Expanding the choice set: Supercharging active choices to increase study enrollment

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Abstract:
Recent work has suggested that yes/no response formats, or active choice, can increase enrollment compared to opt-in procedures. To encourage even greater enrollment and increased participant engagement in academic research studies, we investigated the impact on participation rates of presenting multiple “yes” or “no” options. We demonstrate that the provision of additional, more labor-intensive “yes” and “no” options to the original active choice not only increases respondents’ level of involvement, but also reduces the proportion of respondents who decide not to become involved at all. Furthermore, we show that adding response options affects people’s forecasts that others would enroll, perhaps explaining the impact of expanded choice on respondent decisions. Additional response options never had a negative impact on enrollment frequency or engagement; in contrast, increasing the number of “no” options actually increased participant engagement in one study. We conclude that expanding the choice set could be used as a simple tool to enhance participant engagement with little risk of reducing enrollment frequency.

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Most people who are asked to enroll in academic or clinical studies decline to do so, and this can create several problems for research. For instance, low enrollment can reduce statistical power by limiting sample size, can cause costly studies to be shut down (Kitterman et al., 2011), and can reduce generalizability through selection effects (Charlson and Horwitz, 1984). While many factors likely contribute to a participant’s willingness to enroll (e.g., Nasser, Grady and Balke, 2011), we suggest that changing the structure of choices offered to potential enrollees is a simple first step to increase enrollment. In this paper, we offer a choice architecture intervention that aims to both preserve individual autonomy (through active choice) and also enhance the attractiveness of choosing to enroll (by providing more options to do so).

The intervention we propose fits under the general class of “nudges,” or choices designed in a way that guides behavior in a predictable way without restricting options. One of the most well-known and robust nudges is the use of defaults to encourage participation in socially desirable behaviors, such as enrollment in 401(k) plans (Madrian and Shea, 2001), influenza vaccinations (Chapman, Li, Colby, and Yoon, 2010), selection of end-of-life medical care advance directives (Halperrn et al., 2013), and organ donation consent (Johnson and Goldstein, 2003).

Though these default options typically increase participation and benefit society at large (e.g., by increasing overall organ donation rates), presumed consent policies might not adequately provide for autonomy of choice. People may be unaware that they are currently registered or that opting out of registration is an option (Blumenthal-Barby and Burroughs, 2012). Active choice, on the other hand, ensures that individual autonomy is preserved by asking would-be participants to clearly indicate whether or not they would like to enroll, rather than setting a default in either direction. Active choice has been well-received by the public with regard to organ donation consent (Spital, 1993; 1995), and recent lab and field evidence generally supports the efficacy of active choice for increased enrollment. Compared to traditional opt-in recruitment, active choice has boosted enrollment in 401(k) savings decisions (Carroll et al., 2009) and in medication adherence decisions (Keller, Harlam, Loewenstein, and Volpp, 2011). However, active choice does not always increase enrollment rates over an opt-in frame; Kessler and Roth (2014) present both observational and experimental data that suggest that active choice for organ donation does not improve registration.

One aspect of active choice that has thus far been relatively unexplored in the extant literature, however, is the structure of the choice itself. Although a simple binary choice to enroll or not is straightforward and intuitive, binary choices need not be the only approach to presenting the decision. Instead, the current paper presents and tests a novel way to enhance the effectiveness of active choice by expanding the available choice set to include more than two options. Specifically, we present choice sets in which participants have the additional option to enroll and engage in another research activity, or the option to decline enrollment but still engage in another activity.

This new approach (which we refer to as “expanded choice”, for simplicity) provides multiple benefits. First, the structure of available options can be designed to shift people’s inferences about the descriptive norms surrounding participation. Second, expanded choice allows for greater engagement from both participants and non-participants, yielding previously untapped effort at no additional cost or recruitment effort. Third, expanded choice options can be structured in such a way as to make baseline participation appear relatively more appealing as the “moderate” option in comparison to the more-involved options, and potentially increase enrollment. Fourth, and perhaps most importantly, expanded choice does not restrict or interfere
with participant autonomy; rather, it provides additional options while still allowing people to select a baseline response. Such an approach strictly improves the welfare of those who prefer an expanded option, but does so without hurting the autonomy of others.

Because expanded choice is an extension of active choice, we take seriously the importance of honoring one’s true preferences, including preferences to not enroll. Thus, the goal of the proposed paradigm is not to shift the choices of people who have strong preferences against enrolling, but rather to motivate those people who have weaker or undefined preferences; that is, we seek to nudge those who might otherwise lean toward selecting “do not enroll” as a default option rather than because they truly wish to avoid participation.

In the current paper, we test the extent to which expanded choice successfully nudges individuals toward increased participation in research activities across three studies. We first test the hypothesis that people’s inferences about descriptive norms (i.e., beliefs about whether others choose to enroll) are affected by the number of options available. In our second study, we test whether the expanded choice set influences actual enrollment decisions by MTurk workers, among whom the default enrollment rate is typically high. Finally, in Study 3, we test the effect of expanding the choices on people’s enrollment decisions in a lab environment, where the default enrollment rate is lower. We end the paper with a discussion of the results and their implications.

Theoretical Background

Past research a phenomenon called “partition dependence” has shown that the way options are categorized can shift the options selected, and, importantly, that this effect is moderated by strength of pre-existing preferences. One such study regarding wine selection demonstrated that those with less wine expertise (i.e., those with weaker preferences regarding wine region or grape type) were significantly more likely to change their choices depending on how the wines were categorized (Fox, Ratner, and Lieb, 2005).

Across numerous choice contexts, people with weak preferences tend to seek variety by allocating their choices evenly across the available categories, following a tendency known as the diversification bias (Read and Loewenstein, 1995). For instance, when given the opportunity to divide money among investment funds, people tend to split their capital relatively evenly among the funds available, even when the underlying composition of assets within the funds (i.e., the ratio of stocks to bonds) means that such an allocation of money creates a rather unbalanced overall portfolio (Benartzi and Thaler, 2001). This bias toward diversification is often observed in choices that allow for variety-seeking (e.g., selection of multiple snacks) and in allocations of resources (Simonson, 1990; Read and Loewenstein, 1995; Huberman and Jiang, 2006; Benartzi and Thaler, 2007).

Most relevant for enrollment decisions, this bias has also been demonstrated for one-shot choices, both in physicians’ selection of medical treatments (Tannenbaum et al., 2015) and in consumer choices (Tannenbaum, Fox and Goldstein, in preparation). In the latter paper, the authors demonstrated that people made inferences about the popularity of a particular category based on the number of options available for that category. For example, when deciding whether to travel to an Asian country or to a European country, the choice might be further partitioned into a choice to take a trip to an Asian country, France, Italy, or Switzerland. When given a partitioned choice that split the European category into three discrete options, people inferred that choosing to visit a European country was a more typical choice. This information about the
descriptive norm led to increased selection of a European destination, and the pattern reversed when Asian countries were similarly partitioned into three discrete options.

In line with previous effects, partitioning the option to enroll into multiple types of enrollment should increase the perceived likelihood that other people choose to enroll. These perceived descriptive norms, in turn, should be integrated with existing preferences to determine decisions to enroll. Similar effects of perceived descriptive norms have been observed with energy conservation behavior, even when descriptive norms are not rated as particularly influential (Nolan et al., 2008).

When increasing the number of enrollment options, the inclusion of larger requests than the typical recruitment option should drive more people to select the basic participation level as a compromise between non-enrollment and the most labor-intensive enrollment option. People often prefer to choose the more moderate choice from a menu of options, demonstrating extremeness aversion (Simonson and Tversky, 1992). For example, people may choose the medium soda from a menu regardless of whether the available sodas contain 8, 12, and 20 ounces or 12, 20, and 32 ounces, respectively. In the study recruitment context, the options could include both basic enrollment as well as expanded enrollment options (e.g., Yes, I’ll participate, and I’ll participate in a follow-up experiment as well). The presence of labor-intensive expanded enrollment options (i.e., “Yes and” options) may make baseline participation seem like a modest request, particularly for those who would immediately reject the larger request (for more on the “door-in-the-face technique” see Cialdini et al., 1975).

Study 1: Predicting Participation Choices

In our first study, we investigated whether people make inferences about others’ actions based on the structure of the options. Specifically, we tested whether participants forecast that more others would enroll when there are additional enrollment options (i.e., “yes, and…”), as well as whether participants forecast that fewer others enroll when there are additional “do not enroll” options (i.e., “no, but…”).

Methods

A sample of 124 participants was recruited through Amazon’s Mechanical Turk (MTurk). The study took approximately 5 minutes to complete, and participants received $0.10 as compensation. The experiment was a within-subjects 2 (one or three “yes” options) x 2 (one or three “no” options) design in which participants were first asked to complete an unrelated computerized “slider task” (see appendix A), and were then instructed to make four forecasts about the behavior of other MTurk workers. In all four judgments, they were presented with the following prompt:

Please indicate what percent of MTurkers you think will choose each response to the following question: “We will be conducting a 30 minute follow-up study (for an MTurk payment of $0.05) to today’s task in one week. Would you like to commit to participate in that 30 minute follow-up study?”

The four judgments differed only in the structure of the choices offered; those choices are listed in Table 1 below (the name of the condition was not displayed to participants). Each
participant was exposed to all of the conditions in random order. The order of exposure had no impact on responses, and thus was not included as a factor in subsequent analyses.

Table 1. Options provided to participants in each of the four conditions (Study 1 and Study 2).

<table>
<thead>
<tr>
<th>Condition</th>
<th>Possible Responses</th>
</tr>
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<tbody>
<tr>
<td>Active Choice</td>
<td>· Yes</td>
</tr>
<tr>
<td></td>
<td>· No</td>
</tr>
<tr>
<td>Expanded Yes</td>
<td>· Yes</td>
</tr>
<tr>
<td></td>
<td>· Yes, and I would like to complete an additional short survey as well</td>
</tr>
<tr>
<td></td>
<td>· Yes, and I would like to participate in a second 5-minute version of the task for an additional $0.05</td>
</tr>
<tr>
<td></td>
<td>· No</td>
</tr>
<tr>
<td>Expanded No</td>
<td>· Yes</td>
</tr>
<tr>
<td></td>
<td>· No</td>
</tr>
<tr>
<td></td>
<td>· No, but I would like to participate in future studies</td>
</tr>
<tr>
<td></td>
<td>· No, but I would be interested in completing and additional short survey</td>
</tr>
<tr>
<td>Expanded Both</td>
<td>· Yes</td>
</tr>
<tr>
<td></td>
<td>· Yes, and I would like to complete an additional short survey as well</td>
</tr>
<tr>
<td></td>
<td>· Yes, and I would like to participate in a second 5-minute version of the task for an additional $0.05</td>
</tr>
<tr>
<td></td>
<td>· No</td>
</tr>
<tr>
<td></td>
<td>· No, but I would like to participate in future studies</td>
</tr>
<tr>
<td></td>
<td>· No, but I would be interested in completing and additional short survey</td>
</tr>
</tbody>
</table>

We predicted two main effects of choice set structure on forecasted participation rates. First, we predicted that adding “yes” options would lead participants to forecast higher participation rates. Second, we predicted that adding “no” options would have the inverse effect, and lead participants to decrease their forecasted rates. Taken together, these predictions led us to expect that participants would forecast highest participation rates for the Expanded Yes choice set, the lowest participation rates for Expanded No, and intermediate rates for the Active Choice and Expanded Both choice sets.

Following these main predictions, we also investigated the extent to which choice set structure affected forecasts of disengagement (i.e., selecting “no” rather than “no, but”, “yes”, or “yes, and”).

**Results**

We used a repeated-measures ANOVA to assess the differences between participants’ forecasts regarding whether other people would participate in the follow-up study, and observed a significant difference across the four choice-set conditions, $F(3,369) = 16.90, p < .001$. The structure of the choice options significantly affected the inferences people made about others’
behavior in the directions hypothesized. Follow-up paired sample t-tests revealed that when people were presented with multiple “yes” options, they forecasted that significantly more people (78%) would agree to participate compared to active choice (58%), $t(123) = -4.41, p < .001$. Conversely, compared to active choice, expanding the “no” options significantly decreased the percent of people (52%) expected to participate, $t(123) = 3.89, p < .001$. Lastly, expanding both “yes” and “no” options resulted in a similar predicted participation rate (59%) as active choice, $t(123) = -0.02, p = .98$ (see Table 2).

We used a separate repeated-measures ANOVA to assess whether participants forecasted different levels of disengagement (i.e., selecting the single “no” option) across the four conditions, and there was a significant difference in predicted rates of disengagement, $F(3,369) = 47.93, p < .001$. Whereas the Active Choice (42%) and Expanded Yes (23%) conditions had forecasted disengagement rates that were simply the inverse of participation rates (see Table 2), the inclusion of “no, but” options dramatically decreased forecasted disengagement in both the Expanded No (12%) and Expanded Both (9%) conditions. Follow-up paired sample t-tests revealed that those exposed to the Expanded No condition were forecasted to be more likely to engage in some way than those in the Expanded Yes condition, $t(123) = -3.58, p < .01$, but were not more or less likely to engage than those in the Expanded Both condition, $t(123) = -1.45, p = .15$.

Table 2. Forecasted participation and disengagement rates from Study 1, by condition.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Forecasted Participation (SE)</th>
<th>Forecasted Disengagement (SE)</th>
</tr>
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<tbody>
<tr>
<td>Active Choice</td>
<td>58% (3.03%)</td>
<td>42% (3.00%)</td>
</tr>
<tr>
<td>Expanded Yes</td>
<td>78% (2.37%)</td>
<td>22% (2.34%)</td>
</tr>
<tr>
<td>Expanded No</td>
<td>52% (2.99%)</td>
<td>12% (1.61%)</td>
</tr>
<tr>
<td>Expanded Both</td>
<td>59% (2.44%)</td>
<td>9% (1.15%)</td>
</tr>
</tbody>
</table>

Discussion

In conclusion, MTurk workers predicted that the enrollment choices of other MTurk workers would be significantly affected by the presence of additional enrollment options. Namely, MTurk workers forecasted that others would be more likely to enroll if there were more ways to do so, and that others would be less likely to enroll when there were multiple ways to avoid enrollment (i.e., multiple “no” options). However, forecasters also predicted that people would be less likely to disengage with the research entirely when multiple “no” options were presented. In the next study, we investigate actual choice behavior of MTurk workers to determine whether these forecasts were accurate.

Study 2: Participation Choices on MTurk

In this second study, we examined whether the forecasts of participants in Study 1 would actually pan out, and particularly whether people would be more likely to enroll in a study if multiple options to enroll were presented. In addition, we tested whether adding choices to the choice set would reduce disengagement, as predicted by Study 1 forecasters. Because the expanded options involved participation in activities beyond the target activity, we also tested
whether expanded choice sets increased the “level of participation,” or the amount of involvement agreed to, of the sample relative to Active Choice.

Methods

A sample of 409 MTurk participants were asked to complete a short survey and task that would take 8-10 minutes and for which they would be compensated $0.40. After completing the survey and task, participants responded to the following prompt:

We will be conducting a 30 minute follow-up study (for an MTurk payment of $0.05) to today’s task in one week. Would you like to commit to participate in that 30 minute follow-up study?

The experiment followed a 2 (one or three “yes” options) x 2 (one or three “no” options), between-subjects design. In other words, participants were randomly assigned to one of four conditions: Active Choice, Expanded Yes, Expanded No, or Expanded Both. The choice options and structure of these conditions were the same as they were for Study 1 (see Table 1).

We measured three dependent variables. First, we assessed participation rate, or the percent of people selecting any “yes” option (i.e., either “yes” or “yes, and”). Second, we measured disengagement, or the percent of people selecting “no” rather than any other option. Third, to measure the extent of participation chosen by participants, we generated a new variable: participation level. This was a ranked variable that quantified the extent to which participants chose to become engaged beyond the complete disengagement option. For this variable, selecting a “no, but” option in the Expanded No condition was counted as a form of participation, albeit one ranked lower than any of the “yes” options.

We hypothesized that actual behavior would reflect the forecasts made in Study 1: Participation rate would be highest in Expanded Yes, followed by Active Choice and Expanded Both, which would be approximately the same, and the lowest participation rate would be in Expanded No. With regard to participation level, we expected that each expanded choice condition would increase overall participant engagement relative to Active Choice.

Results

Most of the MTurk participants agreed to participate in the follow-up study across all conditions (72%). When we conducted a chi-square test comparing participation rates in the four conditions, we observed no significant differences between the conditions, $\chi^2(3) = 1.30, p = .73$. Specifically, Active Choice (71%), Expanded Yes (76%), Expanded No (70%), and Expanded Both (71%) were all similarly likely to commit to participate in the follow-up study. Though the results directionally support our hypotheses and are consistent with the predictions made by participants in Study 1, there is not sufficient evidence to suggest that the expanded choice intervention alters the binary decision regarding participation.

1 The values of the ranked variable participation level were as follows: the decision to not participate at all = 0; the decision to not participate in the follow-up study but to do an additional short survey or to express willingness to participate in future studies = 1; the decision to participate in the follow-up study = 2; and the decision to both participate in the follow-up study and complete an additional survey or version of the task = 3.
We also tested the rate at which participants chose to completely disengage, and a chi-square test revealed a significant difference among the conditions, $\chi^2(3) = 23.68, p < .001$. Adding “no, but” options—which enabled participants to engage in some additional activity without committing to the follow-up study—dramatically reduced disengagement; compared to Active Choice (29%), both Expanded No (5%) and Expanded Both (12%) conditions reduced disengagement, whereas Expanded Yes (24%) was not significantly different (see Figure 1, where “No” responses represent disengagement).

Though there were no significant changes in the frequency of target study participation, the participation level variable allowed us to determine if the provision of more options led to more involved participation. To analyze this phenomenon, we ran a Kruskal-Wallis test to compare participation level across conditions, and found that the ranks of the four conditions were significantly different from each other, $\chi^2(3) = 48.10, p < .001$ (see Figure 1 for a breakdown of participation level chosen by condition). Follow-up Mann-Whitney tests revealed that the Expanded Yes condition had higher mean-ranked participation than the Active Choice condition, $Z = -5.47, p < .001$, as did the Expanded Both condition, $Z = -5.29, p < .001$. However, compared to Active Choice, there was no significant difference in the level of participation obtained from those in the Expanded No condition, $Z = -0.95, p = .35$.

Figure 1. Percent of participants in each condition who chose each level of participation in Study 2, with “Yes And” representing the highest level of participation, and “No” representing the lowest level of participation (i.e., disengagement).

Discussion

Although the expanded choice set intervention did not increase overall participation in the follow-up study, each expanded choice condition generated a greater level of involvement overall, particularly among those who did agree to participate. Even in an environment where most people agree to participate, increasing the number of options increased the level of engagement of participants and maximized overall participation.
Although MTurk participants in Study 1 did expect most MTurk workers to enroll in the study (58% forecasted to enroll in Active Choice), they underestimated the actual baseline participation (72%). These high levels of both forecasted and actual baseline participation suggest that the MTurk population is already aware that most other people would be willing to participate in such a follow-up study. Thus, potentially, any descriptive norm information communicated by the choice set structure simply repeated information that was already known to MTurk workers. If adding enrollment options to the choice set increases participation rates by providing new information about social norms, then, given the extent to which MTurk participants anticipated high baseline participation from their fellow workers, MTurk was not the ideal testing ground for increasing actual participation rates. Furthermore, the proportion of respondents in that population who could be moved from “no” to “yes” was small, and thus limited the impact the intervention could have. The intervention may have greater impact in cases where baseline participation rates are lower, such that the structure of the options might provide new information. We test this potential moderating factor of baseline participation in the next study.

Study 3: Participation Choices in the Lab

To examine the effect of expanded options on enrollment choices in an environment with a much lower baseline participation rate, we used the same basic experimental design as in Study 2, but adapted the choice set of follow-up options to match the laboratory setting. We expected baseline participation rates to be much lower in this environment because being involved in a follow-up lab study requires greater cost (i.e., physically showing up to the location of the study).

Methods

We recruited 213 participants in Pittsburgh, Pennsylvania, to complete a short unrelated study in exchange for a free snack. At the end of this study, participants were presented with the following prompt:

We are currently recruiting participants for an unrelated study which will take place in our lab space in 2 weeks. The study will take 20-30 minutes, and participants will receive $5. Would you like to sign up to participate in that study?

As in Study 2, the experiment followed a 2 (one or three “yes” options) x 2 (one or three “no” options), between-subjects design in which participants were randomly assigned to one of the four conditions. The expanded options in this study differed from those of the previous study. The two expanded options were “add my email to the [lab mailing] list” and “do an additional 5-minute survey right now.” These options were added to all three expanded choice conditions, so that the additional options listed for “yes, and” and for “no, but” were identical and matched.

We predicted main effects of both “yes” and “no” options. Specifically, we predicted that follow-up study enrollment would be higher when there were three “yes” options present, and that enrollment would decrease in the presence of three “no” options. We also anticipated that participation level would be greater in all of the expanded conditions relative to Active Choice.

Results
As expected, follow-up study participation rates were considerably lower for Study 3 than for previous studies (23% overall; 18% in Active Choice). When participation rates were analyzed using a chi-square test, we observed no statistically significant differences across condition, \( \chi^2(3) = 6.18, p = .10 \). This result was again directionally consistent with predictions regarding increased participation for Expanded Yes (30%) and decreased participation for Expanded No (15%) conditions, but it also included a directional boost in participation for the Expanded Both (32%) condition that was not hypothesized.

Again, we tested whether disengagement rates differed across conditions, using a chi-square test to show significant differences, \( \chi^2(3) = 23.65, p < .001 \), and again we found that adding “no, but” options dramatically reduced disengagement. Compared to Active Choice (82%), both Expanded No (55%) and Expanded Both (40%) conditions reduced disengagement, whereas Expanded Yes (70%) was not significantly different (Figure 2).

With regard to participation level indicated by each participant, the Kruskall-Wallis test revealed a significant difference among conditions, \( \chi^2(3) = 19.16, p < .001 \) (see Figure 2). In this context, where the majority of participants elected not to participate in the follow-up study, follow-up Mann-Whitney tests show that Expanded Yes (\( Z = -1.98, p < .05 \)), Expanded No (\( Z = -2.41, p < .05 \)), and Expanded Both (\( Z = -4.35, p < .001 \)) conditions all led to higher levels of participant engagement compared to the Active Choice condition. As shown in Figure 2, Expanded Both choice sets induced the highest level of overall participation.

Figure 2. Percent of participants in each condition who chose each level of participation in Study 2, with “Yes And” representing the highest level of participation, and “No” representing the lowest level of participation (i.e., disengagement).

Discussion

These results suggest that when the dominant response to a recruitment message is to decline participation, it may be best to mimic the Expanded Both condition and do two things: increase the opportunities for people to say “yes” by increasing the number of enrollment options, and provide opportunities for those who decline participation to still engage in some
research activity. Though Study 3 does not provide direct evidence regarding the mechanisms underlying the directional increase in participation frequency or the increased participation level, we did observe lower rates of enrollment in the Active Choice condition. Further research could exogenously manipulate the attractiveness of the follow-up target activity to determine whether the effectiveness of expanded choice sets are moderated by such a factor to provide further support for this explanation for our current results.

**General Discussion**

The results of our three studies (see Table 3 for a summary of results) suggest that, when recruiting for academic studies, offering more options to participate can not only elicit a greater level of participation than typical active choice but also reduce the extent of complete disengagement. By partitioning “yes” and “no” into options that include increased opportunities for engagement, we demonstrate that simple active choice with only two options may be limiting people’s ability to reveal their true willingness to get involved. To the extent that investigators have additional research requests that can be administered easily, such expansion of the choice set seems ideal for maximizing the efficiency of recruitment procedures.

<table>
<thead>
<tr>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Rate</td>
<td>Rate</td>
<td>Level</td>
</tr>
<tr>
<td>Active Choice</td>
<td>58%</td>
<td>71%</td>
</tr>
<tr>
<td>Expanded Yes</td>
<td>78%***</td>
<td>76%</td>
</tr>
<tr>
<td>Expanded No</td>
<td>52%***</td>
<td>70%</td>
</tr>
<tr>
<td>Expanded Both</td>
<td>59%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Note. Conditions were compared to Active Choice; Participation Level could either increase (Inc.) or decrease (Dec.). * = p < .05, ** = p < .01, *** = p < .001

In these studies, the expanded choice intervention did not result in significant increases in participation rate, but increasing the number of enrollment options did result in the hypothesized directional shift for Studies 2 and 3, as well as a significantly larger forecasted participation rate from Study 1 judges. This cumulative evidence suggests that while such an intervention carries promise for increasing participation rates, the effect of choice set construction on the preferences of potential participants may not be as strong as its influence on the perceptions of outside observers, and may therefore lead to interesting actor-observer discrepancies. For instance, an individual in an Expanded No condition who agrees to participate may be evaluated by an external other as being less influenced by social pressures—and, therefore, more strongly in support of the activity itself—than an individual who elects to participate in the Active Choice
condition. Though the activity of the actor is identical in both situations, the inferences drawn seem likely to differ, and future research could explore the extent to which both preferences and inferences are shifted by choice set construction, and test any downstream effects of these inferences on actor-observer interactions.

While there are likely many moderators of any beneficial effect of expanded choice sets on participation, it appears that the baseline participation level in the population from which participants are being recruited could have an important impact on the effectiveness of this choice structure. In particular, expanded options had greater directional impact on the participation rate when the baseline participation was low (Study 3) compared to when it was high (Study 2). When the baseline participation rate is high, offering more enroll options might not provide additional information about the descriptive social norm if potential participants already believe that most other people will agree to participate, a belief demonstrated by the results of Study 1. It is possible that the impact of expanded choice on participation rate could be even greater than observed in the current studies, given that baseline enrollment preferences in both Studies 2 and 3 seemed fairly well-defined. In alternate settings where preferences are more ambiguous, theories of descriptive norm influence would predict larger effects of expanded choice on participation.

With choice architecture approaches, one potential concern is that participants feel pressured into a certain action, and may make a decision that does not reflect their underlying desires. Thus, while participants might elect to participate or acquiesce to an experimenter’s request, participants might not actually trust the experimenter or feel comfortable doing so. To explore this consideration, as part of Study 2 we asked all participants to indicate the extent to which they trusted the experimenter after making the decision about the follow-up study. We observed no significant differences among conditions, $F(3, 411) = .44, p = .72$, with scores in all conditions that indicated trust levels well above the scale’s midpoint. Additional questions regarding perceptions of the risk associated with the follow-up study and feelings of anxiety similarly revealed no significant differences among conditions, all $p > .20$.

**Limitations and Future Directions**

The current work tested the efficacy of the expanded choice paradigm in recruiting existing research participants to a follow-up study. This was done in part to ensure that would-be participants made a selection from the choice sets available, which enabled us to measure responses for all individuals and avoid possible selection effects in responses captured, but it also limits the generalizability of our results. In many recruitment settings with active choices, people have the option to not respond. Such non-responses are practically equivalent to selecting “no” in the current study, but different social desirability pressures may change participants’ willingness to engage compared to when responses are required. Future research could determine the efficacy of expanded choice interventions both in settings where responses are required, such as the organ donor registration prompt when applying for a driver’s license, and where responses are optional, such as charity volunteer requests.

A practical consideration of any work regarding choice partition involves the number of partitions made. In the current research, we elected to add two “yes, and” and two “no, but” options to the choice set to create our experimental conditions, but the same psychological principles underlying choice partitioning suggest that similar effects should be observed with a
different number of additional options. Though the choice overload hypothesis suggests that there may be a limit to the number of options that can desirably added to a choice set (e.g., Iyengar and Lepper, 2000; see Schiebehenne, Greifeneder, and Todd, 2010, for a meta-analytic review), experimental research would be necessary to determine whether there is an ideal number of additional choice options to encourage engagement or enrollment.

Concluding Thoughts

This paper proposes a new method for increasing participant enrollment and engagement while preserving autonomy, building on past work regarding active choices and choice partitioning to create expanded active choices. Rather than restricting options or removing autonomy from the individual decision-maker, we strictly increase the individual decision-maker’s ability to express one’s true preferences via the expanded choice sets tested here. Importantly, the risk-to-return ratio of such an intervention is quite low—offering multiple ways to enroll never resulted in decreased participation or reactionary responses. Such a low-risk change to the architecture of an active choice seems poised to greatly benefit a wide variety of practitioners, particularly in settings where additional engagement can yield large returns. We hope researchers and practitioners take the opportunity to say “Yes” to expanded choice sets for future recruitments.
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Appendix A

Schematic sliders, where (b) is positioned correctly to earn points in the task. Multiple trials of this slider task were used in Studies 1 and 2; participants completed the slider task before being asked about their predictions regarding others’ willingness to participate or their own willingness to participate in the follow-up study, which would include another version of this same task.

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(a) Initial position. (b) Positioned at 50.