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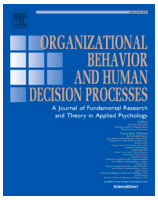

The inclusion of anchors when seeking advice: Causes and consequences

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A B S T R A C T

Scholars have devoted considerable research attention to examining how people use advice from others. However, there is much less research exploring the preceding step of how people solicit advice from others. Sometimes advice seekers include their own thinking in their requests for advice, providing anchors that make it difficult for their advisors to access their own independent judgments. Across naturalistic and laboratory samples, we find that advice seekers include anchors when seeking quantitative advice between 20 and 50 percent of the time. In five preregistered studies (N = 6,981), we investigate the causes and consequences of including anchors when seeking advice. We find that impression management motives increase the tendency to include anchors when seeking advice, while a goal of minimizing influence on advisors reduces the tendency to include anchors. We then show that anchors are indeed effective in achieving impression management goals, but that advice seekers who include them benefit less from opinion combination strategies such as averaging because they introduce shared sources of error. This work contributes to the literatures on advice seeking, anchoring, and collective judgments.

1. Introduction

Suppose you are uncertain about how long a project will take to complete. One way to reduce your uncertainty is to ask for advice (Kämmer et al., 2023). Doing so might help you revise your judgment and form a more accurate estimate (Bonaccio & Dalal, 2006; Sniezek & Buckley, 1995). Seeking advice before making a judgment is an oft-prescribed method for increasing decision accuracy (Heath & Heath, 2013; Surowiecki, 2005). When seeking such advice, you might pose an open question, such as, "How long do you think this project will take?" Alternatively, you might ask a question that includes some of your own thinking about the problem, such as, "How long do you think this project will take? Do you think 8 weeks is enough time?"

Research on numeric anchoring – the tendency for judgments to be influenced by an incidental or initial value – suggests that this small change in content will have substantial consequences for the usefulness of the resulting advice (Tversky & Kahneman, 1974). The first question ensures that advisors will think for themselves as they construct an estimate, drawing on their expertise and introducing independent sources of error. The second question, with its precise estimate, is likely to anchor the advisor on a value of "8 weeks," limiting the degree to which the advisor can access their own (uninfluenced) estimate. Advice is most useful when it is formed independently and not influenced by the advice seeker's judgment (Surowiecki, 2005). When an advisor thinks independently compared to being influenced, the result tends to be a reduction in shared bias and error. Independent thought thereby increases the chances that the initial estimate and advice will bracket the truth (Larrick & Soll, 2006), allowing high and low errors to cancel if combined.

Although over half a century of judgment and decision-making research has demonstrated the harms of anchoring for individual decision-making (Tversky & Kahneman, 1974; Chapman & Johnson, 2002; Schley & Weingarten, 2023), across naturalistic and laboratory samples we find that people seeking quantitative advice include anchors in their requests between 20 and 50% of the time. This suggests that advice requests that contain anchors are sufficiently common to merit an exploration of the factors that increase and decrease the inclusion of anchors and the consequences of anchors on the accuracy of final decisions.

In this research, we examine how the social and informational goals that people have when they seek advice influence the inclusion of anchors in their advice requests. On the one hand, people seek to maintain a positive self-concept in social interactions by maintaining the respect of others (Goffman, 1959). Because seeking advice can be a face-threatening act in that it implies a need for external aid (Goldsmith & MacGeorge, 2000), saving face by exhibiting competence is likely to be

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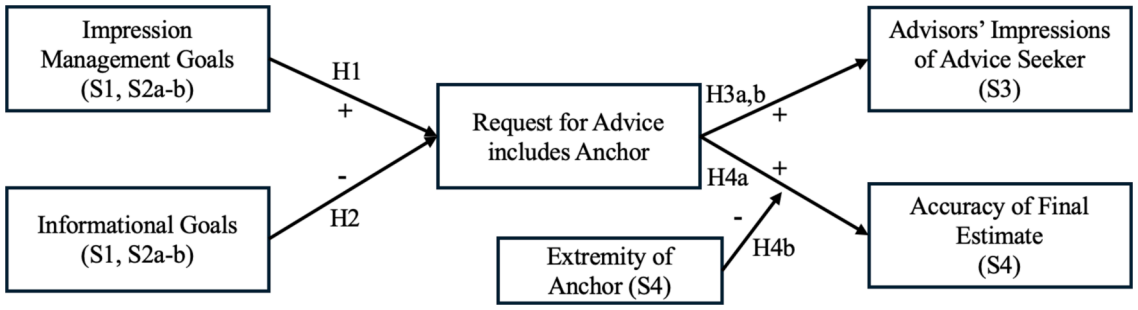

Fig. 1. Causes and consequences of including anchors in requests for advice. **Note.** H = hypothesis, S = Study. *Final Estimate* is the average of all estimates (including those of the advice seeker and each of the advisors).

an especially salient goal for advice seekers (Leary & Kowalski, 1990). We expect that advice seekers who have the social goal of appearing competent or diligent to advisors might try to save face by demonstrating their own effort and ability in their requests for advice, and thus will be more likely to include anchors. On the other hand, advice seekers who have the informational goal to receive unbiased advice will strive to preserve their advisors' independence by avoiding the inclusion of anchors.

We then investigate the consequences of including anchors when seeking advice for achieving these social and informational goals. First, we examine whether advice seekers make more favorable impressions on advisors when they include their own thinking in their requests for advice. We expect advice seekers will be evaluated more favorably when they signal that they put thought and effort into the task themselves, but that anchoring is just one of several strategies for achieving this goal. Next, we ask how including one's own judgment in a request for advice influences the range of advice one receives (independence), as well as the effectiveness of combination strategies such as averaging estimates for final accuracy (Clemen, 1989; Surowiecki, 2005). We hypothesize that advice seekers who anchor their advisors will be less likely to benefit from combining their judgment with a group of advisors than advice seekers who pose neutral questions, and that this relationship is moderated by the extremity of the anchor provided. We find support for these predictions across five preregistered studies. Fig. 1 summarizes our hypotheses.

1.1. Seeking advice

The process of advice utilization has received considerable research attention over the last 25 years (Harvey & Fischer, 1997; Sniezek & Buckley, 1995; Yaniv & Kleinberger, 2000; for reviews, see Bonaccio & Dalal, 2006; Kämmer et al., 2023). This work has uncovered important insights about how and when people use advice. For example, people are more likely to utilize advice when their advisors are confident (Van Swol & Sniezek, 2005; Soll & Larrick, 2009), are credible (Schultze et al., 2015), or exert social pressure (Sah et al., 2013), and less likely to use advice when they themselves feel powerful (See et al., 2011). People are also more confident in the advice they receive when it is consistent across multiple advisors (Budescu & Yu, 2007). Further, people fail to weight advisors' judgments appropriately when they have already formed an opinion themselves (Yaniv & Choshen-Hillel, 2012). These factors shape the extent to which decision makers utilize the advice of others.

A complementary step in advice interactions has received less research attention: the process of *seeking* advice. The few studies that have investigated this aspect of advice interactions have examined the factors that lead people to seek advice and from whom. Some of this work focuses on informational goals in seeking advice. For instance, people are more likely to seek advice when they are confronting uncertainty (Keith et al., 2017). Further, they seek second opinions when they believe their primary advisor might be biased (Sah & Loewenstein, 2015) and they seek advice about group norms from lower status members of groups because they find their advice more credible (Dannals et al., 2020). However, other work on advice seeking also highlights that social concerns are salient to advice seekers. Potential advice seekers are hesitant to ask questions because they worry that their advisors will perceive them as incompetent (Cojuharenco & Karelaia, 2020). Similarly, people are more likely to seek advice from advisors they believe perceive them favorably (Hur et al., 2020). Collectively, these studies imply that people may have both informational and social objectives in mind when seeking advice.

One aspect of the advice seeking process that has received little exploration is how the goals that people have in advice seeking interactions influence the content of their advice requests. The dominant paradigm for investigating advice interactions – the Judge-Advisor System (JAS) (Sniezek & Buckley, 1995) – focuses on advice taking and generally does not offer the advice seeker an opportunity to pose a request for advice to the advisor naturalistically. In a typical JAS experiment, a participant (called the 'judge') forms an estimate, receives unrequested judgments from an advisor, and then revises the original estimate. This approach affords the researcher tight control over the way in which advice is requested and received, but it is only a stylized version of a naturalistic advice interaction. Although recent research has considered how the framing of advice itself influences its adoption by advice seekers (Milyavsky & Gvili, 2024), questions about how advice seekers frame their requests for advice and the influence of that framing on the advice they receive remain unexplored.

The advice literature stresses the value of seeking advice from independent, uncorrelated advisors because it has the greatest potential to reduce error through averaging (Budescu & Yu, 2007; Rader et al., 2015; Surowiecki, 2005). We suggest, however, that in naturalistic advice interactions, advice seekers may sometimes 'anchor' their advisors when requesting advice by providing a specific judgment of their own. The resulting advice is likely to be closer to the requestor's judgment than if the advisor had thought independently (Chapman & Johnson, 2002; Epley & Gilovich, 2001; Tversky & Kahneman, 1974). Consequently, the advice is less useful to the advice seeker since it now shares error with his or her initial judgment. Do advice seekers actually make this apparent mistake?

To gauge the frequency with which people include anchors when seeking advice from others about quantitative judgments, we analyzed posts from a popular online forum for seeking personal finance advice: the sub-Reddit r/personalfinance. The r/personalfinance sub-Reddit focuses on discussions related to budgeting, saving, credit, investing, and retirement planning. We scraped this sub-Reddit for posts suggesting the poster was soliciting advice about a quantitative judgment. Specifically, we performed a search for these phrases: "how many", "how much"," how often", "how long", "how frequent", and "what percent". In total, our search of this forum in August 2023 yielded 833 posts. The first author and a trained research assistant reviewed each post and independently coded (1) whether the poster was in fact seeking advice about a quantitative judgment and (2) whether the post

contained an anchor.

Among the 748 posts that both coders identified as seeking advice about a quantitative judgment (Cohen's *kappa* coefficient = 0.76), we found that 30.6% of them included an anchor in the request for advice. For example, one Reddit poster sought advice about how many credit cards she should have open at one time. Her post concluded with the question, "Is 3 cards too many to have?" Another poster inquired how large of a down payment to make when purchasing a car and asked if $4,000 was enough. Although these data represent just a slice of possible advice interactions, this glimpse into a naturalistic setting for advice seeking suggests that the behavior of anchoring one's advisors may indeed by very common. We next consider how the social and informational goals of the advice seeker influence the inclusion of anchors in advice requests.

1.2. Impression management and informational goals in advice interactions

Although the goal of receiving advice is typically conceptualized as improving one's judgment by consulting an independent source (Sniezek & Buckley, 1995), people may have a variety of goals they hope to achieve in the advice *interaction* itself. For example, advice seekers may have a social goal of managing others' impressions (Bolino et al., 2016) or an informational goal of gaining a perspective on the problem or task that is independent of one's own (Heath & Heath, 2013). We propose both types of goals influence the tendency to include anchors in requests for advice.

We should note that there may be a variety of other factors that affect the tendency to include anchors in requests for advice. For example, advice seekers with goals such as getting a quick response or confirming their own thinking may be more likely to include anchors. Further, factors unrelated to goals – such as the extent to which an estimate is top-of-mind for the advice seeker – may influence the likelihood that an anchor is included in requests for advice. In this work, we focus on impression management and informational goals because they are well-grounded in prior empirical work on advice interactions (e.g., Brooks et al., 2015; Cojuharenco & Karelaia, 2020; Kämmer et al., 2023). However, we acknowledge that they represent just two of the many reasons why people may sometimes include anchors in requests for advice.

1.2.1. Impression management goals – Demonstrating ability and effort

A robust finding in the social psychological literature is that people attempt to maintain a positive self-image in social interactions (Goffman, 1959; Brown & Levinson, 1987). Seeking advice is a face-threatening act for an advice seeker in that it implies that the seeker is incapable and requires help from others (Goldsmith & MacGeorge, 2000; Ashford & Northcraft, 1992; Lee, 2002). Given that competence is one of the key social dimensions on which people are evaluated (Fiske et al., 2007), people are especially likely to attend to threats to how others perceive their capabilities. Indeed, prior research has found that people hesitate to ask questions of others due to fears that they will be perceived as less competent, especially if their ability is already in doubt (Cojuharenco & Karelaia, 2020). People may also worry that requests for advice could be interpreted as an imposition or burden on the advisor (Flynn & Lake, 2008). Like other help-seeking interactions, advice seeking is asymmetric in that the seeker reaps a benefit and the advisor bears a cost – with no clear repayment to "balance" the help ((Goldsmith & Fitch, 1997). Accordingly, people may be motivated to counteract the negative impressions that could emerge as a result of advice seeking by demonstrating their own ability and effort to advisors.

Research on impression management has identified multiple strategies for creating favorable impressions, such as self-promotion (i.e., communicating one's own ability or accomplishments to demonstrate competence) and exemplification (i.e., doing more than is necessary in order to appear dedicated) (Bolino et al., 2008). Both of these strategies address a face concern of the advice seeker: self-promotion (projecting competence) can counteract impressions that the advice seeker is incapable, and exemplification (projecting diligence) can show that they are hardworking and not attempting to shift the burden of the task to their advisor. Advice seekers may use several specific strategies to mitigate the loss of face when they interact with their advisors.

Advice seekers engaging in self-promotion may choose to share information that signals their competence to reduce the threat of appearing uncertain and needy. Such information might include factors they considered in making the judgment, intermediate conclusions they reached, and adjustments they made in their thought process. These details serve as cues to the advisor that the advice seeker was capable of addressing the problem on their own, even if they would like an additional opinion. Similarly, advice seekers who wish to counteract the perception that they did not put effort into the task themselves may also engage in exemplification behaviors. Advice seekers who are worried about appearing lazy or about imposing on an advisor may be motivated to demonstrate their diligence by elaborating on the steps they took to form a judgment prior to seeking advice. And, in fact, the more an advice seeker provides details on an initial opinion, the lighter the potential burden on an advice giver, who may need only respond "yes" or give a targeted "no" to a specific assumption.

In sum, impression management concerns are likely to be salient to advice seekers who wish to appear competent and diligent to their advisors. Both self-promotion and exemplification behaviors may include elaborating on the information advice seekers considered prior to seeking advice. Collectively, these ideas suggest that advice seekers with impression management motivations may be especially likely to include information about their own judgment or judgment process in their requests for advice.

> **Hypothesis 1.** Advice seekers with an impression management goal of demonstrating capability or effort to their advisors will be more likely to include anchors in their requests than advice seekers with no particular goal.

1.2.2. Informational goals – Minimizing influence

Although impression management motives will tend to increase anchoring in the advice seeking process, we expect a motivation not to influence advisors' thinking *reduces* the tendency to include anchors in advice requests. People sometimes seek advice for the purpose of obtaining additional, unbiased opinions from others (Sah & Loewenstein, 2015), and thus may be sensitive to their own capacity to influence their advisors' thinking. Reducing influence to maximize the independence of opinions is a core principle in prescriptive theories for aggregating judgments (Clemen, 1989; Surowiecki, 2005). We believe that the intuition to reduce influence might also exist to some degree in everyday judgment.

It is well-established that the way that questions are phrased influences how they are answered (Swann et al., 1982). Many disciplines emphasize collecting information from others through open-ended questions to avoid biasing the responses. For instance, hiring managers (Jablin & Miller, 1990), police interviewers (Powell, Hughes-Scholes, & Sharman, 2012), physicians (Fallowfield et al., 2002), and qualitative researchers (Cairns-Lee, Lawley, & Tosey, 2022) are trained to ask questions neutrally such that they do not influence the respondent's answer. We propose that these professional norms reflect a broader, intuitive understanding that neutral inquiries yield less biased responses. Independent judgments should be valuable to advice seekers because they provide nonredundant information that could help them form a more accurate judgment (Goethals & Nelson, 1973; Soll, 1999), and thus advice seekers may try to minimize influence on their advisors in their requests.

Several requests for advice in the Reddit data we collected suggested that advice seekers may recognize the biasing effect of sharing their own estimates. For instance, one Reddit poster concluded her post asking for

advice about how much of a raise to request with, "I have a number in mind, but just wanted to see some outside perspectives first to show me if I'm under or over asking here." The advice seeker disclosed that she had indeed formed an estimate, but deliberately did not share that estimate in her inquiry for outside perspectives. In sum, individuals who are motivated not influence their advisors will preserve the independence of their advisor's thinking by keeping anchors out of their advice request. We therefore propose:

Hypothesis 2. Advice seekers with an informational goal of not influencing their advisors will be less likely to include anchors in their requests than advice seekers with no particular goal.

Before we move on to the consequences of including anchors in requests for advice, it is important that we note a boundary condition of our hypotheses. Our arguments pertain to advice interactions in which a primary goal of the advice seeker is to improve their own judgment. Interactions in which the seeker requests advice primarily for a social goal – such as for the sake of forming a new tie (e.g., Levin & Walter, 2019) or being able to cite a respected source as having weighed in on an estimate (e.g., Cross et al., 2001) – fall outside of this scope, as the end-goal of seeking advice in those cases is not a superior judgment.

1.3. Consequences of anchoring advisors

We previously proposed that advice seekers include anchors in their request for advice to achieve impression management goals and exclude anchors to achieve informational goals. We posit that these strategies are not only intentional but effective. In this section, we suggest that advice seekers who include anchors in their requests for advice are viewed as more competent and diligent by their advisors because anchors signal effort and ability; however alternative strategies for signaling effort and ability that do not introduce potentially biasing information may also be effective. We also argue that advice seekers who anchor advisors will receive advice that shares their own error, and that this reduces the effectiveness of advice utilization strategies such as averaging – especially when advice seekers receive advice from multiple advisors.

1.3.1. Effectiveness of including anchors as an impression management strategy

Although prior research suggests that advisors do not penalize people for seeking advice (Brooks et al., 2015), we know little about how the content of advice requests influences advisors' impressions of advice seekers. We believe that the inclusion of anchors is likely to be an effective impression management strategy in the context of advice seeking for two reasons. First, the inclusion of an estimate signals two socially desirable characteristics: that the advice seeker is capable of forming a judgment on their own (competence) and that the advice seeker is willing to put in the effort to do so (diligence). Second, although transparent attempts at impression management can be viewed negatively (Chaudhry & Loewenstein, 2019; Huang et al., 2013), such as explicitly bragging about one's competence, including an anchor is a subtle behavior (Gardner & Avolio, 1998) that is unlikely to be interpreted as obviously self-promoting. Including an anchor should therefore signal competence and diligence without incurring a penalty for self-promotion.

If anchors do help achieve impression management goals, it raises the question: Is the social gain worth the loss of receiving independent advice? We propose an alternative option that allows those seeking advice to achieve both goals simultaneously and avoid what seems a necessary tradeoff. Although including an anchor in the request for advice signals competence and diligence, these same qualities can be conveyed if advice seekers reveal that they have arrived at an estimate but are intentionally not sharing it with their advisors. With this approach, which we call including a *preparation signal*, advice seekers inform their advisors that they have already formed an independent judgment but that they are seeking advice to improve upon it. *Preparation signals* – indications that the advice seeker has already formed an estimate – communicate to the advisor that the advice seeker was competent and diligent enough to think through the problem themselves before seeking advice. Substituting a preparation signal for an anchor therefore allows the advice seeker to maintain face without introducing potentially biasing information to the advisor. In summary, we propose:

Hypothesis 3a. Advisors will perceive advice seekers as more competent when they either include (a) an anchor or (b) a preparation signal compared to when they include neither an anchor nor a preparation signal.

Hypothesis 3b. Advisors will perceive advice seekers as more diligent when they either include (a) an anchor or (b) a preparation signal compared to when they include neither an anchor nor a preparation signal.

1.3.2. Effectiveness of excluding anchors as a strategy for achieving decision accuracy

Advice is most likely to improve judgments when advisors introduce independent sources of error (Soll & Larrick, 2009; Yaniv, 2004). This occurs because independent judgments are more likely to bracket the truth (i.e., fall on either side of the truth), and thus when they are averaged they may benefit from the error cancellation that happens when some guesses are too high and the others are too low (Larrick & Soll, 2006). Diverse perspectives, preserved by independent thought, lead to different errors that can "average out" (Surowiecki, 2005; Page, 2008).

Though averaging offers the potential to provide superior combined judgments, correlation among judgment errors limits the usefulness of this approach. When judgment errors are correlated, increasing the number of judgments is less likely to produce an accurate final estimate (Clemen & Winkler, 1985). The benefit of additional judgments declines because estimates with correlated errors are more likely to be on the same side of the truth than estimates with uncorrelated errors, and therefore they are less likely to "bracket" the truth.

By anchoring advisors in advice requests, advice seekers *induce* correlation between themselves and their advisors and between their advisors and one another. Anchoring others leads them to shift their estimate toward the anchor (Tversky & Kahneman, 1974), because the anchor constrains the range of evidence the advisor considers (Mussweiler et al., 2000). Advice seekers who anchor their advisors will therefore receive estimates that are weighted toward their own initial estimates, resulting in correlated errors. Consequently, these advice seekers will be less likely to benefit from combination strategies (e.g., wisdom of crowds) that rely on error cancellation among independent estimates.

Hypothesis 4a. Advice seekers who include anchors in their advice requests will reach less accurate final estimates from averaging than advice seekers who do not include anchors in their requests.

Yet, not all anchors should be equally biasing. Studies of the anchoring effect largely investigate the influence of extreme anchors (for an exception, see Wegener et al., 2001), but in naturalistic advice interactions people will encounter values from across the distribution of others' estimates (Rader et al., 2015). The extent to which anchoring is harmful may be contingent on the extremity of the anchor the advice seeker supplies to the advisors. In cases where the advice seeker's estimate comes from the center of the estimate distribution (and is therefore likely to be reasonably accurate if the distribution is centered near the truth), the anchor may have the effect of pulling advisors' advice towards the middle of the distribution where the anchors are high in accuracy (Becker et al., 2020). Alternatively, when the advice seeker's estimate comes from the tails of the distribution, where they are likely to be less accurate, the anchoring literature suggests that advisors are

likely to generate advice that is biased in the direction of the advice seeker's inaccurate estimate (Jacowitz & Kahneman, 1995).

In short, anchor extremity has a necessary moderating effect on advice accuracy. Because advisors will tend to adjust their advice in the direction of the anchor, extreme anchors will be more harmful for the accuracy of the crowd's advice than anchors that are closer to the center of the distribution. We therefore propose:

Hypothesis 4b. The negative effect of including an anchor on final estimate accuracy will be moderated by the extremity of the anchor supplied by the advice seeker, such that extreme anchors will harm accuracy more than moderate anchors.

2. Overview of studies

Across five preregistered studies, we investigate why advice seekers sometimes anchor their advisors and the consequences of doing so.[1] In Studies 1, 2a, and 2b, we explore goal-based explanations for why people sometimes choose to anchor their advisors. Specifically, we test whether advice seekers who have a goal to demonstrate capability or effort are more likely to anchor their advisors than advice seekers in a no-goal control group (Hypothesis 1). We also test whether advice seekers who have a goal of avoiding influence are less likely to anchor their advisors than those in the no-goal control group (Hypothesis 2). We then turn our attention to the consequences of anchoring others. In Study 3, we examine whether advisors perceive advice seekers more favorably when they include anchors in their requests for advice (Hypotheses 3a and 3b). In Study 4, we investigate the consequences of anchoring multiple advisors for an oft-prescribed advice utilization strategy – averaging estimates to reduce error (Bonaccio & Dalal, 2006; Clemen, 1989). Study 4 also tests the hypothesis that advice seekers will benefit less on average from combination strategies when they include an anchor than when they do not (Hypothesis 4a) and if the effect of anchoring a crowd of advisors on accuracy is contingent on the extremity of the anchor (Hypothesis 4b). Across studies, we report all manipulations, measures, and participant exclusions. All study preregistrations, data, R code, study materials, and supplemental analyses are available on the Open Science Framework repository (https://tinyurl.com/mr6uhe7y).

3. Study 1: The relation between measured goals and including anchors

In Study 1, we investigate the association between what people report they find important in advice interactions and how they frame their requests for advice. Specifically, we examine whether people who report a greater desire to appear competent in advice interactions are more likely to include an anchor when seeking advice (Hypothesis 1) and if people who report a greater desire to avoid influencing the advisor are less likely to include an anchor when seeking advice (Hypothesis 2).

3.1. Method

3.1.1. Participants

We recruited 503 participants from the Cloud Research Connect platform and compensated them $1.00 for their participation (52% female, $M_{age} = 38.3$). We excluded 6 participants from the analysis based on our pre-registered exclusion criteria, which stipulated that any participants who provided the same answer to all Likert-scale items or completed the study in less than 90 s would be excluded. We also excluded 2 additional participants who skipped questions on the survey.

3.1.2. Procedure

The study had two stages: a survey about advice seeking and an estimation problem in which the participant had the opportunity to ask for advice. The order of these two stages was randomized, such that some participants completed the survey first (*Survey First condition)* and other participants completed the estimation and advice task first *(Advice First condition)*. A filler task unrelated to advice separated the two stages for both conditions.

In the survey about advice seeking, participants read that, in an advice interaction, the person asking for advice can choose to include their own estimate in their request for advice (e.g., "I think 6 hours, what do you think?) or they can choose not to include their own estimate (e.g., "What do you think?"). We then showed them several examples of questions written in each format for different advice scenarios (see online Supplement for full text of materials).

Next, participants completed a 15-question survey in which they provided ratings of both importance of various goals (such as appearing competent and avoiding influence) and the effectiveness of the two strategies (including one's own estimate or excluding one's estimate) for achieving those goals. The importance ratings asked participants to rate the extent to which they agreed that each of the following goals was important when asking for advice: appearing competent to the other person, not influencing the other person, receiving accurate advice, receiving useful advice, and asking a question that is easy to answer. They provided responses on a 7-point scale ranging from strongly disagree to strongly agree (coded as 1–7 in our analysis). For each goal, participants also rated how effective the strategy of including an estimate (and also not including an estimate) would be at achieving that goal.[2] Thus, altogether, there were five importance ratings, each one paired with two different effectiveness ratings.

In the advice task, participants were asked to imagine they were participating in a contest in which they needed to estimate the height of building. They were then shown a picture of the Tribune Tower in Chicago and were asked to estimate its height. After they provided an estimate, they were asked to select a question from a list of five options that could be sent to other workers on the platform seeking advice that would help them improve their estimate. Two of the five options included the participant's estimate in the question (e.g., "I estimated 450 feet. What do you think?") and three of the five questions did not include the participant's estimate (e.g., "What do you think?"). We chose to pipe in the participant's judgment in two out of five options because earlier pilot studies suggested participants include anchors in naturalistic requests about 40% of the time. The dependent variable is *Anchoring,* which was measured dichotomously based on whether the participant selected a request for advice that *included* their own estimate (1: included an anchor, 0: did not include an anchor).

3.2. Results

We focus here on the effects of the assessed importance of two goals: appearing competent and avoiding influence (and the associated effectiveness ratings), as these were the two goals that we pre-registered and that connect directly to our hypotheses.[3] On average, participants assigned ratings to both of these goals that suggested they were at least somewhat important ($Importance_{AppearCompetent}$: $M = 4.82$, $SD = 1.56$, $Importance_{AvoidInfluence}$: $M = 5.17$, $SD = 1.53$). The correlation between these the importance ratings of these two goals was small ($r = -0.04$).

[1] There were several cases in which, for both simplicity and appropriateness, we report an analysis that differs from the one we pre-registered. In all cases, identical conclusions are reached with the pre-registered analysis, as reported in the reconciliation document on OSF.

[2] For the goal of avoiding influence, the two effectiveness questions were worded as "requests that include an estimate influence the thinking of the other person" and "requests that do not include an estimate influence the thinking of the other person".

[3] See the Online Supplement for our analyses of the other goals we measured.

Before analyzing the effect of the importance ratings, we first wanted to make sure that participants' effectiveness ratings conformed to our expectations. As expected, participants rated including an estimate in a request for advice as more effective at demonstrating competence ($M = 4.69$, $SD = 1.38$) than requests that did not include an anchor ($M = 3.85$, $SD = 1.23$, $t(976.5) = 10.02$, 95% $CI_{difference}$ 0.669, 0.995], $d = 0.637$; $p < 0.001$). Also as expected, participants rated including an estimate in an advice request as more likely to influence the other person ($M = 5.42$, $SD = 1.23$) than excluding the estimate from the advice request ($M = 3.03$, $SD = 1.52$, $t(946.07) = 27.04$, 95% $CI_{difference}$ 2.21, 2.55], $d = 1.719$, $p < 0.001$). Finally, there were no differences in accuracy on the task (absolute error) among participants who included anchors in their requests and those that did not ($Mean_{Error} = 670.6$ vs. 549.63, $t(353.47) = 0.917$, $p = 0.360$).

We used logistic regression to investigate differences in anchoring behavior based on participants' perceived importance of appearing competent (Hypothesis 1) and avoiding influence (Hypothesis 2) when seeking advice. For ease of interpretation, we mean-centered all importance ratings. There was an unexpected interaction between *Order* (−0.5 = *Advice First*, 0.5 = *Survey First*) and $Importance_{AvoidInfluence,}$ ($b = 0.070$, SE = 0.026, p < 0.01). Participants in the *Survey First* condition included an anchor when seeking advice at a lower rate (36.0%) compared to those in the *Advice First* condition (44.8%), $z = 2.02$, $p = 0.044$. This suggests that examining one's own beliefs about advice seeking prior to completing the advice task may have dissuaded some participants from including an anchor.

We ran separate logistic regressions for each order condition. As shown in Table 1 (Models 1 and 2) the results are qualitatively similar in each case: $Importance_{AppearCompetent}$ was associated with being more likely to include an estimate and $Importance_{AvoidInfluence}$ was associated with being less likely to include an estimate. The results for the full sample including both conditions are displayed graphically in Fig. 2, which transforms the predicted values to probabilities for each level of the independent variables.

We also examined how the effectiveness ratings might contribute to the choice of whether or not to include an estimate in one's advice request. We created a differential effectiveness score for each goal which indicates the participant's belief about the extent to which including an estimate better achieves that goal than excluding it. These scores were constructed using the formula $Difference = Rating_{include} - Rating_{exclude}$. For $Difference_{EstimateShows\ Competence}$, positive values indicate that the participant believes including an estimate is more effective at achieving the objective of appearing competent than excluding the estimate. For $Difference_{EstimateInfluences}$, positive values indicate that the participant believes including an estimate is more likely to influence the advisor than excluding the estimate. We mean-centered these variables in our models.

As shown in Table 1 (Model 3), the differential effectiveness scores predict the estimate inclusion choice (anchoring) in the expected direction for participants who completed the advice task first. Here, participants were more likely to include an anchor when they thought that including one was more effective at signaling competence, and less likely to include an anchor when they thought that it was less effective at avoiding influence. In Model 4, we can see that these relationships do not hold for the participants who completed the advice survey first.

3.3. Discussion

In this study, we examined the associations between what people report they value in advice interactions and their decision of whether to include anchors in their requests for advice in a closed-ended task. As predicted in Hypothesis 1, we found that people who are concerned with demonstrating capability (specifically, appearing competent) when seeking advice were more likely to choose an advice request that included an anchor. Consistent with Hypothesis 2, we found that people who are concerned with not influencing the other person's thinking when seeking advice were less likely to choose an advice request that included an anchor. These results suggest that a goal of demonstrating capability increases the propensity to anchor when seeking advice, and a goal of seeking an independent judgment decreases the propensity to anchor when seeking advice.

An additional insight from this study is that participants who were randomly assigned to examine their own objectives when seeking advice through a structured survey before seeking advice were *less* likely to anchor their advisors than participants who completed the advice task prior to completing the survey. This suggests that thinking critically about one's goals in advice interactions and the merits of different approaches to asking questions may reduce the propensity to anchor one's advisors. This is noteworthy, because if including anchors when seeking advice has negative consequences for accuracy, as we show later in this paper, then interventions that reduce anchoring may be helpful.

Although this study offers support for the notion that goals are related to the likelihood that people will anchor their advisors when seeking advice, it suffers from two methodological limitations that qualify the findings. First, the study is correlational and does not provide evidence that the goals we queried causally influence the likelihood of

Table 1
Logistic regression results predicting requests that include anchors (Study 1)

	Model 1 (Advice First)	Model 2 (Survey First)	Model 3 (Advice First)	Model 4 (Survey First)
$Importance_{AppearCompetent}$	0.052**	0.061**	0.024	0.049*
	(0.017)	(0.019)	(0.018)	(0.020)
$Importance_{AvoidInfluence}$	−0.154***	−0.085***	−0.106***	−0.082***
	(0.018)	(0.019)	(0.016)	(0.018)
$Difference_{EstimateShowsCompetence}$			0.055***	-0.022
			(0.016)	(0.014)
$Difference_{EstimateWillInfluence}$			−0.052***	−0.027
			(0.013)	(0.014)
$Importance_{AppearComptent} \times Difference_{EstimateShowsCompetence}$			0.002	0.007
			(0.008)	(0.011)
$Importance_{AvoidInfluence} \times Difference_{EstimateWillInfluence}$			−0.003	−0.010
			(0.008)	(0.009)
Constant	0.474***	345***	0.492***	0.336***
	(0.028)	(0.029)	(0.028)	(0.030)
Observations	245	250	245	250
Log Likelihood	-140.251	-157.593	−126.325	−154.045
Akaike Inf. Crit.	286.502	321.905	266.647	322.090

Note: *p < 0.05, **p < 0.01, ***p < 0.001. All continuous variables are mean-centered.

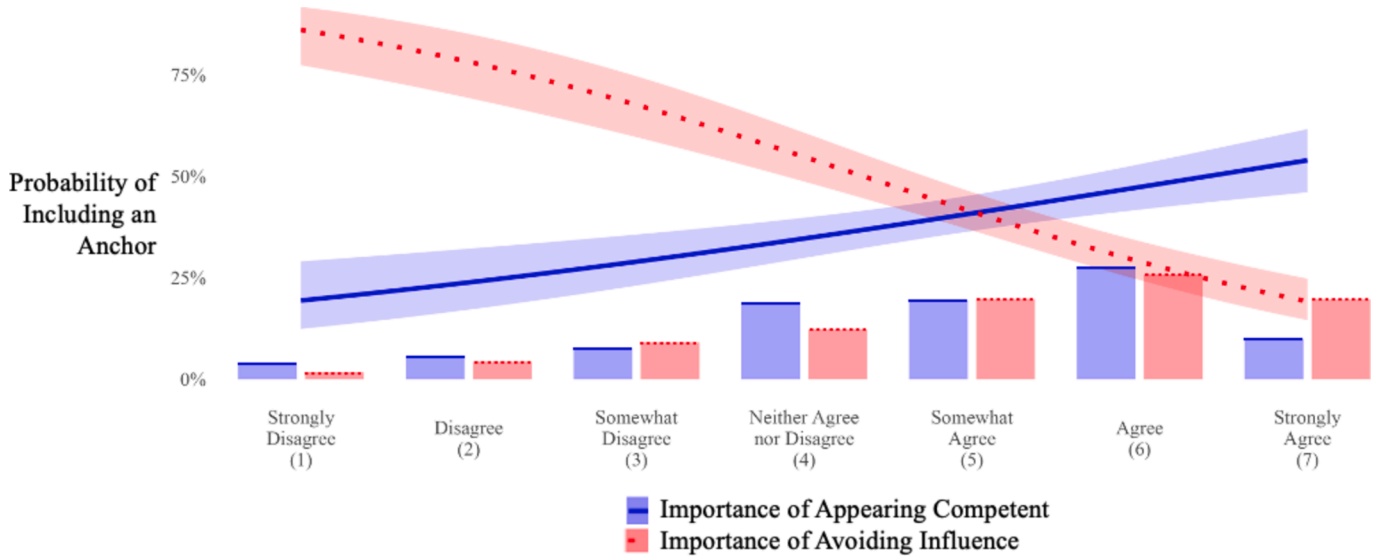

Fig. 2. Model Predicted Probabilities of Anchoring in the Advice Task based on Importance of Appearing Competent and Importance of Avoiding Influence (Study 1).
Note. The histograms along the x-axis display the percentage of participants that assigned the rating to the item "it is important to ask a question that will make the advice seeker look competent" (left bar) and to the item "it is important to ask a question that will not influence the other person's thinking" (right bar). Shaded regions represent 95% confidence intervals.

anchoring while seeking advice. Second, participants selected their requests for advice from a limited menu of options, rather than generating them in an open-ended format. This makes it more difficult to discern whether the relatively high rates of anchoring we observe in this study are consistent with those generated by a more naturalistic process. In Studies 2a and 2b, we address both of these weaknesses.

4. Studies 2a and 2b: The effect of manipulated goals on including anchors

Studies 2a and 2b investigate how impression management goals influence the inclusion of anchors when seeking advice (Hypothesis 1). Study 2a examines whether the impression management goal of demonstrating effort increases the inclusion of anchors in advice requests. Study 2b examines whether separate impression management goals of demonstrating capability and effort increase the tendency to include anchors when seeking advice. Both studies also test if the informational goal of avoiding influence decreases the inclusion of anchors in advice requests (Hypothesis 2). These studies build on the correlational findings of Study 1 by directly manipulating motivations in two separate advice seeking domains.

4.1. Study 2a method

4.1.1. Participants

We recruited 908 participants from Amazon's Mechanical Turk and compensated them $1.00 for their participation (50% female, M_{age} = 39.5). Consistent with our pre-registered exclusion criteria, a total of 28 participants were excluded from our analysis because two independent coders identified that they did not write a request for advice that was consistent with the prompt.

4.1.2. Procedure

Participants were presented with a picture of a man's face selected from the Face Research Lab London dataset (DeBruine & Jones, 2017) and asked to estimate his age. They were then asked to write a short explanation describing how they formed their estimate. On the next screen, we asked participants to write a request for advice that could help them improve their estimate. Participants were randomly assigned to one of three conditions. In the *Effort condition,* participants were instructed to write the message to demonstrate that they "thought carefully about this task". In the *Do Not Influence* condition, participants were instructed to write the message such that they "did not influence the other person's thinking." In the *Control* condition, participants were not given any specific instructions.

For exploratory purposes, participants were randomly assigned to imagine that their request would be sent to either 1 or 5 advisors. We did not make any formal predictions about whether the tendency to include an anchor would be sensitive to the number of individuals to whom advice seekers were posing their requests. However, we wanted to examine potential differences because later in the paper we examine the consequences of including anchors when seeking advice from a group of advisors. It could be the case that a larger 'audience' (i.e., number of advisors) heightens impression management concerns (increasing the tendency to anchor) or increases informational influence concerns (reducing the tendency to anchor), so we included this manipulation to examine if the number of advisors was related to the tendency to include an anchor. After writing requests for advice, participants completed the Cognitive Reflection Test (Frederick, 2005) and provided demographic information.

After all responses were submitted, two independent coders blind to the study's hypotheses and participant conditions reviewed each of the requests for advice. They were instructed to identify numerical anchors (e.g., "I think this guy looks about 45 years old") as well as less precise anchors that suggested a particular range of potential ages (e.g., "He looks early to mid-40 s" or "He looks middle-aged") and provided with examples of each form of anchoring. In 87% of cases, the two coders agreed on whether the request included an anchor (Cohen's *kappa* = 0.75). Disagreements were resolved by the first author who independently coded these responses blind to participant condition. For robustness, we confirmed we observe the same pattern of results if cases in which the two coders disagreed about the presence of an anchor are excluded.

4.2. Results

We first investigated whether advice seekers tended to anchor more or less when they were seeking advice from an individual (1 advisor) versus a group (5 advisors). We found no significant differences in the rate of anchoring when the question was composed for 1 or 5 advisors

(32.8% vs. 33.8%, $z = 0.310$, $p = 0.756$) and confirmed that this term is not involved in any interactions. This suggests that advice seekers are not sensitive to the number of advisors when deciding whether to include an anchor in their requests for advice. We included a dummy-coded variable for *Number of Advisors* (0 = one advisor, 1 = five advisors) as a covariate in our main analyses. We also examined whether advice seekers who included anchors were more accurate (lower absolute error) than advice seekers who did not and found no significant difference ($M = 3.81$ vs. 3.98, $p = 0.477$).

We tested Hypotheses 1 and 2 using a logistic regression model (see Table 2). Hypothesis 1 predicted that participants would be more likely to include an anchor in their requests for advice if they had a goal of demonstrating capability or effort to their advisors, which we operationalized as showing their advisor(s) that they had put thought into the task. Consistent with this notion, participants who were assigned to the Effort condition were more likely to include anchors in their advice requests relative to participants in the Control condition ($b = 0.685$, SE $= 0.172$, $p < 0.001$). Hypothesis 2 predicted that participants motivated to avoid influencing their advisors would be less likely to include an anchor. Indeed, we found that participants assigned to the *Do Not Influence* condition were less likely to anchor their advisors than participants in the *Control* condition ($b = -0.697$, SE $= 0.193$, $p < 0.001$). Although we did not pre-register a test between the two goal conditions, they are (as might be expected) significantly different from each other ($z = -7.552$, 95% CI [−37.1%, −21.8%], $p < 0.001$). Fig. 3 depicts the proportion of participants who included an anchor in their advice requests in each of the three goal conditions.

4.3. Study 2b method

4.3.1. Participants

We recruited 1,205 participants from CloudResearch's Connect Platform and compensated them $1.00 for their participant (53.7% female, $M_{age} = 38.4$). Based on our pre-registered exclusion criteria, we excluded 47 participants from our analysis because two independent coders indicated that their request for advice was not consistent with the prompt. Our final sample was thus 1,158 observations.

4.3.2. Procedure

We asked participants to imagine that they were managers at a medium-sized company. They read that they had been tasked with estimating the cost of a team-building event for the department of twenty employees that would occur later in the year, and that the event would include a meal and group activity (e.g., bowling or attending a sporting event). They were then asked to supply an estimate of how much money should be set aside for the event.

Next, participants were asked to write an email message soliciting advice from a few colleagues about how much money to set aside from the upcoming team-building event. At this stage, participants were randomly assigned to one of four conditions. Two of the conditions invoked impression management goals. In the *Capable* condition, the prompt read: "Write your messages in a way that shows that you that you are capable of performing this task on your own so that your colleagues don't think that you're incompetent." In the *Effort* condition, the prompt read: "Write your message in a way that shows that you put effort into performing this task on your own so that your colleagues don't think that you're lazy." In the *Do Not Influence* condition, the prompt read: "Write your message in a way that will not influence your colleagues' thinking so that you can get their unbiased judgments." Finally, in the *Control* condition, participants were not assigned any specific goal.

On the next page, participants rated the extent to which five goals were important to them when seeking advice: showing they put thought into the task, showing that they are capable, not influencing their colleagues thinking, showing that they are not lazy, and showing that they are not incompetent. These items were included for two reasons. First, they serve as a manipulation check. Second, these items measure the other goals that were important to participants in the advice interaction aside from those that we assigned. Our analysis of these measured goals is reported in the Online Supplement.

After all data were collected, two trained research assistants blind to the study's hypotheses and participant conditions reviewed each request for advice. They were instructed to identify numerical anchors (e.g., "I think the event will cost about $40 per person" or "I estimated $10,000") and provided with several examples. For exploratory purposes, the coders also coded whether respondents who did not anchor had included a 'preparation signal' indicating that they reached an estimate but did not share it (e.g., "I have a figure in mind"). The research assistants also indicated whether requests were inconsistent with the prompt. In 90.3% of cases, the two coders agreed on the coding for the advice request (Cohen's *kappa* = 0.778). The first author independently coded all responses blind to participant condition and her coding was used to resolve all disagreements. As a robustness check, we confirmed that we observe the same pattern of results if we run the analyses using either of the coders' ratings independently or if the instances in which the coders disagreed about the presence of an anchor are excluded.

4.4. Results

We examine our hypotheses using a logistic regression model (see Table 3), for which the *Control* condition served as the reference. Hypothesis 1 predicted that participants would be more likely to include an anchor in their requests for advice if they had a goal to demonstrate capability or effort to the advisor. Consistent with this notion, both of the impression management goals we tested were significantly associated with the inclusion of anchors. Participants assigned to the *Capable* condition were more likely to include an anchor in their requests for advice relative to the control condition ($b = 0.453$, SE $= 0.192$, $p = 0.018$). Similarly, participants assigned to the *Effort* condition also included anchors at a higher rate ($b = 0.861$, SE 0.186, $p < 0.001$). Although the assigned goals target different impression management motives, both increased the extent to which participants included anchors in their requests for advice.

Hypothesis 2 predicted that participants who were assigned a goal of not influencing their advisors' thinking would be less likely to include an anchor. Indeed, participants assigned to the Do Not Influence condition were less likely to anchor their advisors than participants in the Control condition ($b = -1.338$, SE $= 0.271$, $p < 0.001$). This result suggests that participants who were attempting to avoid influencing their advisors were less likely to include anchors in their requests than participants with no specific goal. Fig. 4 depicts the proportion of participants who included an anchor in their advice requests in each of the three goal conditions.

We did not make any predictions about differences in anchoring among the two impression management conditions (Capability and Effort), but we did find that participants in the Capability condition anchored at a lower rate (30.4%) than their counterparts in the Effort condition (39.6%, z = 5.31, 95% $CI_{Difference} = [-0.170, -0.014]$, $p = 0.021$). This suggests that advice seekers with a goal of demonstrating

Table 2
Logistic regression results predicting requests that include anchors (Study 2a)

	b	SE	*p*
Effort Condition (1 = yes, 0 = no)	0.685	0.172	0.000
Do Not Influence Condition (1 = yes, 0 = no)	−0.697	0.193	0.000
Number of Advisors (0 = one, 1 = five)	0.040	0.148	0.788
Constant	−0.760	0.146	0.000
Observations	880		
Log Likelihood	−530.651		
Akaike Inf. Crit.	1,069.121		

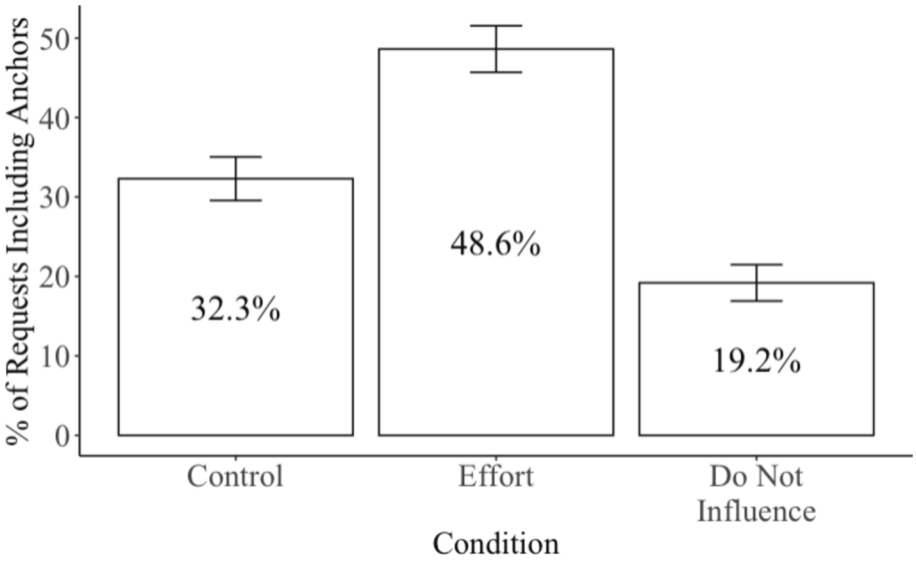

Fig. 3. Participants in the *Effort* condition anchored their advisors at a higher rate than participants in the *Control* condition, while participants in the *Do Not Influence* condition anchored their advisors at a lower rate (Study 2a).

Table 3
Logistic regression results predicting requests that include anchors (Study 2b)

	b	SE	*p*
Capable Condition (1 = yes, 0 = no)	0.453	0.192	0.018
Effort Condition (1 = yes, 0 = no)	0.861	0.186	0.000
Do Not Influence Condition (1 = yes, 0 = no)	−1.338	0.271	0.000
Constant	−1.284	0.141	0.000
Observations	1,158		
Log Likelihood	−592.633		
Akaike Inf. Crit.	1,193.266		

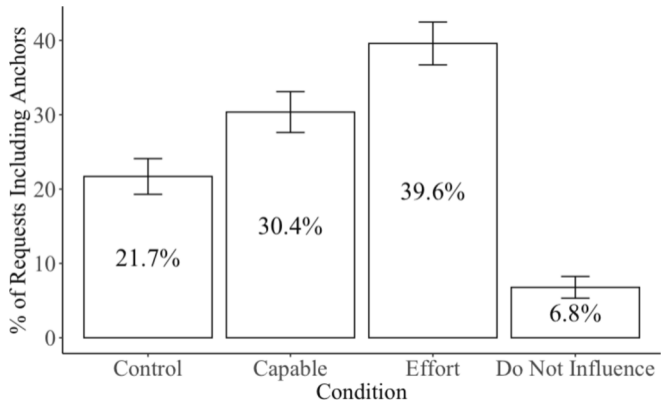

Fig. 4. Participants in the *Capable* and *Effort* conditions anchored their advisors at a higher rate than participants in the *Control* condition, while participants in the *Do Not Influence* condition anchored their advisors at a lower rate. (Study 2b).

their effort might include anchors in their requests at a higher rate than those focused on demonstrating their ability.

Although we did not predict that there would be differences in the inclusion of preparation signals (e.g., "I have an estimate in mind") by condition, we examined this as an exploratory outcome. In total, 37 participants (3.2%) included preparation signals, suggesting that such statements are rarely included in advice requests. Using a logistic regression model, we found that participants in the *Capable* condition were more likely to include preparation signals relative to participants in the *Control* condition ($b = 2.248$, SE = 0.752, $p = 0.003$). Similarly, participants in the *Effort* condition were more likely to include preparation signals than participants in the *Control* condition ($b = 1.935$, SE = 0.764, $p = 0.011$). Participants in the *Do Not Influence* condition were not more or less likely to include preparation signals in their requests ($b = 0.927$, SE = 0.841, $p = 0.270$). For robustness, we confirmed these results using a Firth penalized likelihood logistic regression model, which is specifically designed to handle rare-event data and provides more reliable estimates in such cases.

4.5. Discussion

Studies 2a and 2b tested whether the advice seeker's goals influence the extent to which they anchor their advisors when composing advice requests. Consistent with Hypothesis 1, we found that participants who were assigned an impression management goal – demonstrating their own thought in Study 2a or capability and effort in Study 2b – were more likely to include their own conclusions in their requests for advice than participants in the control condition. Conversely, we found that participants assigned a goal of not influencing their advisors were less likely to share their own conclusions in their requests for advice than participants in the control condition. This finding supports Hypothesis 2, which predicted that advice seekers who have a goal of not influencing their advisors will be less likely to include anchors in their requests for advice.

Studies 2a and 2b addressed two of the limitations of Study 1. First, they found a similar association between motives and anchoring in a controlled experiment in which goals were assigned to participants randomly. Second, they required participants to generate their advice requests freely rather than select one from a list of options. This is an important distinction because it provides a better examination of how people compose advice requests naturalistically.

5. Study 3: Impression management consequences of including anchors in advice requests

In Studies 1, 2a, and 2b, we examined how impression management and informational goals influence the tendency to include anchors in requests for advice from others. In Study 3, we turn our attention to the effectiveness of including anchors in advice requests as a strategy for achieving favorable impressions and whether favorable impressions can also be achieved by an alternative strategy of including a 'preparation

signal' that implies competence and effort without providing an anchor (Hypothesis 3a-b).

5.1. Method

5.1.1. Participants

We recruited 905 participants from the CloudResearch Connect platform and compensated them $0.50 for their participant (51.0% female, M_{age} = 39.7). We dropped 179 observations based on our preregistered exclusion criteria, which specified that we would exclude participants who completed the study in less than 60 s or who provided identical responses to all Likert scale rating questions. Our final sample size was thus 726. For robustness, we confirmed that we obtain results consistent with those reported here if we do not exclude any observations.

5.1.2. Procedure

We asked participants to imagine that they were managers working in the sales department at a mid-sized company and that they had just received an email from a colleague, Michael, with the subject line "Request for Advice". On the next page, participants were presented with an email message from Michael seeking their advice on a task.

We systematically varied the content of Michael's request in two ways. First, participants were randomly assigned to one of three estimate conditions. In the *Anchor* condition, Michael's request included his own estimate for the task about which he was seeking advice (e.g., "I have calculated that $2,200 is reasonable but am interested in hearing what you think." In the *Preparation Signal* condition, Michael's request indicated that he has an estimate but that he will not share what the estimate is (e.g., "I have calculated what I think is reasonable but am interested in hearing what you think"). Finally, in the *Control* condition, Michael included neither an estimate nor a statement indicating that he has an estimate (e.g., "I am interested in hearing what you think"). These manipulations allowed us to examine the relative effects of anchors and preparation signals on advisors' impressions of advice seekers.

Second, to ensure we sampled a range of organizational advice scenarios, we randomly assigned participants to see a request for advice about one of three topics from Michael. In the *Budget* condition, Michael was seeking advice about how much money to set aside for an upcoming department team-building event. In the *Forecasting* condition, Michael was seeking advice about an appropriate sales forecast for the next month. Finally, in the *Raise* condition, Michael was asking for advice about an appropriate compensation increase to award a subordinate who received an increased workload.

After reading the email from Michael, participants rated their impressions of Michael on three scales to measure their perceptions of his competence, diligence, and warmth. We chose to measure competence because it is a stable trait closely associated with ability and to measure diligence because it is a stable trait closely associated with willingness to apply effort towards a goal (Ma et al., 2022). We also collected warmth ratings for exploratory purposes. Across the scales, participants were asked to rate the extent to which an adjective or phrase describes Michael on a 1–7 scale ranging from strongly disagree (1) to strongly agree (7). *Competence* was measured by taking an average of the ratings for competent, capable, skillful, and masterful (α = 0.890) (Ma et al., 2022). *Diligence* was measured by taking an average of the ratings for active, dedicated, task-oriented, and hard-working (α = 0.849) (Ma et al., 2022). Finally, *Warmth* was measured by taking an average of warm, friendly, likeable, sincere, and honest (α = 0.905) (Fiske et al., 2007).

5.2. Results

We predicted that advisors would perceive advice seekers who include an anchor or a preparation signal in their advice request as more competent than advice seekers in the control condition (who included neither an anchor nor a preparation signal in their requests) (Hypothesis 3a). We tested this hypothesis using a two-way analysis of variance (ANOVA). For perceived competence, there was a main effect of estimate condition, $F(2, 717) = 4.216$, $p = 0.015$, indicating that the different estimate conditions affected competence perceptions. There was also a significant effect of scenario, $F(2, 717) = 7.244$, $p < 0.001$, but no interaction between estimate condition and scenario, $F(4, 717) = 1.537$, $p = 0.190$. Planned comparisons revealed that advice seekers who included anchors in their request for advice were perceived as significantly more competent ($M = 5.13$) than the control group ($M = 4.91$), $t(717) = 2.452$, $d = 0.23$, $p = 0.014$, and that advice seekers who included preparation signals in their request for advice were also perceived as significantly more competent ($M = 5.13$) than the control ($M = 4.91$), $t(717) = 2.360$, $d = 0.21$, $p = 0.018$.[4] There were no significant differences in competence perceptions between the *Anchor* condition and the *Preparation Signal* condition, $t(717) = 0.099$, $p = 0.921$. These results support Hypotheses 3a.

We also predicted that advisors would perceive advice seekers who include anchors or preparation signals in their advice requests as more diligent than advice seekers in the control condition (Hypothesis 3b). Contrary to Hypothesis 3b, a two-way ANOVA did not suggest a significant effect of estimate condition on perceived diligence, $F(2, 717) = 2.914$, $p = 0.055$. The main effect of scenario was not significant $F(2, 717) = 0.752$, $p = 0.472$ and there was no significant interaction between estimate condition and scenario, $F(4, 717) = 0.195$, $p = 0.941$. Although the main effect of estimate condition did not quite reach significance at the $p < 0.05$ level, we proceeded to test the planned comparisons. The comparisons revealed that advice seekers who included anchors in their requests for advice were viewed as more diligent ($M = 5.56$) than advice seekers in the control condition ($M = 5.38$), but that this effect was not significant at the 0.05 level, $t(717) = 1.901$, $d = 0.21$, $p = 0.058$. However, advice seekers who included preparation signals in their requests were perceived as more diligent ($M = 5.54$) than advice seekers in the control condition (M = 5.38), $t(717) = 2.208$, $d = 0.16$, $p = 0.028$. There was no significant difference in diligence perceptions between the *Anchor* condition and the *Preparation Signal* condition, $t(717) = 0.312$, $p = 0.755$. These results provide weak support for the notion that advisors perceive advice seekers who supply anchors or preparation signals in their requests for advice as more diligent (Hypothesis 3b).

Although we made no predictions about how including anchors or preparation signals would influence perceptions of the advice seekers' warmth, we examined this outcome for exploratory purposes. A two-way ANOVA found no effect of estimation condition on warmth, $F(2, 717) = 0.595$, $p = 0.552$. This suggests that the inclusion of anchors and preparation signals in advice requests do not influence perceptions of advice seekers' warmth.

5.3. Discussion

Study 3 provides support for the notion that including evidence of capability or effort – such as anchors or preparation signals – in advice requests can positively impact advisors' perceptions of advice seekers. Specifically, we found support for Hypothesis 3a, which predicted that anchors and preparation signals increase advisors' perceptions of the advice seeker's competence. We also found weak support for Hypothesis 3b, which predicted that advisors would perceive advice seekers who include anchors or preparation signals in their requests for advice as more diligent than those in the control condition. These relationships

[4] We also conducted a post hoc Dunnett's test for multiple comparisons with a control, which adjusts p-values to control Type I error. Results, averaged over the levels of the scenario, are as follows: anchor vs. control (estimate = 0.214, $SE = 0.087$, $t(717) = 2.452$, $p = 0.028$), preparation signal vs. control (estimate = 0.205, SE = 0.087, $t(717) = 2.360$, p = 0.036).

were directionally consistent with our hypotheses, but the results did not reach significance at the 0.05 level.

Although Study 3 demonstrates the effectiveness of including anchors as an impression management strategy, the key insight is that a preparation signal – an indication that the advice seeker made an estimate prior to the interaction but is withholding it – may be similarly effective in accomplishing impression management objectives without introducing potentially biasing information into the advice interaction. This finding is important because it offers advice seekers a strategy for simultaneously accomplishing impression management and independence goals.

6. Study 4: Accuracy consequences of including anchors in advice requests

In Study 4, we turn our attention to the consequences for accuracy when advice seekers anchor their advisors. Specifically, we test whether anchoring reduces the effectiveness of opinion combination strategies (i.e., averaging) for improving accuracy and whether the consequences of anchoring are contingent on the extremity of the estimate that the advice seeker provides relative to the distribution of estimates from others (Becker et al., 2020).

This study was administered in two parts. In Part 1, we collected judgments and requests for advice from participants. Participants were given two options: they could seek advice, in which case the request for advice they selected would be sent to six additional participants on the platform who would serve as advisors, or not seek advice. We chose six advisors (rather than a smaller number of advisors), because larger crowds have more opportunity to benefit from error cancellation and thus anchoring should be more harmful. Participants were informed that if they sought advice they would be compensated based on the average of their judgment and the estimates of the six advisors we recruited and that if they did not seek advice they would be compensated based on their own judgment. Although we acknowledge that in practice many advice seekers do not equally weight each of their advisors' opinions with their own and instead egocentrically discount advice (Yaniv & Kleinberger, 2000), we opted to employ an averaging approach because prior work has shown that it is highly effective in reducing final error (Clemen, 1989).

Having participants 'opt in' to receiving advice is a departure from the prototypical JAS experiment, in which the 'judge' is supplied with advice automatically (Rader et al., 2015). We employed this design for three reasons. First, we sought to mirror the voluntary nature of advice seeking in naturalistic settings (Brown & Levinson, 1987). Because seeking advice is a strategy for reducing uncertainty (Kämmer et al., 2023), it is likely the case that people who choose to seek advice are less certain about their current estimates. We wanted the distribution of anchors in advice requests to be representative of the subset of people who feel the need for advice. Second, if participants were required to seek advice, participants who knew the answer to the question being asked (or believed they knew the answer) might be inclined to include it as an anchor in order to influence the group average. Instead, we wanted such participants – those who believed they were better off with their own estimates rather than seeking advice – to have the option of opting out of receiving advice. Finally, this design enabled us to compare the final error of participants who did not seek advice, participants who sought advice but included an anchor, and participants who sought advice and did not include an anchor.

In Part 2 of the study, we recruited six additional participants to serve as advisors *for each* participant who elected to seek advice in Part 1.

6.1. Method

6.1.1. Participants

In Part 1 of the study, we recruited 808 participants from the CloudResearch's Connect platform to complete a judgment task (46% female, $M_{age} = 44.9$). Participants were compensated $0.80 for their participation and offered an opportunity to earn up to $0.10 as an accuracy bonus.

Consistent with our pre-registered exclusion criteria, six participants were excluded from the analysis because they completed the study in less than 90 s, entered the same estimate for all 10 trial tasks, or did not enter a valid number for their final estimate.

Among the 802 participant judges, 480 (59.9%) elected to seek advice on the final task, meaning that we needed $6 \times 480 = 2{,}880$ participants for Part 2. Although this was our target, the randomization feature in the survey platform generated some unevenness in the frequency with which participant advisors saw each of the participant advice seekers' requests for advice. For this reason, after the first round of data collection for Part 2 we recruited an additional 101 advisor participants so that each advice seeker would have no fewer than 6 advisors. After excluding all advisors who did not meet our pre-registered exclusion criteria ($N = 61$), our final sample included 2,920 advisors. The average number of advisors per advice seeker was 6.083 ($SD = 0.277$). In total, 440 advice seekers received exactly 6 pieces of advice and 40 advice seekers received 7 pieces of advice. In the results reported in the main text, we include all advice, but for robustness we ensured our results do not change if we limit all crowds to exactly six pieces of advice.

6.1.2. Procedure

In Part 1, participants completed 10 judgment tasks in which they were asked to estimate the height of 10 structures based on images. After participants had estimated the height of all 10 structures, they were provided with accurate information about the absolute error of each of their guesses. They were then informed of the average absolute error by prior participants across the tasks (280 feet) and asked to evaluate how accurate they were relative to other participants on a 1–5 scale. We included this trial of 10 judgments to ensure that subjects understood the task and to explore whether the participants who were more capable of making accurate estimates were less likely to request advice on our final task.

After completing the 10 trial tasks and receiving feedback, participants advanced to a final task for which they learned they could earn a $0.10 bonus based on accuracy. Participants then looked at a new image of a building and estimated its height. The building was presented with no name or other identifying information. (The actual building was the Prudential Tower in Boston, which is 907 feet tall.) After entering their estimates, participants were asked to select a question that they could use to seek advice that would help them improve their answer. They were presented with a list of five questions. Three of the five questions were phrased neutrally and contained no anchor (e.g., "Can you please provide an estimate for the height of this building for a study I am working on? I appreciate your assistance."). Two of the five questions piped in the estimate of the participant (e.g., "I am seeking advice for a study. Can you please estimate height of this building? My estimate is 900 feet."). We opted to include anchors in two out of five questions because pilot study data we collected suggested participants include anchors in advice requests about 40% of the time when composing requests naturalistically.

After selecting a question from the list, participants were presented with a choice of two options. One option was to have the question they

selected presented to 6 additional participants on the CloudResearch Connect Platform and for the participant to be compensated based on the accuracy of their own guess averaged with the advice of these participants (*advice option*). The second option was to be compensated based on their own answer and not seek advice from other workers (*no advice option*). Participants were informed that they would receive their accuracy bonus at the same future point in time regardless of their choice. Although we acknowledge that in practice advice seekers will often overweight their own opinions relative to those of their advisors (Mannes, 2009), we chose to offer a strategy of equally weighting all estimates to measure the potential harm of anchoring when the available advice utilization strategy is a well-established and effective one (Clemen, 1989; Surowiecki, 2005).

In Part 2, participant advisors completed the same 10 trial tasks as the advice seeker participants did in Part 1 and received performance feedback on their absolute error for each estimate after they completed all 10 trials. After completing this initial task, advisor participants were randomly matched to one of the participants who sought advice in Part 1 of the study. The advisor participants were instructed that they would be giving advice to another Connect worker who had recently completed a study on the platform and sought advice. They were also informed that they could earn an accuracy bonus of up to $0.10 for the accuracy of the advice they provided. On the next screen, advisors were presented with the same unlabeled image of the Prudential Tower that the Part 1 participants had seen, as well as the question selected by the advice seeker with whom they had been matched. They were then asked to enter a numeric estimate of the height of the building.

After we collected data in Part 1 and Part 2 of the study, we computed the average height estimate for the crowd associated with each judge who sought advice. (In this section, we use *judge* to refer to all Part 1 participants, and *advice seeker* to refer to the subset of Part 1 judges who sought advice.) This *crowd estimate* was computed as an equal-weighted average in which the advice seeker's estimate was weighted the same (1/n) as each of the advisors'. We then calculated *crowd error* by taking the absolute value of the difference between the *crowd estimate* and the correct height of the building (907 feet). We also computed *judge error*, which was a measure of the absolute difference between the estimate supplied by the judge and the height of the Prudential Building.

6.2. Results

Prior to examining our hypotheses, we first compared the ability level and *judge error* for advice seekers (59.9%) or judges who did not seek advice (40.1%) in Part 1 of the study. To assess participant ability, we computed the mean absolute error (MAE) for each judge based on the 10 trial tasks they completed prior to their final estimation task. Participants who sought advice were less accurate ($MAE_{Advice\ Seekers}$ = 342.1) in the 10 trial tasks than participants who elected not to seek advice ($MAE_{Non\text{-}Advice\ Seekers}$ = 317.7, $d = -0.17$, $t(623.4) = -2.83$, 95% $CI_{difference}$ [−41.30, −7.46], $p = 0.005$). However, *judge error* on the final task – the one on which participants had the option to seek advice – was not related to the choice to seek advice ($M_{Advice\ Seekers}$ = 309.7, $M_{Non\text{-}Advice\ Seekers}$ = 295.5, $d = 0.08$, $t(657.1) = -0.921$, 95% $CI_{difference}$ [−45.0, 16.3], $p = 0.358$). Furthermore, advice seekers were similarly accurate regardless of whether their advice request included an anchor or not ($d = 0.03$, $t(461.1) = -0.31$, $p = 0.756$).

Hypothesis 4a predicted that – on average – anchoring would be harmful for final judgment accuracy when the advice seeker's estimate was averaged with that of their advisors. Consistent with this hypothesis, a *t*-test of the differences in average *crowd error* revealed that crowds that were anchored did indeed have higher final errors than those that were not anchored ($M_{anchor} = 184.3$ vs. $M_{unanchored} = 147.4$, $t(412.45) = 3.67$, 95% $CI_{difference}$ [17.16, 56.74], $d = 0.25$, $p < 0.001$). One explanation for the difference in accuracy is that advice seekers who did not anchor the crowd were more likely to benefit from error cancellation due to bracketing among crowd members (Larrick & Soll, 2006). As an exploratory analysis (not pre-registered), we examined differences in bracketing among anchored and unanchored crowds. Indeed, our results confirmed that unanchored crowds had higher bracketing rates than crowds that were anchored by the advice seeker ($M_{unanchored} = 0.34$ vs. $M_{anchored}$ 0.29, $d = 0.24$, $t(457.6) = -3.44$, 95% $CI_{difference}$ [0.02, 0.08], $p < 0.001$).[5] To examine whether the effect of including an anchor on crowd error was mediated by bracketing, we conducted a mediation analysis using the bootstrap method in the PROCESS macro (Hayes, 2009: Model 4). There was a significant indirect effect of *anchor* on *crowd error* through bracketing ($\beta b = 20.11$, 95% CI [8.50, 32.31]), and a significant direct effect of *anchor* on crowd error controlling for bracketing ($b = 16.94$, SE = 8.13, 95% CI [0.87, 32.8], $p = 0.039$). This suggests that reduced bracketing partly explains why anchored crowds tended to have higher errors.

We now turn to Hypothesis 4b, which predicted that the effect of anchoring on final crowd error would depend on the extremity of the advice seeker's estimate. We tested this hypothesis using a linear regression model (Table 4), which regressed crowd error on advice seeker estimate extremity, the presence of an anchor (1 = yes, 0 = no), and their interaction. Here, the anchor variable refers to whether or not the advice seeker included their estimates in the advice request. Only advice seekers are included in this analysis (because there is no crowd estimate for judges who did not seek advice).

Consistent with Hypothesis 4b, there was a significant interaction between *advice seeker estimate extremity* and *anchor* ($b = 0.284$, SE = 0.04, $p < 0.001$), such that anchoring predicted a larger *crowd error* when the anchor was more extreme. Conversely, when the advice seeker's guess was at the median of the estimate distribution (*advice seeker estimate extremity* was equal to zero), the effect of anchoring on *crowd error* was negative, that is, it reduced crowd error ($b = -47.1$, SE = 15.6, $p < 0.001$). This is consistent with prior work suggesting that crowds can become more accurate when a focal actor (in this case, the advice seeker) pulls others' estimates towards the middle of the distribution (Becker et al., 2020). Fig. 5 depicts a plot of this interaction.

To better understand the ranges of advice seekers' estimates for which anchoring was helpful or harmful for final accuracy, we conducted a Johnson-Neyman test. This test determines specific areas within the range of values for one independent variable in which the influence of another independent variable on an outcome is statistically significant (Spiller et al., 2013). We found that when *advice seeker estimate extremity* was between 74.7 and 232.9 (16th–48th percentile), there was no significant difference in *crowd error* based on *anchor*.

Table 4
Linear regression results for crowd error in Study 4.

	b	SE	*p*
Advice Seeker Estimate Extremity	−0.05	0.03	0.095
Anchor (1 = yes, 0 = no)	−47.100	15.59	0.003
Advice Seeker Estimate Extremity × Anchor	0.284	0.04	0.000
Constant	161.640	10.68	0.000
Observations	480		
R^2	0.139		
Adjusted R^2	0.134		
Residual Std. Error	102.092 (df = 476)		
F Statistic	25.705*** (df = 3; 476)		

[5] The crowd bracketing rate was computed as *bracketing* = *2pq*, where *p* represents the proportion of advisors who estimated lower than the truth and *q* represents the proportion of advisors who estimated higher than the truth.

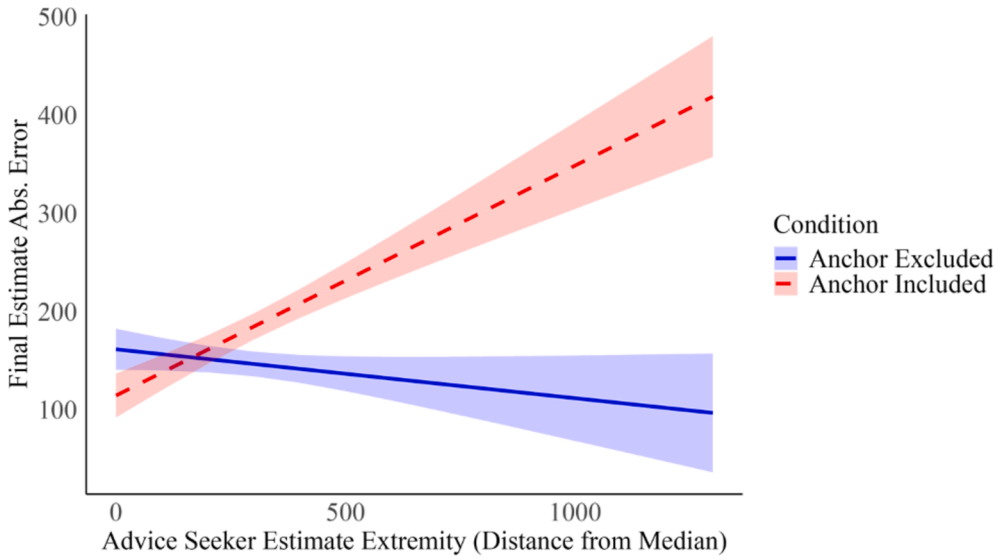

Fig. 5. Interactive effects of advice seeker estimate extremity and anchors in the advice request for crowd estimate accuracy (Study 4). **Note**. Shaded regions represent 95% confidence intervals.

Including an anchor was harmful at values above 232.9, which was the case for the majority (52%) of participants. However, for the advice seekers who supplied guesses that were most central (the 16% of guesses closest to the median), anchoring tended to reduce *crowd error*. In summary, there is an overall negative effect on crowd accuracy when an advice request includes an anchor (Hypothesis 4a) and this overall effect is due to extreme advice seeker estimates causing greater harm to crowd accuracy than the benefits from the most central advice seeker estimates (Hypothesis 4b).

6.3. Additional Analyses

Although we made explicit predictions about the harm of anchors for a crowd of six advisors (with each receiving equal weight), our design affords us the opportunity to explore three additional questions related to the consequences of anchoring advisors: (1) How do the final (crowd) estimates of advice seekers who did and did not anchor compare to judges who chose not to seek advice? (2) How does anchoring influence *advisor* accuracy? (3) What are the consequences of anchoring for accuracy when an advice seeker averages with a smaller number of advisors? In this section, we briefly address each of these questions.[6]

We have argued that including anchors in advice seeking interactions makes averaging a less useful advice utilization strategy, but it is worth noting that advice seekers who anchored their advisors attained final estimates through averaging that were considerably more accurate ($Mean_{Error} = 184.32$, $SD_{Error} = 123.84$) than judges *who relied exclusively on their own estimates* ($Mean_{Error} = 295.45$, $SD_{Error} = 222.07$, $t(522.22) = 7.475$, $d = 0.618$, $p < 0.001$). Not anchoring advisors is important, but it is even *more important* to seek and utilize advice in the first place, regardless of whether the advice request includes an anchor.

We also examined the effect of anchoring on the accuracy of the advice provided by advisors. In the same way that advice operates as an additional opinion that can help an individual revise their judgment to form a more accurate one, an anchor provided to an advisor can help the advisor make a more informed judgment too. Consistent with this idea, we found that individual advisors were more accurate (lower absolute error) when they were anchored than when they were not anchored ($M = 260.1$ vs. 302.8, $t(2917.2) = 5.90$, 95% $CI_{difference}$ [28.51, 56.93], $d = 0.16$, $p < 0.001$). Anchors helped improve *individual* accuracy (Schulze et al., 2012) but nevertheless hurt overall *crowd* accuracy because they reduced bracketing and thus attenuated the benefit of diversity (Hong & Page, 2004).

Next, although our predictions and procedure specified that the final estimate would be calculated based on the average of the advice seeker's estimate with that of all six advisors, it is worth noting that advice seekers who include an anchor to a single advisor or smaller number of advisors are also less likely to benefit from error cancellation when they average their estimates together with others. For exploratory purposes, we computed the average error calculated based on the advice seeker alone (i.e., advice seeker error) and the average error when the advice seeker's estimate is averaged with 1, 2, 3, 4, 5, or 6 additional estimates from advisors. The differences in accuracy between anchored and unanchored groups are greater with larger crowd sizes but appear with a smaller number of advisors as well. This relationship is depicted in Fig. 6.

6.4. Discussion

Study 4 demonstrated the consequences of including anchors in requests for advice for a commonly prescribed advice utilization strategy – averaging. Consistent with Hypothesis 4a, the results suggest that advice seekers who anchor their advisors benefit less from wisdom of crowds strategies in which their opinion is averaged with the opinions of their advisors. Study 4 also demonstrated that reduced bracketing is a mechanism contributing to greater crowd error. Specifically, advice seekers who anchor their advisors induce a correlation in their advisors' errors, thus limiting the opportunity for high and low errors to cancel. Finally, this study reveals that not all advice seekers will experience equal harm to accuracy from anchoring their advisors. As Hypothesis 4b predicted, advice seekers who provide more extreme anchors are especially likely to erode the accuracy of the crowd relative to advice seekers who anchor with less extreme values. In fact, a subset of advice seekers (those whose own guesses are very close to the median of the estimate distribution) benefited from anchoring their advisors.

However, we caution how this interaction is interpreted – although it is theoretically interesting, it is usually unhelpful in practice. One of the fundamental challenges in using crowd wisdom is that strategies must often be selected under high uncertainty about differences in ability between judges and the tendency for estimates to bracket the truth (Mannes et al., 2014). In our study, advice seekers do not know whether their initial estimate is in the tail of the distribution or the center when

[6] These analyses were not pre-registered.

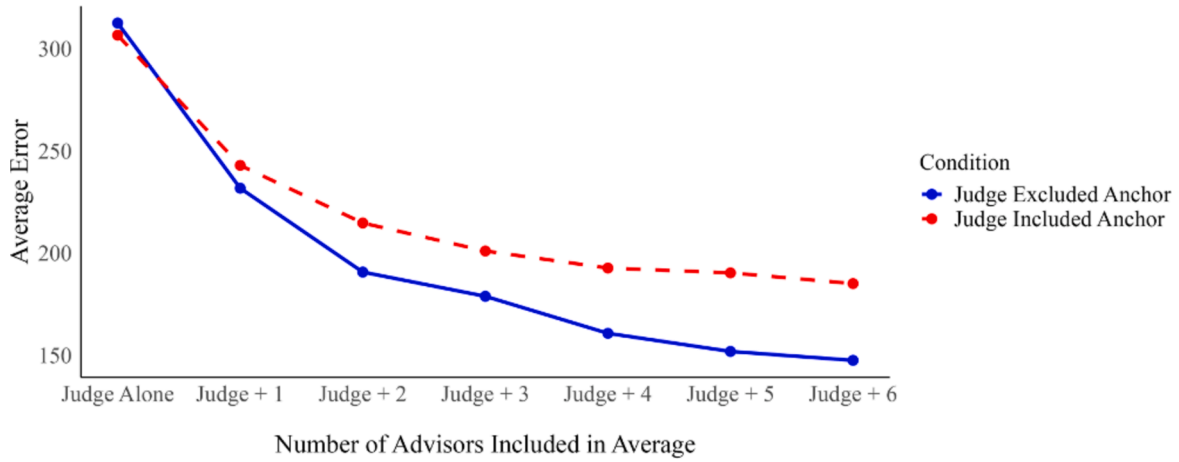

Fig. 6. Average absolute error by number of advisors included in the estimate (Study 4).

they make the decision to seek advice. Since the harm of anchoring for those in the tail tends to exceed the benefits of anchoring for those in the center, the best general strategy under uncertainty is to avoid inserting an anchor into a request for advice.

7. General discussion

Asking for advice from others is a useful strategy to reduce uncertainty and improve estimation accuracy (Bonaccio & Dalal, 2006; Rader et al., 2017; Alexiev et al., 2020). This research examines an understudied aspect of advice seeking: *how* people seek advice from others and how content of the request influences the impressions of the advice seeker and the quality of the advice generated. Our most basic finding is that people include anchors in their advice requests at a relatively high rate—across studies, between 20 and 50%. Judgment and decision-making research on anchoring suggests that this practice is likely to be harmful – when an advice seeker's initial estimate contains a large error, that error will be propagated in the subsequent advice, impairing its value for reducing error. Why do people include anchors?

We hypothesized that specific goal-based motivations will influence the inclusion of anchors when seeking advice. When advice seekers are concerned demonstrating capability and effort to their advisors, they are more likely to include anchors; conversely, when advice seekers are motivated to avoid influence, they exclude anchors. Consistent with these predictions, in Studies 1, 2a, and 2b we found that advice seekers with impression management motives are more likely to anchor their advisors relative to advisors with no specific motive, and that advice seekers motivated not to influence their advisors were less likely to include anchors in their requests for advice. In Study 3, we demonstrated that including anchors is an effective strategy for signaling competence and diligence to advisors, but that these goals can also be achieved just as effectively by including a preparation signal – a statement indicating that the advice seeker has formed an estimate but is withholding it to receive unbiased advice. Finally, we demonstrated the harm of including an anchor in an advice request in Study 4 for the effectiveness of an oft-prescribed advice utilization strategy: taking an average of the crowd. We found that anchoring ones' advisors was harmful for final decision accuracy, and that this effect was moderated by the extremity of the anchor contained in the advice request.

7.1. Contributions

This research makes two contributions to the advice literature and two contributions to the broader literature on collective judgments. First, this is the first research to our knowledge to investigate differences in how individuals compose their requests for advice. Many scholars have noted that the process of advice seeking is understudied relative to advice utilization and advice-based decisions (Kämmer et al., 2023). Recent research has begun to address this gap by examining when and why people ask for advice (e.g., Heyden et al., 2013; Alexiev et al., 2020) and whose advice they seek (e.g., Hur et al., 2020, Marineau et al., 2018), but little is known about the content of the request for advice itself. This work demonstrates that there is heterogeneity in the content that people include in their requests for advice and that some of the variation is related to specific social and informational goals: impression management motivations lead advice seekers to include anchors in their requests, while motivations to obtain independent judgments lead advice seekers to exclude them. By extending the JAS paradigm to enable advice seekers to compose their own requests for advice, we identify systematic differences in how people ask for advice that are likely to shape the usefulness of the advice they receive.

A second contribution of this research is a demonstration that advisors are sensitive to the content of the advice request when forming evaluations of the advice seeker. Prior work has highlighted that advice seekers are sensitive to their advisors' perceptions of them, but that advisors may confer competence premiums rather than penalties when people seek advice on hard tasks (Brooks et al., 2015). The current work extends this line of research by demonstrating that advisors are sensitive to cues that indicate that an advice seeker has put their own thought into the task. Subtle acts of self-promotion or exemplification – whether in the form of anchors or preparation signals (e.g., "I have an estimate, but I would like to hear yours") – communicate to the advisor that the advice seeker brought their own ability and effort to the task, boosting perceptions of his or her competence and diligence.

This work also contributes to the literature on collective judgments. First, this research provides an empirical demonstration of how anchoring one's advisors (or members of a crowd) reduces the effectiveness of averaging as a technique for forming more accurate judgments. The statistical principle that aggregating imperfect estimates reduces error has been observed for over a century (Galton, 1907, Kelley 1925, Stroop, 1932). Indeed, prior literature on the wisdom of crowds reveals that crowd estimates often outperform individual ones because they benefit from error cancellation. In this research, we demonstrate that groups in which one member provides an initial estimate to others are less likely to benefit from diverse opinions because the initial estimate reduces the range of opinions expressed by others and thereby the chance for errors to cancel. On average, advice seekers who anchored their advisors yielded less accurate judgments through averaging than advice seekers who did not anchor their advisors because they were less likely to benefit from error cancellation; advice seekers who form an extreme initial estimate are especially likely to reduce collective accuracy when they share it.

Finally, this work also contributes to efforts to identify conditions under which discussion is likely to be helpful or harmful for collective accuracy. Prior research has generated conflicting findings about the extent to which discussion among individuals helps or harms the accuracy of aggregated judgments (Becker et al., 2017; Becker et al., 2020). In situations in which some individuals have significant influence over other group members and pull all estimates towards their own, discussion is only likely to be helpful if those highly influential estimates pull the average towards the truth (Becker et al., 2020). In this work we demonstrate a parallel finding, which is that information in the form of a numerical anchor revealed by one group member (i.e., the advice seeker posing a request for advice to a crowd of advisors) is especially likely to harm collective judgment when it is more extreme.

7.2. Awareness of the value of independence

Academic research on combining judgments takes as a core starting point the value of independence (Budescu & Yu, 2007; Rader et al., 2015; Surowiecki, 2005). From this vantage point, it is surprising that a substantial percentage of people (20–50%) seem to seek information in a way that harms independence. Why do people appear to neglect the principle as often as they do?

To put this question in perspective, it is worth noting that a substantial portion of people in our studies do seem to appreciate the value of independence. 82% of participants in Study 1 rated the goal of avoiding influence as important (above a 4 on the importance scale; see Fig. 2). Having people rate the importance of avoiding influence before seeking advice in Study 1 also unexpectedly reduced the rate at which people included anchors in their advice request. And asking subjects to pursue the goal of avoiding influence in Studies 2a and 2b reduced their anchoring rates below the control condition. It does appear that many people value uninfluenced (independent) advice (Study 1) and know how to seek it when the goal is salient (Study 1 and Studies 2a and 2b).

We propose that people may appreciate the principle of independence in the abstract but fail to act on it in the moment when they are attending to other goals such as thinking about the problem in front of them and managing advisors' impressions. We offer preliminary, indirect evidence showing that detachment from the advice request increases appreciation for independence and decreases the inclusion of anchors.

Two weeks after completing Study 4, we invited the 803 original participants who served as judges in Part 1 to return for a new study. In total, 641 of the participants returned to complete the study (80% response rate).[7] We presented the participants with a hypothetical scenario in which an employee, Kevin, was seeking advice from a colleague about how to rate a candidate he had interviewed for a position at his company. Participants read that Kevin had determined a preliminary rating of a 7 on a 10-point scale but that he wanted to seek advice from his colleague before submitting a final rating. Participants were then asked to select one of two questions that they would recommend Kevin use when seeking advice from his colleague. One option included an anchor., "I am considering rating him a 7 but am not sure what I should put down", and the second option simply stated, "I am not sure what I should put down". Participants were then asked to write a short explanation for why they selected the question that they did.

We found several notable results. First, there was some consistency between their own behavior in Study 4 and their recommendation for Kevin: Participants who had chosen to include an anchor in their own advice request task were more likely to recommend that the protagonist include an anchor (38.7%) compared to participants who had not chosen to include an anchor in their advice request (21.6%, $\chi^2 = 21.448$, $p < 0.001$). But overall participants in the follow up study were significantly less likely to recommend that the protagonist include an anchor (30.1% of the time) than they were to include an anchor in their own requests in Study 4 (49.5%, $z = 7.13$, 95% $CI_{Difference}$ [14.1%, 24.8%], $p < 0.001$).

We then looked at the reasons people gave for their recommendations (see the Supplement for details on the coding process). There was a clear and striking pattern: Of the large majority of the participants who recommended that the advice request not include an anchor (70%), 95% of them stated as their reason that they believed including the number would influence the colleague's response. In other words, nearly two-thirds of all participants chose not to include the anchor and cited the reduction of influence as their motivation. This result suggests that there is a widely shared understanding of how anchors hurt the independence of advice, and that a detached view – created by having people reflect on giving a recommendation to others – led people to act on these insights. Bringing to mind the value of independence and then acting on it, however, may be rarer when advice seekers are immersed in the task on which they could benefit from independent advice. These insights suggest that people can understand the value of nudges that preserve independence if they encounter such recommendations (perhaps formally in the workplace or informally from peers) but may need additional support to act on them.

7.3. Limitations and future directions

The current studies have important limitations. First, the studies rely on online samples with methods that gave us greater control over the task. Several studies had subjects choose from a limited set of request options. Other studies did create greater realism by asking subjects to generate their own open-ended request. Nevertheless, typing out an open-ended request in an online survey may not capture the full variety of approaches to phrasing requests for advice. Although we opted to use online experiments so that we could test our hypotheses using large samples and controlled experimental paradigms, future research could test whether our results generalize to offline advice interactions between previously acquainted parties. Such work may be especially useful for revealing boundary conditions, such as domains wherein sharing one's own thinking with an advisor violates a social norm (e.g., an employee seeking advice from a boss in an organization with a norm of deference to authority). Future research could explore these contingencies and others that may generate more or less anchoring behavior.

A second limitation of this work is that we queried a limited number goals advice seekers may have. Although we believe there is strong theoretical grounding for the goals of managing advisor impressions and maintaining advisors' independence, future work is necessary to understand how other goals, such as a goal of confirming one's own hypothesis or receiving external validation, influence the tendency to include anchors in requests for advice.

A third limitation of this work is that our demonstration of the accuracy consequences of anchoring relied on a mechanical aggregation of the advice seeker and advisors' estimates rather than a process wherein in which the advice seeker could revise his or her estimate after reviewing the advisors' judgments. This tightly-controlled design enabled us to test the effectiveness of averaging as an advice utilization strategy, but not the multitude of other ways in which people use advice. Future research could explore how advice seekers react to and utilize advice that is correlated with their own judgment (due to anchoring) versus uncorrelated with their own judgment. It is possible, for instance, that advice seekers become more confident in their original opinions when they receive 'anchored' advice because it is closer to their own (Yaniv et al., 2009). Differences in how advice seekers utilize anchored and unanchored advice is another promising avenue for future research.

Finally, we examined relatively simple advice interactions in which the advice sought was a single quantitative estimate and the anchor, when provided, was also a single quantitative estimate. More complex naturalistic advice scenarios might involve *multiple* anchors, and there

[7] All materials, analyses, data, and R code for this Supplemental Study are available on our OSF site.

may be cases in which sharing both high and low extreme values can stimulate divergent thinking among advisors (Barrera-Lemarchand et al., 2024). For example, a salesperson seeking advice on a forecast might reveal both her most and least conservative projections to her advisor. Future research could examine how the inclusion of multiple anchors or a range of values influences decision accuracy in more complex advice interactions involving multiple anchors.

8. Conclusion

In this research, we find that people regularly anchor their advisors when seeking advice and that the advice seekers' goals predictably influence this behavior. First, people who are motivated to manage the impressions of others are especially likely to include their preliminary judgments in their requests for advice. Second, people who have devoted more cognitive effort to a task are more likely to include their preliminary judgments in their requests for advice. We find that advice seekers who anchor their advisors benefit less from combination strategies (i.e., those that average the advice seeker's opinion with the judgment of others) than similarly accurate advice seekers who ask neutral questions when seeking advice. The advice seekers for whom anchoring is most harmful are those who had the highest errors to begin with, as the anchor is especially likely to shift advisors' judgments away from the truth.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Jessica Reif: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Richard P. Larrick:** Writing – review & editing, Supervision, Resources, Project administration, Methodology, Investigation, Conceptualization. **Jack B. Soll:** Writing – review & editing, Supervision, Resources, Methodology, Formal analysis, Conceptualization.

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Data availability

All data are available on OSF: http://tinyurl.com/mr6uhe7y

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