**Format Neglect:   
How the Use of Numerical Versus Percent Rank Claims Influences Consumer Judgments**

**WEB APPENDIX A: SUPPLEMENTAL EXPERIMENTS**

***EXPERIMENT 6***

Experiment 6 tests whether H1A and H1B, which we have already observed with student and non-student populations, holds even in a sample of marketing professionals who are likely to have considerable familiarity with rank claims. Given the influence and popularity of university rankings (Grewal, Dearden, and Llilien 2008), we chose to examine how university rank claims are evaluated by marketers in the higher education industry who may themselves be involved in generating and/or disseminating rank claims on behalf of their employer.

***Method***

Experiment 6 was an online study conducted with 216 marketing communications professionals working for U.S. universities (35 respondents did not disclose their gender or age; of the remaining, 63.0% were female, average age = 40.58, *SD* = 11.84). This sample was generated by emailing 1,086 marketing professionals (i.e., in marketing communications or public relations departments) whose contact information was obtained from a online search of U.S. universities, culled from a comprehensive and diverse list of 1,418 post-secondary institutions.[[1]](#footnote-1) These individuals were informed that the research project was about university communications and, in exchange for their participation, were promised a research finding report after the project had been completed. Response rate (based on completed surveys) was 19.9%.

Participants read a brief description about the ranking of an unnamed university, University X. Those in the numerical format condition learned that University X had been ranked in the top 10 (small set size condition) or the top 100 (large set size condition), whereas those in the percent format condition learned that University X had been ranked in the top 20%. Subsequently, they learned that either 50 universities (small set size) or 500 universities (large set size) were included on the ranked list. Based on the numbers we used, Product X was in the top 20% of the set in all four experimental conditions.

Next, participants evaluated how well University X was performing in the rankings using an unnumbered sliding scale (0 = not very well, 100 = very well). Participants also indicated their likelihood of recommending University X on a similar sliding scale (0 = not very likely, 100 = very likely). These two items were combined to form a composite evaluation measure (r = .67). To avoid redundancy, we report the results of Experiment 6 with respect to a composite metric only. However, we also analyzed each dependent measure separately and our results did not meaningfully differ.

On a new screen, participants were asked to recall University X’s rank (i.e., its nominal value) and the number of universities that were included in the ranked list (i.e., its set size) by entering these numbers in text boxes. Next, given that all of our study participants were responsible for marketing and/or communications at their respective universities, we asked if their university regularly uses numerical rank claims and/or percent rank claims when communicating with its constituents (e.g., applicants, students, staff, faculty, alumni, donors). For each type of rank claim, participants answered “Yes,” “No,” or “Not Sure.”

***Results and Discussion***

A 2 (claim format) x 2 (set size) between-participants ANOVA on the composite evaluation measure revealed an unanticipated marginal main effect of claim format (*F*(1, 212) = 3.65, *p* = .06, η*p*2 = .02), such that participants in the numerical rank conditions (*M* = 69.70, *SD* = 18.09, *N* = 110) evaluated University X more favorably than participants in the percent rank conditions (*M* = 64.75, *SD* = 20.56, *N* = 106). There was no main effect of set size (*F*(1, 212) = .01, *p* > .93, η*p*2 < .001). More germane to our theorizing, we observed a significant interaction between claim format and set size salience (*F*(1, 212) = 19.67, *p* < .001, η*p*2 = .09). Planned contrasts revealed that among participants in the small set size conditions (i.e., 50 universities), those who encountered the numerical (i.e., top 10) claim evaluated University X more favorably (*M* = 75.31, *SD* = 15.64, *N* = 54) than participants who encountered the mathematically equivalent percent (i.e., top 20%) claim (*M* = 59.25, *SD* = 23.47, *N* = 55; *F*(1, 212) = 20.34, *p* < .001, η*p*2 = .09). Conversely, among participants in the large set size conditions (i.e., 500 universities), those who encountered the numerical (i.e., top 100) claim rated University X’s performance lower (*M* = 64.29, *SD* = 18.76, *N* = 56) than participants who encountered the identical percent (i.e., top 20%) claim (*M* = 70.69, *SD* = 14.95, *N* = 51), although this contrast was only marginally significant (*F*(1, 212) = 3.16, *p* = .077, η*p*2 = .02). These results are illustrated in Figure 5 (Web Appendix C).

Next, we examined recall rates for the claim’s nominal value and set size. As in our earlier studies, recall rates of nominal value and set size were universally high (i.e., >75%) across conditions.

The results of Experiment 6 provide strong support for our theorizing. Despite University X being equally favorable in that it had a mathematically equivalent percent rank (i.e., top 20%) across all conditions, the university was evaluated more favorably when a numerical [percent] rank claim was used and the set size was small [large]. Furthermore, recall rates for nominal values and set size were both relatively high and did not vary by condition. Thus, it is unlikely that differences in recall accuracy explain the observed effects.

Experiment 6 also confirms our intuition that both numerical and percent rank formats are widely adopted in practice. Among the 173 participants who knew whether their university used numerical rank claims in their marketing communications, 96.5% affirmed that numerical claims were used by their university when communicating with its constituents. Among the 150 participants who knew whether their university used percent rank claims in their marketing communications, 74.7% affirmed that percent claims were used by their university. Thus, although universities may be inclined to use numerical rank claims more often than percent rank claims (χ2(1) = 32.64, *p* < .001), both rank formats are routinely employed by universities when communicating with their key constituents (e.g., students, staff, faculty, alumni, donors).

Experiment 6 demonstrates that even Marketing and Communications experts are susceptible to our proposed shift in evaluations. These results further show that participants were not merely being inattentive to the rank claim presented to them, and suggests instead that they may hold the belief that nominal value is more important than set size.

***EXPERIMENT 7***

The purpose of Experiment 7 is to test whether H1A and H1B hold even in the context of non-marketing communications. Specifically, we examine whether individuals evaluate a student’s academic performance differently depending on rank claim format. We also test the role of numeracy as a potential moderator of our effect.

***Method***

Experiment 7 was conducted with 205 American participants (39.02% female, average age = 32.72, *SD* = 9.61) recruited using an online panel (Amazon Mechanical Turk). The study involved a 2 (claim format: numerical rank, percent rank) x 2 (set size: small, large) between-participants design. Participants were asked to read a brief description summarizing the academic performance of a high school student named Tony. Depending on set size condition, participants were informed that Tony’s high school graduating class had 50 students (small set size) or 200 students (large set size). Those assigned to the small set size condition learned that Tony was in the “top 20 of his graduating class” (numerical rank claim) or that he was in the “top 40% of his graduating class” (percent rank claim). Similarly, those in the large set size condition either learned that Tony was in the “top 40 of his graduating class” (numerical rank claim) or that he was in the “top 20% of his graduating class” (percent rank claim). Importantly, the claims received by participants in either of the small set size conditions were identical (i.e., top 20 = top 40% of 50), as were the claims in either of the large set size condition (i.e., top 40 = top 20% of 200).

After reviewing the description of Tony’s academic performance, participants were asked two questions that served as our key dependent variables. Specifically, they were asked to indicate, in their opinion, how well Tony had performed in high school (1 = not very well, 9 = very well) and how impressive Tony’s academic performance had been (1 = not very impressive, 9 = very impressive). These two questions were combined to form a single evaluation measure (r = .87). We also asked participants to evaluate how well Tony had performed academically “RELATIVE to his class” (1 = not very well, 9 = very well).

On the next screen, we included two recall measures, one related to set size (“How many students were in Tony’s high school graduating class?”) and one related to nominal value (“Tony’s grade point average (GPA) placed him among the top \_\_\_ [%] of his high school graduating class”). Finally, to test the role of numeracy as a moderator of any effects, participants proceeded to a new screen where they completed an eleven-question objective numeracy scale (Lipkus, Samsa, and Rimer 2001).

***Results and Discussion***

A 2 (claim format: numerical rank, percent rank) x 2 (set size: small, large) between-participants ANOVA on the composite evaluation measure revealed a main effect of set size (*F*(1, 201) = 12.41, *p* = .001, η*p*2 = .06), such that participants in the large set conditions (*M* = 6.82, *SD* = 1.52, *N* = 101) evaluated Tony more favorably than participants in the small set conditions (*M* = 5.98, *SD* = 1.81, *N* = 104). There was no main effect of claim format (*F*(1, 201) = 1.39, *p* = .24, η*p*2 = .01).

More germane to our theorizing, we also observed a significant interaction between set size and claim format (*F*(1, 201) = 16.15, *p* < .001, η*p*2 = .07). Planned contrasts revealed that among participants in the small set size conditions, those who encountered the numerical rank (i.e., top 20) claim (*M* = 6.63, *SD* = 1.70, *N* = 46) rated Tony’s academic performance higher than participants who encountered the logically equivalent percent rank (i.e., top 40%) claim (*M* = 5.46, *SD* = 1.73, *N* = 58); *F*(1, 201) = 13.65, *p* < .001, η*p*2 = .06. Conversely, among participants in the large set size conditions, those who encountered the numerical rank (i.e., top 40) claim (*M* = 6.52, *SD* = 1.65, *N* = 54) rated Tony’s academic performance lower than participants who encountered the identical percent rank (i.e., top 20%) claim (*M* = 7.16, *SD* = 1.28, *N* = 47); *F*(1, 201) = 3.99, *p* < .05, η*p*2 = .02. These results are illustrated in Figure 6 (Web Appendix C).

Furthermore, participants’ evaluation of Tony’s academic performance relative to his class showed a similar pattern as the one we found for the composite evaluation measure. Specifically, we again observed a main effect of set size (*F*(1, 201) = 9.63, *p* = .002, η*p*2 = .05), no main effect of claim type (*F*(1, 201) = .35, *p* = .56, η*p*2 < .01), and a significant interaction between claim type and set size (*F*(1, 201) = 5.76, *p* < .02, η*p*2 = .03).

We also examined recall accuracy for set size and nominal value. As in our earlier studies, recall rates of nominal value and set size were universally high (i.e., >75%) across conditions.

Next, we examined whether numeracy moderated the effect of claim format on evaluations. On average, participants in our experiment correctly answered 7.43 (*SD* = 2.49) of the 11 questions on the objective numeracy scale. For participants in the small set size and large set size conditions, we separately regressed evaluations on claim format condition (numerical rank = 0, percent rank = 1), the mean-centered numeracy score, and their interaction. When set size was small, we observed a main effect of rank format (β = -.32, *t*(100) = -3.42, *p* = .001) but no main effect of numeracy score (β = .05, *t*(100) = .33, *p* = .74) nor a significant interaction (β = -.08, *t*(100) = -.55, *p* = .59). When set size was large, we observed a main effect of rank format (β = .20, *t*(97) = 2.08, *p* = .04) a marginal main effect of numeracy score (β = -.22, *t*(97) = -1.71, *p* = .09) but no significant interaction (β = .18, *t*(97) = 1.43, *p* > .15). These results, particularly the non-significant interactions in these regressions, suggest that numeracy does not moderate the effect of claim format on evaluations.

***EXPERIMENT 8***

The purpose of Experiment 8 is twofold. First, we aim to test a different debiasing approach than the ones used in Experiments 3 and 4, which focused on manipulating perceptions of set size importance. Specifically, if consumers favor one rank claim over an equivalent claim because they engage in format neglect, then an intervention that forces them to consider both the percent and rank formats should attenuate this effect. Therefore, in Experiment 8, participants encounter equivalent percentile rank or numerical rank claims, but we manipulate whether or not they are explicitly directed to consider both formats before providing their evaluation. Second, whereas our prior studies focused on imprecise rank claims, the stimuli in Experiment 8 use precise claims (i.e., the target’s exact numerical or percent position is communicated, rather than a range). This allow us to further test the robustness of our effect. As in Experiments 4 and 5, we examine only on a large set in Experiment 8 in order to keep the number of conditions in this study tractable.

***Method***

Experiment 8 was an online study conducted with 330 students at a large public university in the U.S. (48.48% female, average age = 20.93, *SD* = 1.03) who participated in exchange for course credit. The study involved a 2 (claim format: numerical rank, percent rank) x 2 (debiasing task: absent, present) between-participants design. Participants were asked to imagine that they were an admissions officer for a prestigious college. They were informed that they would be evaluating a college applicant with initials S.K. (full name had purportedly been withheld) based on the applicant’s overall academic performance in high school. Participants were informed that in terms of overall academic performance, S.K. was either “ranked exactly in the highest 15th percentile” (percent rank claim) or “exactly the 45th highest-ranked student” (numerical rank claim) in a graduating high school class of 300 students.

Participants in the debiasing task present conditions were asked to report both S.K.’s numerical rank and percent rank in two text boxes. They were given specific instructions on how to convert a numerical rank to percentile rank (or vice versa) and were not allowed to advance past this screen until they answered both questions correctly. Participants in the debiasing task absent conditions were not asked these two questions.

Subsequently, participants in all conditions were asked to indicate, in their opinion, how well S.K. had performed in high school (0 = not very well, 100 = very well) and how likely they would be to recommend him/her for college admission (0 = not very likely, 100=very likely) on two sliding scales. These two questions were combined to form a single evaluation measure (r = .75).

Next, on a new screen participants were asked (or asked again, if in the debiasing conditions) to report both S.K.’s numerical rank and percentile rank in two text boxes. However, this time, participants were not given specific instructions on how to convert a numerical rank to percentile rank (or vice versa) and were allowed to advance to the next screen if they entered any two-digit number (i.e., not necessarily correct). We recorded the cumulative amount of time participants needed to answer these two questions. If participants were spontaneously converting numerical ranks into percentiles (or vice versa) when they received the original claim about S.K., then there would be no difference in response times across conditions. But if participants tend to attend primarily to the nominal value communicated in the rank claim, as we suspect, then participants in the debiasing task absent condition should require more time to answer these two questions because the answers need to be constructed rather than merely retrieved from short-term memory.

Finally, we explicitly asked participants to indicate how important “S.K.’s position in his/her graduating class” and “the size of S.K.’s graduating class” were in influencing their recommendation on separate sliding scales (0 = not very important, 100=very important).

***Results and Discussion***

A 2 (claim format) x 2 (debiasing task) between-subjects ANOVA on the composite evaluation measure revealed neither a main effect of claim format (*F*(1, 326) = .19, *p* > .67, η*p*2 < .01) nor the debiasing task (*F*(1, 326) = .12, *p* > .73, η*p*2 < .01). However, consistent with our theorizing, we observed a significant interaction between claim format and the debiasing task; *F*(1, 326) = 5.22, *p* < .03, η*p*2 = .02.

Planned contrasts revealed that when the debiasing task was absent, those who encountered the numerical rank (i.e., number 45) evaluated S.K. marginally less favorably (*M* = 67.47, *SD* = 21.79, *N* = 78) than those who encountered the equivalent percent rank (i.e., 15th percentile) claim (*M* = 74.26, *SD* = 22.79, *N* = 86; *F*(1, 326) = 3.66, *p* < .06, η*p*2 = .01. This result replicates the results of our prior studies, again suggesting that rank claims with smaller nominal values tend to be preferred. However, when the debiasing task was present, those who encountered the numerical rank claim evaluated S.K. no differently (*M* = 72.33, *SD* = 21.34, *N* = 86) than those who encountered the percent rank claim (*M* = 67.69, *SD* = 24.67, *N* = 80); *F*(1, 326) = 1.73, *p* > .18, η*p*2 < .01. Furthermore, consistent with our theorizing, the debiasing task directionally increased evaluations of participants in the numerical rank (i.e., number 45) conditions (*F*(1, 326) = 1.87, *p* = .17, η*p*2 < .01) and marginally reduced evaluations of participants in the percent rank (i.e., 15th percentile) conditions (*F*(1, 326) = 3.47, *p* = .06, η*p*2 = .01). These results are illustrated in Figure 7 (Web Appendix C).

As expected, when all participants were asked to indicate both S.K.’s numerical and percent rank, participants in the debiasing absent condition required more than double the time to respond (*M* = 28.40s, *SD* = 21.60, *N* = 164) compared to those in the debiasing present condition (*M* = 12.89s, *SD* = 7.30, *N* = 166); *F*(1, 326) = 136.18, *p* < .001, η*p*2 = .30 (after log transformation). This result is consistent with our proposal that participants over-rely on the nominal rank in a claim and do not spontaneously convert it to another format.

As in our earlier studies, a mixed ANOVA with self-reported consideration of rank and consideration of set size measured within-participants again revealed a main effect of measure (*F*(1, 326) = 89.13, *p* < .001, η*p*2 = .22), which indicates that participants were more likely to consider nominal value (*M* = 79.70, *SD* = 16.72) than set size (*M* = 62.14, *SD* = 29.09).

***EXPERIMENT 9***

Our proposal is that consumers evaluate numerical rank claims more positively relative to identical percent rank claims when set sizes are small (< 100) because they over-rely on the nominal value stated in the claim and insufficiently account for set size. If our theorizing is correct, then simultaneously viewing a numerical rank claim and a percent rank claim may eliminate the bias because joint presentation should prompt consumers to consider the different formats communicated in the respective claims and modify one of them to allow a more “apples-to-apples” comparison. That is, we expect that consumers who encounter both claims will be more apt to rely on differences between the two claim formats and engage in mental processes to equate them so as to make a better choice. For example, joint evaluation consumers may be more likely to multiply the nominal value in the percent claim by the set size in order to make it comparable to the numerical claim that was also provided. This prediction is consistent with prior work on joint versus separate evaluation, which suggests that participants in joint evaluation mode are more likely to compare and contrast different aspects of potential options than those in separate evaluation mode (see Hsee and Zhang 2010 for a review). Stated differently, we expect joint evaluation mode to force participants to rely on claim format and focus less exclusively on the nominal value conveyed in the rank claim. To test this, participants in Experiment 9 encounter numerical rank and/or percentile rank claims in different evaluation modes (joint evaluation vs. separate evaluation). Also, as we had done in Experiment 3, we test whether inferior numerical rank claims may sometimes be preferred in separate evaluation mode when set sizes are small.

***Method***

Experiment 9 was conducted with 288 US participants (42.7% female, average age = 33.39, *SD* = 9.78) recruited using an online panel (Amazon Mechanical Turk). Participants were randomly assigned to one of three conditions: numerical rank separate evaluation, percent rank separate evaluation, or joint evaluation (numerical rank and percentile rank together).

All participants were asked to suppose that they were planning a skiing trip to Utah and were exposed to either one or two advertising claims, depending on condition. Participants in the joint evaluation condition were informed that one ski resort claimed to be ranked “in the top 10 of the 20 major ski resorts in Utah by SKI magazine,” whereas a different ski resort had advertised its ranking “in the top 25% of the 20 major ski resorts in Utah by SKI magazine.” In the separate conditions, participants saw only one of the two advertising claims. Within each condition, the name of the advertised ski resorts (Alta vs. Canyons), both of which are real resorts, was counterbalanced across participants.

After reading both advertising claims, participants in the joint evaluation condition were asked to indicate how likely they would be to visit each of the ski resorts on eleven-point scales (1=very unlikely to 11=very likely). Participants in the separate evaluation conditions similarly expressed their likelihood to visit, which served as the experiment’s primary dependent variable, but only for the single resort for which they had seen a claim.

Finally, participants were asked to indicate the extent to which they considered themselves a ski resort expert on a nine-point scale (1 = not at all to 9 = very much), and whether they had heard of Alta or Canyons ski resort prior to the study (Y/N).

***Results and Discussion***

Because real ski resorts were referenced in the advertising claims, we were concerned that familiarity with the resorts could affect evaluations in ways that are independent of our hypothesized effect. However, only 25 of the participants had heard of either Canyons or Alta, and excluding these participants had no effect on our results. Thus, the analyses discussed subsequently includes our entire sample of participants.

Participants’ evaluations were analyzed first for those in the separate evaluation conditions (for whom likelihood to visit was a between-participant measure) and then for participants in the joint evaluation condition (for whom likelihood to visit was a within-participant measure). As predicted, evaluations in separate evaluation mode were significantly higher when the resort was described using a numerical rank claim (top 10 of 20) rather than a percent rank claim (top 25% of 20); (*M*Numerical = 8.23, *SD* = 1.96, *N* = 102 vs. *M*Percent = 7.40, *SD* = 2.66, *N* = 96, *t*(196) = 2.51, *p* < .02, *d* = .36). This effect persisted if participants’ ski resort expertise was included in the analysis (*F*(1,195) = 6.32, *p* < .02, ηp2 = .03), even after controlling for this covariate (*F*(1, 195) = 2.58, *p* = .11, ηp2= .01). On the other hand, in joint evaluation mode, evaluations were significantly lower when the resort was described using a numerical rank claim (top 10 of 20) rather than a percent rank claim (top 25% of 20); (*M*Numerical = 7.02, *SD* = 3.28, *N* = 90 vs. *M*Percent = 8.51, *SD* = 2.68, *N* = 90, *t*(89) = 3.15, *p* < .01, *d* = .33). Again, the effect persisted if ski resort expertise was included in the analysis (*F*(1, 88) = 5.37, *p* < .03, ηp2 = .06), even after controlling for this covariate (*F*(1, 88) = 3.82, *p* = .05, ηp2= .04). These results are illustrated in Figure 8 (Web Appendix C).

To assess the significance of this shift in joint-separate evaluations, one needs to compare the difference between the evaluations of the two resorts in joint evaluation with their evaluations in separate evaluation. Because the difference in joint evaluation is within-participants and the difference in separate evaluation is between-participants, we used the t-statistic calculation recommended by Hsee (1996). Using this calculation, we discovered that the shift in evaluations that we observed was highly significant (*t*(285) = 4.98, *p* < .001, *d* = .59).

**SUPPLEMENTARY REFERENCES**

Grewal, Rajdeep, James A. Dearden, and Gary L. Lilien (2008), “The University Ranking Game: Modeling the Competition among Universities for Ranking,” *American Statistician*, 62 (3), 232-237.

Hsee, Christopher K. (1996), “The Evaluability Hypothesis: An Explanation for Preference

Reversals Between Joint and Separate Evaluations of Alternatives,” *Organizational Behavior and Human Decision Processes*, 67(3), 247-257.

Hsee, Christopher K. and Jiao Zhang (2010), “General Evaluability Theory,” *Perspectives on*

*Psychological Science,* 5 (4), 343-55.

Lipkus, Isaac M., Greg Samsa, and Barbara K. Rimer. "General Performance on a Numeracy Scale Among Highly Educated Samples." *Medical Decision Making*, 21 (1), 37-44.

**WEB APPENDIX B: STIMULI**

***EXPERIMENT 1***

Amazon sells products in many different categories. These categories range from electronics and books to household supplies and groceries. From time to time, Amazon assesses the performance of individual products in each of its categories.

*Small Set Size / Numerical Rank Claim*

Based on sales data on Amazon.com, Product GLS [real name withheld] was among the top 20 of the 50 products in its category.

*Small Set Size / Percent Rank Claim*

Based on sales data on Amazon.com, Product GLS [real name withheld] was among the top 40% of the 50 products in its category.

*Large Set Size / Numerical Rank Claim*

Based on sales data on Amazon.com, Product GLS [real name withheld] was among the top 200 of the 500 products in its category.

*Large Set Size / Percent Rank Claim*

Based on sales data on Amazon.com, Product GLS [real name withheld] was among the top 40% of the 500 products in its category.

***EXPERIMENT 2***

The consulting firm Interbrand evaluates and ranks brands across a variety of industries.

*Small Set Size / Numerical Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 10 of the 40 brands in its industry.

*Small Set Size / Percent Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 25% of the 40 brands in its industry.

*Inflection Set Size / Numerical Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 25 of the 100 brands in its industry.

*Inflection Set Size / Percent Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 25% of the 100 brands in its industry.

*Large Set Size / Numerical Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 100 of the 400 brands in its industry.

*Large Set Size / Percent Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 25% of the 400 brands in its industry.

*Inflection Set Size / Superior Numerical Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 10 of the 100 brands in its industry.

*Inflection Set Size / Inferior Numerical Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 40 of the 100 brands in its industry.

*Inflection Set Size / Superior Percent Rank Claim*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 10% of the 100 brands in its industry.

*Inflection Set Size / Inferior Percent Rank Claim C*

According to Interbrand, Brand TFN [real name withheld] was ranked in the top 40% of the 100 brands in its industry.

***EXPERIMENT 3***

Suppose you see the following advertisement for Midtown Library:

*Percent Rank Claim – Low Set Size Importance*

Midtown Library was ranked by *Interlibrary Magazin****e***in the**top 30%**of the 20 libraries in its greater metropolitan area.

*Numerical Rank Claim – Low Set Size Importance*

Midtown Library was ranked by *Interlibrary Magazine* in the **top 10** of the 20 libraries in its greater metropolitan area.

*Percent Rank Claim – High Set Size Importance*

Midtown Library was ranked by *Interlibrary Magazin****e***in the top 30% of the **20 libraries** in its greater metropolitan area.  

*Numerical Rank Claim – High Set Size Importance*

Midtown Library was ranked by *Interlibrary Magazine* in the top 10 of the **20 libraries** in its greater metropolitan area.

***EXPERIMENT 4***

You are considering investing in a mutual fund- one of the funds you are considering is called the Bantam Fund. Before deciding to invest, you consult the website FundTracker.com, which reviews and ranks mutual funds.

*Percent Rank Claim – Low Set Size Importance*

According to FundTracker.com, the Bantam Fund is one of the top 30% of mutual funds in its class.

Number of mutual funds in the Bantam Fund's class: 500

*Numerical Rank Claim – Low Set Size Importance*

According to FundTracker.com, the Bantam Fund is one of the top 150 mutual funds in its class.

Number of mutual funds in the Bantam Fund's class: 500

*Percent Rank Claim – High Set Size Importance*

According to FundTracker.com, the Bantam Fund is one of the top 30% of mutual funds in its class.

Number of mutual funds in the Bantam Fund's class: 500

Please review the above information and enter the number of mutual funds in the Bantam Fund's class: [TEXT BOX]

*Numerical Rank Claim – High Set Size Importance*

According to FundTracker.com, the Bantam Fund is one of the top 150 mutual funds in its class.

Number of mutual funds in the Bantam Fund's class: 500

Please review the above information and enter the number of mutual funds in the Bantam Fund's class: [TEXT BOX]

***EXPERIMENT 5***

*Large Set Size / Numerical Rank Claim*

Of the 2,024 entrants in the 2017 American Cheese Society competition, only 411 were selected to receive awards for technical excellence and aesthetic quality. We’re proud that Cirrus was one of the 411 cheeses to receive an award.

*Large Set Size / Percent Rank Claim*

Of the 2,024 entrants in the 2017 American Cheese Society competition, only 20% were selected to receive awards for technical excellence and aesthetic quality. We’re proud that Cirrus was one of the 20% of cheeses to receive an award.

**SUPPLEMENTAL EXPERIMENTS**

***EXPERIMENT 6***

Imagine that you are evaluating universities. You are provided with the information of a university that corresponds to the description below.

*Small Set Size / Numerical Rank Claim*

University X is in the top 10 of ranked universities.

There are 50 universities being evaluated.

*Small Set Size / Percent Rank Claim*

University X is in the top 20% of ranked universities.

There are 50 universities being evaluated.

*Large Set Size / Numerical Rank Claim*

University X is in the top 100 of ranked universities.

There are 500 universities being evaluated.

*Large Set Size / Percent Rank Claim*

University X is in the top 20% of ranked universities.

There are 500 universities being evaluated.

***EXPERIMENT 7***

*Small Set Size / Numerical Rank Claim*

Tony’s grade point average (GPA) placed him among the top 20 of his high school graduating class of 50 students.

*Small Set Size / Percent Rank Claim*

Tony’s grade point average (GPA) placed him among the top 40% of his high school graduating class of 50 students.

*Large Set Size / Numerical Rank Claim*

Tony’s grade point average (GPA) placed him among the top 40 of his high school graduating class of 200 students.

*Large Set Size / Percent Rank Claim*

Tony’s grade point average (GPA) placed him among the top 20% of his high school graduating class of 200 students.

***EXPERIMENT 8***

*Percent Rank Claim*

According to the candidate's high school transcript, S.K. was ranked exactly in the highest 15th percentile of a graduating class of 300 students in terms of overall academic performance.

*Numerical Rank Claim*

According to the candidate's high school transcript, S.K. was exactly the 45th highest-ranked student in a graduating class of 300 students in terms of overall academic performance.

*Debiasing Task Present Condition – Numerical Rank Claim*

Please answer the questions below by entering the correct numbers in the space provided:

What was S.K.'s exact rank in his/her high school graduating class? [TEXT BOX]

What was S.K.'s exact percentile rank in his/her high school graduating class? *(Hint: divide S.K.'s exact rank by the number of graduating students and multiply this answer by 100)* [TEXT BOX]

*Debiasing Task Present Condition – Percent Rank Claim*

Please answer the questions below by entering the correct numbers in the space provided:

What was S.K.'s exact percentile rank in his/her high school graduating class? [TEXT BOX]

What was S.K.'s exact rank in his/her high school graduating class? *(Hint: divide S.K.'s percentile rank by 100 and multiply your answer by the number of graduating students)* [TEXT BOX]

***EXPERIMENT 9***

*Joint Evaluation Condition*

Suppose you are planning a skiing trip and are trying to select a ski resort in Utah to visit. Suppose you see the following two advertisements:

* [Alta Ski Resort/Canyons Ski Resort] was ranked "in the TOP 25% of the 20 major ski resorts in Utah by SKI Magazine."
* [Alta Ski Resort/Canyons Ski Resort] was ranked "in the TOP 10 of the 20 major ski resorts in Utah by SKI Magazine."

*Separate Evaluation Condition – Percent Rank Claim*

Suppose you are planning a skiing trip and are trying to select a ski resort in Utah to visit. Suppose you see the following advertisement:

* [Alta Ski Resort/Canyons Ski Resort] was ranked "in the TOP 25% of the 20 major ski resorts in Utah by SKI Magazine."

*Separate Evaluation Condition – Numerical Rank Claim*

Suppose you are planning a skiing trip and are trying to select a ski resort in Utah to visit. Suppose you see the following advertisement:

* [Alta Ski Resort/Canyons Ski Resort] was ranked "in the TOP 10 of the 20 major ski resorts in Utah by SKI Magazine."

**WEB APPENDIX C: SUPPLEMENTAL FIGURES**

**FIGURE 5: EFFECTIVENESS OF NUMERICAL VERSUS PERCENT RANK CLAIMS DEPENDS ON SET SIZE, EVEN FOR MARKETING PROFESSIONALS (EXPERIMENT 6)**

Note—Higher numbers indicate more favorable evaluations. Marketing professionals working in the higher education industry evaluated a university more [less] favorably when its performance was described using a numerical rank claim versus an identical percent rank claim if the university was a member of a small [large] set of universities.

**FIGURE 6: EVALUATIONS OF NUMERICAL VERSUS PERCENT RANK CLAIMS DEPENDS ON SET SIZE, EVEN IN A NON-MARKETING COMMUNICATION CONTEXT (EXPERIMENT 7)**

Note—Higher numbers indicate more favorable evaluations. Participants evaluated a target student’s academic performance more [less] favorably when his performance was described using a numerical rank claim versus an identical percent rank claim if the student was a member of a small [large] set of students.

**FIGURE 7: RANK FORMAT CONVERSION TASK ATTENUATES FORMAT NEGLECT   
(EXPERIMENT 8)**

Note—Higher numbers indicate more favorable evaluations. When no debiasing task was performed, participants evaluated a college applicant more favorably if it used a percent rank claim instead of an equivalent numerical rank claim. However, this bias was eliminated when a debiasing task was used in which participants were explicitly directed to consider both percent and numerical rank.

**FIGURE 8: JOINT EVALUATION MODE ATTENUATES FORMAT NEGLECT (EXPERIMENT 9)**

Note—Higher numbers indicate more favorable evaluations. In separate evaluation mode, participants were more likely to visit a ski resort that was described using an inferior numerical rank claim versus another resort that was described with a superior percent rank claim. However, this bias was eliminated in joint evaluation mode, with participants exhibiting greater preference for the ski resort described using the superior percent rank claim. In all cases, the resorts were part of a small group of resorts (set size = 20).

**WEB APPENDIX D: SINGLE PAPER META-ANALYSES**

We performed two single-paper meta-analyses following the procedures and using the software created by McShane and Bockenholt (2017). Both meta-analyses considered the effect of claim format and set size, and their interaction on consumer evaluations (or on daily purchases, for Experiment 5). The first meta-analysis included the five experiments in the paper (Experiments 1-5) whereas the second meta-analysis included the nine experiments in the paper and Web Appendix A. Because evaluations for Experiments 1, 6, and 8 were measured on 100-point scales, we conducted a linear transformation to convert these to 10-point scales so as to be more consistent with the scales used in our other experiments (per the guidance provided by McShane and Bockenholt (2017)).

*Experiments 1-5.* Across five experiments, the single paper meta-analysis provides strong evidence that rank claim format and set size interact to influence evaluations. The single paper meta-analysis considered three contrasts: numerical format vs. percent format in small sets, numerical format vs. percent format in large sets, and the interaction of rank claim format and set size. The meta-analysis revealed and significant contrasts when set sizes were large (Estimate = .83, SE = .20; *z* = 4.21, *p* < .001) or small (Estimate = .94, SE = .21; *z* = 4.50, *p* < .001), as well as a significant interaction (Estimate = 1.77, SE = .29; *z* = 6.16, *p* < .001).

*Experiments 1-9.* Across nine experiments, the single paper meta-analysis provides strong evidence that rank claim format and set size interact to influence evaluations. The single paper meta-analysis considered three contrasts: numerical format vs. percent format in small sets, numerical format vs. percent format in large sets, and the interaction of rank claim format and set size. The meta-analysis revealed and significant contrasts when set sizes were large (Estimate = 1.00, SE = .18; *z* = 5.62, *p* < .001) or small (Estimate = .69, SE = .18; *z* = 3.72, *p* < .001), as well as a significant interaction (Estimate = 1.69, SE = .26; *z* = 6.58, *p* < .001).

The figure on the next page provides effect estimates for the single paper meta-analysis involving all nine experiments.

Effect Estimates for Single Paper Meta-Analysis



NOTE.—Effect estimates for individual experiments are given by the squares while the vertical bars represent the single paper meta-analysis estimates. 50% and 95% intervals are represented by the thick and thin horizontal lines. The SPM results fully support our theorizing and conclusions. Graph produced by software developed by McShane and Bockenholt (2017).

1. Initial list of universities was produced by Georgetown University’s Center on Education and the Workforce, “Ranking Your College: Where You Go and What You Make,” based on an analysis of data from the U.S. Department of Education’s College Scorecard, 2015. [↑](#footnote-ref-1)