

**RESEARCH ARTICLE**

# Choosing what to choose from: Preference for inclusion over exclusion when constructing consideration sets from large choice sets

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**Abstract**

Decision making is a two-stage process, consisting of, first, consideration set construction and then final choice. Decision makers can form a consideration set from a choice set using one of two strategies: including the options they wish to further consider or excluding those they do not wish to further consider. The authors propose that decision makers have a relative preference for an inclusion (vs. exclusion) strategy when choosing from large choice sets and that this preference is driven primarily by a lay belief that inclusion requires less effort than exclusion, particularly in large choice sets. Study 1 demonstrates that decision makers prefer using an inclusion (vs. exclusion) strategy when faced with large choice sets. Study 2 replicates the effect of choice set size on preference for consideration set construction strategy and demonstrates that the belief that exclusion is more effortful mediates the relative preference for inclusion in large choice sets. Studies 3 and 4 further support the importance of perceived effort, demonstrating a greater preference for inclusion in large choice sets when decision makers are primed to think about effort (vs. accuracy; Study 3) and when the choice set is perceived as requiring more effort because of more information being presented about each alternative (vs. more alternatives in the choice set; Study 4). Finally, Study 5 manipulates consideration set construction strategy, showing that using inclusion (vs. exclusion) in large choice sets leads to smaller consideration sets, greater confidence in the decision process, and a higher quality consideration set.

**KEYWORDS**

assortment, choice confidence, consideration sets, decision making, include/exclude, large choice sets, lay theories, screening

## 1 | INTRODUCTION

Decision makers are inundated with choice. Although they are often attracted to more choices and prefer to choose from more options than fewer (Broniarczyk, Hoyer, & McAlister, 1998; Goodman & Malkoc, 2012), availability of more options comes at a cost to decision makers in terms of more regret, decision difficulty, and deferral, as well as lost utility (e.g., Chernev, Böckenholt, & Goodman, 2015;

lyengar & Lepper, 2000; Kuksov & Villas-Boas, 2010). Past research characterizes decision making as a two-stage process: a first stage in which decision makers form a consideration set of desirable options for further consideration and a second stage in which a final choice is made from the consideration set (Beach, 1993; Chakravarti & Janiszewski, 2003; Gilbride & Allenby, 2004; Hauser, 2014; Nedungadi, 1990; Ordóñez, Benson, & Beach, 1999). Although extensive decision research has examined postchoice consequences,

researchers still know little about how the size of a choice set affects the specific strategies decision makers use to form a consideration set—a key factor in understanding the entire choice process.

Decision makers can use one of two general strategies when forming a consideration set—an inclusion strategy (i.e., selecting alternatives of interest for further consideration) or an exclusion strategy (i.e., rejecting alternatives of little interest and considering only the remaining options; Heller, Levin, & Goransson, 2002; Levin, Proskansky, & Brunick, 2001). Although these strategies appear as if they are the objective inverse of the other, behaviorally, they are not equivalent, which can have downstream consequences on choice quality and preference consistency (Heller et al., 2002; Irwin & Naylor, 2009; Kogut, 2011; Levin, Huneke, & Jasper, 2000; Long & Campbell, 2015; Ordóñez et al., 1999).

In this research, we focus on the first stage of this decision process and explore whether choice of consideration set construction strategy varies as a function of choice set size and the downstream consequences of strategy choice. We propose that decision makers' lay beliefs about the relative effort and accuracy of executing inclusion and exclusion strategies vary as a function of choice set size, which affects strategy choice, choice confidence, and consideration set size and quality. We propose that decision makers believe inclusion to be both less effortful and more accurate in large choice sets than in small choice sets. As a result, in an attempt to minimize effort, decision makers prefer inclusion relative to exclusion when screening from large choice sets. Supporting the role of perceived decision effort in driving increased preference for inclusion, we also find that increasing perceived decision effort by increasing the amount of information per alternative (vs. the number of alternatives) increases the relative preference for inclusion over exclusion. Further, we find evidence that decision makers' lay theories about the relative ease and accuracy of these strategies across choice sets are, at least partially, correct: Exclusion takes more time to execute in large choice sets than inclusion and produces lower quality consideration sets about which decision makers feel less confident.

## 2 | SCREENING AND CONSIDERATION SET CONSTRUCTION

Considerable work supports the idea that choice is a two-stage process (e.g., Heller et al., 2002; Levin et al., 2000; Ordóñez et al., 1999). Choice models have consistently shown advantages for two-stage models (Gilbride & Allenby, 2004; Hauser, 2014), and predecisional distortion suggests that people spontaneously engage in consideration of available alternatives as a separate phase from choice (Russo, Meloy, & Medvec, 1998). In the first stage of choice, decision makers create what is traditionally referred to as a consideration set—a smaller, more manageable subset of all available alternatives to consider further (Chakravarti & Janiszewski, 2003; Hauser &

Wernerfelt, 1990). Consideration sets range from two to eight options and are small relative to the choice set size (Hauser & Wernerfelt, 1990). Several factors can impact consideration set composition, including usage situation (e.g., Nedungadi, 1990), advertising (Mitra & Lynch, 1995), construal (Lynch & Zauberman, 2007), recommendation signage (Goodman, Broniarczyk, Griffin, & McAlister, 2013), and affect (Barone, Fedorikhin, & Hansen, 2017).

Past literature identifies two strategies for constructing a consideration set: inclusion and exclusion. The include-exclude distinction generally refers to the creation of a consideration set, or subset of alternatives, from a larger set of options, and it always refers to the inclusion or exclusion of whole alternatives and not an attribute-based decision rule (e.g., Heller et al., 2002; Irwin & Naylor, 2009; Levin et al., 2001).<sup>1</sup> This "consideration set construction phase" of the decision process is different from the "choice phase," which consists of using separate decision rules to make a final decision, such as weighted additive, elimination by aspects (EBA), or lexicographic (Gilbride & Allenby, 2004; Payne, Bettman, & Johnson, 1988; Yee, Dahan, Hauser, & Orlin, 2007).

A decision maker using an include strategy seeks out alternatives to include in the consideration set. In contrast, a decision maker using an exclude strategy seeks out alternatives to exclude from the consideration set, which are placed into an inept set (Narayana & Markin, 1975). Choice of strategy can depend on individual differences (e.g., political orientation; Jasper & Ansted, 2008) and the type (e.g., quantitative vs. judgment decisions; Heller et al., 2002) or frame (e.g., positive vs. negative; Levin et al., 2001) of a decision. We propose another contextual factor that may also influence include-exclude choice—size of the choice set.

### 2.1 | Choice set size and beliefs about the effort and accuracy of inclusion versus exclusion

Although inclusion and exclusion may appear to be mirror images of each other, behaviorally, they are not equivalent, much like decisions involving a status quo (Samuelson & Zeckhauser, 1988), defaults (Johnson & Goldstein, 2003), or select versus reject (Shafir, 1993) are not equivalent and can result in different choices. Inclusion and exclusion not only produce different outcomes (e.g., exclusion produces larger consideration sets) but also involve fundamentally different approaches to screening based on different implied status quos (Kogut, 2011; Yaniv & Schul, 2000). In exclusion, because action is required to exclude an alternative from the choice set (e.g., mentally or physically marking out an alternative to remove it from further consideration), the implied status quo is that a given option is already in the consideration set by default. The decision maker must exert effort to remove it. In contrast, for inclusion, the implied status quo is that a given option is not yet in the consideration set because the decision maker must exert effort to include it. Thus, the default state

<sup>1</sup>Related research has used the terms "accept," "select," "choose," or "retain" versus "reject" or "eliminate." However, these terms are generally used to refer to a choice between two (or three) options in the *choice phase* and not to the *consideration set construction phase* of the decision process (e.g., Chernev, 2009; Meloy & Russo, 2004; Shafir, 1993; Sokolova & Krishna, 2016; Wedell, 1997; but see Ordóñez et al., 1999 for an exception).

of inclusion is a consideration set of nothing, whereas the default state of exclusion is a consideration set that varies as a function of choice set size.

As choice set size increases, the default state of exclusion leads to a larger initial consideration set, which then requires more effort to reduce to a reasonably sized consideration set (usually between two and four options; Hauser & Wernerfelt, 1990). Supporting this notion, past studies have found decision makers form larger consideration sets when they use an exclude (vs. include) strategy (Heller et al., 2002; Yaniv & Schul, 2000). We therefore propose that people believe that the two strategies differ significantly in the effort required to execute them, particularly for large choice sets.

To illustrate why we make this prediction, consider the following example. With a choice set size of six, a decision maker using exclusion starts with an initial consideration set of six and must exclude two options to form a final consideration set of, say, four options. However, with a choice set of 30, a decision maker starts with an initial consideration set of 30 and must exclude 26 options to form a final consideration set of four. We note that this example assumes that even with large choice sets, consideration sets remain relatively small, an assumption validated by previous research (Hauser & Wernerfelt, 1990). Thus, in this example, to get to a realistically sized consideration set, excluding from a large set involves taking action with 26 options, whereas including from this large set only involves taking action with four options. This reasoning proposes that decision makers “screen” more options in exclude than in include, particularly in large choice sets.

Thus, based on the difference in the implied status quo for inclusion and exclusion, we propose that people will form a belief that it will be easier to execute inclusion (vs. exclusion) in large choice sets because they can do so by focusing on finding the few alternatives they like and ignoring the ones they do not like. This prediction is consistent with research suggesting that most people are overconfident in their ability to control their own mental processes and attention (Wegner, 2002) and that individuals are often satisficing rather than optimizing (Simon, 1956) when forming consideration sets (Gilbride & Allenby, 2004) in the preference-based consumer contexts we explore in our studies (e.g., flavors of ice cream and vacations). Given that decision makers are motivated to minimize their decision making effort and will trade off accuracy to lower effort (Johnson & Payne, 1985; Payne et al., 1988), we expect people to prefer an include (vs. exclude) strategy with a large choice set.

If perceived decision effort is the mediating process for why large assortments lead to preferences for an inclusion strategy, then we should also expect the preference for inclusion to increase when effort is made salient or when the decision requires more effort because of other factors, such as the amount of information per alternative the decision maker must process. Although large assortments are often defined as choice sets larger than 10 alternatives, whether a large assortment leads to decision difficulty is also dependent upon the decision maker's expertise and preference development, as well as the amount of information provided (Chernev et al., 2015; Broniarczyk, 2008; Goodman et al., 2013; Scheibehenne,

Greifeneder, & Todd, 2010). Thus, in one of our studies, we test whether people also prefer inclusion from assortments when effort is increased in a given choice set by adding more information per alternative rather than adding more alternatives.

Empirically, there is not clear evidence as to whether inclusion may actually take more time than exclusion. With a choice set of 24 options, Levin, Jasper, and Forbes (1998) found results directionally consistent with our predictions about beliefs (i.e., that exclusion took longer than inclusion), but the results were not significant ( $n = 83$ ), and the study did not have a small choice set condition for comparison. Thus, in our studies, we test whether there are differences in actual execution time and perceived effort between strategies and whether these differences depend on choice set size.

We might also expect that the belief that one can easily focus only on good options in inclusion may spill over to beliefs about accuracy. We define an “accurate” consideration set as one that the decision maker perceives as containing the alternatives he or she sees as most desirable. On the one hand, we might expect consumers to believe that an inclusion strategy is less accurate in larger choice sets because accuracy is generally associated with more effort (Ganesh Pillai, He, & Echambadi, 2019; Payne et al., 1988), and consumers may associate the lower effort of inclusion in a large choice set with a less accurate outcome. On the other hand, inclusion may be seen as more accurate as a result of the same status quo differences that influence effort perceptions. Because the “action” involved in using inclusion is focused on finding and including good alternatives while focusing on positive attributes (Meloy & Russo, 2004; Shafir, 1993), decision makers using inclusion are naturally focused on desirable alternatives and attributes. In contrast, people using exclusion are focused on bad alternatives and negative attributes as they evaluate all options in the choice set in order to screen them out.

As a result of this differential relative focus on desirable versus undesirable alternatives and attributes across strategies, we predict that people will believe that inclusion is more effective at ensuring good options with positive attributes that will end up in one's consideration set than exclusion. This difference is exacerbated in large choice sets because an exclusion strategy will require devoting attention to even more bad alternatives to be excluded in order to reach a similar sized consideration set as the choice set size increases. Thus, in our studies, we will test whether there are differences in beliefs about the accuracy of the two strategies and whether these beliefs depend on choice set size.

## 2.2 | Downstream consequences of consideration set construction strategy selection

Research has documented various downstream consequences to the screening process (e.g., Chakravarti, Janiszewski, & Ülkümen, 2006; Nedungadi, 1990). Although past research has found that excluding may result in a consideration set more consistent with one's preferences (Kogut, 2011; Sokolova & Krishna, 2016) and greater weight placed on ethical attributes (Irwin & Naylor, 2009), these studies do

not make direct claims about consideration set quality. Testing quality directly, studies have not found a difference in consideration set quality as a function of strategy (Levin et al., 2000). However, there is evidence that consideration sets produced using inclusion may be of higher quality because they are generally smaller and more selective and contain fewer middling options (Heller et al., 2002; Levin et al., 1998; Yaniv & Schul, 2000). Although some of these studies did have larger set sizes (up to 32 options), there are many other procedural differences but no manipulation of choice set size. Thus, it is difficult to draw conclusions about the overall utility of the consideration set based on strategy.

We propose that the utility of the consideration set based on the screening strategy depends on the choice set size. As previously discussed, the implied status quo is different in inclusion versus exclusion (Kogut, 2011; Samuelson & Zeckhauser, 1988; Yaniv & Schul, 2000). The status quo in inclusion is that suboptimal options are left out of the consideration set by default; thus, people are less likely to “accidentally” include suboptimal alternatives in their consideration sets (Kogut, 2011), and they will form smaller, more selective consideration sets (Heller et al., 2002; Yaniv & Schul, 2000). In contrast, the potential for error is higher in exclusion where the status quo is that suboptimal options are left in the consideration set by default and must be actively removed.

Although this potential for error can be overcome with minimal effort in small choice sets because people have mental resources available to put effort into examining every alternative, people will be more prone to error in large choice sets. In large choice sets, significantly more effort is required and people are more likely to accidentally fail to exclude an undesirable alternative because more mental resources will be needed to examine the larger number of alternatives in the choice set. Thus, we propose that exclusion (vs. inclusion) will produce consideration sets with more suboptimal alternatives when used with a large versus small choice set. Further, if consideration sets contain more suboptimal or “middling” options, then we should see that this effect is driven by larger consideration sets. In other words, we propose that using inclusion (vs. exclusion) in large choice sets leads to higher quality consideration sets, which is mediated by smaller consideration set sizes.

We also expect decision makers to report decreased confidence when excluding in large assortments based on the same logic: When excluding from large choice sets, larger consideration sets will increase the potential for error, which should lower confidence. Thus, we predict that smaller consideration set sizes will also mediate the increased confidence decision makers will feel when including (vs. excluding) in large choice sets. There are three conceptually related reasons for this prediction. First, larger consideration sets are associated with decision makers feeling more overwhelmed and experiencing more difficulty in the decision process (Goodman et al., 2013), which should lower feelings of confidence. Second, work on metacognition suggests that perceptions of difficulty lower confidence in choice (Alter, Oppenheimer, Epley, & Eyre, 2007). Finally, regulatory fit theory (Higgins, 2000, 2005) proposes that when people feel that they have

used the “right” approach to a decision, their experience of the correctness of that process transfers to the chosen object (Avnet & Higgins, 2003), which increases feelings that one has made a good decision. In sum, we predict that using inclusion (vs. exclusion) in large choice sets leads to smaller consideration sets, which results in both greater confidence in the decision process and a higher quality consideration set.

## 2.3 | Overview of studies

Study 1 provides evidence that people are more likely to choose an include strategy when faced with a large (vs. small) choice set. The study also finds that executing exclusion takes more effort than inclusion in a large but not a small choice set by measuring actual time spent completing the task. Study 2 replicates the effect of choice set size on preferences for consideration set construction strategy and demonstrates that the belief that exclusion is more effortful mediates the relative preference for inclusion in large choice sets. Testing this effect through moderation, Study 3 shows that individuals primed to think about decision effort have a greater preference for inclusion in large choice sets. Manipulating the amount of information presented about each alternative, Study 4 shows that decision makers are also more likely to use an include strategy when the choice set is perceived as requiring more effort because of more information instead of more alternatives. Finally, Study 5 manipulates consideration set construction strategy and tests our predictions about downstream effects of consideration set construction strategy.

In all studies, we report how we determined our sample size, all data exclusions (if any), and all manipulations and measures. All sample sizes were set in advance of data collection, and sample sizes reported are for those participants that completed the dependent measure(s).

## 3 | STUDY 1: INITIAL TEST

Study 1 tests whether people are more likely to use an include (vs. exclude) consideration set construction strategy when faced with large (40 alternatives) versus small (eight alternatives) choice sets. A professional Web designer developed an interactive travel website where participants chose between using an include or exclude strategy to form their consideration set when browsing vacations (where decision makers often form consideration sets; Karl, Reintinger, & Schmude, 2015). Previous research has shown that such adaptive interfaces can improve decision making (Häubl & Trifts, 2000; Murray & Häubl, 2011), so we wanted to test whether the effect we predict occurs when people are offered this type of tool. We also measured the amount of time participants spent forming a consideration set to test whether actual effort expended to execute a strategy as a function of choice set size (operationalized as time spent) matches our predictions about decision makers' beliefs.

### 3.1 | Method

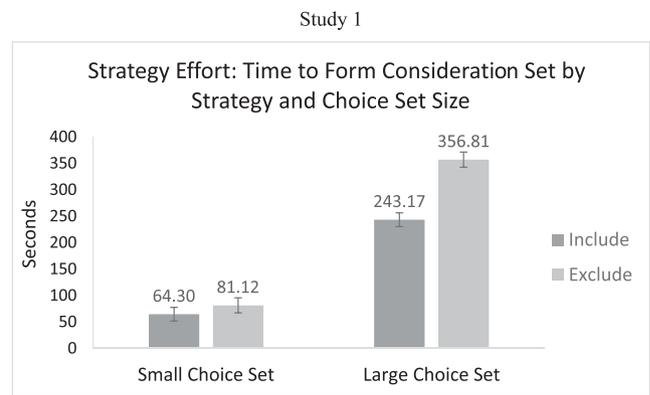
Two hundred ninety-two undergraduates participated in the study in exchange for course credit. Sample size was set by maximizing the number of participants available through the participant pool. Participants were asked to imagine they were shopping for vacations and using a new vacation website. The website (see Data S1) allowed participants to click on destinations to receive more information and view reviews for each destination. On the first page, participants viewed a display of Caribbean vacation destinations in four columns. Participants in the large choice set condition viewed 40 vacations in random order. To create the small choice set, the website randomly chose eight (of the 40) vacations for each participant by choosing two vacations from four categories of vacations based on the primary attraction of each destination (i.e., shopping and nightlife, aquatic sports, outdoors and nature, or history and culture). This method ensured that each participant in the small choice set condition had a similar choice set breadth to participants in the large choice set condition.

Participants were told that their task was to reduce the display to “create a Shortlist of vacations that you would actually consider.” They could choose to exclude and “delete the vacations you would not consider. The remaining vacations will end up on your Shortlist.” Or they could choose to include and “add the vacations you would consider to a Shortlist.” On the first page of the study where the entire choice set was displayed, participants were asked to indicate which strategy they would like to use. This served as our primary dependent variable. They were then taken to a second page with buttons that excluded or included options, depending on the participant's choice. When participants included an option, it was automatically moved into their shortlist at the bottom of the screen, and when participants excluded an option, it was automatically moved out of their shortlist to the bottom of the screen. The webpage created a beginning and end time stamp to measure time spent on the consideration set construction task.

### 3.2 | Results and discussion

Consistent with our predictions, participants were more likely to use an include strategy when faced with a large choice set (61%) compared with a small choice set (49%, Wald  $\chi^2(1, n = 292) = 3.93, p = .047$ ).

In terms of actual effort, we find results consistent with our predictions about decision makers' effort beliefs. Regressing construction set strategy, choice set size, and their interactions on the time it took to conduct the task found a significant interaction ( $F(1,288) = 6.26, p = .01, \eta^2_p = .015$ , Figure 1). Participants spent more time (in seconds) when excluding ( $M = 356.81, SE = 21.46$ ) than including from a large choice set ( $M = 243.17, SE = 17.33, t(288) = 4.12, p < .001$ ); however, there was no difference in time spent excluding ( $M = 81.12, SE = 19.00$ ) versus including from a small choice set ( $M = 64.30, SE = 19.40, t(288) = .62, p = .54$ ). We note that there are different cell



**FIGURE 1** Strategy effort: Time to form consideration set by strategy and choice set size

sizes across these conditions because participants were more likely to include in large ( $n_{include} = 89$  vs.  $n_{exclude} = 58$ ) than in small sets ( $n_{include} = 71$  vs.  $n_{exclude} = 74$ ).

The results of Study 1 indicate that participants were more likely to use inclusion over exclusion when the choice set they faced was large versus small. The time results also suggest that inclusion is less effortful than exclusion when screening from large choice sets. Of course, we note that participants were able to choose their screening strategy and thus self-selected into a strategy condition. To address these issues, Study 2 examines individuals' lay beliefs about the effort and accuracy associated with both strategies.

## 4 | STUDY 2: MEASURING EFFORT AND ACCURACY BELIEFS

In Study 2, we use a different product category and a different procedure to replicate our effect that decision makers prefer inclusion over exclusion to form consideration sets when choice sets are large (30 alternatives) versus small (six alternatives). We also use a realistic scenario in which people likely have experience forming consideration sets, deciding which flavors of ice cream to sample. Finally, we measured decision makers' beliefs about the effort and accuracy required to execute each strategy.

### 4.1 | Method

We recruited 400 Mechanical Turk (MTurk) workers to participate in the study and received 408 responses (46% male,  $M_{age} = 37.6$ ). We asked participants to “Imagine that you are at an ice cream shop to buy a pint of ice cream to take home. The ice cream shop allows customers to try samples of all of their ice cream flavors before choosing one to buy.” They were asked to “Identify a subset of all the ice creams that you would like to try a small sample of” before making a final choice. Participants then read instructions that

described the include and exclude processes (see Data S1). On the next page, participants viewed two pictures (side by side) of either a large (30) or small (6) choice set of ice cream flavors, depending on condition. In order to make sure participants understood the mental process behind inclusion or exclusion, one picture depicted an exclude strategy by showing x's on some of the flavors and the other depicted an include strategy by showing o's on some of the flavors. Each ice cream in the choice set was shown with a picture and name of the ice cream. The small choice set was a subset of options from the large choice set with the goal of representing different broad categories of ice cream flavors (e.g., nut, mint, and fruit flavors). Participants were then asked to indicate their relative preference between the two consideration set construction strategies, "Which strategy, include or exclude, would you choose to form your tasting set?" (7-point scale, 7 = *definitely include* and 1 = *definitely exclude*).

On the next page (before executing any strategy), we measured participants' lay beliefs about both strategies. To measure effort (how much effort they thought it would take to execute both strategies), we asked participants how much they agreed with the following three statements, about both inclusion and exclusion (7-point scale, 1 = *completely disagree* and 7 = *completely agree*): "Using an exclusion [inclusion] strategy would require the appropriate amount of effort for forming my tasting set" (reverse scored), "Mentally crossing out (X) [circling (O)] the ones I don't/do want (exclusion) [[inclusion]] would be a feasible way to form my tasting set" (reverse scored), and "Using an exclusion [inclusion] strategy would take more time than I want to spend on deciding which flavors to taste." We summed the three exclude scores to create an exclude effort index ( $\alpha = .76$ ) and the three include scores to create an include effort index ( $\alpha = .72$ ). To measure whether participants believed they would need to think about every flavor (option thought), we asked them to respond to the following item for both inclusion and exclusion on the same 7-point scale: "I would not have to think about every single flavor in the display if I used an exclusion [inclusion] strategy" (reverse scored).<sup>2</sup> To measure beliefs about accuracy, participants responded to two items for both include and exclude strategies: "Some flavors that I actually don't like that much might end up in my tasting set if I use exclusion [inclusion]" (reverse scored) and "The flavors that I like the best will definitely end up in my tasting set if I use exclusion [inclusion]." We summed the two exclude scores to create an exclude accuracy index ( $\alpha = .45$ ) and the two include scores to create an include accuracy index ( $\alpha = .56$ ). Because of the low Cronbach's alphas, we also conducted and report separate analyses for these measures. Finally, participants entered the year they were born, their gender, and any comments for the researcher.

<sup>2</sup>Option thought was correlated with the effort index ( $r_{\text{exclude}} = .81$ ;  $r_{\text{include}} = .79$ ); however, including it in the index decreased Cronbach's alpha to below .7. Thus, to be conservative and consistent with our a priori intentions, we present results with the measures analyzed separately. We did conduct an analysis with effort and option thought combined and again find significant results with the same pattern of results with similar estimates.

## 4.2 | Results

### 4.2.1 | Preference for consideration set construction strategy

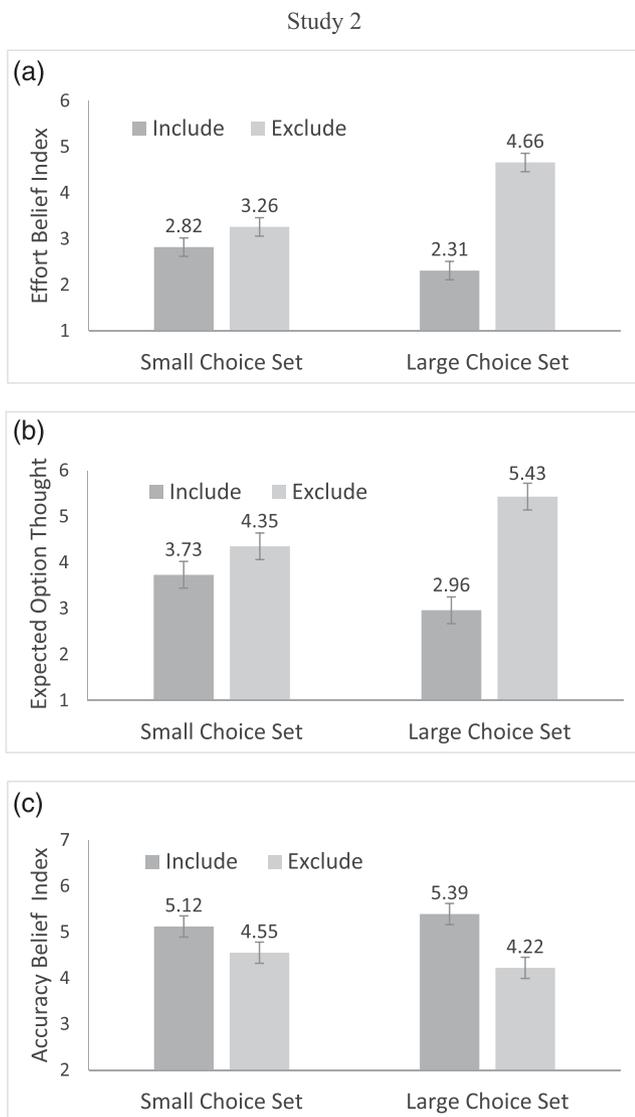
To analyze preference for consideration set construction strategy, we compared relative preference for inclusion in the large and small choice set conditions. Consistent with Study 1, participants indicated that they would be more likely to use an include strategy with a large choice set ( $M = 5.69$ ,  $SE = .15$ ) compared with a small choice set ( $M = 4.97$ ,  $SE = .14$ ,  $F(1,406) = 11.74$ ,  $p < .001$ ,  $\eta^2_p = .028$ ).

### 4.2.2 | Beliefs about effort and accuracy by strategy and choice set size

To analyze participants' beliefs about effort and accuracy as a function of strategy and choice set size, we performed a two-factor mixed analysis of variance (ANOVA). Our independent variables were choice set size (between-subjects factor) and include/exclude (within-subject factor), and our dependent variables were beliefs about effort, option thought, and accuracy.

Analyzing the effort index, we found a main effect of both strategy and choice set size, such that exclusion was believed to require more effort ( $M = 3.91$ ,  $SE = .08$ ) than inclusion ( $M = 2.58$ ,  $SE = .07$ ,  $F(1,404) = 137.91$ ,  $p < .001$ ,  $\eta^2_p = .14$ ), as was a large ( $M = 3.48$ ,  $SE = .06$ ) versus small choice set ( $M = 3.04$ ,  $SE = .06$ ,  $F(1,404) = 29.83$ ,  $p < .001$ ,  $\eta^2_p = .07$ ). More central to our predictions, we also found a significant choice set by strategy interaction ( $F(1,404) = 64.25$ ,  $p < .001$ ,  $\eta^2_p = .14$ , see Figure 2). In the large choice set, participants believed an exclude strategy ( $M = 4.66$ ,  $SE = .11$ ) would be more effortful to execute than an include strategy ( $M = 2.31$ ,  $SE = .10$ ,  $t(188) = 12.77$ ,  $p < .001$ ). In the small choice set, the difference was significantly smaller, but participants still believed an exclude strategy ( $M = 3.26$ ,  $SE = .10$ ) would be more effortful than an include strategy ( $M = 2.82$ ,  $SE = .09$ ,  $t(216) = 2.89$ ,  $p = .004$ ).

The option thought measure showed a similar pattern. There was a significant main effect of strategy, such that participants believed they would have to think about every option in the choice set to a greater degree in exclusion ( $M = 4.86$ ,  $SE = .11$ ) than inclusion ( $M = 3.37$ ,  $SE = .11$ ,  $F(1,406) = 90.96$ ,  $p < .001$ ,  $\eta^2_p = .18$ ), with no significant main effect of choice set size ( $F(1,406) = 1.21$ ,  $p = .27$ ). More central to our predictions, there was a significant choice set by strategy interaction ( $F(1,406) = 32.50$ ,  $p < .001$ ,  $\eta^2_p = .07$ ). In the large choice set, participants believed an exclude strategy ( $M = 5.43$ ,  $SE = .15$ ) would lead them to think more about each option in the choice set than an include strategy, ( $M = 2.96$ ,  $SE = .16$ ,  $t(190) = 9.65$ ,  $p < .001$ ). Further, the mean for exclude was significantly above the scale midpoint of four ( $M = 5.43$ ,  $SE = .15$ ,  $p < .001$ ), whereas the mean for include was significantly below the midpoint of four ( $M = 2.96$ ,  $SE = .16$ ,  $p < .001$ ), demonstrating that participants believed that exclusion would require thinking about each option, whereas inclusion would not require such thought. In the small choice



**FIGURE 2** (a) Effort beliefs by strategy and choice set size. (b) Option thought by strategy and choice set size. (c) Accuracy beliefs by strategy and choice set size

set, the difference was significantly smaller, but participants still believed that an exclude strategy ( $M = 4.35$ ,  $SE = .14$ ) would lead them to think about each option in the choice set to a greater extent than an include strategy ( $M = 3.73$ ,  $SE = .15$ ,  $t(216) = 3.04$ ,  $p = .003$ ).

The accuracy index showed a significant main effect of strategy, such that inclusion ( $M = 5.25$ ,  $SE = .08$ ) was believed to be more accurate than exclusion ( $M = 4.39$ ,  $SE = .08$ ,  $F(1,406) = 54.40$ ,  $p < .001$ ,  $\eta^2_p = .12$ ), with no main effect of choice set ( $F(1,406) = .06$ ,  $p = .81$ ). We also found a significant choice set by strategy interaction ( $F(1,406) = 6.47$ ,  $p = .011$ ,  $\eta^2_p = .02$ ). In the large choice set, participants believed an exclude strategy ( $M = 4.22$ ,  $SE = .12$ ) would be less accurate than an include strategy ( $M = 5.39$ ,  $SE = .11$ ,  $t(190) = 7.09$ ,  $p < .001$ ). In the small choice set, the difference was smaller, but participants still believed an exclude strategy ( $M = 4.55$ ,  $SE = .11$ ) would be less accurate than inclusion ( $M = 5.12$ ,  $SE = .10$ ,  $t(188) = 3.41$ ,  $p < .001$ ). Because the Cronbach's alpha for the accuracy measures

was low, we also conducted separate analyses for these two measures. The analyses suggest that the effect of choice set and strategy on accuracy is driven more by decision makers being confident that good flavors will make it into the consideration set—choice set by strategy interaction ( $F(1,406) = 6.57$ ,  $p = .011$ ,  $\eta^2_p = .02$ )—as opposed to concerns about bad flavors ending up in the consideration set—choice set by strategy interaction ( $F(1,406) = 2.83$ ,  $p = .094$ ,  $\eta^2_p = .01$ ) (see Data S1 for details).

### 4.2.3 | Mediation of strategy selection by beliefs about effort and accuracy

To test whether differences in beliefs about effort and/or accuracy mediate the effect of choice set size on strategy preference, we created two difference scores to use as mediators: (1) an effort difference score (subtracting the include effort index from the exclude effort index) and (2) an accuracy difference score (subtracting the include accuracy index from the exclude accuracy index). We ran Model 4 from Hayes (2013), which allows us to test both mediators simultaneously. We included a contrast to test whether one mediator had a stronger indirect effect than the other. The results (5,000 bootstraps) showed that choice set size had a significant indirect effect on strategy choice through both effort (95% CI [.330, .593]) and accuracy (95% CI [.013, .114]) beliefs. However, the effect of effort was significantly stronger than the effect of accuracy (95% CI [.286, .533]).

## 4.3 | Discussion

Study 2 provides direct evidence that decision makers believe exclusion to be both more effortful to execute and less accurate than inclusion to a greater extent in large versus small choice sets. We found that both accuracy and effort beliefs mediated the greater preference for inclusion in large choice sets, although the effect for effort was stronger, suggesting that the belief that inclusion is easier in large choice sets is the main driver of the effect we observe.

Our belief measures were collected before participants executed their preferred strategy, and we asked all participants to respond to questions about both include and exclude strategies, regardless of their indicated strategy preference. As a result, these measures reflect the a priori lay understandings decision makers have of the two strategies as a function of choice set size (which is what we propose guide choice of strategy) and not a postexperience evaluation of their actual experience executing the strategy. Thus, Study 2 does not have the self-selection issue of Study 1.

## 5 | STUDY 3: MANIPULATING EFFORT AND ACCURACY

In Study 3, we directly test, using moderation, whether it is primarily differential beliefs about the effort or accuracy of inclusion and

exclusion in large choice sets that shapes decision makers' preference for inclusion in this context. We prime participants to either focus on effort or accuracy before choosing a consideration set construction strategy. On the basis of the results of Study 2, we predict that those primed to think about effort will prefer inclusion over exclusion to a greater extent in large (vs. small) choice sets. Although people may believe inclusion to be relatively more accurate, based on the results of Study 2 and the fact that we are studying a context where participants are unlikely to be attempting to optimize their decisions, we would not expect this belief to be a primary driver of strategy choice.

## 5.1 | Method

We recruited 600 MTurk workers to participate in the study and received 607 responses (49% male,  $M_{age} = 36.7$ ). Workers who participated in Study 2 were not eligible to participate in Study 3. The study was a 2(Choice Set: Large vs. Small)  $\times$  2(Prime: Effort vs. Accuracy) between-subjects design. The procedure for the study was similar to that of Study 2, with a few minor changes. As in Study 2, participants imagined shopping for a pint of ice cream and needing to form a tasting set, which we described as "a subset of all the ice creams that you would like to try a small sample of." Ice creams and choice set (30 vs. 6) were the same as in Study 2.

In the effort condition, participants viewed the choice set along with visualizations of the two strategies (x's or o's) and were given an effort prime: "Please consider the time and effort each strategy, include and exclude, will take for you. One strategy or the other may be more effortful. In fact, in prior studies people report that evaluating each option requires some effort. Some people find one strategy or the other more feasible for this decision." In the accuracy condition, participants viewed the choice set and were given an accuracy prime: "Please consider how accurate each strategy, include or exclude, will be for you. One strategy or the other may be more accurate. Some people find one strategy or the other more feasible for this decision. Remember, not everyone has the same preferences, and that's especially true for ice cream. Research shows that ice cream preferences are very diverse and in an attempt to come up with new flavors, many ice cream shops are actually inventing flavors that some people like but, on average, most people don't like." After reading the instructions and prime, participants then responded to the same strategy preference dependent measure as in Study 2. Finally, participants entered the year they were born, their gender, and any comments they had for the researcher.

## 5.2 | Results

To analyze preference for consideration set construction strategy, we ran a 2(Choice Set: Large vs. Small)  $\times$  2(Prime: Effort vs. Accuracy) between-subjects ANOVA with relative preference for inclusion as the dependent variable. Consistent with our previous studies, participants were more likely to prefer to include (vs. exclude) when forming

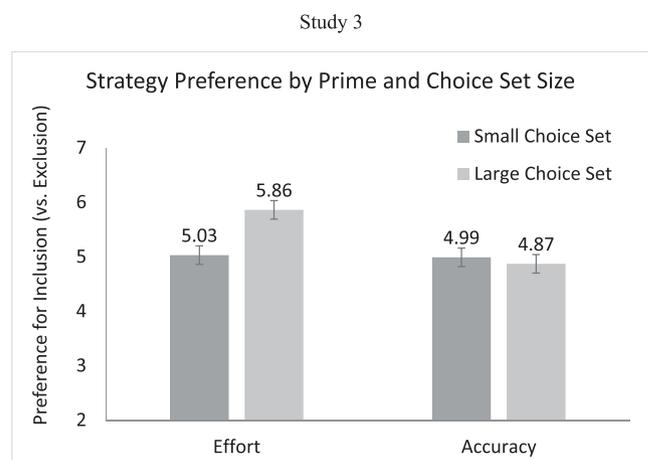
a consideration set from a large ( $M = 5.36$ ,  $SE = .12$ ) versus small choice set ( $M = 5.01$ ,  $SE = .12$ ,  $F(1,603) = 4.22$ ,  $p = .04$ ,  $\eta^2_p = .01$ , see Figure 3). In addition, participants were more likely to include in the effort condition ( $M = 5.44$ ,  $SE = .12$ ) than the accuracy condition ( $M = 4.93$ ,  $SE = .12$ ,  $F(1,603) = 8.81$ ,  $p < .01$ ,  $\eta^2_p = .01$ ). Importantly, the effect of choice set on strategy preference was moderated by the effort/accuracy prime ( $F(1,603) = 7.71$ ,  $p < .01$ ,  $\eta^2_p = .01$ ). Specifically, when effort was primed, participants were more likely to prefer to include in a large ( $M = 5.86$ ,  $SE = .17$ ) versus small choice set ( $M = 5.03$ ,  $SE = .17$ ,  $t(603) = 3.47$ ,  $p < .001$ ,  $\eta^2_p = .02$ ); however, when accuracy was primed, participants were no more likely to prefer include in a large ( $M = 4.87$ ,  $SE = .18$ ) versus small choice set ( $M = 4.99$ ,  $SE = .17$ ,  $t(603) = .50$ ,  $p = .61$ ,  $\eta^2_p = .0004$ ).

## 5.3 | Discussion

In Study 3, we primed participants with either effort or accuracy to test the relative role of effort concerns compared with accuracy concerns. The results, consistent with the mediation results in Study 2, provide further evidence that the greater relative preference for inclusion over exclusion in a large choice set is primarily driven by the belief that exclusion requires more effort than inclusion to execute.

## 6 | STUDY 4: PERCEIVED EFFORT INCREASES USE OF INCLUSION

Study 4 tests whether perceived effort created by additional information in a choice set (vs. additional alternatives) leads to greater use of inclusion. If large assortments lead to a preference for inclusion because of greater perceived processing effort, then we should also expect that when perceived effort is increased because of additional information present in the choice set, decision makers will also prefer inclusion. Thus, in Study 4, we manipulated the amount of information associated with each option in a choice set while holding number of



**FIGURE 3** Strategy preference by prime and choice set size

alternatives constant. We predict that individuals faced with a high (vs. low) information load choice set will be more likely to include.

## 6.1 | Method

Two hundred undergraduates participated in the study in exchange for course credit. Sample size was set by maximizing the number of participants available through the participant pool. Participants viewed a display of 12 vacation options (similar to those used in Study 1) via computer. Each vacation either had two reviews (low information load) or six reviews (high information load; see Data S1 for details). Participants were asked to “narrow down the display to a smaller group of vacations that you would actually consider.” They could choose to exclude and click on vacations that they did not like, or they could include and click on vacations that they did like. After indicating whether they wanted to include or exclude, participants proceeded with the task. As a check to make sure participants were following instructions, the next page asked participants whether they included or excluded.

## 6.2 | Results

Consistent with our prediction, participants were more likely to include in the high (59%) compared with the low information condition (45%,  $\chi^2(1, N = 200) = 3.93, p = .048, OR = 1.75, \phi = .14$ ). We also examined the results by excluding participants that chose to include but later indicated they excluded (or vice versa), and we again find that participants were more likely to include in the high (60%) compared with the low information condition (43%,  $\chi^2(1, N = 140) = 4.00, p = .046, OR = 1.98, \phi = .17$ ).

## 6.3 | Discussion

The results of this study are consistent with our theory that it is a perception of increased effort and difficulty that shifts participants to using inclusion over exclusion, whether this perception stems from a large choice set or the amount of information presented about each option in the choice set. Thus, this study provides additional evidence for the process we predict using moderation (Spencer, Zanna, & Fong, 2005), in addition to the mediation used in Study 3.

## 7 | STUDY 5: DOWNSTREAM CONSEQUENCES OF INCLUDING VERSUS EXCLUDING IN LARGE CHOICE SETS

Study 5 tests the downstream consequences of consideration set construction strategy on consideration set quality. Although Studies 2–4 test the effort–accuracy process, Studies 2 and 3 elicited relative strategy preference and did not ask participants to execute a

particular strategy. Study 4 did ask participants to execute their strategy but did not vary choice set size. In Study 5, we ask participants to actually execute a strategy in either a large or small choice set, and we measure the downstream consequences of doing so on participants' confidence and the quality and size of their consideration set. To do so, we orthogonally manipulate both consideration set construction strategy (i.e., include vs. exclude) and choice set size. We then measure consideration set quality using a multiattribute utility task (conjoint) and measure participants' confidence in their consideration set. Further, we rule out regret and social concerns as alternative explanations.

## 7.1 | Method

Two hundred ninety-nine undergraduates (46% male) participated in an online study in exchange for course credit. Sample size was set by maximizing the number of participants available through the participant pool. We were unable to calculate utilities for four participants because they did not answer all of the questions, leaving us with a final sample of 295 observations.

The study was a 2(Choice Set: Large vs. Small)  $\times$  2(Strategy: Include vs. Exclude) between-subjects design consisting of three parts. In the first part, participants viewed a display of either 16 (large choice set) or six (small choice set) vacation resorts via computer. To form the small choice set, the computer program randomly drew six options from the 16 possible resorts for each individual. We asked participants to imagine that they were planning a spring break trip with their friends and “to form a smaller set of hotels from this larger set that you would be interested in contacting to get more information about their deals.” All vacations were described in terms of four attributes with two levels (view, pool vs. ocean; pool size, large vs. small; beach type, rocky vs. sandy; nightlife, lots of nightlife vs. very little nightlife). In the include condition, participants dragged and dropped resorts that they would like to consider further to create their consideration set. In the exclude condition, they dragged and dropped resorts that they would not like to consider further. We recorded the number of alternatives that were in each participants' consideration set.

In the second part of the study, participants rated their confidence in their consideration set on two measures: “How confident are you that you ended up with a high quality set to choose from?” and “How confident are you that your final set has the best final choice?” (7-point scale, 1 = *Not at all* and 7 = *Very much*,  $r = .83$ ). To examine whether confidence is really being driven by a decrease in concerns about regret or social concerns, we also asked “How worried are you that you accidentally left out options you might have really liked from your smaller set?” (7-point scale, 1 = *Not at all* and 7 = *Very much*) and “How confident are you that your friends will like the smaller set you came up with?” (7-point scale, 1 = *Not at all* and 7 = *Very much*). Participants then made a final choice from their consideration set.

In the third part of the study, to assess consideration set quality, participants completed a multiattribute utility task. First, each participant indicated their preferred level of each attribute (i.e., pool

vs. ocean view, large vs. small pool, rocky vs. sandy beach, and lots of nightlife vs. very little nightlife). Second, they rated how important each attribute was to them (i.e., view, pool size, beach type, and nightlife) on a 7-point scale (1 = *Not at important* to 7 = *Extremely important*). We used these two measures to calculate a utility for each individual for each option in their consideration set. The utility was the sum of the four importance ratings (1 to 7 scale) multiplied by their attribute valence (+1 or -1), resulting in a possible range of +28 to -28. Thus, utility was calculated at the individual level to control for heterogeneous preferences so that, for example, if a participant preferred a small pool, hotels with small pools would provide more utility for that individual than hotels with large pools.

As a manipulation check, we asked participants whether they included, excluded, did a little of both, or could not remember. Finally, we measured gender and age and asked participants if they had any final comments for the researchers.

## 7.2 | Results

### 7.2.1 | Consideration set quality and size

We measured consideration set quality by averaging the utility of all the options in a participant's consideration set ( $M = 7.98$ ,  $SE = .34$ ). We found a significant positive main effect for large choice sets ( $F(1,291) = 11.78$ ,  $p < .001$ ,  $\eta^2_p = .04$ ), and the use of an include strategy ( $F(1,291) = 8.71$ ,  $p < .01$ ,  $\eta^2_p = .03$ ). However, these main effects were moderated by a significant choice set size by strategy interaction ( $F(1,291) = 17.40$ ,  $p < .001$ ,  $\eta^2_p = .06$ , see Figure 4). When faced with a small choice set, strategy did not affect average utility of the consideration set ( $M = 6.37$ ,  $SE = .68$  versus  $M = 7.16$ ,  $SE = .68$ ,  $F(1,291) = .69$ ,  $p = .41$ ); however, when faced with a large choice set, participants formed consideration sets with higher average utility when using an include ( $M = 11.29$ ,  $SE = .62$ ) versus exclude strategy ( $M = 6.68$ ,  $SE = .62$ ,  $F(1,291) = 27.88$ ,  $p < .001$ ). In sum, an include strategy led to

higher quality consideration sets but only when choosing from a large choice set.

We conducted another analysis that excluded participants that incorrectly answered the manipulation check (e.g., participants assigned to include who indicated they excluded, did both, or could not remember,  $n = 9$ ). We found the same choice set size by strategy interaction on average utility ( $F(1,282) = 15.14$ ,  $p < .001$ ,  $\eta^2_p = .05$ ), suggesting that participants did follow instructions (see Data S1 for details).

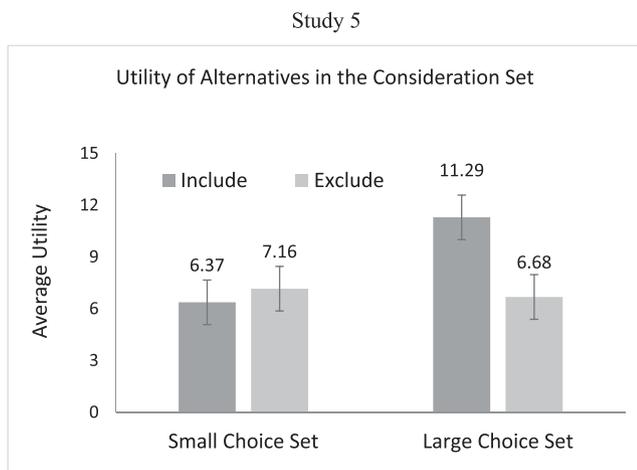
We also found that participants created larger consideration sets from large ( $M = 6.06$ ,  $SE = .17$ ) versus small choice sets ( $M = 2.82$ ,  $SE = .19$ ,  $F(1,286) = 161.24$ ,  $p < .001$ ,  $\eta^2_p = .36$ ). Also, providing evidence for the differences in the implied status quo of the two strategies described in prior literature (Kogut, 2011; Yaniv & Schul, 2000), we found that exclusion led to larger consideration sets ( $M = 5.52$ ,  $SE = .18$ ) than inclusion ( $M = 3.35$ ,  $SE = .18$ ,  $F(1,286) = 72.18$ ,  $p < .001$ ,  $\eta^2_p = .20$ ). However, these main effects were moderated by a significant choice set size by strategy interaction, ( $F(1,286) = 43.32$ ,  $p < .001$ ,  $\eta^2_p = .14$ ). When faced with a small choice set, strategy did not affect consideration set size ( $M = 3.06$ ,  $SE = .27$  versus  $M = 2.57$ ,  $SE = .26$ ,  $F(1,286) = 1.68$ ,  $p = .20$ ); however, when faced with a large choice set, participants formed larger consideration sets when using an exclusion ( $M = 7.99$ ,  $SE = .25$ ) versus inclusion strategy ( $M = 4.14$ ,  $SE = .24$ ,  $F(1,286) = 124.77$ ,  $p < .001$ ).

Next, we examined whether the effects on consideration set quality are driven by an increase in consideration set size. Using Model 7 from Hayes (2013), we found evidence of moderated mediation such that the choice set size by strategy interaction on average utility was mediated by consideration set size (95% CI [.6192, 1.5191]; 5,000 bootstraps). The indirect effect of strategy through consideration set size on average quality was bigger in the large choice set condition ( $M = 1.1769$ , 95% CI [.7508, 1.6776]) than in the small choice set condition ( $M = .1514$ , 95% CI [.0692, .2577]).

### 7.2.2 | Confidence

Examining the effect of choice set size and strategy on the confidence index revealed no significant main effect of choice set size, ( $F(1,295) = .42$ ,  $p = .52$ , or strategy,  $F(1,295) = 1.20$ ,  $p = .27$ ). More importantly, however, we found a significant choice set size by strategy interaction ( $F(1,295) = 5.83$ ,  $p = .016$ ,  $\eta^2_p = .02$ ) on confidence. This effect was driven by a significant decrease in confidence for participants in the large choice set size condition who used an exclude strategy ( $M = 4.99$ ,  $SE = .15$ ) compared with those using an include strategy, ( $M = 5.52$ ,  $SE = .14$ ,  $F(1,295) = 6.76$ ,  $p = .01$ ). However, in the small choice set size condition, there were no deleterious effects on confidence for those using an exclude ( $M = 5.46$ ,  $SE = .16$ ) relative to include strategy ( $M = 5.25$ ,  $SE = .15$ ,  $F(1,295) = .79$ ,  $p = .37$ ). Thus, using an include strategy in large choice sets increased not only consideration set quality but also confidence.

Next, we examined whether the effects on confidence are driven by an increase in consideration set size. Using Model 7 from



**FIGURE 4** Utility of alternatives in the consideration set

Hayes (2013), we found evidence of moderated mediation such that the choice set size by strategy interaction on confidence was mediated by consideration set size (95% CI [.0854, .4997]; 5,000 bootstraps). The indirect effect of strategy through consideration set size on confidence was bigger in the large choice set condition ( $M = .3075$ , 95% CI [.1009, .5587]) than in the small choice set condition ( $M = .0390$ , 95% CI [.0134, .0868]).

We found no significant differences in regret or social concerns based on consideration set construction strategy or its interaction with choice set size ( $F$ 's < 1), suggesting that the findings cannot be explained by heightened regret or social concerns. Participants did express greater regret when choosing from a large ( $M = 3.41$ ) compared with a small choice set ( $M = 3.01$ ,  $F(1,295) = 5.03$ ,  $p < .05$ ), consistent with choice overload (Chernev et al., 2015; Iyengar & Lepper, 2000).

### 7.3 | Discussion

The results of Study 5 show the downstream consequences of using an include (vs. exclude) strategy when forming a consideration set from large choice sets: Participants were more confident in their choice process and formed higher quality consideration sets, as mediated by consideration set size. Thus, Study 5 offers evidence that decision makers' intuitions about accuracy are at least partially correct. The lay belief that inclusion will result in more accurate consideration sets than exclusion, particularly in a large choice sets, appears to be justified based on these results.

One caveat to these results is that it is possible that the consideration set construction task could have biased participants to be consistent with the subsequent utility task. However, if this were true, then we would not expect to find any significant downstream consequences, which we did find. In other words, the bias would make our test even more conservative.

## 8 | GENERAL DISCUSSION

In this research, we examine how the size of a choice set systematically affects a decision maker's choice of consideration set construction strategy and the downstream consequences of this choice. We find that decision makers prefer an inclusion (vs. exclusion) strategy to a greater extent when choosing from large versus small choice sets. Studies 1, 2, and 3 demonstrate this effect using different stimuli (vacations and ice creams), different procedures and interfaces, and different measures. Using both mediation (Study 2) and moderation (Studies 3 and 4), the studies also provide evidence that decision makers' lay beliefs about the relative effort and accuracy of executing these strategies drive the differential preferences for consideration set construction strategy as a function of choice set size. Participants believe that inclusion is less effortful and more accurate than exclusion, particularly in large choice sets, because exclusion requires them to examine more options in the choice set than inclusion (Study 2).

Study 3 demonstrates that it is only when effort (and not accuracy) is primed that people prefer inclusion in large choice sets, suggesting that beliefs about effort are the primary driver of this preference. Study 4 shows that increasing perceived effort through additional information, while holding choice set size constant, can also shift participants towards using inclusion over exclusion, supporting the importance of perceived effort in the decision context.

Studies 1 and 5 provide evidence that decision makers' lay theories about inclusion are, at least in part, correct: Inclusion takes less time to execute in large choice sets than exclusion (Study 1) and produces higher quality consideration sets about which people feel more confident (Study 5). Further, Study 5 demonstrated that these increases in confidence and consideration set quality are mediated by decision makers forming smaller consideration sets when using an inclusion (vs. exclusion) screening strategy in a large choice set.

### 8.1 | Theoretical contributions and implications for decision making

Although previous literature has thoroughly examined the postchoice effects of choice set/assortment size (e.g., Iyengar & Lepper, 2000; Scheibehenne et al., 2010), less attention has been given to understanding how choice set size changes the choice process itself (Levav, Reinholz, & Lin, 2012). We show that choice set size changes the general strategy people use in the first stage of the choice process (i.e., using include vs. exclude), which in turn affects the contents of the consideration set. Thus, we contribute not only to the literature on choice set size/assortment but also to the literature examining consideration set construction as a separate but important phase in the choice process (Chakravarti et al., 2006; Irwin & Naylor, 2009).

Our work also contributes to the adaptive decision making literature (Payne et al., 1988). Although past research has shown that decision makers are adaptive with respect to the rules used during choice, we show that the general strategy used in the screening phase of choice (i.e., include vs. exclude) is also adaptive. Decision makers adjust their strategy based on their beliefs about the relative effort and accuracy of inclusion and exclusion in different sized choice sets. These context-dependent beliefs about effort and accuracy as a function of choice set size appear to be driven by the different implied status quo in exclusion and inclusion. Study 2 provides evidence for this notion with participants reporting that exclusion would require both greater effort and a greater need to examine every option in the choice set. This is consistent with findings from the reject/choice paradigm showing that rejecting (similar to exclusion when a set consists of only two options) is associated with more deliberative processing (Sokolova & Krishna, 2016). As a result, decision makers believe exclusion to be less feasible and more effortful as choice set size grows.

Though accuracy concerns are not a main driver of strategy choice in our studies, we acknowledge that this may be a function of the contexts we study. We examined consumer choices where the negative consequences of forming a less than ideal consideration set are relatively minimal. Accuracy may be a stronger driver of strategy

choice in contexts where decision makers strive for optimization, such as hiring and firing decisions (Levin et al., 2001) or decisions about which potential recipients receive transplanted organs (Jasper & Ansted, 2008).

Our results also suggest that decision makers' a priori beliefs about the effort and accuracy of inclusion and exclusion as a function of choice set size are relatively correct. Our work thus contributes to the larger literature aimed at understanding how lay beliefs shape a variety of different types of consumer decisions (e.g., Haws, Reczek, & Sample, 2017; Zane, Smith, & Reczek, 2020).

Our findings show that exclusion from large choice sets is perceived as more effortful, placing an important caveat on past literature suggesting that exclusion-based decision rules are generally less effortful to execute (e.g., Johnson & Payne, 1985; Levin et al., 2000). There are two key differences that can explain these opposing conclusions. First, we are explicitly focused on the screening stage only, whereas prior work has typically looked at final choice and using decision rules/heuristics. This is an important distinction because in executing an inclusion or exclusion screening strategy, decision alternatives are processed holistically by alternative and not by attribute. However, many final choice decision rules, such as EBA, are attribute-based rules. As such, EBA is a very efficient method for making decisions and requires fewer mental steps (or elementary information processes; Johnson & Payne, 1985) compared with other rules. Second, we explore significantly larger choice sets (i.e., 16–40) than even the “large” choice set sizes typical in past work on decision rules (e.g., eight or fewer in Payne et al., 1988). Though an interesting follow-up question for future research may be to identify at what point a choice set becomes “large” and tips the scales towards an exclusion strategy, the answer might not be so straightforward. A choice set being perceived as large by decision makers will likely depend on the product category, the decision maker's category and preference knowledge (Chernev et al., 2015; Goodman et al., 2013), and the amount of information presented with each option (as shown in our Study 4). Previous research defines a large choice set as more than 10–12 options, which may be a good starting point (Broniarczyk, 2008; Scheibehenne et al., 2010).

Finally, our results show that decision makers who use inclusion when faced with large choice sets do not seem to be sacrificing decision quality or confidence to make efficient decisions. Thus, our work has implications for decision quality and well-being, suggesting that using a less effortful decision strategy may not always sacrifice real accuracy. Given that much prior work has found that decision makers often face a tradeoff between effort and accuracy (Payne et al., 1988), our work suggests that this may be a context where using a less effortful strategy may increase actual accuracy.

## 8.2 | Limitations and future research

Our studies focus on the use of alternative-based screening strategies where decision makers form consideration sets from curated choice sets, such as selecting a set of products from a retail environment. In

this context, exclusion appears to be more effortful for large assortments, but some attribute-based decision aid tools may also be efficient. For instance, online tools where one can, with the click of a mouse, exclude thousands of products in which one is not interested (Choudhary et al., 2017), are very helpful—but fundamentally different from the alternative-based screening we study. Future research should also explore additional boundary conditions, such as when the quality of the items is low or the potential for downside risk is more salient (e.g., large investments or irreversible decisions). It is also possible that certain contexts have become associated with exclusion to such an extent that exclusion is preferred regardless of set size. For instance, swiping left has become ubiquitous and associated with rejection for a younger generation in online dating apps (or even when deleting an email). Thus, it is possible that there are generational differences as well.

Our studies focus on situations in which consumers must choose one strategy to form their consideration set. Future research might explore variations in consideration set formation, for example, a mixed strategy of switching from include to exclude and/or forming a consideration set by choosing to select or reject each item sequentially. Sokolova and Krishna (2016) tested such a process in their Study 2 and found that sequential rejection increased the quality of consideration sets.

Taken together, our studies suggests that future research should explore how choice set size changes the decision process and not just the decision outcome. With the continual expansion of available choice, the role of consideration set construction will only continue to rise in importance; thus, we encourage future research to continue to explore the important role of the consideration set construction phase in the decision-making process.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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