by the *Law of Effect*, which states that people repeatedly engage in behaviors that are rewarded (Thorndike, 1898), and more contemporary research, which shows that these rewards include subjective feelings of positive affect (Carver, 2003; Gable & Harmon-Jones, 2008). Additionally, repeated exposure may result in greater liking (e.g., the Mere Exposure Effect; Zajonc, 1968). Thus, the positive feelings individuals get from their preferences may lead them to engage repeatedly with their preferences and repeated exposure to preferences may result in greater liking of preferred objects.

Eventually, this repetitive engagement may then lead to greater elaboration of preferred objects.

Elaboration is an effortful process that occurs when individuals evaluate and integrate attitude-relevant ideas (Petty & Cacioppo, 1986). Subsequently, elaboration of preferences may allow individuals to make more nuanced distinctions between items in their preferred categories. For example, a craft beer fanatic may be able to classify their favorite beers by brewery, style, and the types of hops used in the brewing process. Thus, preference may increase elaboration of details and ability to see nuanced distinctions in those preferences. However, dislike for an activity or object may create the illusion of similarity due to lack of elaboration. For example, a person who hates beer probably could not make the same elaborative distinctions as the beer fanatic; it is all just beer. This inability to make distinctions may therefore lead to perceived similarity of disliked objects, thus less need for finer evaluative distinctions.

Support for the role of elaboration in both traditional and evaluative categorization comes from research looking at individual's intrinsic motivation for effortful cognitive activity or need for cognition (NFC; Cacioppo & Petty, 1982; Cacioppo, Petty, Feinstein, & Jarvis, 1996). High NFC individuals enjoy effortful processing and engage in it with or without external motivation (Taylor, 1981). However, low NFC individuals need external motivation to engage in similar levels of effortful processing (Amabile, Hill, Hennessey, & Tighe, 1994; Thompson, Chaiken, & Hazlewood, 1993). While the preference-categorization effect shows that people prefer more evaluative scale points for liked (vs. disliked) objects, Smallman et al. (2014)

found that high NFC participants, who are intrinsically motivated to think elaborately, wanted a similar number of rating-scale points for both liked and disliked food categories. However, low NFC participants, who need extrinsic motivation to think in an elaborative manner, demonstrated the expected preference-categorization effect. This is possibly due to the lack of motivation to think in an elaborative manner about disliked objects. Low NFC participants can engage in elaborative processing, but this only occurs when they are externally motivated by positive affect. High NFC participants, conversely, think elaborately about all objects, liked or disliked. Similar results were found using a traditional categorization task (i.e., sorting items into groups). Participants listed the items they would expect to see in their liked or disliked food category. High NFC participants showed no difference in the number of category items listed for liked and disliked cuisine, but low NFC participants listed significantly more items in the like (vs. dislike) condition.

One might argue that expertise may contribute to the ability to make nuanced distinctions, and there is some evidence supporting this. Expertise has been shown to induce more nuanced categorization and differentiation based on deeper, rather than surface level, features (Chi, Feltrovich, & Glaser, 1981; Medin, Lynch, Coley, & Atran, 1997; Rota & Zellner, 2007). However, studies have shown that the preference-categorization effect can occur independently of expertise (Smallman & Roese, 2008). As a preliminary demonstration, Smallman and Roese (2008) used an affect-based associative conditioning paradigm to create novel preferences in a laboratory setting. Participants viewed affectively neutral symbols (i.e., hieroglyphs and hobo symbols)

paired with either positive or negative IAPS images (see Hofmann, De Houwer, Perugini, Baeyens, & Crombez, 2010; Lang, Bradley, & Cuthbert, 1997). Then, participants sorted these novel symbols into categories. The results showed that participants in the positive-conditioning group created more categories relative to participants who were in the negative-conditioning group, demonstrating the traditional preference-categorization effect. Additionally, because the categorized symbols were initially affectively neutral, preference-categorization occurred independently from expertise, with pretest measures ruling out differences in memory, confidence, and mood. Another interesting finding was that participants used category labels that were mostly evaluative terms (i.e., 87% used valence adjectives like inspiring or ominous instead of categories based on symbol characteristics), which prompted the extension of the preference-categorization effect from traditional categorization to evaluative categorization (e.g., when we express opinions or attitudes using likert-type scales).

Studies looking at the preference-categorization effect for evaluative scales show that people prefer more evaluative scale points when rating objects within a liked versus disliked category (Smallman et al., 2014). For example, researchers gave participants a list of categories (e.g., movies, music, and food) and asked them to think only about items within each category they liked or disliked. When thinking about items they liked, participants created more rating scale labels (e.g., “Neutral”, “Okay”, “Good”, “Great”, and “Best”) than participants asked to think about items in those same categories that they disliked (e.g., “Bad” and “Worst”; Smallman et al., 2014). Additionally, to eliminate vocabulary knowledge as a potential confound, a follow-up study was

conducted using pre-constructed rating scales composed from the most common responses to the open-ended Study 1a responses. This study showed that people preferred pre-constructed rating scales with more evaluative points for liked (vs. disliked) objects.

Further investigation showed that people also differ in their perception of scales constructed in this manner (i.e., more nuanced scales for liked versus disliked objects). When given a more differentiated (5-point) and a less differentiated (3-point) rating scale, participants found the more differentiated (vs. less differentiated) rating scale to be more efficacious for evaluating liked items (Smallman et al., 2014). That is, for liked objects, they found the more nuanced rating scale better in terms of how useful the scale was, how easy the scales would be to use, how well someone else could understand the participant's ratings, and how well the participant could understand someone else's ratings. This effect was not evident in the dislike condition. Upon further investigation, participants also appeared to differ in their mental representations of liked and disliked objects (Smallman et al., 2014). Participants estimated how many items exist within each evaluative category on a six point evaluative scale. For example, participants would think of a food group they liked (e.g., American food) and estimate what percentage of American food items deserve a "Neutral" rating, what percentage of American food items deserve an "Okay" rating, etc. People in the like condition distributed the proportions across 4 of the 6 scale points. However, people in the dislike condition only distributed the proportion across 2 of the 6 scale points. This further demonstrates that people make more nuanced distinctions for liked (vs. disliked) objects, and may suggest

that the way people use rating scales may reflect these biases. Thus, these findings also may have implications for behavioral intentions and behavior.

One of the functions of evaluative rating scales is to confer information about behavioral intentions (e.g., “Would I purchase this product again”, “Would I watch this movie again”, or “Would I eat here again”). Thus, if people make more nuanced distinctions for liked (vs. disliked) objects, we should see a similar effect for behavioral intentions. Smallman and Becker (in prep) found that people do make more nuanced distinctions between behavioral intentions for liked (vs. disliked) rating scale points. For example, when asked how likely they would be to visit a restaurant receiving different star ratings, participants in the liked (vs. disliked) cuisine condition made finer distinctions in behavioral intentions between restaurants with different scale ratings when the scale was more differentiated (i.e., 5-point). However, when the rating scale was less differentiated (i.e., 3-point) there were no differences between like and dislike conditions. This suggests that a more differentiated evaluative scale for disliked objects does not increase predictability of behavioral intentions. However, for liked objects, having more differentiation may predict differing degrees of intentions. Additionally, when looking at the effect of scale differentiation on behavior, studies show that participants who select more differentiated rating scales engage more with the target stimuli (Smallman & Becker, in prep). However, this effect only occurs for liked objects.

1.2 Out-group Homogeneity and Cross-Race Effect

Currently, the preference-categorization effect has only examined consumer products (e.g., music, food, and movies). However, there are clear implications for how

individuals use rating scales to evaluate other people. The Out-group Homogeneity Effect (OHE) states that people make more nuanced distinctions for in-group (vs. out-group) members, and that perceptions of out-group homogeneity typically stem from group stereotypes (Linville & Jones, 1980; Park & Judd, 1990; Quattrone & Jones, 1980). These findings have been replicated across a variety of groups, such as gender (Hewstone, Crisp, & Turner, 2011), organizations (Jones et al., 1981; Park & Rothbart, 1982), political affiliation (Kelly, 1989), and status (Lorenzi-Cioldi, 2008), using a variety of domains such as beliefs (Park & Rothbart, 1982), traits (Jones et al., 1981), and appearance (Meissner & Brigham, 2001). For example, a study examined different university organizations and asked members to estimate the variability of traits for different group members. Participants reported less variability for out-group member traits than for their in-group (Jones et al., 1981). Other studies have shown similar results when in-group and out-group was determined by age, gender, nationality, and classmates (Linville, Fischer, & Salovey, 1989; Park & Judd, 1990). These findings are conceptually similar to research on the preference-categorization effect, except the target stimuli are in-groups and out-groups instead of liked and disliked objects. However, given that research has shown that out-group members are more disliked than in-group members (Brewer, 1979; Nesdale & Flesser, 2001), the findings may have similar mechanisms.

A phenomenon similar to the OHE is the cross-race effect (CRE) or other-race effect which shows that people tend to recognize in-group faces with better accuracy than out-group faces (Meissner & Brigham, 2001). That is, people have a hard time

distinguishing between and remembering different out-group faces. In fact, simply classifying faces as in-group or out-group using a minimal groups paradigm is enough to elicit this effect (Bernstein, Young, & Hugenberg, 2007). One theory for why this occurs is that when people process out-group faces they focus on inclusive categorization (Bodenhausen, Macrae, & Hugenberg, 2003). However, when processing in-group faces, people focus on individuation (Hugenberg, Young, Bernstein, & Sacco, 2010; Sporer, 2001). This social-cognitive theory of categorization may also explain the preference-categorization effect. Just as people seem to individuate in-group faces, they also create a more nuanced conceptualization of preferred objects. Conversely, people seem to view out-group members and disliked objects as “all the same”, broadly categorizing them together. Also, research showing that people distribute the proportions of items across scale points differently for liked (vs. disliked) categories resembles OHE research showing that people estimate different variability for in-group (vs. out-group) members on traits and behaviors (Jones et al., 1981; Park & Judd; 1990; Smallman et al., 2014). For example, Park and Judd (1990) asked participants to estimate between which two endpoints on a likert-type rating scale 100% of group members would lie. They found that variability was higher when subjects were estimating endpoints for in-group (vs. out-group) members. Together, this research suggests that elaboration may be an underlying mechanism driving both the preference-categorization and out-group homogeneity effect.

Additionally, motivation has been shown to influence both the preference-categorization effect and the OHE, in that motivation (either intrinsic or extrinsic) can

push people to make more nuanced distinctions where they normally would not. As discussed previously for the preference-categorization effect, people who are intrinsically motivated to engage in elaborative thought (i.e., high NFC) do not show the preference-categorization effect. However, those who are not intrinsically motivated to engage in this type of processing (i.e., low NFC) do prefer more scale-points for liked (vs. disliked) objects (Smallman et al., 2014). For low NFC individuals, motivation comes externally from the pleasure one derives from engaging with their preferences. Thus, extrinsic motivation from preferences leads to more nuanced distinctions while intrinsic motivation to think in an elaborative manner eliminates this difference in perceived nuance. Similarly, Hugenberg, Miller, and Claypool (2007) found evidence that motivation may be one possible mechanism driving the CRE. When they induced a high motivational state, by informing participants before completing a face recall task that they might show racial bias, there was no evidence of the CRE. That is, participants showed more discerning evaluations of individuating features when they were in a motivated state.

Prior research on the OHE and CRE suggests that we should be able to apply the preference-categorization effect to ratings of individuals. People make more nuanced distinctions when evaluating in-group members and see them as displaying more variability in terms of appearance, traits, and beliefs. In contrast, people make fewer nuanced distinctions when evaluating out-group members. Although the focus of prior evaluative categorization research has been on liked and disliked consumer items, people tend to like in-group members and derogate out-group members. Prior OHE findings

suggest that scale selection for liked individuals and in-group members should resemble ‘liked items’. Conversely, scale selection for disliked individuals and out-group members should resemble ‘disliked items’. Therefore, I predict that the preference-categorization effect should apply to how individuals prefer to rate others who are liked (vs. disliked) and members of in (vs. out) groups. Additionally, the preference-categorization effect and OHE may both stem from elaboration of nuanced details for preferred objects and in-group members. As people elaborate on the nuances of preferred objects, they may begin to perceive small differences as stark contrasts. Similarly, the tendency to individuate in-group members while broadly categorizing out-group members may lead to less perceived variability in out-group members. If the preference-categorization effect stems from similar processes as the OHE, then the two measures should be correlated.

1.3 Current Studies

The current studies assessed the preference-categorization effect in the context of person evaluations. Prior research has only examined scale preferences for liked and disliked objects, so the current studies focused on scale preferences when rating liked/in-group members versus disliked/out-group members. Experiment 1 examined the preference-categorization effect in ratings of liked (vs. disliked) others. Participants focused on people they liked (vs. disliked) and created their own rating scales for each group. Experiments 2a, 2b, and 2c used a similar design, except participants evaluated in-group (vs. out-group) members. Additionally, participants selected from pre-constructed rating scales to eliminate a possible confound of vocabulary knowledge for

positive (vs. negative) evaluative terms. Furthermore, the groups used in Experiments 2a, 2b, and 2c varied in terms of affiliation length, allowing me to examine whether the amount of time the participant has been affiliated with the in-group affects the preference-categorization effect. These studies also included exploratory measures of affect, group-level emotions, and need for cognition. Finally, Experiment 3 included an OHE measure to determine whether perceived variability was related to the preference-categorization effect. Findings from the OHE and preference-categorization suggest that, across all studies, participants should prefer more evaluative scale points when rating individuals from a liked/in-group (vs. disliked/out-group).

2. EXPERIMENT 1

Experiment 1 applies the preference-categorization effect to interpersonal ratings by asking participants how many scale points they would need to rate either liked or disliked others. Preference was manipulated on a between-subject basis by asking participants to think about one of two categories: people that they like or people that they dislike (generally, as a category, not specific individuals). The dependent variable was how many distinct scale points participants wanted in order to evaluate these groups.

2.1 Methods

2.1.1 Participants. Undergraduate students ($N = 282$; Age $M = 19.07$, $SD = 1.02$; 64.4% female) participated for course credit. Sample size for this study was based on a target minimum of 100 per cell. However, because of the complicated nature of the instructions, we aimed to run an additional 50 participants to account for participant attrition. Given that lab sessions are scheduled on a weekly basis, data collection was terminated at the end of the week in which this minimum was exceeded. Forty-five people were excluded from the analyses for not following directions (i.e., including both positive and negative scale items ($N = 42$), naming specific people ($N = 2$), or not providing any scale labels ($N = 1$)). A power analysis (G_power 3.1) showed that a sample size of 237 provides 100% statistical power to detect a large effect size ($d = 0.80$), 96.95% statistical power to detect a medium effect size ($d = 0.50$), and 33.50% statistical power to detect a small effect size ($d = 0.20$). In a between-subjects design, participants were randomly assigned to focus on the people they either like or dislike (as a category).

2.1.2 Preference-Categorization Task. First, participants received general instructions about the evaluation task, “People have to make decisions regarding others almost every day. For example, businesses and universities need to make decisions involving whom to hire or accept based on overall impressions. While there are several aspects one may like or dislike about others, at the end of the day, it is the overall evaluation that matters.” Next, participants received the manipulation to focus only on people they generally like or dislike. That is, the types of people they normally feel neutral to extremely positively (negatively) about and imagine that they were going to evaluate only those individuals. They were told to think about rating people they like (dislike) in general and not specific individuals. This was done to ensure that differences in rating scales were due to perceptions of liked and disliked individuals and not salient characteristics of specific individuals. Finally, they indicated how many different scale points they would need to make useful evaluations if someone wanted to know how good (bad) these people are. Participants first wrote the number of rating-scale points they would need to evaluate those individuals and subsequently provided the label names for each rating point.

2.2 Results

An ANOVA was conducted to examine the hypotheses that people prefer more scale points for liked (vs. disliked) people. As hypothesized, people preferred more scale points when evaluating liked ($M = 4.90$, $SD = 3.05$) versus disliked ($M = 4.21$, $SD = 1.93$) people; $F(1, 234) = 3.85$, $p = .051$, $\eta_p^2 = .02$, 95% CI [-1.33, -0.04], See Figure 1).

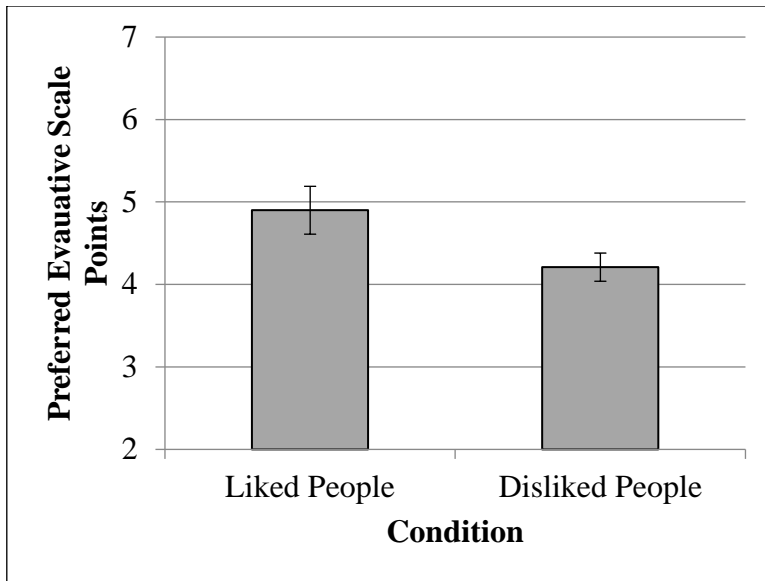


Figure 1. Amount of evaluative information (in the form of evaluative rating scales) sought out as a function of condition in Experiment 1.

2.3 Discussion

Results of Experiment 1 provide initial evidence that the preference-categorization effect applies to ratings of people. That is, people prefer more rating scale-points when thinking about rating liked (vs. disliked) others. However, one alternative explanation may be that people have a richer vocabulary for or easier access to relevant scale labels for liked (vs. disliked) others. An additional concern is the number of participants who had to be excluded because they created positive and negative scale points.

3. EXPERIMENTS 2A, 2B, AND 2C

Experiments 2a (religious affiliation), 2b (university affiliation), and 2c (political affiliation) extended the findings from Experiment 1 by examining how many rating scale points participants prefer when evaluating in-group versus out-group members. Just as people prefer more evaluative scale points to rate objects and people they like (vs. dislike), participants should prefer more evaluative scale points when rating in-group (vs. out-group) members in part because people tend to show greater liking for in-group members and derogation of out-group members (Brewer, 1979; Nesdale & Flesser, 2001). These experiments used pre-constructed rating scales (created from the most typical responses given in Experiment 1; see Appendix). In Experiment 1, it may have simply been easier for participants to think of relevant scale labels for liked (vs. disliked) others, or they may simply have a richer vocabulary for these terms. Therefore, Experiments 2a, 2b, and 2c used pre-constructed rating scales in order to rule out the effects of vocabulary knowledge. One additional reason for using pre-constructed rating scales was because of the large number of people who did not follow directions in Experiment 1 (i.e., created positive and negative scale labels).

Additionally, all three studies used pre-existing groups (i.e., group membership was not manipulated) that differed in how long participants had been affiliated with each group. In a longitudinal study, Ryan and Bogart (1997) tested the OHE in sororities throughout a 6 month interval. Although initially sorority members showed an in-group homogeneity effect; the OHE emerged as time progressed. Therefore, time identifying with in-group members may also affect the preference-categorization effect in the

current studies. Most participants will have been raised with their current religious beliefs (Experiment 2a). However, freshmen will have only identified with their university for a few months (Experiment 2b), and most people may have only come into their political ideologies in their late-teens when they were old enough to understand them and vote (Experiment 2c). If the preference-categorization effect occurs because liking leads to repeated exposure and repeated exposure increases liking, then differing duration of group membership might affect how long people have had the opportunity to elaborate on group differences. However, prior preference-categorization research suggests that this may not occur. Smallman and Roese (2008) showed that the preference-categorization effect can occur independently of expertise. Therefore, people may still show the effect when they have only belonged to a group for a short time. Participants also completed exploratory measures to determine whether affect, emotion, or NFC influences the preference-categorization effect.

3.1 Methods

3.1.1 Participants. Participants were either undergraduate students or were recruited using Amazon's Mechanical Turk (Experiment 2a students: $N = 165$, Age $M = 18.42$, $SD = 0.78$; 78.8% female; Experiment 2b students: $N = 137$, Age $M = 18.62$, $SD = 0.78$; 77.4% female; Experiment 2c Mturk: $N = 204$, Age $M = 35.86$, $SD = 12.34$; 52.0% female). Undergraduate students participated for course credit, and Mturk participants received \$0.20 for their participation. In a between-subjects design, participants were randomly assigned to an in-group or out-group condition. Sample size for this study was based on a target minimum of 50 per cell. For undergraduate studies, given that lab

sessions are scheduled on a weekly basis, data collection was terminated at the end of the week in which this minimum was exceeded. For Mturk participants, we recruited additional participants to account for attrition. A power analysis (G_power 3.1) showed that: 2a) a sample size of 165 provides 100% statistical power to detect a large effect size ($d = 1.18$), 99.57% statistical power to detect a medium effect size ($d = 0.78$), and 34.44% statistical power to detect a small effect size ($d = 0.28$); 2b) a sample size of 137 provides 100% statistical power to detect a large effect size ($d = 1.18$), 98.56% statistical power to detect a medium effect size ($d = 0.78$), and 29.08% statistical power to detect a small effect size ($d = 0.28$); and 2c) a sample size of 204 provides 100% statistical power to detect a large effect size ($d = 1.18$), 99.93% statistical power to detect a medium effect size ($d = 0.78$), and 41.72% statistical power to detect a small effect size ($d = 0.28$).

Effect size calculations were based on multiple regressions models with two predictors.

Prescreen questions were used to recruit people with specific group memberships prior to the studies. In Experiment 2a, only students strongly identifying as Christian were recruited to participate. Prescreen measures asked participants to identify their current religious affiliation and how strongly they identify with that religion ([1] Not At All to [5] Very Strongly). Only participants who identified as Christian and selected 4 or 5 on the identity strength question were allowed to participate. They evaluated either Christians (in-group) or Muslims (out-group). In Experiment 2b, participants evaluated students from Texas A&M (in-group) or the University of Alabama (out-group). Finally, similar restrictions to 2a were used for experiment 2c, which concerned Republicans and

Democrats. Participants in the in-group condition evaluated members of their own party, while participants in the out-group condition evaluated members of the other party.

3.1.2 Preference-Categorization Task. Participants were told that they would be evaluating a group and to imagine, generally, what these people might be like. They were instructed to not focus on any one person specifically but imagine this group as a whole. They selected the rating scale, from 2 to 7 scale points, they would prefer to use when rating either in-group or out-group members in general depending on condition (see Appendix for scale labels).

3.1.3 Group Identification. In all three studies, participants answered group identity questions for both the in-group and out-group [2a: Christians ($\alpha = .92$) and Muslims ($\alpha = .48$), 2b: Texas A&M University ($\alpha = .93$) and University of Alabama ($\alpha = .84$), 2c: Republicans and Democrats (in-group $\alpha = .94$, out-group $\alpha = .96$)]. Group identity was assessed using a four-item measure (adapted from Smith, Seger, & Mackie, 2007). Additionally, participants completed one rating of Other in the Self (IOS; Aron, Aron, & Smollan, 1992), which asked participants to select the picture that best described their affiliation with the in-group/out-group. Pictures were Venn diagrams with one circle labeled “Self” and the other circle labeled “Group” Each of the 7 images showed the circles with progressively more overlap. Finally, participants indicated how long they have identified with their current (religious, university, political) group.

3.1.4 Group Attitudes and Emotions. In all three studies, attitude was measured using a sliding scale (range 0 [Very cold or unfavorable feelings]-100 [Very warm or favorable feelings]). In Experiment 2a and 2b, participants also answered a series of

exploratory questions about their emotions towards in-group and out-group members. Participants answered to what extent they felt each emotion when thinking about in-group and out-group members. Emotions included angry, disgusted, afraid, happy, proud, delighted, sad, uneasy, bored, at ease, hopeful, and respectful.

3.1.5 Need for Cognition. Experiment 2a included the 18-item NFC scale (Cacioppo, Petty, & Kao, 1984) as an exploratory measure. Sample items include “I would prefer complex to simple problems” and “The idea of relying on thought to make my way to the top appeals to me” ($\alpha = .86$).

3.1.6 Demographics and Debriefing. Finally, participants completed debriefing and demographic questions. These questions included whether participants recalled what group they were evaluating and what suspicions they had regarding the study.

3.2 Results

3.2.1 Results for Experiment 2a. Experiment 2a included undergraduate students who strongly identified as Christian. They evaluated either Christians (in-group) or Muslims (out-group) depending on condition. This study contained measures of preference-categorization, group identity, IOS, and time affiliated with in-group. I also included exploratory measures of attitude toward in-group and out-group members, group level emotions for in-group and out-group members, and NFC.

3.2.1.1 Preference-Categorization 2a. The results of an ANOVA with condition (in-group vs. out-group) as the predictor variable and preferred number of scale points as the outcome variable supported my hypothesis that participant prefer more evaluative scale points when rating in-group members versus out-group members ($M = 5.51$, $SD =$

1.39 vs. $M = 4.44$, $SD = 1.58$; $F(1,163) = 21.48$, $p < .001$, $n_p^2 = .12$, 95% CI [0.62, 1.54],

See Figure 2).

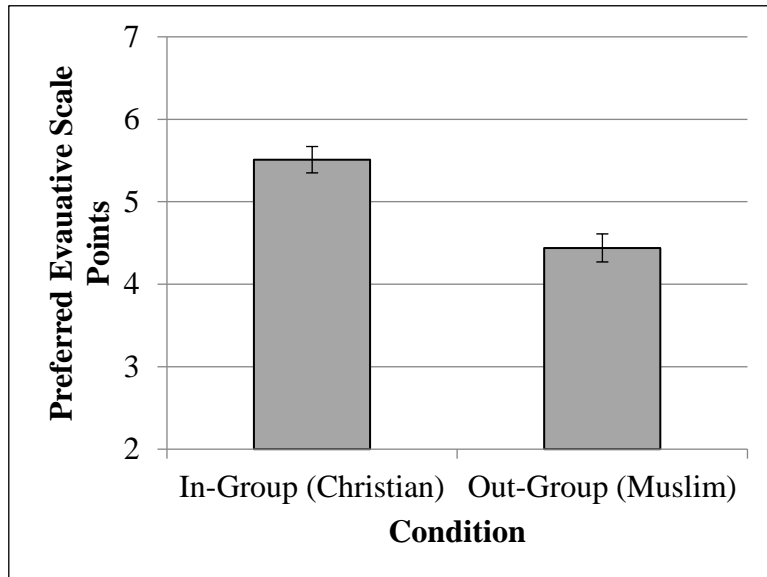


Figure 2. Amount of evaluative information (in the form of evaluative rating scales) sought out as a function of condition in Experiment 2a.

3.2.1.2 Group Identification 2a. The four group identification measures were averaged to form an overall group identification index for both participant's in-group ($\alpha = .92$) and out-group ($\alpha = .48$). A Repeated-Measures ANOVA revealed that group identification was stronger for the in-group than the out-group ($M = 6.59$, $SD = 0.91$ vs. $M = 1.18$, $SD = 0.41$, $F(1, 164) = 4508.03$, $p < .001$, $n_p^2 = .97$, 95% CI [5.25, 5.57]). To examine whether identification with one's in-group or out-group influenced the effect of condition on scale selection, I conducted a regression analysis recommended by Cohen and Cohen (1983). Condition (0 = out-group, 1 = in-group) and mean centered group identification were entered in the first step to examine the individual effect of each

variable on scale selection. I tested the interactive effect by entering the Condition X mean centered Identification interaction term in the second step (Aiken & West, 1991). I ran the analysis once using in-group attitude and once using out-group attitude. For both models, there was a significant main effect of condition (model containing in-group identification: $b = -1.09$, $t(161) = -4.64$, $p < .001$, 95% CI [-1.55, -0.62]; model containing out-group identification: $b = -1.09$, $t(161) = -4.65$, $p < .001$, 95% CI [-1.57, -0.63]). However, there were no main effects of in-group or out-group identity nor any significant interaction effects.

3.2.1.3 IOS Measures 2a. Inclusion of Other in the Self (IOS; Aron et al., 1992) was measured using a Venn diagram with progressively overlapping circles labeled self and group (1 = no overlap to 7 = significant overlap). A repeated-measures ANOVA showed that people feel closer to their in-group versus their out-group ($M = 6.08$, $SD = 1.17$ vs. $M = 1.39$, $SD = 0.79$, $F(1, 164) = 1908.22$, $p < .001$, $\eta_p^2 = .92$, 95% CI [4.49, 4.91]). To examine whether perceived closeness to one's in-group or out-group influenced the effect of condition on scale selection, I conducted a regression analysis recommended by Cohen and Cohen (1983). Condition (0 = out-group, 1 = in-group) and mean centered IOS were entered in the first step to examine the individual effect of each variable on scale selection. I tested the interactive effect by entering the Condition X mean centered IOS interaction term in the second step (Aiken & West, 1991). I ran the analysis once using in-group IOS and once using out-group IOS. For both models, there was a significant main effect of condition (model containing in-group IOS: $b = -1.08$, $t(161) = -4.62$, $p < .001$, 95% CI [-1.54, -0.62]; model containing out-group IOS: $b = -$

1.02, $t(161) = -4.40$, $p < .001$, 95% CI [-1.48, -0.56]). However, there were no main effects of in-group or out-group IOS or any significant interaction effects.

3.2.1.4 Time Measure 2a. To test the hypothesis that condition and time identifying with in-group members affects scale selection, I ran a regression with condition and time entered in the first step, and the condition by time interaction term in the second step. The outcome variable was how many scale points participants preferred. Results showed a significant main effect of time ($b = .01$, $t(161) = 2.61$, $p = .010$, 95% CI [0.00, 0.03]), but there was not a significant main effect of condition. However, we found a significant Condition X Time interaction ($b = -.01$, $t(161) = -2.69$, $p = .008$, 95% CI [-0.02, -0.00]; See Figure 3). Simple slopes analysis showed that the longer a participant had been affiliated with their current in-group the fewer scale points they preferred when rating out-group members ($b = -0.004$, $t(161) = -2.74$, $p = .007$). Additionally, the longer a participant had been affiliated with their current in-group the more scale points they preferred for evaluations of in-group members ($b = 0.005$, $t(161) = 2.33$, $p = .021$). To determine at what time points people prefer more scale-points for in-group (vs. out-group) members I used the Johnson-Neyman (1936) technique through PROCESS (Hayes, 2013) to determine the range of significance for the moderator. This allowed us to determine at what levels of the moderator (time in months affiliated with the in-group) the two conditions (in-group vs. out-group) were significantly different. This was used instead of the *pick-a-point* approach, as we did not identify any nonarbitrary points to probe (see Hayes & Matthes, 2009). Results showed that people preferred more evaluative scale-points for in-group (vs. out-group) members when they

had identified with the in-group for 114.59 months (about 9.5 years, $b = 0.57$, 95%CI [-1.14, 0.00], $t = -1.97$, $p = .05$). About 62% of our sample had been affiliated with their in-group for more than 144 months (Min = 2 months, Max = 456 months).

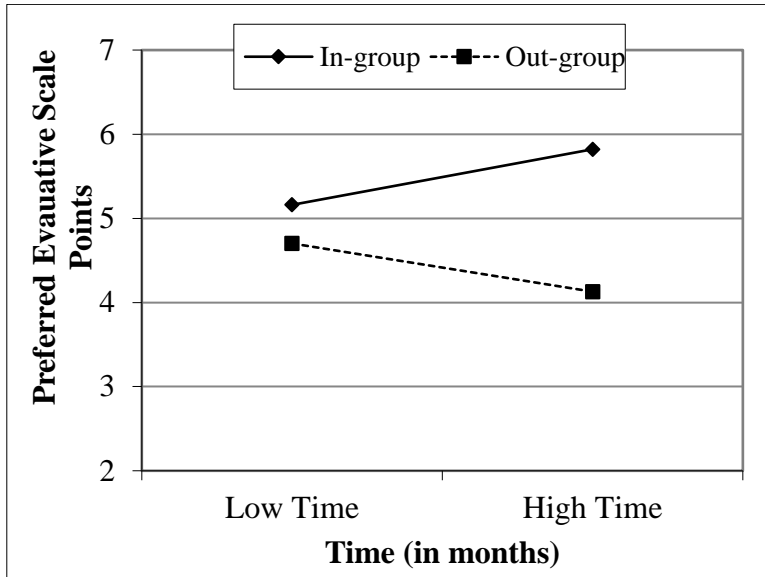


Figure 3. Amount of evaluative information (in the form of evaluative rating scales) sought out as a function of condition and time affiliated with the in-group in Experiment 2a.

3.2.1.5 Attitude Measure 2a. Attitude was measured using a sliding scale (range 0 [Very cold or unfavorable feelings]-100 [Very warm or favorable feelings]). A repeated-measures ANOVA revealed that attitude was more positive for in-group (vs. out-group) members ($M = 94.01$, $SD = 9.95$ vs. $M = 60.07$, $SD = 22.13$; $F(1,164) = 317.35$, $p < .001$, $\eta_p^2 = .66$, 95% CI [30.17, 37.69]). To examine whether attitude toward one's in-group or out-group influenced the effect of condition on scale selection, I conducted a regression analysis recommended by Cohen and Cohen (1983). Condition

(0 = out-group, 1 = in-group) and mean centered attitude were entered in the first step to examine the individual effect of each variable on scale selection. I tested the interactive effect by entering the Condition X mean centered Attitude interaction term in the second step (Aiken & West, 1991). I ran the analysis once using in-group attitude and once using out-group attitude. For both models, there was a significant main effect of condition (model containing in-group attitude: $b = -1.05$, $t(161) = -4.47$, $p < .001$, 95% CI [-1.51, -0.59]; model containing out-group attitude: $b = -1.09$, $t(161) = -4.64$, $p < .001$, 95% CI [-1.55, -0.63]). However, there were no main effects of in-group or out-group attitude or any significant interaction effects.

3.2.1.6 Emotion Measures 2a. Across all emotion measures, participants endorsed stronger positive emotions (happy, proud, delight, at ease, hope, and respect) for in-group members and stronger negative emotions (anger, sad, disgusted, afraid, uneasy, and bored) for out-group members (all F 's > 19.48 , all p 's $< .001$). From these 12 items, I created four emotion indexes (high intensity positive, high intensity negative, low intensity positive, and low intensity negative). High intensity positive emotions included happiness, pride, and delight. High intensity negative emotions included anger, disgust, and fear. Low intensity positive emotions included ease, hope, and respect. Low intensity negative emotions included sadness, unease, and boredom. Previous research suggests that high intensity emotions lead to narrowing of attention and low intensity emotions lead to broadening of attention regardless of valence (Gable & Harmon-Jones, 2008; Gable & Harmon-Jones, 2010a; Gable & Harmon-Jones, 2010b; Harmon-Jones, Gable, & Price, 2013; Price & Harmon-Jones, 2010). If high intensity emotions lead to

narrowing of attention, this may lead to increased perception of nuances and preference for more evaluative scale points, whereas low intensity emotions and broadening of attention may lead to decreased perception of nuances and preference for fewer evaluative scale points. To examine the effect of emotions on scale selection, I ran a bivariate correlation analysis including the four emotion indexes (both in-group and out-group evaluations) and number of scale points selected. There were no significant correlations between these emotion indexes and scale selection (all $p > .08$).

3.2.1.7 Need for Cognition 2a. The 18-items measuring Need for Cognition (NFC; Cacioppo et al., 1984) were averaged to form an overall NFC index ($\alpha = .86$). To examine whether NFC influenced the effect of condition on scale selection, I conducted a regression analysis recommended by Cohen and Cohen (1983). Condition (0 = out-group, 1 = in-group) and mean centered NFC were entered in the first step to examine the individual effect of each variable on scale selection. I tested the interactive effect by entering the Condition X mean centered NFC interaction term in the second step (Aiken & West, 1991). There was a significant main effect of condition ($b = -1.10$, $t(161) = -4.50$, $p < .001$), 95% CI [-1.58, -0.62]. However, there was no main effect of NFC or a significant interaction.

3.2.2 Results for Experiment 2b. Experiment 2b included undergraduate students from Texas A&M. They evaluated either Texas A&M University (in-group) or University of Alabama (out-group) students depending on condition. This study contained measures of preference-categorization, group identity, IOS, and time affiliated with in-group. I also included exploratory measures of attitude toward in-group and out-

group members and group level emotions for in-group and out-group members. NFC was not collected because we found no evidence that it affected preference-categorization in Experiment 2a.

3.2.2.1 Preference-Categorization 2b. The results of an ANOVA with condition (in-group vs. out-group) as the predictor variable and preferred number of scale points as the outcome variable support my hypothesis that participants prefer more evaluative scale points when rating in-group members versus out-group members ($M = 5.08$, $SD = 1.28$ vs. $M = 4.59$, $SD = 1.49$; $F(1,135) = 4.14$, $p = .044$, $\eta_p^2 = .03$, 95% CI [0.01, 0.96], See Figure 4).

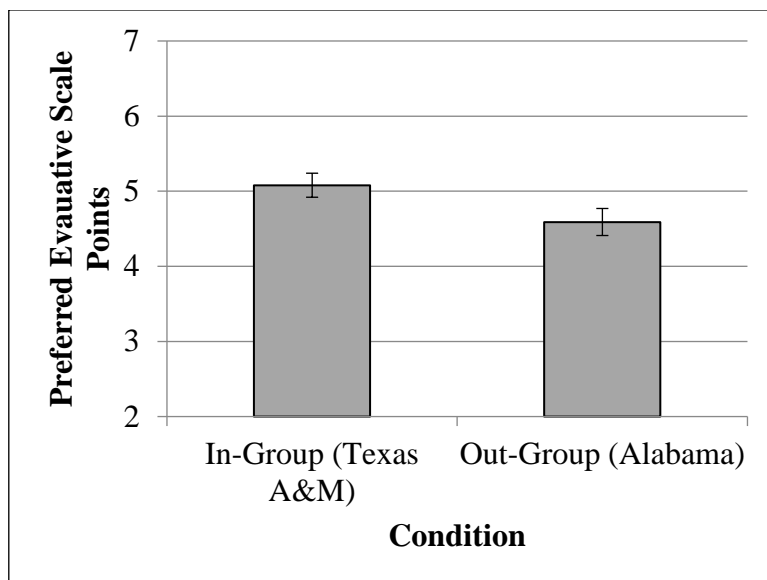


Figure 4. Amount of evaluative information (in the form of evaluative rating scales) sought out as a function of condition in Experiment 2b.

3.2.2.2 Group Identification 2b. The four group identification measures were averaged to form an overall group identification index for both participant's in-group (α

= .93) and out-group ($\alpha = .84$). A Repeated-Measures ANOVA revealed that group identity was stronger for the in-group than the out-group ($M = 6.38, SD = 1.03$ vs. $M = 1.33, SD = 0.71, F(1,136) = 2004.57, p < .001, \eta_p^2 = .94, 95\% CI [4.83, 5.27]$). To examine whether identification with one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analyses used in Experiment 2a. For both models, there was a significant main effect of condition (model containing in-group identification: $b = -0.50, t(133) = -2.08, p = .040, 95\% CI [-0.97, -0.02]$; model containing out-group identification: $b = -0.51, t(133) = -2.16, p = .032, 95\% CI [-0.98, -0.04]$). However, there were no main effects of in-group or out-group identity or any significant interaction effects.

3.2.2.3 IOS Measures 2b. IOS was measured using a Venn diagram with progressively overlapping circles labeled self and group (1 = no overlap to 7 = significant overlap). A repeated-measures ANOVA showed that people feel closer to their in-group versus their out-group ($M = 5.51, SD = 1.48$ vs. $M = 1.32, SD = 0.89, F(1, 136) = 776.77, p < .001, \eta_p^2 = .85, 95\% CI [3.89, 4.49]$). To examine whether perceived closeness to one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analysis used in Experiment 2a. For both models, there was a significant main effect of condition (model containing in-group IOS: $b = -0.48, t(133) = -2.02, p = .045, 95\% CI [-0.96, -0.01]$; model containing out-group IOS: $b = -0.59, t(133) = -2.48, p = .015, 95\% CI [-1.07, -0.12]$). However, there were no main effects of in-group or out-group IOS or any significant interaction effect.

3.2.2.4 Time Measure 2b. To test the hypothesis that condition and time identifying with in-group members affects scale selection, I ran a regression with condition and time entered in the first step, and the Condition X Time interaction term in the second step. The outcome variable was how many scale points participants preferred. Results showed no significant main effects or an interaction effect.

3.2.2.5 Attitude Measure 2b. Attitude was measured using a sliding scale (range 0 [Very cold or unfavorable feelings]-100 [Very warm or favorable feelings]). A repeated-measures ANOVA revealed that attitude was more positive for in-group (vs. out-group) members ($M = 92.78$, $SD = 10.57$ vs. $M = 38.22$, $SD = 21.87$; $F(1,136) = 581.67$, $p < .001$, $n_p^2 = .81$, 95% CI [50.09, 59.04]). To examine whether attitude toward one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analysis used in Experiment 2a. For both models, there was a significant main effect of condition (model containing in-group attitude: $b = -0.51$, $t(133) = -2.14$, $p = .034$, 95% CI [-0.97, -0.04]; model containing out-group attitude: $b = -0.47$, $t(133) = -2.00$, $p = .048$, 95% CI [-0.94, -0.01]). However, there were no main effects of in-group or out-group attitude or any significant interaction effects.

3.2.2.6 Emotion Measures 2b. Across all emotion measures, participants endorsed stronger positive emotions (happy, proud, delight, at ease, hope, and respect) for in-group members and stronger negative emotions (anger, sad, disgusted, afraid, uneasy, and bored) for out-group members (all F 's > 7.76 , all p 's $< .01$). To examine the effect of emotions on scale selection, I ran a bivariate correlation analysis including the four emotion indexes (high intensity positive, high intensity negative, low intensity

positive, and low intensity negative) for both in-group and out-group evaluations and number of scale points selected. Across conditions (in-group and out-group scale selection), the index for low-intensity, positive emotions toward in-group members was correlated with preference for more scale points ($r = .18, p = .034$). Additionally, the index for high-intensity, positive emotions toward in-group members was moderately correlated with preference for more scale points ($r = .17, p = .054$). However, when looking at low and high intensity, positive emotions by condition, the correlations become non-significant for in-group scale selection ($r = .14, p = .273$ and $r = .15, p = .230$ respectively). These correlations also become non-significant for out-group scale selection ($r = .21, p = .073$ and $r = .16, p = .187$ respectively). For in-group scale selection, we predicted that more positive feelings about the in-group would lead to a preference for more differentiated evaluative scales. However, the correlations are stronger for in-group positive emotions leading to a preference for more differentiated evaluative scales for the out-group. We would have expected a negative correlation here as more positive emotions about the in-group should have led to more derogation of the out-group and less nuanced evaluative scales. Therefore, these relationships do not support the proposed hypotheses or results found in Experiment 2a. There were no other significant correlations between in or out-group emotions and scale selection (all $p > .146$)

3.2.3 Results for Experiment 2c. Experiment 2c included individuals recruited using Amazon's Mechanical Turk who strongly identified as Republican or Democrat. They evaluated either members of the same party (in-group) or the opposite party (out-

group) depending on condition. This study contained measures of preference-categorization, group identity, IOS, and time affiliated with in-group. I also included exploratory measures of attitude toward in-group and out-group members. However, this study did not include exploratory measures for group level emotions for in-group and out-group members, and NFC because we found no evidence that they affected preference-categorization in Experiment 2a or 2b.

3.2.3.1 Preference-Categorization 2c. The results of an ANOVA with condition (in-group vs. out-group) as the predictor variable and preferred number of scale points as the outcome variable support my hypothesis that participant prefer more evaluative scale points when rating in-group members versus out-group members ($M = 5.24$, $SD = 1.39$ vs. $M = 4.70$, $SD = 1.55$; $F(1,202) = 6.87$, $p = .009$, $n_p^2 = .03$, 95% CI [-0.95, -0.13], See Figure 5).

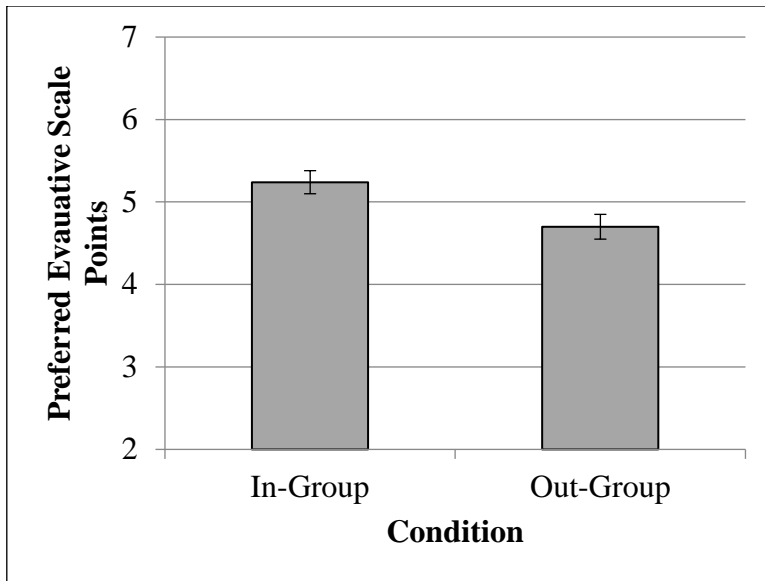


Figure 5. Amount of evaluative information (in the form of evaluative rating scales) sought out as a function of condition in Experiment 2c.

3.2.3.2 Group Identification 2c. The four group identification measures were averaged to form an overall group identification index for both participant's in-group ($\alpha = .99$) and out-group ($\alpha = .99$). A Repeated-Measures ANOVA revealed that group identity was stronger for the in-group than the out-group ($M = 5.78$, $SD = 1.18$ vs. $M = 1.55$, $SD = 1.12$, $F(1, 203) = 1065.20$, $p < .001$, $n_p^2 = .84$, 95% CI [3.98, 4.49]). To examine whether identification with one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analyses used in Experiment 2a and 2b. For both models, there was a significant main effect of condition (model containing in-group identification: $b = 0.51$, $t(200) = 2.50$, $p = .013$, 95% CI [0.11, 0.91]; model containing out-group identification: $b = 0.52$, $t(200) = 2.51$, $p = .013$, 95% CI [0.11, 0.93]). There was no significant main effect of in-group or out-group identity. However, there was a significant interaction effect of condition and in-group identity, $b = 0.36$,

$t(200) = 2.04, p = .042, 95\% \text{ CI } [0.01, 0.70]$, See Figure 6. Simple slopes analysis showed that stronger group identity for in-group members increased the number of scale points they preferred when rating in-group members ($b = 0.320, t(200) = 2.58, p = .011$). However, this relationship was not significant for evaluations of out-group members ($b = -0.035, t(200) = -0.29, p = .774$). There was no interaction effect of condition and out-group identity.

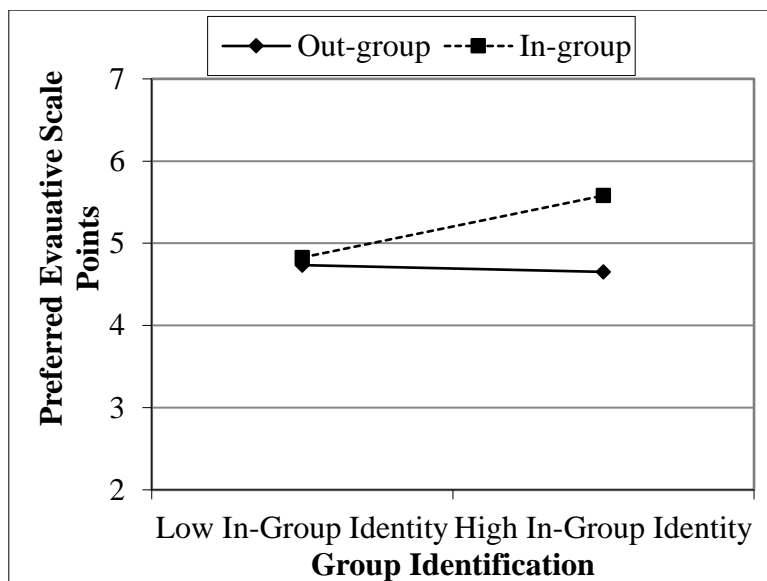


Figure 6. Amount of evaluative information (in the form of evaluative rating scales) sought out as a function of condition and in-group identification in Experiment 2c.

3.2.3.3 IOS Measures 2c. IOS was measured using a Venn diagram with progressively overlapping circles labeled self and group (1 = no overlap to 7 = significant overlap). A repeated-measures ANOVA showed that people feel closer to their in-group versus their out-group ($M = 5.17, SD = 1.39$ vs. $M = 1.72, SD = 1.28, F(1, 203) = 631.79, p < .001, \eta_p^2 = .76, 95\% \text{ CI } [3.18, 3.72]$). To examine whether perceived

closeness to one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analysis used in Experiment 2a and 2b. For both models, there was a significant main effect of condition (model containing in-group IOS: $b = 0.53$, $t(200) = 2.54$, $p = .012$, 95% CI [0.12, 0.94]; model containing out-group IOS: $b = 0.51$, $t(200) = 2.43$, $p = .016$, 95% CI [0.10, 0.92]). However, there were no main effect of in-group or out-group IOS or any significant interaction effects.

3.2.3.4 Time Measure 2c. To test the hypothesis that condition and time identifying with in-group members affects scale selection, I ran a regression with condition and time entered in the first step, and the Condition X Time interaction term in the second step. The outcome variable was how many scale points participants preferred. Results showed no significant main effects or an interaction effect.

3.2.3.5 Attitude Measure 2c. Attitude was measured using a sliding scale (range 0 [Very cold or unfavorable feelings]-100 [Very warm or favorable feelings]). A repeated-measures ANOVA revealed that attitude was more positive for in-group (vs. out-group) members ($M = 79.93$, $SD = 16.14$ vs. $M = 29.99$, $SD = 22.72$; $F(1,203) = 523.16$, $p < .001$, $n_p^2 = .72$, 95% CI [45.64, 54.25]). To examine whether attitude toward one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analysis used in Experiment 2a and 2b. For both models, there was a significant main effect of condition (model containing in-group attitude: $b = 0.47$, $t(200) = 2.29$, $p = .023$, 95% CI [0.07, 0.87]; model containing out-group attitude: $b = 0.49$, $t(200) = 2.34$, $p = .020$, 95% CI [0.08, 0.90]). However, there were no main effects of in-group or out-group attitude or any significant interaction effects.

3.3 Discussion

Across three studies, participants demonstrated the preference-categorization effect when evaluating people. Participants preferred more scale points when evaluating in-group (vs. outgroup) members, and this effect was consistent across three different group types (religion, university affiliation, and political party). Additionally, this effect replicated across different sample populations varying in age and demographics. Experiment 2a and 2b used university students, while Experiment 2c recruited people using Amazon's Mechanical Turk. Furthermore, these studies extend these findings to in-group and out-group members. Prior studies have shown the preference-categorization effect for liked (vs. disliked) objects and people. These results also extend findings from Experiment 1 by eliminating vocabulary knowledge of and accessibility to relevant category labels as a possible confounds. Moreover, using pre-constructed scales eliminated need to exclude participants for not following directions, and no participants were excluded from Experiments 2a, 2b, or 2c.

There was evidence in Experiment 2a that time affiliated with one's in-group moderated the effect of preference on scale-selection. As hypothesized, the longer a participant had been affiliated with their in-group, the fewer scale points they wanted to rate out-group members. This may result from increased degradation of out-group members over time, which is consistent with OHE research. However, we did not find this effect in Experiment 2b or 2c.

Experiment 2c suggested that identification with the in-group may affect preference-categorization. In this study, I found that people prefer more scale points

when rating in-group (vs. outgroup) members. However, this was qualified by a significant interaction showing that stronger in-group identity increased preference for more scale points when evaluating in-group members, but stronger in-group identity did not affect scale selection for evaluating out-group members. However, this effect was not replicated in Experiment 2a or 2b. Additionally, there was no effect of perceived closeness (IOS) on preference categorization.

One explanation may be that, overall, people tend to have greater liking for in-group members (Brewer, 1979; Nesdale & Flessler, 2001) and liking may influence preference-categorization. I included exploratory measures of group level emotions and attitude to determine whether they influenced scale selection, specifically focusing on emotional intensity and valence. Though some significant correlations were found in Experiment 2b, they were not supported by findings from Experiment 2a. Additionally, they did not support our hypotheses. There was also no evidence that attitude toward in-group or out-group members influenced the preference-categorization effect. Finally, no significant findings emerged from the exploratory measure of NFC.

4. EXPERIMENT 3

Thus far, the current studies show that people prefer more evaluative scale-points when rating in-group (vs. out-group) members. One reason for this may be that people may make fewer nuanced distinctions between out-group (vs. in-group) members. This is consistent with OHE and CRE findings showing that people see out-group members as more homogeneous. If evaluative scale selection relates to perceived group variability, then we should see a positive relationship between OHE measures and the preference-categorization effect.

4.1 Methods

4.1.1 Participants. Participants were recruited using Amazon's Mechanical Turk ($N = 183$, Age $M = 39.03$, $SD = 13.45$; 52.5% female). Participants received \$0.20 for their participation. In a between-subjects design, participants were randomly assigned to an in-group or out-group condition. Sample size for this study was based on a target minimum of 50 per cell. However, we ran an additional 83 participants to account for participant attrition. A power analysis (G_power 3.1) showed that a sample size of 183 provides 100% statistical power to detect a large effect size ($d = 1.18$), 99.81% statistical power to detect a medium effect size ($d = 0.78$), and 37.83% statistical power to detect a small effect size ($d = 0.28$) using a multiple regression model with two predictors.

4.1.2 Measures. Experiment 3 used the same participant restrictions and measures as Experiment 2c. Only participants who indicated a strong or very strong identification with the Republican or Democratic Party were allowed to participate. They completed the preference-categorization task as well as group identity, IOS, time

measures, and attitude measures similar to those used in Experiment 2b. Additionally, participants completed an OHE measure adapted from prior OHE research (Park & Rothbart, 1982; Pickett & Brewer, 2001; Ryan & Judd, 1992; Ryan, Judd, & Park, 1996). Participants indicated the percentage of people from both their in-group and out-group they believed would endorse different group stereotypes.

Stereotypes for our OHE measure were obtained prior to the current study using methods adapted from Park and Rothbart (1982). Pretest subjects ($N = 55$) were asked to list any behaviors or traits they considered typical of Republicans and Democrats. Then, the 30 most common responses (15 for Republicans and 15 for Democrats) were presented to a second set of participants ($N = 55$). Participants were asked what group would be more likely to endorse each item using a 7-point scale ([1] Strongly Republican, [2] Moderately Republican, [3] Slightly Republican [4] Equally Endorsed by Both, [5] Slightly Democrat, [6] Moderately Democrat, and [7] Strongly Democrat). Using criteria for inclusion from Park and Rothbart (1982), ratings were then collapsed into 3 categories: Republican (scale values 1, 2, 3), neutral (4), and Democrat (5, 6, 7). For the final item list, an item had to contain fewer than 50% of responses in the neutral category and the differences between the two polarized ratings had to be greater than 25%. For example, the item “Pro-Choice” was categorized as a Republican value by 15.5% of participants, equally Republican and Democrat by 2.2% of participants, and a Democratic value by 82.1% of participants. Because fewer than 50% of participants listed it as both and the difference between polarized ratings was greater than 25%, this item was used in Experiment 3.

The final measure of out-group homogeneity used 8 items identified during the pretest (4 Republican and 4 Democrat). Participants were asked, for each item, what percentage of group members would endorse each item (e.g., What percentage of Republicans are pro-life?). These estimates were used to create two indexes of perceived group variability (in-group and out-group). In-group variability was then subtracted from out-group variability to create an OHE score where higher scores indicate greater perceived out-group homogeneity. Finally, participants completed similar debriefing and demographic questions.

4.2 Results

4.2.1 Primary Hypothesis. In line with previous studies, I did find that participants preferred more scale points when asked to rate in-group versus out-group members ($M = 5.51, SD = 1.43$ vs. $M = 4.90, SD = 1.70$; $F(1,182) = 6.64, p = .01, n_p^2 = .04, 95\% CI [-1.06, -0.14]$, See Figure 7). Participants also showed a marginally significant OHE, indicating that more out-group members endorsed group stereotypes than in-group members ($M = 74.86, SD = 17.71$ vs. $M = 71.99, SD = 16.91$; $F(1,182) = 3.79, p = .053, n_p^2 = .02, 95\% CI [-5.77, .04]$, See Figure 8). To determine whether OHE was related to scale selection, I ran a correlation with scale selection, perceived in-group variability, perceived out-group variability, and perceive difference between out-group and in-group variability). Across conditions, scale selection was not correlated with perceived in-group variability ($r = .06, p = .418$), perceived out-group variability ($r = .08, p = .316$), or difference score ($r = .02, p = .838$). Results were similar when correlations were run split by condition. When selecting out-group scales, there were no

correlations between scale selection and perceived in-group variability ($r = .04, p = .709$), perceived out-group variability ($r = .17, p = .104$), or difference score ($r = .12, p = .262$). These correlations were also not significant when selecting in-group scales ($r = .03, p = .772$; $r = -.02, p = .864$; and $r = -.04, p = .714$).

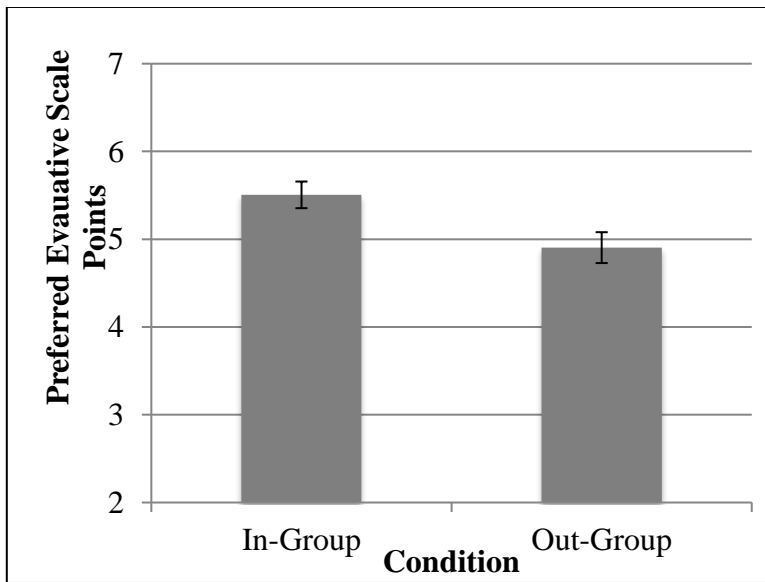


Figure 7. Amount of evaluative information (in the form of evaluative rating scales) sought out as a function of condition in Experiment 3.

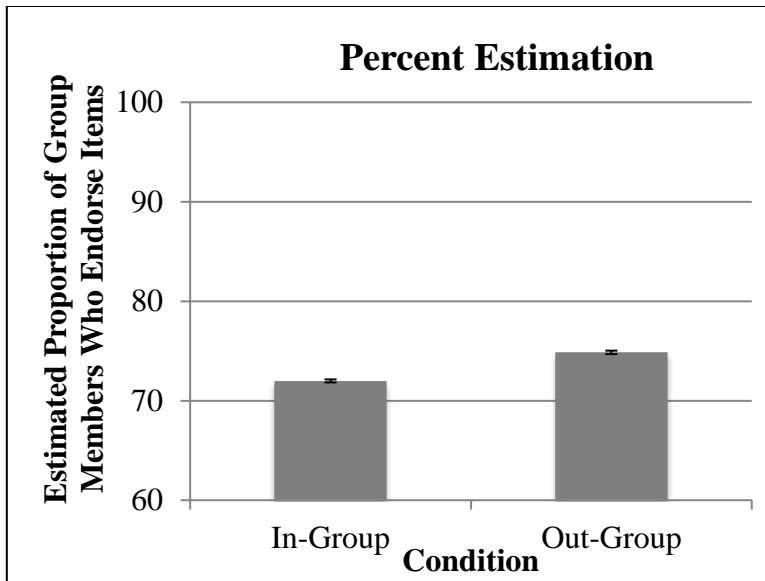


Figure 8. Perceived variability (in the form of estimated percent endorsement of stereotypes) as a function of condition in Experiment 3.

4.2.2 Group Identification. The four group identification measures were averaged to form an overall group identification index for both participant's in-group ($\alpha = .94$) and out-group ($\alpha = .97$). A Repeated-Measures ANOVA revealed that group identity was stronger for the in-group than the out-group ($M = 5.81$, $SD = 1.15$ vs. $M = 1.50$, $SD = 1.05$, $F(1, 182) = 1189.59$, $p < .001$, $n_p^2 = .87$, 95% CI [4.07, 4.56]). To examine whether identification with one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analyses used in Experiment 2a, 2b, and 2c. For both models, there was a significant main effect of condition (model containing in-group identification: $b = 0.60$, $t(179) = 2.57$, $p = .011$, 95% CI [0.14, 1.07]; model containing out-group identification: $b = 0.63$, $t(179) = 2.71$, $p = .007$, 95% CI [0.17, 1.10]). There were no significant main effects of in-group or out-group identity nor any significant interaction effects.

4.2.3 IOS Measures. IOS was measured using a Venn diagram with progressively overlapping circles labeled self and group (1 = no overlap to 7 = significant overlap). A repeated-measures ANOVA showed that people felt closer to their in-group versus their out-group ($M = 5.02, SD = 1.50$ vs. $M = 1.56, SD = 1.08, F(1, 182) = 649.77, p < .001, \eta_p^2 = .78, [3.19, 3.72]$). To examine whether perceived closeness to one's in-group or out-group influenced the effect of condition on scale selection, I conducted the same analysis used in Experiment 2a, 2b, and 2c. For both models, there was a significant main effect of condition (model containing in-group IOS: $b = 0.60, t(179) = 2.57, p = .011, 95\% \text{ CI } [0.14, 1.07]$; model containing out-group IOS: $b = 0.65, t(179) = 2.77, p = .006, 95\% \text{ CI } [0.19, 1.12]$). However, there was no main effect of in-group or out-group IOS or a significant interaction effect.

4.2.4 Time Measure. To test the hypothesis that group membership and time identifying with in-group members affected scale selection, I ran a regression with group membership and time entered in the first step, and the Group Membership X Time interaction term in the second step. The outcome variable was how many scale-points participants preferred. Results showed no significant main effects or an interaction effect.

4.2.5 Attitude Measure. Attitude was measured using a sliding scale (range 0 [Very cold or unfavorable feelings]-100 [Very warm or favorable feelings]). A repeated-measures ANOVA revealed that attitude was more positive for in-group (vs. out-group) members ($M = 82.83, SD = 15.04$ vs. $M = 30.84, SD = 22.24; F(1,182) = 593.96, p < .001, \eta_p^2 = .77, 95\% \text{ CI } [47.78, 56.20]$). To examine whether attitude toward one's in-

group or out-group influenced the effect of group membership on scale selection, I conducted analyses similar to those used in Experiment 2a, 2b, and 2c. For both models, there was a significant main effect of condition (model containing in-group attitude: $b = 0.59$, $t(179) = 2.49$, $p = .014$, 95% CI [0.12, 1.05]; model containing out-group attitude: $b = 0.61$, $t(179) = 2.60$, $p = .010$, 95% CI [0.15, 1.07]). However, there was no main effect of in-group or out-group attitude or a significant interaction effect.

4.3 Discussion

Consistent with previous findings, I found that people preferred more scale-points when asked to evaluate in-group (vs. out-group members). There was also evidence of the OHE. Participants believed that out-group members were less variable in beliefs than in-group members. However, perceived out-group homogeneity was not correlated with scale selection. Additionally, consistent with findings from Experiments 2a, 2b, and 2c, the preference-categorization effect did not seem to be moderated by group identification, time affiliated with the in-group, or attitude toward the in-group or out-group.

5. GENERAL DISCUSSION AND CONCLUSIONS

Prior research shows that people prefer more nuanced rating scales and see finer categorical distinctions for liked versus disliked objects (Smallman & Becker, in press; Smallman et al., 2014; Smallman & Roese, 2008, 2009). The current research shows that this effect also applies to ratings of people. When asked how many scale points they would prefer to have when rating different groups, participants favored more differentiated rating scales when evaluating liked (vs. disliked; Experiment 1) and in-group (vs. out-group; Experiment 2a, 2b, 2c, and 3) members.

In Experiment 1, participants created scales with more evaluative scale points for liked versus disliked others. However, this result may have been due to easier accessibility in memory to relevant category labels or greater vocabulary knowledge for evaluating liked (vs. disliked) individuals. Furthermore, I had to exclude 45 participants for not following directions (i.e., creating dichotomous scales). Experiments 2a, 2b, and 2c addressed these problems by including pre-constructed rating scales using the most common responses to Experiment 1 that that could be applied across evaluative targets. These studies extended finding from previous research by showing the preference-categorization effect for in-group (vs. out-group) members. Additionally, these studies found the preference-categorization effect for several different group types (i.e., religious, university, and political affiliation). These groups differed in participants' length of affiliation. Most participants in Experiments 2a and 2c had been affiliated with their current religious and political groups for several years. However, sample for Experiment 2b consisted of mostly college freshmen who had only been students for a

few months. This effect was also consistent across different sample populations (i.e., university students and online participants), which greatly differed in age range and demographics.

Experiments 2a, 2b, and 2c also tested two potential factors that might influence the preference-categorization effect, group identification and time affiliated with the in-group. I hypothesized that the degree to which people identify with in-group or out-group members may affect the preference-categorization effect. For example, stronger association with in-group members may lead to a preference for a more nuanced scale as the desire to parse the details of individuals may be stronger. Similarly, stronger disassociation from out-group members may lead to a decreased desire to make distinct evaluations of those individuals. Thus, greater dissociation may lead to preferences for less nuanced scales. However, in the current experiments, these results were inconsistent. Experiment 2c found a significant interaction between condition and in-group identity. The stronger a person's in-group identity was the more scale points they wanted to evaluate in-group members. Yet, there was no effect of in-group identity when people evaluated out-group members. Additionally, there was no effect of out-group identity on scale selection for in-group or out-group members. Experiments 2a, 2b, and 3 found no effect of in-group or out-group identity on scale selection for either in-group or out-group members nor did any of the current studies show evidence that IOS affected the preference-categorization effect. One possible explanation may be that I only recruited participants who indicated strong or very strong affiliation with their in-group in Experiments 2a, 2c, and 3. This range restriction may have prevented me from finding

an effect of affiliation on the preference-categorization effect. However, Experiment 2b did not contain this restriction and still found no effect of in-group or out-group identity suggesting that these factors do not influence the preference-categorization effect. Future research should further investigate the role of group affiliation by recruiting a sample with more variability in affiliation strength.

The second potential mechanism I examined in Experiments 2a, 2b, and 2c was time affiliated with the in-group. If the preference-categorization effect is driven by increased elaboration of favorable stimuli, then longer engagement with preferred stimuli (e.g., in-group members) may influence this effect. This repeated engagement may also increase knowledge or expertise about in-group members. Research has shown that expertise can induce more nuanced categorization based on deeper level features (Chi et al., 1981; Medin et al., 1997; Rota & Zellner, 2007). Similarly, OHE research shows that new members to a group can show an in-group homogeneity effect (Ryan & Bogart, 1997), suggesting that knowledge and expertise about a group is partially responsible for the nuanced distinctions made between in-group members. Therefore, people who recently joined a group may not show the preference-categorization effect. I found some evidence of this in Experiment 2a, which found that people preferred fewer scale points for out-group members the longer they had been affiliated with the in-group. Conversely, the number of scale points preferred to evaluate in-group members did not change over time. This suggests a derogation of out-group members over time, which may lead to a preference for less nuanced scales to evaluate those individuals. However, this finding was not evident in Experiment 2b, 2c, or 3. This may be because, although

time *can* influence differentiation in categorization, it may not be *necessary* for the effect to occur. There is some evidence from prior preference-categorization effect research suggesting this may be the case. Smallman and Roese (2008) artificially created preference in the lab using an associative conditioning paradigm. This demonstrated that the preference-categorization effect can occur independently of expertise. Similar findings have been demonstrated for the OHE. The cross-race effect states that people tend to recognize in-group faces with better accuracy than out-group faces (Meissner & Brigham, 2001). While some suggested that this was because of people's familiarity for in-group faces (e.g., being predominantly around same-race others), Bernstein et al. (2007) found that, when race was held constant, manipulating university affiliation decreased participants' ability to recognize out-group faces. That is, while expertise can influence the OHE, it too can occur independently of expertise. Although we can infer independence from pre-existing knowledge, future research could use a minimal groups paradigm to determine if the preference-categorization effect occurs when evaluating group members in the absence of prior affiliation with the in-group.

Also included in the current studies were exploratory measures of affect (i.e., group level emotions and attitude toward in-group and out-group members). Experiments 2a and 2b included measures of group level emotions because prior research has shown that low intensity motivation broadens cognitive scope (i.e., global focus) while high intensity motivation narrows cognitive scope (i.e., local focus; Gable & Harmon-Jones, 2008; Gable & Harmon-Jones, 2010a; Gable & Harmon-Jones, 2010b; Harmon-Jones et al., 2013; Price & Harmon-Jones, 2010). Thus, high (vs. low) intensity

motivation may lead to narrowing of attention and a preference for more nuanced rating scales. However, the current studies did not find an effect of emotions on preference-categorization. An additional measure of affect, attitude toward in-group and out-group members, was included in Experiments 2a, 2b, 2c, and 3. Similar to emotions, attitude toward in-group or out-group members did not influence the preference categorization effect.

Given the overlap between the preference-categorization effect and OHE/CRE, Experiment 3 included measures of both to determine whether the two measures are related. The preference-categorization effect states that people make more nuanced distinctions between preferred objects. Similarly, OHE research states that people view in-group members as being more variable than out-group members. Disliked objects, similarly to out-group members, may be perceived as “all the same”, so finer evaluative distinctions are not seen as necessary. Therefore, I believed that the social-cognitive theory of the OHE and CRE might also explain the preference-categorization effect. This theory states that people broadly categorize out-group members but look for individuating features of in-group members (Bodenhausen et al., 2003; Sporer, 2001). This partially explains why merely labeling individuals as out-group members can result in perceived homogeneity. The way information is evaluated differs from initial exposure.

While people and consumer products are very different, there are some striking similarities. Some marketing research suggests that individuals have a tendency to anthropomorphize objects by forming relationships with them (Aaker, Fournier, &

Brasel, 2004; Fournier, 1998), imagining them having personalities (Aggarwal & McGill; 2007; Biel, 2000), and associating them with in-group and out-group members (Escalas & Bettman, 2003, 2005). This can lead to positive feelings associated with in-group brands and dislike for out-group brands.

In Experiment 3, we found evidence for the preference-categorization effect in that people preferred more nuanced scales for in-group (vs. out-group) members. Additionally, people demonstrated an OHE by rating out-group (vs. in-group) members as being more similar in endorsement of stereotypes. However, I found no relationship between the two measures. The current studies included the percent estimate measure of OHE because it reliably detects the OHE. A meta-analysis conducted by Boldry, Gaertner, & Quinn (2007) suggested that, of the studies they examined, only the percent estimate and face recognition tasks reliably detected out-group homogeneity. However, other researchers suggest that variability measures can be divided into measures of stereotypicality and dispersion, where stereotypicality refers to how well a group fits the stereotype and dispersion refers to the deviation from a group's central tendency (Park & Judd, 1990). While both have been shown to detect out-group homogeneity, dispersion may be more related to preference-categorization. Additionally, this measure is a within-subjects difference score (i.e., the OHE measure is calculated by subtracting a participant's in-group variability score from their out-group variability score). However, the preference-categorization effect was measured between-subjects. This was done because past research using the scale selection task within-subjects has shown a strong anchoring or order effect in that people anchor on whatever scale they are given first and

select a similar scale for the second scale. For example, if a positive evaluative scale is given first, participants will select a more finely differentiated positive evaluative scale and then subsequently, select a similarly differentiated negative evaluative scale. Additionally, if a negative evaluative scale is given first, participants will select a less differentiated negative scale and a similarly constructed positive scale. Future research should try using an alternate measure of the OHE (e.g., a dispersion task) to determine whether they relate to the preference-categorization effect and develop a more appropriate method to measure the preference-categorization effect within-subjects.

Another potential explanation is that the specific measure of the preference-categorization effect used in the current studies does not relate to OHE measures. The original studies examining the preference-categorization effect used traditional categorization measures (i.e., sorting objects into groups). Studies show that people make more nuanced categorical distinctions for liked (vs. disliked) objects (Smallman & Roese, 2008). Similarly, studies have tested the preference-categorization effect using what we have termed evaluative categorization (i.e., number of nuanced distinctions preferred when evaluating objects) and found that people prefer more nuanced evaluative scales when rating liked (vs. disliked) objects. However, prior research has shown that these two measures are not strongly correlated. Although preference can influence differentiation in both traditional and evaluative categorization, individuals may not always exhibit both effects. Prior preference-categorization research examining the moderating role of need for cognition (NFC) found an effect for both traditional and evaluative measures of the preference-categorization effect (Smallman, et al., 2014).

However, the two preference-categorization measures were not strongly correlated ($r = .08, p = .37$). Other research has found a similar trend, showing that the preference-categorization effect is influenced by a person's tendency to maximize, but only when using an evaluative categorization measure (Smallman & Becker, in press). Because the OHE has been demonstrated using traditional categorization, we might expect traditional preference-categorization measures to correlate with other measures of the OHE even though they may not correlate with evaluative categorization measures. Because evaluative categorization and traditional categorization are empirically distinct, future research should use different measures of preference-categorization (traditional categorization as well as other evaluative categorization measures) to determine whether there is truly no relationship between the preference-categorization effect and the OHE.

Overall, I find that people prefer more nuanced rating scales when evaluating liked or in-group members versus disliked or out-group members. While we do not always provide formal evaluations of other individuals, the times we do can be impactful (e.g., performance appraisals from employers or student evaluations). Knowing that people prefer fewer evaluative distinctions for disliked others and out-group members presents new questions for how researchers and companies should conduct formal evaluations of individuals.

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APPENDIX

RATING SCALES FOR SCALE SELECTION TASKS

Scales used to evaluate liked people or in-groups

Two-point scale: Neutral, Perfect

Three-point scale: Neutral, Like, Perfect

Four-point scale: Neutral, Like, Amazing, Perfect

Five-point scale: Neutral, All Right, Like, Amazing, Perfect

Six-point scale: Neutral, All Right, Like, Really Like, Amazing, Perfect

Seven-point scale: Neutral, All Right, Like, Really Like, Amazing, Love, Perfect

Scales used to evaluate disliked people or out-groups

Two-point scale: Neutral, Worst

Three-point scale: Neutral, Dislike, Worst

Four-point scale: Neutral, Dislike, Awful, Worst

Five-point scale: Neutral, Irritating, Dislike, Awful, Worst

Six-point scale: Neutral, Irritating, Dislike, Really Dislike, Awful, Worst

Seven-point scale: Neutral, Irritating, Dislike, Really Dislike, Awful, Hate, Worst