

# Effects of written self-promotions on gender bias and decision quality \*

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## Abstract

Written self-promotion is crucial in numerous decision-making scenarios, including job applications, securing funds for start-ups, or academic grant proposals. In two experiments, we study the effects of written self-promotions agents (e.g., applicants) provide to decision-makers on decision quality and gender bias. We show that providing such self-promotions slightly improve decision quality. Concerning gender bias, we find that self-promotions do not induce a gender bias that harms women. Moreover, the provision of self-promotions can even eliminate pre-existing gender bias when no other performance signals are available.

Keywords: gender bias, self-promotion, real-effort

JEL: C9, M51, J16, D91

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## 1 Introduction

Written self-promotions play a central role in many career-relevant situations. For example, the majority of employers refer to cover letters when selecting applicants (Schullery et al., 2009), written pitches crucially determine which ventures receive funding on online platforms (Allison et al., 2015; Manning & Bejarano, 2017; Gafni et al., 2019), and the way researchers promote their research in a grant proposal impacts which research is funded and ultimately executed (Kolev et al., 2019, 2020). Despite the prevalence of the decision-making scenario and the relevance of their outcomes, evidence on the causal effects of written self-promotions on decision quality and gender bias is scarce. We fill this gap by providing causal evidence from two preregistered experimental studies.

We focus on decision quality and gender bias for the following reasons. From an efficiency perspective, decision quality is crucial (e.g., selection of the best research project) and gender biases can hinder this goal. Moreover, it may be considered socially desirable to design decision processes to not induce gender biases and, ideally, mitigate pre-existing ones. This aligns with the objective of many firms trying to attract women to increase workplace diversity (see e. g., Dobbin & Kalev, 2016). Therefore, we focus on women's chances to be selected in the decision process. In addition, we focus on in-group favoritism concerning gender, as, given the overrepresentation of men among decision-makers in most settings (AllRaise, 2020; Burns et al., 2021), such bias disproportionately hurts women.

How can the provision of written self-promotion affect decision quality? Written self-promotions are typically relevant in decision-making contexts characterized by a conflict of interest and information asymmetry. A conflict of interest arises as the agent's (e.g., applicants) interests are usually not aligned with those of decision-makers who select between agents. Information asymmetry arises since agents know their performance better than decision-makers. Drawing on the examples above, applicants, for instance, want to be employed regardless of their performance, while employers seek to select the best-performing applicant without knowing who that is. Funders want to finance the best venture, while the founders aim to collect the funding even when facing better competitors. Similarly, researchers want their grant proposal to be successful, while funding bodies aim to support the best research project.

Given the described conflict of interest, agents have an incentive to inflate written self-promotions to appear as favorable as possible. If all agents exaggerate to the fullest extent, as standard economic theory would predict, self-promotions will be uninformative and not improve decision quality. Closely related behavioral research on lying demonstrates that not all individuals lie, and those who do usually do not lie to the maximum possible extent (Gneezy, 2005; Fischbacher & Föllmi-Heusi, 2013). This prior literature studies lying in the context of reporting a number. Similarly, prior experimental economic research investigating self-promotion focuses on numerical formats of self-promotion. In this context, higher levels of self-promotion are associated with higher performance beliefs and higher levels of self-promotion lead to more favorable perceptions of decision-makers regarding the agents' performance (Bohnet et al., 2021; Exley & Kessler, 2022; Exley & Nielsen, 2024).

Since self-promotion frequently occurs in richer than numerical formats, we concentrate on written self-promotions in this paper. In most decision-making contexts, the initial stage involves only self-promotion in written formats. Only after successfully passing this stage richer communication, such as via video or face-to-face takes place. While self-promotion in numerical formats are one-dimensional and can only transport performance beliefs (moderated by potential exaggeration), written self-promotions can differ in more characteristics. Beyond conveying performance beliefs, written self-promotions may affect decision-makers through writing style or the information included. Therefore, in the context of written self-promotions, it is unclear how they affect decision quality. On the one hand, a positive correlation with performance beliefs found in numerical formats suggests that if such beliefs are transported through written self-promotions, they can improve decision quality. On the other hand, if such additional characteristics affect decision-makers' choices, it depends on how well these characteristics serve as performance signals. If they are uncorrelated with performance, they may only introduce noise, while negative or positive correlations with performance may distort or improve decision quality.

How could the provision of self-promotion induce gender bias? Self-promotion could induce a gender bias if there are systematic gender differences between the self-promotions written by men and women. For numerical and ordinal scales, previous research has shown that women choose lower levels of self-promotions, disadvantaging them relative to men when self-promotions are part of decision processes (Bohnet et al., 2021; Manian & Sheth, 2021; Exley & Kessler, 2022; Abraham, 2023; Exley & Nielsen,

2024).<sup>1</sup> Such effects have been found even in gender-revealed settings, showing that decision-makers do not fully account for such gender differences (Reuben et al., 2014; Bohnet et al., 2021; Exley & Nielsen, 2024).

In contrast to numerical formats, written self-promotions may not only transport performance beliefs resulting in lower levels of self-promotion but have effects beyond. For instance, Silva Goncalves & van Veldhuizen (2020) find that advisors do not assign different tasks to men and women when deciding based on portfolios that include both numerical and written self-promotion. Their findings suggest that written text format may have effects beyond self-promotion in numerical formats.<sup>2</sup> Such additional effects may arise when men and women differ in their writing style or the content of their self-promotions.

First, in line with lower levels of self-promotion, observational studies revealed that women seem to use more modest language when promoting their research (Lerchenmüller & Sorenson, 2019; Kolev et al., 2020). While these studies find associations with lower levels of success for women, they cannot exclude the relevance of other well-documented gender differences in academic performance driving these effects (Ceci et al., 2014). Other studies show that using more modest language is associated with higher likeability and may, therefore, lead to a potential advantage for women (Hoorens et al., 2012; O'Mara et al., 2019; Manian & Sheth, 2021).

Second, prior research indicates that women and men differ in the content of their written self-promotions. In settings where individuals can choose how much information to disclose about their performance, women tend to provide more information than men (Exley et al., 2024). Consequently, women may be more inclined to include detailed performance information when given the opportunity. Such differences may result in an advantage for women among ambiguity-averse decision-makers. Overall, the effect of written self-promotion for women may depend on the relative importance of the favorability of self-promotions as well as their language style and content.

How could the provision of written self-promotions reduce gender bias? Previous studies have shown that information can reduce existing bias such as systemic gender

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<sup>1</sup> Closely related research further shows that women are less likely to self-cite (Azoulay & Lynn, 2020) or to promote certain skills in their CV (Murciano-Goroff, 2021).

<sup>2</sup> Their study was conducted simultaneously to our studies. Silva Goncalves & van Veldhuizen (2020) do not provide further analysis of the written formats of self-promotion. However, they find that women promote themselves lower (albeit insignificantly), than men on the numerical scale. This suggests that indeed, written text format may have effects beyond self-promotion on numerical formats that may compensate lower self-promotion in the numerical format.

bias favoring one gender or in-group favoritism where women favor women and men favor men (see e.g., Bohren et al., 2023; Castillo & Petrie, 2010; Reuben et al., 2014 or Neumark, 2018 for a review). On the one hand, if such biases exist in the absence of self-promotions, the provision of self-promotions may be suitable to reduce such pre-existing biases. On the other hand, information may have no effect when it is not paid attention to or its interpretation is biased (Bartoš et al., 2016; Bohren et al., 2023; Esponda et al., 2023 or Golman et al., 2017 for a review). Therefore, it is an empirical question whether written self-promotions reduce pre-existing gender bias.

We use a two-stage experimental setup, in which agents (participants in the first stage of our experiments) perform a real effort task and provide written self-promotions in which they promote their performance. In doing so, they are incentivized to convince a decision-maker (participants in the second stage of our experiments) to select them. Decision-makers have the task of selecting agents, incentivized to choose the best-performing agent. In doing so, they do not know the actual performance of the agent but are provided with different performance signals, depending on the treatment. Specifically, in a full factorial design, we vary whether we reveal (1) self-promotions, (2) the agents' gender, and (3) a performance indicator (only one of our experimental studies) to decision-makers.

We apply this experimental setup in two studies. In the first of these studies, the Math Study, the real effort task that agents work on is a math and science quiz. This mimics contexts, in which it is difficult to provide supporting information for the claim of high performance and no other performance signals are available. In the second of these studies, the Ideation study, we cover contexts in which self-promotion can include information to support high-performance claims and additional performance signals are available. For example, to promote a research idea, one can describe this idea. Such information is only possible to generate with an idea in mind, in contrast to a simple claim of high performance. We account for these two aspects by additionally studying the effect of self-promotion in the context of an ideation task, the world illustration task (WIT, see Laske et al., 2024).

We find that self-promotions lead to slight improvements in decision quality, that do not always meet conventional levels of statistical significance. We show that in both studies, this improvement arises due to a (noisy) transmission of performance beliefs.

Concerning gender bias, our findings are twofold. First, the provision of self-promotion does not result in a lower probability of women being selected than men. Although men

in our sample have higher performance beliefs, revealing written self-promotions does not reduce women's chances of selection relative to men's. Our exploratory analysis suggests that women compensate for disadvantages through lower performance beliefs by using a more modest writing style.

Second, we find strong evidence for a bias reduction effect of self-promotions whenever gender biases exist absent of their provision. In both studies, we find evidence for pre-existing gender biases. While only in the Ideation Study, we find evidence for a systemic gender bias, in both studies, we find strong evidence for in-group favoritism. We find that self-promotion significantly reduces both types of biases. In the Ideation Study, we can compare the effect of self-promotion to that of performance indicators, where we find that the bias reduction effects of both performance signals are similar despite their differences. Our additional analysis suggests that the reduction of pre-existing gender bias is due to a shift in focus. Once self-promotions are provided, decision-makers choose based on the characteristics of presented self-promotions rather than the agent's gender.

Our paper makes several contributions. First, our results suggest that the format of self-promotion matters largely when it comes to the impact of self-promotion on gender bias. Previous experiments have shown that self-promotions on numerical scales can induce gender bias, harming women (Exley & Kessler, 2022; Exley & Nielsen, 2024). Our findings show that when self-promotions are provided in written form, women's success probability is not lower than men's. The richer format allows women to offset their disadvantage through comparably lower performance beliefs (which we show are conveyed through written self-promotions) by their more modest writing style and more comprehensive information disclosure.

Second, we find written self-promotions to be strikingly effective in reducing gender bias due to in-group favoritism. We believe this is an important contribution to the research on gender biases and self-promotion. We further show that bias reduction through subjective information on performance occurs in a similar magnitude as we found it for objective performance indicators. This finding relates this paper to the extensive literature on in-group favoritism and discrimination (see, e.g., Grimm et al., 2017, who provide a summary of the literature).

Third, our design provides an experimental set-up suitable to derive causal inference of written self-promotions in different contexts. It can be and has been adapted to investigate other questions in these contexts, for instance, to analyze effects of affirmative action on self-promotions (see Römer & Schröder (in progress)).

## 2 Design and Procedure (Math Study)

Our experimental design mimics decision-making settings in which written self-promotions are typically relevant in a two-stage experimental setup. The experiment starts with the first stage, in which agents perform a real-effort task. This task consists of answering a math and science quiz. In particular, agents answer 20 questions similar to those from the ASVAB (Armed Services Vocational Aptitude Battery).<sup>3</sup> They have 30 seconds to answer each question (see questions in Appendix B). After performing the task, agents are informed about the second stage that consist of decision-makers, who select between them and a competing agent, and are asked to write a text to convince the decision-maker to choose them. In doing so, they do not know their actual performance. We call this text their (written) self-promotion. At the end of the first stage, agents answered a survey in which, among other questions, they reported their performance beliefs on a numerical scale.

For the second stage, new participants are sampled as decision-makers. The decision-makers task is to choose agents from the first stage. Decision-makers go through 20 decisions (rounds) in which they need to choose between two agents. These agents are one randomly drawn male and one randomly drawn female agent from the entire first stage sample, while ensuring that decision-makers are only deciding on the same agent once. Note that this implies that decision-makers always face the decision between a male and a female agent. However, depending on the treatment (see below), decision-makers may be unaware of the agent's gender.

We implemented an incentive structure mimicking the conflict of interest typically arising in contexts where self-promotions are relevant. In these contexts, decision-makers want to choose the better agents, while agents aim to be selected by the decision-makers independent of their actual performance. Agents receive a bonus if a randomly matched decision-maker chooses them. In contrast, the decision-makers payoff increases based on the performance of the chosen agent. Specifically, decision-makers receive a bonus if they choose the better agent. We randomly draw one out of the 20 rounds to determine their bonus, providing an incentive to choose the better-performing worker in each round. In doing so, they are not informed about the agents' performance but only, depending on the treatment, provided with a performance signal in form of the agents' self-promotion.

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<sup>3</sup> The procedure is closely aligned to that applied by Exley & Kessler (2022) while we used a different set of questions for our experiment.

The incentive structure and tasks performed are communicated to both and, thus, are common knowledge in our experiment. Thus, agents also know that decision-makers are not informed about their actual performance and have an incentive to write a self-promotion that makes the decision-maker believe that their performance is high. In contrast, decision-makers know that agents have this incentive to inflate their performance and that their payoff is independent of their actual performance. Agents and decision-makers are familiar with each other's tasks but do not perform them themselves.

To examine the effects of self-promotion, we vary in a 2 x 2 design to determine whether the agents' self-promotions are revealed in the decision-making process and whether the agent's gender is revealed. The treatments and sample sizes (number of decision-makers) are summarized in Table 1. In SP-blind, self-promotions but not the agent's gender is revealed to decision-makers. In SP-revealed, self-promotions and the agent's gender are revealed to decision-makers. In No-revealed, the decision-makers only know the agent's gender when deciding. We conducted this last treatment to control for the effects of revealing gender and cleanly assess the effect of self-promotions in this context. Our baseline comparison is a situation in which decision-makers have no information. For this baseline, we conducted a pseudo treatment in which we run the experiment using bots who randomly select agents (No-blind).<sup>4</sup> We assign treatments on the decision-maker level while all decision-makers decide on the same sample of agents.

Table 1: Treatments (Math Study)

	Gender-blind	Gender-revealed
No performance signal	No-blind* n=225	No-revealed n=201
Self-promotion revealed	SP-blind n=211	SP-revealed n=212

Note: The table illustrates our treatments and the number of decision-makers assigned to each treatment. In each treatment, we draw from the entire sample of agents (n=164), such that the sample of agents on which decision-makers decide is constant. \*No-blind is a simulated pseudo-treatment in which bots randomly choose agents and serve as a baseline comparison.

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<sup>4</sup> We simulated the pseudo treatment in oTree.

Figure 1 shows an example screen from one decision round in SP-revealed, illustrating how we reveal self-promotions and gender to the decision-maker. Whenever self-promotions are revealed, we provide written self-promotions of both agents on the decision screen. To reveal gender, we color the buttons that decision-makers click to select an agent. Purple buttons indicate that the corresponding agent is female and blue buttons that the corresponding agent is male. We informed decision-makers about this color code when applicable. In SP-blind, where we did not reveal gender, all buttons were grey.

Figure 1: Decision screen in SP-revealed (Math Study)

<p><u>Worker 1:</u></p> <p>The worker describes its performance as follows:</p> <p><i>Overall, I think I performed well - perhaps average or better. That being said, I can see areas where I could have improved. The countdown was intimidating and on the first question particularly I was flustered as it was my first introduction to the type of questions that were going to be asked. After that initial shock I think I was able to complete the task with relative ease to the best of my knowledge.</i></p>	<p><u>Worker 2:</u></p> <p>The worker describes its performance as follows:</p> <p><i>As you can already tell, my performance is unmatched. Every single question was answered correctly and with ease, therefore I am 100% entitled to the bonus. Thank you.</i></p>
<p>Please decide which worker you want to choose:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <span style="border: 1px solid black; padding: 5px; border-radius: 10px;">Worker 1</span> <span style="border: 1px solid black; padding: 5px; border-radius: 10px;">Worker 2</span> </div>	

Note: The figure shows an example decision screen from SP-revealed. Buttons reveal the agent's gender and texts displayed are what we refer to as the agent's self-promotions. Note that in the experiment, agents were called workers.

We conducted the experiment in October 2021. For the first stage, we sampled agents on Prolific. In line with our preregistered exclusion criteria, agents who did not pass our attention check questions or finished the experiment in less than 2 minutes are not included in the final sample. Our final sample consists of 164 agents, 82 female and 82 male agents. Agents received a bonus of 3 GBP (in addition to 1.5 GBP fixed pay), if a randomly chosen decision-maker chose them. The average payment was 2.96 GBP. Agents spent, on average, 10 minutes on our experiment. For the second stage, we sampled decision-makers through the platform Amazon Mechanical Turk (Mturk).<sup>5</sup> We collected data for all treatments simultaneously and randomly assigned participants to one of the

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<sup>5</sup> We chose to recruit participants on Mturk for the second stage due to lower platform fees and the much higher sample size required compared to the first stage.

three treatments. We restricted our sample to decision-makers who passed our attention check questions and did not complete the experiment in less than 1.5 minutes. Our final sample consists of 624 decision-makers, 351 female and 498 male decision-makers. Decision-makers received a bonus of 1.5 USD bonus (additional to 0.30 USD fixed pay), if they selected the better agent in a randomly determined round. On average, they worked for 5 minutes and earned 1.46 USD.

The relevant outcome measures in our design are correct choice (to measure decision quality), woman chosen and same gender chosen (to measure gender bias). We classify choices as correct whenever the decision-maker chose the better agent (i.e., the higher performing agent).<sup>6</sup> Our outcomes measuring gender bias are twofold: First, woman chosen indicates that in a given decision the woman was chosen (recall, that they always compete against a man). This way, we can capture in the gender-blind setting whether self-promotions induce a gender bias that potentially harms women. Same gender chosen indicates that the decision-maker chooses an agent of the same gender, measuring in-group favoritism.

Moreover, we derive two relevant measures with respect to the agents' self-promotion. First, the agents' performance beliefs, that they reported on a numerical scale (see above). We decided to focus on performance beliefs to connect our findings to prior literature focusing on numerical scales. However, using unsupervised machine learning (k-means approach), we further support the relevance of performance beliefs relative to other characteristics of which we collected measures in our post-experimental survey (see Appendix A). Second, we derive a measure quantifying writing style.

A key challenge in analyzing the effects of text features is the high dimensionality of written language and potential correlations among its features. To address this, we implement a two-step approach to create an index reflecting the writing style favored by decision makers. We derive this index from self-promotions and decision-maker choices in the Math and Ideation Study, aiming to construct a generalized measure. This way, we capture the essential features of writing style in self-promotions beyond the specifics of the tasks performed. In the first step, we apply the Linguistic Inquiry and Word Count (LIWC) (Boyd et al., 2022). The LIWC is a research-based software tool that quantifies written texts generating four summary variables: analytical thinking (see, e.g.,

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<sup>6</sup> To not include these decisions twice in our analysis, we randomly determine the 'better' agent for these choices, while classifying the choice always as correct.

Pennebaker et al., 2014), clout (see, e.g., Kacewicz et al., 2014), authenticity (see, e.g., Newman et al., 2003), and emotional tone (see, e.g., Cohn et al., 2004).<sup>7</sup> These summary variables are based on prior research and are designed to capture the main features of written texts. In the second step, we distill the most relevant features influencing decision-makers choices in SP-blind into a single index for favorable writing style. Therefore, we conduct a principal component analysis (PCA) based on the pooled sample of self-promotions from both studies ( $n=416$ ). We derive this index based on the first component obtained. Thus, the index is a linear combination of features, each weighted according to its relevance to the decision-maker's choices.<sup>8</sup>

To shed light on the writing style captured by this index, we present its correlation with the individual linguistic features on which it is based in Figure 2.<sup>9</sup> The correlations show that this writing style is characterized by high values for authenticity and low values for clout. The LIWC describes authenticity as speaking in an honest, spontaneous way with little-to-no social inhibitions (as opposed to, e.g., prepared speeches). Low levels of clout are associated with self-doubt and caution, as opposed to high scores are associated with high confidence, social status, or leadership. In contrast, analytic thinking and emotional tone have little relevant for the construct. Drawing on these results, we interpret this writing style as modest, and thus, label the writing style index as index for 'modesty'. We validate this construct using unsupervised machine learning (k-means approach) and show in Appendix A that the approach captures a similar construct.

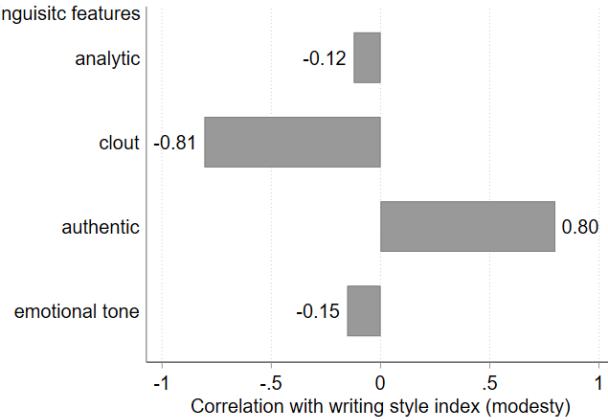
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<sup>7</sup> We rely on a standardized dictionary in the first step as we face the challenge of a small dataset of short texts when it comes to training our own classification algorithm. We have experimented with topic modeling using latent Dirichlet allocation (LDA) (Blei, Ng, & Jordan, 2003). However, these topics are too (task-)specific and resulted in a division by studies. Moreover, in the context of the Ideation Study, the resulting topics were strongly centered around the illustrated words. This approach, as a result, failed to identify the key features of self-promotional language beyond the specifics of each task or context.

<sup>8</sup> This is a commonly used approach (see e.g., Balboni et al., 2022; Bandiera et al., 2020). Bandiera et al. (2020) further show that PCA produces similar results to more complex machine learning methods that have been employed by other economic papers (see e.g., Gentzkow et al., 2019 or Andres & Brutel, 2024)

<sup>9</sup> The first component obtained is associated with low probability to be selected by the decision-maker. We reverse the sign of the component (and its features) for easier interpretability, particularly in the later regression analysis. It explains around 30% of the variance in the probability to be chosen by the decision-maker. This is sufficient for our purpose that is, to capture writing style based on the relevant features of both studies in a single index (rather than to fully explain decision-makers' choices through writing style).

Figure 2: Correlation of linguistic features with an index for modest writing style



Note: The figure shows the pairwise correlation between the linguistic features and the first component obtained from a PCA that explains decision-makers' choices in SP-blind, which we call our writing style index. Drawing on the associations displayed, we interpret this as an index indicative of a modest writing style. We include the full sample ( $n=416$ ) of self-promotions of the Math Study ( $n=164$ ) and the Ideation Study ( $n=252$ ). Analytic, clout, authentic, and emotional tone are linguistic summary variables generated using the LIWC, a standardized research-based dictionary. The first component explains around 30% of the variance in the probability of being chosen by the decision-maker in SP-blind.

Our design has three major advantages. First, our treatments allow us to isolate the effects of self-promotions on decision-making, by keeping the sample of agents constant, and only varying only whether self-promotions and / or the agents' gender are revealed. Specifically, the comparison between No-blind and SP-blind allows us to examine the effects of self-promotions in the gender-blind setting. The comparison between No-revealed and SP-revealed shows the causal effect of self-promotions in the gender-revealed setting, where through No-revealed, we control for the effects of revealing the gender.

Second, the random pairing of agents in decisions induces random variation with respect to the differences between agents. This exogenous variation allows us to assess the effects of agents' performance beliefs and the modesty of their self-promotion on decision-making. In treatments, where self-promotions are not shown, the only distinguishing factor between agents for decision-makers may be their gender. In treatments where self-promotions are revealed, we can leverage the induced variation through random pairings to examine the effect of differences between agents' performance beliefs and modesty on decision-making. Although characteristics are fixed by agents, the difference in these characteristics varies by pairings. For example, an agent may be the higher-performing agent in one pairing, but the same agent will be the lower-performing agent in another pairing.

Third, our design also allows us to quantify relevant characteristics of written self-promotions and their effect on decision-making. We already have established that a writing style aligning with modesty is most favored by decision-makers. In the following, we can quantify the effects of modesty for the impact of revealing self-promotions on decision-making.

### 3 Results (Math Study)

Figure 3 presents the main results. The figure is based on results from a linear probability model (LPM), which we also report in columns 1 and 3 of Table 3. We estimate the effect of a dummy indicating whether self-promotions are revealed (SP) on our main outcome variables correct choice (see Panel (a)), woman chosen (see Panel (b)) and same gender chosen (see Panel (c)), separately for the gender-blind and gender-revealed setting.<sup>10</sup> Therefore, the base category is No-blind for the gender-blind context and No-revealed for the gender-revealed context. Dots in Figure 3 display the value of the constant, which show the corresponding probabilities from the model, when self-promotions are hidden. Red lines display the size of the coefficient of the SP dummy, indicating the effect of self-promotions. Triangles illustrate the sum of these coefficients and, thus, the probability for the outcome of interest when self-promotions are revealed. We show main results using the LPM instead of non-parametric analyses as we can control for performance differences between agents, which is important to cleanly estimate gender biases, when taking an efficiency perspective. However, our main results hold in non-parametric analyses, and, in analyses on the agent-level (see Appendix A).<sup>11</sup>

Concerning decision quality, Panel (a) in Figure 3 shows that the probability of a correct choice increases through the provision of self-promotion. In the gender-blind setting, we find that the probability of a correct choice is 0.52, about two percentage points higher in SP-blind ( $p=0.06$ ) than in No-blind. In No-blind, the probability of correct choices is not significantly different from 0.5 (Wald-test:  $p=0.47$ ).<sup>12</sup> This also confirms that the random decisions in our pseudo-treatment worked as expected. In the gender-revealed setting, we find minor improvements in decision quality. Comparing the probability for correct

<sup>10</sup> We choose to estimate effects separately for the gender-blind and gender-revealed context for easier interpretability and show in Appendix B that we obtain the same results when estimating a joint regression.

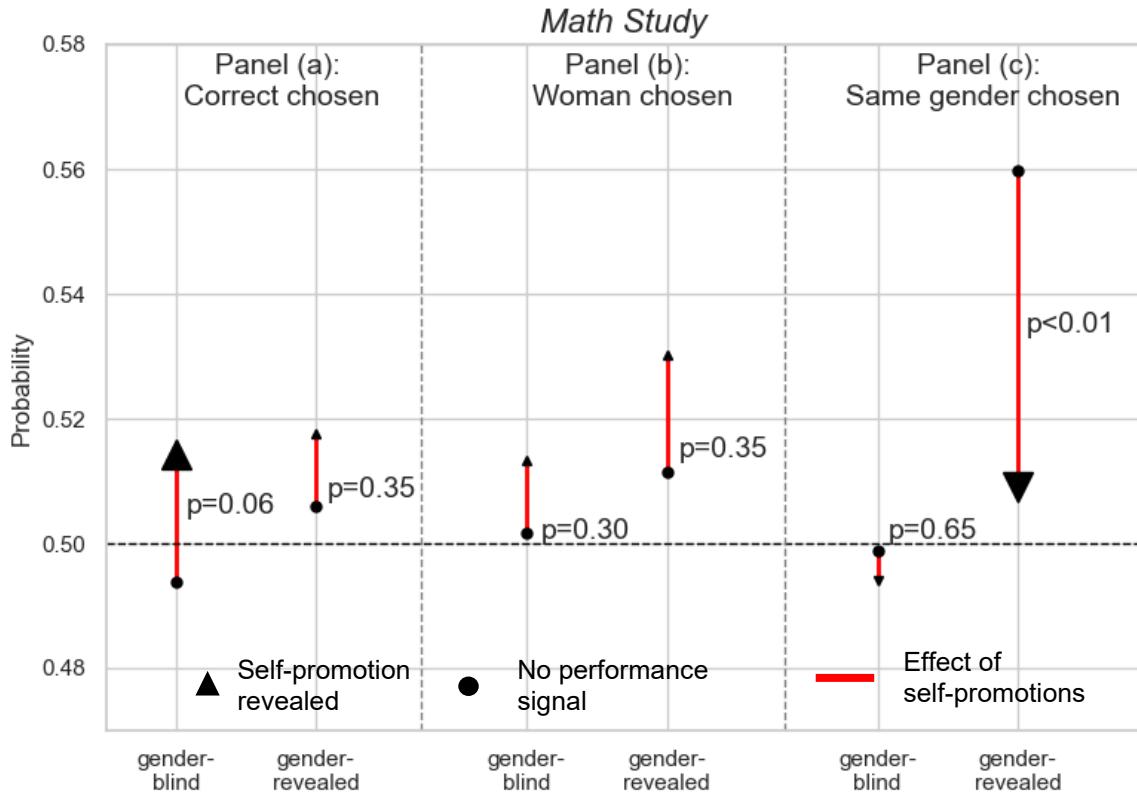
<sup>11</sup> We use a linear probability model for ease of interpretation but provide conditional logit models in Appendix A.

<sup>12</sup> We believe that effects are prone to more noise in the gender-revealed context due to the additional effects of revealing gender.

choices in SP-revealed to No-revealed, we find again a slight increase. This increase is smaller, although not significantly smaller, than in the gender-blind setting ( $p=0.61$ ). Summarizing, our first finding is:

*Finding 1: Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent.*

Figure 3: Effects of self-promotion (Math Study)



Note: This graph is based on the estimates from LPMs with random effects at the agent level (see columns 1 and 3 of Table 3). Dots indicate the respective constant; triangles indicate the sum of the constant and the coefficient for the self-promotion dummy SP (equals 1 when self-promotions are revealed). The difference (red lines) shows the effect of self-promotions. Headers indicate the respective binary outcome (e.g., below 'correct chosen' we display estimates from the regression of correct choice). P-values show significances of the effect of self-promotions. Size of triangles reflects the statistical significance of the result.

We first examine whether revealing self-promotions induces a gender bias, focusing on the gender blind setting. Panel (b) of Figure 3 shows that the probability that women are chosen increases only slightly when self-promotions are revealed. However, the increase is only about one percentage point and insignificant ( $p=0.30$ ). This implies that women do not provide less favorable self-promotions than men. Recall that decision-makers always decide between men and women (i.e., choosing women with a probability of 0.50 implies choosing men with the reverse probability). Therefore, this result implies that

there is no statistically relevant gender inequality induced through the provision of self-promotions. Thus, our second finding is:

*Finding 2: Revealing self-promotion does not lead to women being selected less frequently than men.*

Next, we examine whether revealing self-promotions can reduce gender biases. Therefore, we first evaluate the existence of such gender biases. Panel (b) of Figure 3 shows that there is no systemic gender bias favoring one gender over another. The probability that a woman is chosen when gender is revealed in No-revealed is 0.51. This is slightly, but insignificantly higher than 0.50 (Wald-test:  $p=0.56$ ) and also not significantly different from No-blind ( $p=0.34$ ).<sup>13</sup> Thus, decision-makers are equally likely to choose women and men when their gender is revealed to them. With respect to in-group favoritism, we find significant evidence for gender bias. Panel (c) of Figure 3 shows that the probability that decision-makers choose an agent of their gender is 0.56, significantly higher than 0.50 (Wald-test:  $p<0.01$ ) and also significantly higher than in No-blind ( $p<0.01$ ).<sup>14</sup>

Having established the existence of gender bias in the form of in-group favoritism absent of self-promotions, we evaluate the effect of revealing self-promotions on gender bias. Panel (c) of Figure 3 shows that revealing self-promotions significantly decreases the probability of choosing an agent of the same gender to around 0.51 ( $p<0.01$ ) to the extent that it does not significantly differ from 0.50 (Wald-test:  $p=0.47$ ) or random choices in No-blind ( $p=0.49$ ). Our third finding is:

*Finding 3: Revealing self-promotions significantly reduces pre-existing gender bias.*

To better understand the mechanisms behind our main results, we investigate the characteristics of agents, their written self-promotion, and their relation to decision-makers 'choices. Table 2 provides summary statistics on the relevant variables for the whole sample (column 1) and by gender of the agent (column 2 for female agents, and column 3 for male agents, respectively). Finally, we summarize the percentage differences between male and female agents (column 4).

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<sup>13</sup> When mentioning comparisons of effects in the gender revealed treatments to No-blind, p-values refer to significance of coefficients in the joint estimations with all treatments, which we report in Appendix A.

<sup>14</sup> Note that revealing self-promotions in a gender-blind setting has no impact on the probability of selecting an agent of the same gender ( $p=0.65$ ). Thus, we do not find evidence for a bias through differences in self-promotions of women and men that decision-makers respond to differently, depending on their own gender.

First, we investigate Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*). If this result is driven by transmission of performance beliefs through self-promotions, performance beliefs need to positively correlate with actual performance and decision-makers' choices. We indeed find that agents' performance beliefs positively correlate with their actual performance (Spearman: rho=0.45, p<0.01) and that higher performance beliefs significantly relates to decision-makers' choices. The higher the agent's performance beliefs, the higher the fraction of decisions in SP-blind in which they are chosen (Spearman: rho=0.23, p<0.01).

Table 2: Summary statistics of agents and self-promotions (Math Study)

	Mean (sd) Overall	Mean (sd) Female agents	Mean (sd) Male agents	% gender difference female-male
Performance	10.37 (3.43)	9.39 (3.60)	11.35 (2.97)	-18.93***
Performance beliefs	12.34 (3.92)	11.66 (4.06)	13.01 (3.67)	-10.97**
Chosen in SP-blind	0.50 (0.12)	0.50 (0.14)	0.50 (0.11)	0.93
Modest	0.50 (0.50)	0.59 (0.50)	0.41 (0.50)	34.15**
Predicted as female	59.84 (8.02)	59.29 (8.07)	60.40 (7.97)	-1.85
N	82	82	164	

Note: Column 1 shows the mean and standard deviation for all agents, column 2 for female- and column 3 for male agents. In column 4, we indicate the gender gap as the difference of means of female agents – male agents, as a percentage of the total mean. Thus, negative values indicate that means are lower for female agents. Asterisks indicate significances from a MWU test (\* p<0.1; \*\* p<0.05; \*\*\* p<0.01). Performance beliefs are the agent's belief in the correctly answered questions in the task. Performance indicates the agents' performance (number of correctly answered questions in the quiz). Chosen in SP-blind shows the fraction of decisions in which agents are chosen in SP-blind. Modest indicates the fraction of agents with modest language. Predicted as female refers to the mean belief of raters about the probability that the writer of the self-promotion is female.

Second, we investigate Finding 2 (*Revealing self-promotions does not lead to women being selected less frequently than men*). Particularly, we want to understand why, different from self-promotion on numerical scales, written self-promotions do not induce a gender bias disadvantaging women. Table 2 shows significant gender differences in performance beliefs (MWU-test: p=0.03). Female agents believe they have answered around 1.5 questions less than male agents correctly. This results in a gender difference of -10.97% between female and male agents. Men perform significantly better in our task, answering around 2 of 20 questions more correctly than women (MWU-test: p<0.01). Note that the treatment effects reported account for these performance differences by controlling for performance differences between agents. If written self-promotions

transport agents' performance beliefs, as the correlation between performance beliefs and choices suggests, we would expect women to be chosen less often when revealing self-promotions. However, replicating our earlier finding, we show in Table 2 that the percentage of decisions in which women are chosen does not significantly differ from those of men (MWU-test:  $p=0.49$ ).

One possible explanation is that written self-promotions reveal the writer's gender, and decision-makers account for gender differences in performance beliefs. We investigate this explanation through a follow-up data collection in which raters guess the agent's gender based on their self-promotions.<sup>15</sup> Table 2 shows that these raters predict self-promotions written by both female and male agents to be written by women with a likelihood of 60% (MWU-test:  $p=0.46$ ). Another possible explanation is gender differences in writing style. We derived a modest writing style to be most predictive for decision-makers' probability to select an agent. We use a discretized version of the index (median split) and display the fraction of agents with more modest self-promotions in Table 3. Decision-makers are significantly more likely to choose agents classified as modest as those who have below median values of modesty (MWU-test of chosen in SP-blind by modesty:  $p<0.01$ ). Table 2 further shows that a significantly higher fraction of women than men is classified as being modest (Fisher-Exact test:  $p<0.05$ ).<sup>16</sup> These results suggest that female agents compensate for potential disadvantages through lower performance beliefs by their language type used. Note that we do not find differences in performance by modesty (MWU-test:  $p=0.90$ ).<sup>17</sup>

To investigate whether the observed mechanisms can explain our findings, we add controls for standardized differences in beliefs and modesty to our LPMs, as well as interactions of these differences with the SP dummy. We control for the difference in modesty and beliefs beyond the interaction terms (as indicated by Base level controls in Table 4). For simplicity, we report only the latter in Table 4 (see Appendix B for the remaining coefficients, where we include the full model).

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<sup>15</sup> We sampled 92 MTurk agents from English-speaking countries and incentivized them to accurately predict the likelihood (in 0-100 percent) that the agent is female based on their self-promotions. Each rater was shown a random sample of 20 self-promotions. Each self-promotion was shown to at least nine raters. In the analysis, we use averages over all assigned raters.

<sup>16</sup> Female and male agents do also differ significantly in the continuous index score (MWU-test:  $p<0.01$ ).

<sup>17</sup> Examining the correlation of modesty and performance, we can replicate this result (Spearman:  $\rho=-0.02$ ,  $p=0.72$ ).

Table 3 reports the results of the regressions of correct choice in Panel (a), women chosen in Panel (b), and same gender chosen in Panel (c). Columns 1-3 show results from the gender-blind setting, and columns 4-6 from the gender-revealed setting. Note that results in columns 1 and 4 are displayed and discussed in the context of Figure 3. Therefore, in the following, we focus on columns 2-3 and 5-6 to explore the mechanisms behind these effects.

First, we focus on Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*). If performance beliefs are transmitted through self-promotions, controlling for differences in performance beliefs should explain the observed effect. Comparing column 2 to column 1 in Table 3, we observe that the coefficient of the SP dummy becomes close to zero and insignificant once these controls are added. We further established that, in contrast to performance beliefs, modesty is not correlated with actual performance but positively affects chances of being selected by decision-makers. Therefore, differences in modesty between the better and the competing, less well-performing agent should affect decision-makers' choices but not the effect of SP on correct choice. We construct the difference such that positive values indicate that the better agent uses a more modest language than the competing, lower-performing, agent. Column 3 shows that the better agent has a higher probability of being chosen when they are more modest (significant positive effect of SP x diff. in modesty). However, controlling for differences in modesty has no impact on the coefficient of the SP dummy. We find very similar but less pronounced effects for the gender-revealed setting (see columns 4 and 5 of Table 3). We believe the effects are lower given the additional noise introduced through revealing gender.

Table 3: LPM of effects of self-promotion

	Gender-blind			Gender-revealed		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel (a): Correct choice</b>						
SP	0.020*	0.006	0.007	0.012	0.003	0.004
	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)
SP x dif. beliefs		0.037***	0.041***		0.022*	0.024**
		(0.012)	(0.012)		(0.012)	(0.012)
SP x dif. modesty			0.057***			0.033***
			(0.011)			(0.012)
Constant	0.494***	0.495***	0.494***	0.506***	0.507***	0.507***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Performance controls	No	No	No	No	No	No
Base level controls	No	Yes	Yes	No	Yes	Yes
Obs.	8,720	8,720	8,720	8,260	8,260	8,260
n decision-makers	436	436	436	413	413	413
<b>Panel (b): Woman chosen</b>						
SP	0.012	0.014	-0.002	0.019	-0.006	0.000
	(0.011)	(0.011)	(0.011)	(0.020)	(0.020)	(0.020)
SP x dif. beliefs		0.056***	0.040***		0.019	0.020
		(0.012)	(0.012)		(0.013)	(0.013)
SP x dif. modesty			0.057***			0.031***
			(0.011)			(0.011)
Constant	0.502***	0.501***	0.502***	0.511***	0.511***	0.512***
	(0.010)	(0.010)	(0.010)	(0.020)	(0.020)	(0.020)
Performance controls	Yes	Yes	Yes	Yes	Yes	Yes
Base level controls	No	Yes	Yes	No	Yes	Yes
Obs.	8,720	8,720	8,720	7,616	7,616	7,616
n decision-makers	436	436	436	413	413	413
<b>Panel (c): Same gender chosen</b>						
SP	-0.005	-0.005	-0.003	-0.049**	-0.051***	-0.049***
	(0.011)	(0.011)	(0.010)	(0.019)	(0.019)	(0.019)
SP x dif. beliefs		0.036***	0.040***		0.018	0.020
		(0.012)	(0.012)		(0.012)	(0.012)
SP x dif. modesty			0.043***			0.031***
			(0.011)			(0.011)
Constant	0.499***	0.499***	0.499***	0.560***	0.560***	0.560***
	(0.009)	(0.009)	(0.009)	(0.017)	(0.017)	(0.017)
Performance controls	Yes	Yes	Yes	Yes	Yes	Yes
Base level controls	No	Yes	Yes	No	Yes	Yes
Obs.	8,085	8,085	8,085	7,616	7,616	7,616
n decision-maker	436	436	436	413	413	413

Note: Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the better agent is chosen (correct choice) in Panel (a) if the woman is chosen in Panel (b), or when the agent of the same gender is chosen in Panel (c), and 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Effects are interpreted relative to the base category, that is No-blind for columns 1-3 and No-revealed for columns 4-6. SP x dif. beliefs is an interaction between SP and the standardized difference in performance beliefs between the better agent and the competing agent in Panel (a). We compute the difference such that higher values indicate higher performance beliefs for the better agent. Similarly, for Panel (b), higher values of dif. beliefs indicate that the women are more modest, and in Panel (c) the agent of the same gender is more modest. Dif. in modesty is similarly computed based on differences in agents' values of the writing style index. Base level controls indicate that models include the respective controls for dif. modesty and dif. belief, whenever we add the interactions, while performance controls indicate that we similarly control for performance (see Appendix A for the full set of coefficients). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

We continue focusing on Finding 2 (*Revealing self-promotions does not lead to women being selected less frequently than men*). Therefore, we investigate the gender-blind setting. The positive and significant coefficients for the control in differences in performance beliefs in column 2 of Panel (b) show that women with higher performance beliefs, are more likely to be selected. We further observe a slight increase in the coefficient of the SP dummy once we add controls for differences in performance beliefs. This shows that women would have a higher probability of being chosen absent of gender differences in performance beliefs (controlling for differences in performance). While insignificant, we observe a positive effect of the SP dummy, showing that women are chosen slightly more often than men. Controlling for differences in modesty in column 3, the coefficient of the SP dummy becomes negative but close to zero. The significant positive effect of the control for differences in modesty confirms that women's probability to be selected by decision-makers increases with being more modest when self-promotions are revealed. Again, we find results that are directionally similar but weaker in the gender-revealed setting (see columns 5 and 6 for Panel (b)). Overall, these results suggest that women offset disadvantage through lower performance beliefs by their more modest writing style.

Lastly, we investigate Finding 3 (*Revealing self-promotions significantly reduces pre-existing gender bias*). Results in columns (2) and (3) of Table 3 show that differences in beliefs and modesty similarly affect the probability of choosing an agent of the same gender. We observe that both differences in performance beliefs and modesty positively affect choices, although only the first effect is statistically significant when also controlling for performance ( $p=0.15$ ). Note that absent of these controls, the effect of differences in beliefs is statistically significant ( $p=0.03$ ). The positive effects indicate that decision-makers are significantly more likely to choose an agent of the same gender when they are more modest or has a higher belief. This also implies, vice versa, that decision-makers do focus on the content of self-promotions, and this content significantly affects their choices when choosing between agents. Thus, in decisions in which this is not the case (i.e., in which the agent of the opposite gender has the higher belief and/or the more modest self-promotion), they are choosing agents of the opposite gender. We observe, that this results in a decrease in in-group favoritism. Overall, these findings show decision-makers do pay attention to self-promotions once revealed, while this shift in focus from gender to the agents' self-promotions seems to be driving the reduction of in-group favoritism. We show in Appendix A that the decrease in the fraction of decisions in which decision-

makers choose an agent of the same gender is indeed driven by decisions in which the agent of the opposite gender is more modest or has a higher belief.<sup>18</sup>

In summary, we find that characteristics of the revealed self-promotions significantly affect decision-makers' choices. Specifically, decision-makers are more likely to choose agents with higher performance beliefs but more modest language than their competitors. We find that differences in performance beliefs can explain the small improvements in decision quality through self-promotions (see Finding 1). We further observe that women offset potential disadvantages of lower performance beliefs by more modest writing. This finding explains why written self-promotions do not induce a bias harming women (see Finding 2). Lastly, we showed that the decrease in in-group favoritism through written self-promotions seems to be driven by decision-makers' focusing on self-promotions and deciding based on their characteristics instead of based on the agent's gender (see Finding 3).

## 4 Design and Procedure (Ideation Study)

In the Ideation Study we investigate contexts in which agents' can provide information related to their promoted performance in self-promotions and / or better performance signals are available.

The procedure for the Ideation Study is similar to that of the Math Study, while agents perform a different task. The task is the word illustration task introduced by Laske et al. (2024). In this task, agents have to come up with a word and illustrate it with a predefined set of materials. In this task, agents face the challenge of thinking about a word they wish to illustrate and a way of doing so. Figure 4 shows the working screen, where the set of materials is depicted in the grey box. To illustrate their word, agents can drag materials into the working area (white area with grey frame) and resize, rotate, and change the layer of objects. Once agents are finished illustrating a word, they insert this word in the text field below (see the lower part of Figure 4). Performance in this task is objectively defined based on two dimensions that are highly relevant to innovation: the originality and the quality of ideas. We measure performance based on the value of an idea, which we define as the product of its quality and originality. All participants (agents and decision-makers) are informed about the assessment of the value of ideas. The quality of an idea is a

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<sup>18</sup> Using sample splits, we only find a significant decrease in in-group favoritism for decisions in which the agent of the opposite gender has the more modest self-promotion or the higher belief.

measure of how well the word is identifiable, defined as the percentage of independent raters (who did not participate in any of our experiments; see section below) that can identify the word based on a picture of the idea, without knowing the word. Accordingly, quality equals 100 if all raters could guess the illustrated word correctly and 0 if no one was able to identify it. The originality of an idea is a measure of its uniqueness. We define the originality of an idea as a binary variable that equals one if the idea is unique among a set of 50 ideas from the same experiment<sup>19</sup> (not included in the final sample) and 0 otherwise (Appendix B shows some example ideas). Each agent is asked to illustrate exactly one word.

We implement the same two-stage experimental set-up, where agents in the first stage work on their task, are informed about the second stage, and are asked to provide written self-promotions. At the end of the experiment, we elicit the agents' performance beliefs.

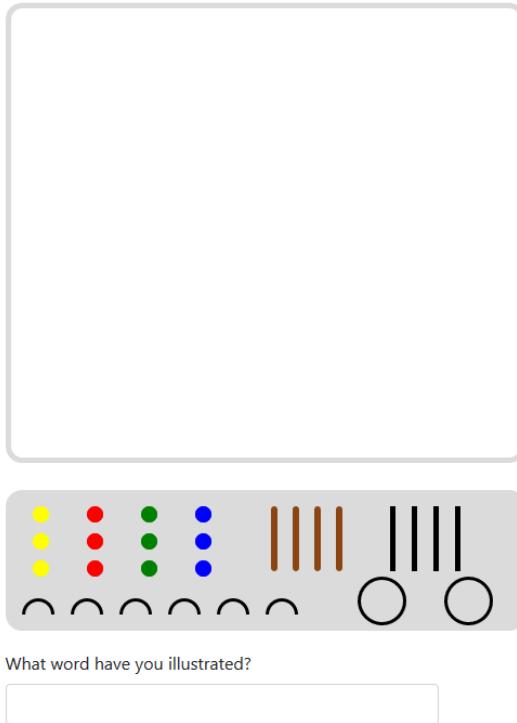
In the second stage, decision-makers decide between agents from the first stage through 10 decision rounds. Again, we always draw one male and one female agent from the entire sample, ensuring decision-makers do not decide on the same agent twice.

We implement the same incentive structure as in the Math Study, where agents receive a bonus in case the decision-maker chooses them, and decision-makers receive bonus if they choose the better-performing agent. Payoffs were defined based on a randomly selected decision.

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<sup>19</sup> After excluding the agents that did not pass our attention checks our sample consisted out of 302 agents. Our reference sample for measuring uniqueness consists of the last 50 participants in this study.

Figure 4: Set of provided materials in the Ideation Study



Equivalent to the Math Study, we assign treatments on the decision-maker level while all decision-makers decide on the same underlying sample of agents. We conduct the same set of treatments varying whether decision-makers see the agent's gender (No-revealed), the agents self-promotion (without knowing the agent's gender) (SP-blind), or the agent's gender and self-promotion both (SP-revealed). In addition, we conduct treatments in which we reveal an additional performance signal, which we call a performance indicator. The performance indicator is a picture of the agent's illustration.<sup>20</sup> In Indicator-blind, we only reveal the performance indicator, while in SP-Indicator-blind, the decision-makers see the agent's self-promotion in addition to the indicator. In the respective treatments in the gender-revealed setting (Indicator-revealed and SP-Indicator-revealed), decision-makers additionally know the agent's gender. Our baseline comparison (No-blind) is again a pseudo treatment in which agents are selected randomly<sup>21</sup>. Again, decision-makers are randomly allocated to the remaining seven treatments. We summarize treatments and the number of decision-makers per treatment in Table 4.

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<sup>20</sup> The performance indicator makes it easier to decision-makers to assess performance (a claim that we will back with our data), but does not reveal performance. Decision-makers still have to assess whether the quality of the illustration is high (i.e., it can be identified by others) and whether it is original, to assess the value of the idea and thus, performance of the agent.

<sup>21</sup> We simulated the pseudo treatment in oTree.

Table 4: Treatments (Ideation Study)

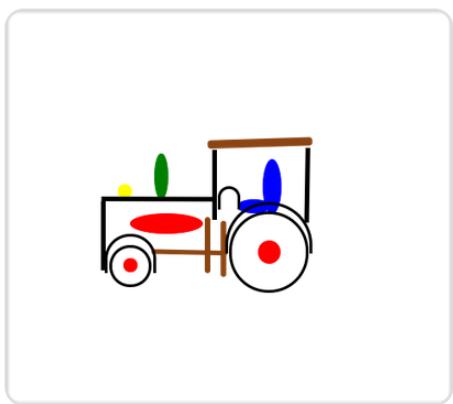
	Gender-blind	Gender-revealed
No performance signal	No-blind* n=650	No-revealed n=661
Self-promotion	SP-blind n=629	SP-revealed n=638
Performance indicator	Indicator-blind n=619	Indicator-revealed n=637
Self-promotion and performance indicator	SP-Indicator-blind n=618	SP-Indicator-revealed n=627

Note: The table illustrates our treatments and the number of decision-makers assigned to each treatment. In each treatment, we draw from the entire sample of agents ( $n=252$ ), such that the sample of agents on which decision-makers decide is constant. \*No-blind is a simulated pseudo-treatment in which bots randomly choose agents and serve as a baseline comparison.

Figure 5 shows an example decision screen in SP-Indicator-revealed. We reveal self-promotions and gender equivalently to the Math Study by displaying the written self-promotions on the screen and using the same color-coded button. We reveal performance indicators using a picture of the agents' illustration.

Figure 5: Decision screen in SP-Indicator-revealed from the Ideation Study

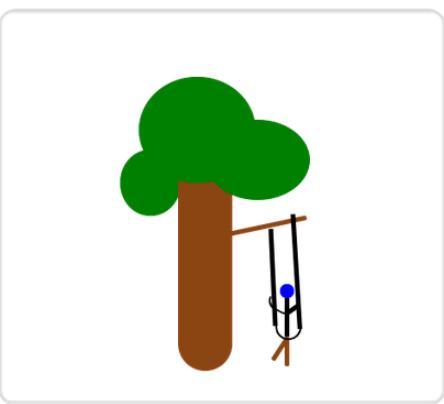
Illustration 1:



The creator of this illustration describes it as follows:

**You never knew you needed a tractor until this picture! Not just a normal tractor but using a number of beautiful colours to make your day brighter and happier :)**

Illustration 2:



The creator of this illustration describes it as follows:

**This beautiful, strong piece of nature provides oxygen to our air, beauty to the earth and fun for children to climb or swing on.**

Please decide which illustration you want to choose:

Illustration 1
Illustration 2

Note: The figure shows an example decision screen from SP-Indicator-revealed. Buttons reveal the agent's gender, texts are the agent's self-promotions and pictures the performance indicators, i.e., pictures of the agents' ideas. Note that in the experiment, ideas were called illustrations.

We conducted the first stage of the experiment in March 2021 as an online experiment on Prolific. We excluded agents who did not pass our attention checks, generated invalid ideas (e.g., illustrated the letters of the word using the provided materials instead of drawing an illustration that represents the word), or finished the task in less than five minutes. We sampled only native English speakers for the experiment. Our final sample consists of 126 female and 126 male agents. Agents could earn a 3 GBP bonus (additional to 2.5 GBP fixed pay)<sup>22</sup>. They received an average payment of 4.34 GBP, and the average duration of the experiment was 20 minutes. For the second stage, we again sampled new participants as decision-makers through MTurk. We collected data for all treatments simultaneously and randomly assigned participants to one of the seven treatments. We restricted our sample to decision-makers who passed our attention check questions and did not complete the task in less than 1 minute.<sup>23</sup> Our final sample consists of 4,429 decision-makers, of which 2,380 are male and 2,049 are female. The bonus decision-makers potentially earned was 1.5 USD bonus (additional to 0.30 USD fixed pay). Decision-makers worked for 5 minutes and earned, on average, 1.06 USD.

To define the value of an idea, we sampled new participants (who did not participate in the experiment) via MTurk right after conducting the first stage of the experiment. We asked them to identify the illustrated words based on the agent's illustration. They were paid 10 cents for each correctly identified word.

We derive the same main outcome measures (correct choice, woman chosen and same gender chosen) and measures for the agents' self-promotions as in the Math Study. However, in addition to the agents' beliefs (note that this measure was incentivized in the Ideation Study) and the index reflecting a modest writing style, we measure the length of the description of the promoted idea in self-promotions. We derive this measure based on raters who classify the text that describes the idea and counting the number of characters used in these text parts.

The two advantages of the Ideation Study are, that the nature of the task allows self-promotion to contain actual information in the form of a description of the generated idea. Moreover, the task allows varying whether a better performance signal (the performance indicator), is available. From these additional treatments, we can conclude how self-

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<sup>22</sup> Note that we kept the bonus constant but adjusted the fixed pay compared to the Math Study, as agents worked longer due to the more time consuming task.

<sup>23</sup> We preregistered all exclusion criteria. We additionally dropped 22 decision-makers who neither identified as female nor as male from our sample, given that we cannot define in-group favoritism for them.

promotion compares to performance indicators and whether, in their presence, self-promotion induces additional distortions or serves as a complementary signal.

## 5 Results (Ideation Study)

Figure 6 shows that we can replicate our main findings from the Math Study in the Ideation Study. Therefore, we use the equivalent LPMs, focusing on the treatments in which no performance indicator is provided. Thus, the setting is equivalent to that of in Figure 3 of the Math Study. We report results from the respective models in Table 6, where columns 1 and 4 show the coefficients depicted in Figure 6.<sup>24</sup>

Concerning decision quality, Panel (a) of Figure 6 shows that the probability of a correct choice somewhat but insignificantly increases through the provision of self-promotions in both gender-blind and gender-revealed settings. Effects are around 1-2 percentage points and not statistically significant ( $p=0.11$  and  $p=0.23$ , respectively). Effects are similar to those in the Math Study; however, they are not statistically significant. This aligns with

*Finding 1: Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent.*

Concerning gender bias, we again first investigate whether the provision of self-promotions induces a gender bias. First focusing on the gender-blind context, Panel (b) of Figure 6 shows that revealing self-promotions does not induce a bias harming women. In contrast, revealing self-promotions slightly increases women's probability of being selected. However, the effect is small and statistically insignificant ( $p=0.16$ ). This confirms

*Finding 2: Revealing self-promotion does not lead to women being selected less frequently than men.*

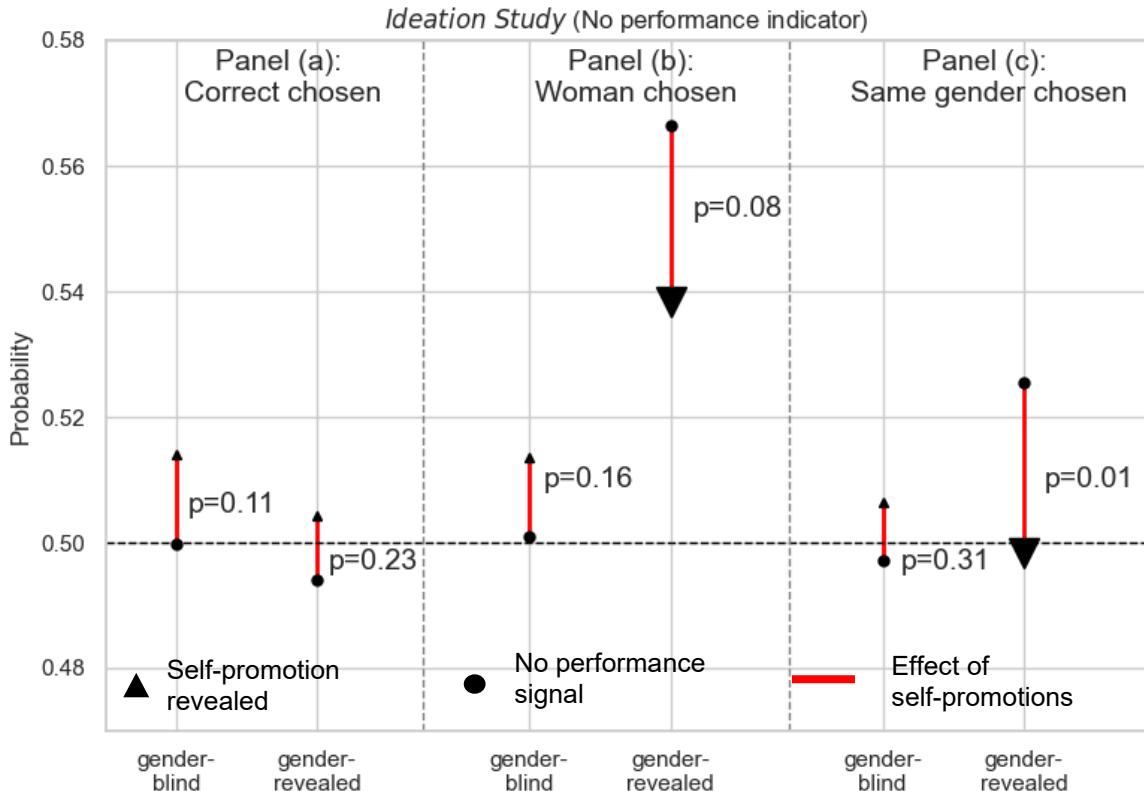
To examine whether self-promotions reduce gender bias, we first investigate the existence of gender bias absent of the provision of performance signals. First, we focus on a systemic gender bias favoring one gender. Panel (b) of Figure 6 shows that once the agents' gender is revealed, the probability that decision-makers choose women is almost 0.57. That is, the probability that women are chosen is around 7 percentage points higher compared to a situation of gender-equal choices, i.e., compared to 0.5 (Wald-test:  $p<0.01$ )

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<sup>24</sup> We again show that all results hold in non-parametric analysis, conditional logit models and in analysis on agent level (see Appendix A).

and also significantly higher than the probability that women are chosen in No-blind ( $p<0.01$ ). Thus, we find evidence of systemic gender bias favoring women in the Ideation Study.<sup>25</sup> Second, Panel (c) of Figure 6 shows that similar to the Math Study, we find significant in-group favoritism among decision-makers. The probability that decision-makers choose an agent of their gender is 0.53, 3 percentage points, significantly higher than 0.5 (Wald-test:  $p=0.01$ ) and significantly higher than in No-blind ( $p=0.01$ ).

Figure 6: Effects of self-promotions absent of performance indicators (Ideation Study)



Note: This graph is based on the estimates from LPMs reported in columns 1 and 3 of Table 6. Dots indicate the respective constants, triangles the sum of constants, and the coefficient for the self-promotion dummy SP (equals 1 when self-promotions are revealed). Constants reflect probabilities in No-blind and No-revealed, respectively. The difference (red lines) shows the effect of revealing self-promotions. Headers indicate the respective binary outcome. P-values refer to the effect of self-promotion (i.e., a p-value of the estimate for SP). The size of the triangles reflects the statistical significance of the result.

Evaluating the effect of the provision of self-promotions on gender bias, we find that self-promotions significantly reduce both biases. First, Panel (b) of Figure 6 shows that the probability that women are chosen is significantly reduced by 3 percentage points ( $p=0.08$ ). This is almost half of the bias found. However, the probability that women are

<sup>25</sup> Panel (c) of Figure 6 shows that in the gender-blind context, there is a slight but insignificant increase in the probability that decision-makers choose an agent of their gender ( $p=0.31$ ). We conclude that there is no significant in-group favoritism induced through revealing self-promotions.

chosen is higher than 0.5 when self-promotions are revealed (Wald-test:  $p<0.01$ ). Concerning in-group favoritism, Panel (c) shows that the provision of self-promotions can eliminate gender bias. Decision-makers probability of choosing an agent of their gender is significantly reduced ( $p=0.01$ ) to the point that it is not significantly different from 0.5 (Wald-test:  $p=0.84$ ). These findings confirm the third result from the Math Study.

*Finding 3: Revealing self-promotions significantly reduces pre-existing gender bias.*

In the following, we focus on the agent characteristics in the Ideation Study to examine whether we find supporting evidence for our proposed mechanisms behind the treatment effects observed. Table 5 reports means and standard deviations (in parenthesis) of the relevant variables for the overall sample in column 1 and by gender in columns 2 and 3, respectively, while column 4 summarizes the gender differences in %. First, we replicate a significant correlation between performance beliefs and actual performance (Spearman:  $\rho=0.22$ ,  $p<0.01$ ), as well as between performance beliefs and decision-maker choices (Spearman:  $\rho=0.16$ ,  $p=0.01$ ).<sup>26</sup> These findings align with a mechanism through which written self-promotions increase decision quality by transporting performance beliefs.

Second, similar to the Math Study, that women believe they perform worse than men. Gender difference are significant, and with 31.36% larger than in the Math Study (MWU-test:  $p=0.02$ ). Note that this measure was incentivized in the Ideation Study.<sup>27</sup> In this task, we do not find gender differences in performance. Contrary to the decision-makers performance expectations, male and female agents perform equally well (MWU-test:  $p=0.49$ ).

Despite having significantly lower performance beliefs, we again find no disadvantage for women when self-promotions are provided to decision-makers. The fraction of decisions in which they are selected in SP-blind is slightly but significantly higher for female agents ( $p=0.10$ ). Again, we can rule out that decision-makers can infer the agents' gender from their self-promotions and potentially account for anticipated gender differences. In a follow-up data collection, were we let raters guess the agents' gender

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<sup>26</sup> We find weaker correlations as for the Math Study, which may be related due to the more complex performance measure employed in the Ideation Study.

<sup>27</sup> In contrast to the Math Study, we did not ask the agents to self-promote on a numerical scale but elicited their performance beliefs (incentivized). However, we showed earlier that these measures are highly and significantly correlated in the Math Study. In addition, evidence from other studies (Exley & Kessler, 2022; Exley & Nielsen, 2024) confirm the strong correlation between numerical self-promotions and performance beliefs.

based on their written self-promotion, we find that both self-promotions by men and women are predicted to be written by woman, with a likelihood of 66% (MWU-test: p=0.17).

Table 5: Summary statistics of agents and self-promotions (Ideation Study)

	Mean Overall	Mean (sd) Female agents	Mean (sd) Male agents	% gender difference female-male
Performance	26.19 (32.08)	25.32 (32.66)	27.06 (31.60)	-6.67
Performance beliefs	43.35 (43.37)	36.56 (43.20)	50.15 (42.63)	-31.36**
Chosen in SP-blind	0.50 (0.12)	0.51 (0.11)	0.49 (0.12)	5.27*
Modest	0.50 (0.50)	0.56 (0.50)	0.44 (0.50)	22.22*
Description	0.50 (0.65)	0.56 (0.69)	0.45 (0.61)	21.13*
Predicted as female	66.45 (6.47)	66.89 (6.20)	66.01 (6.73)	1.33
N	126	126	252	

Note: Column 1 shows the mean and standard deviation (in parentheses) for all agents, column 2 for female- and column 3 for male agents. In column 3 we indicate the gender gap as difference of means of female agents - male agents, as percentage of the total mean. Thus, negative values indicate that means are lower for female agents. Stars indicate significances from a MWU test (\* p<0.1; \*\* p<0.05; \*\*\* p<0.01). Performance indicates the agents' performance (value of the idea). Performance beliefs is the agents' belief on the value of the generated idea. Chosen in SP-blind shows the fraction of decisions in which agents are chosen in SP-blind. Modest, indicates the fraction of agents with modest language. Description shows the length of the description of the idea provided in the self-promotion in characters. Predicted as female refers to the mean belief of raters about the probability that the writer of the text is female.

Instead, we find supporting evidence for women offsetting potential disadvantages due to lower performance beliefs through more modest writing (see details in section Design and Procedure (Math Study)). Women are overrepresented among the agents with a more modest writing style (Fisher-Exact test: p=0.10). We confirm that decision-makers are more likely to select agents with a more modest writing style (MWU-test by modesty: p<0.01), while modesty is uncorrelated with actual performance (MWU-test of performance by modesty: p=0.9).<sup>28</sup>

In the Ideation Study, we investigate our additional measure for self-promotions, that is the length of the description of the idea that agents include in their self-promotions. The fraction of decisions in which agents are chosen in SP-blind strongly correlates with the length of the description of the idea provided within their self-promotion (Spearman

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<sup>28</sup> Using the continuous index based on the predicted principal component we do also find no significant correlation between the value of an idea and modesty (Spearman: rho=0.01, p=0.77).

$\rho=0.38$ ,  $p<0.001$ ), indicating that decision-makers favor this information.<sup>29</sup> However, although there is a positive relation between the description length and performance, this correlation is weak and insignificant (Spearman:  $\rho=0.03$ ,  $p=0.63$ ). Decision-makers may be ambiguity-averse, while longer descriptions reduce ambiguity about the agent's ideas.<sup>30</sup> Or, they may wrongly believe description length to be a better performance signal. We find that women provide significantly longer descriptions of their ideas (MWU-test:  $p=0.09$ ), which aligns with prior research (see, e.g., Kolev et al., 2020a; Exley et al., 2024).<sup>31</sup> Overall, these findings suggest that women's slight advantage through the provision of self-promotions in the Ideation Study may be related to their more informative self-promotions.

In the following, we explore the role of the observed findings for the effects of self-promotions, similar to the analysis provided in Table 3 for the Math Study. Table 6 reports the results of the LPMs estimating effects on the correct choice in Panel (a), women chosen in Panel (b), and same gender chosen in Panel (c). Note that in Table 3, we first report results for treatments in which no performance indicators are revealed. We interpret effects relative to No-blind in the gender-blind setting (see columns 1-4) and to No-revealed in the gender-revealed setting (see columns 4-8). As results from columns 1 and 4 were discussed in the context of Figure 6, we focus on columns 2-3 and 5-6 in the following when exploring mechanisms behind these effects. Again, we add controls of the standardized differences between the agent's performance (beliefs), modesty and descriptions, and the respective interaction with the SP dummy to investigate their relevance to the observed treatment effects.

We start investigating Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*). We focus on the gender-blind setting first (columns 1-4 of Panel (a)). Column 2 of Panel (a) shows that higher performance beliefs of the better agent increase the probability that decision-

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<sup>29</sup> We find a significant difference on the extensive margin. Around 71% of women include a description of their idea in their self-promotion, as opposed to 60% of men (Fisher exact:  $p=0.06$ ). Agents who include such a description are also more likely to be chosen in SP-blind (MWU-test:  $p < 0.01$ ) but only perform better than agents if they provide a description (MWU-test:  $p=0.81$ ).

<sup>30</sup> These results are in line with prior studies showing that ambiguity aversion is especially pronounced in comparative settings (see e.g., Fox & Tversky, 1995).

<sup>31</sup> Another way to examine informativeness of self-promotions is to evaluate how often agents mention the word they illustrated. While 67% of women include the illustrated word, only 54% of men do (Fisher-Exact test:  $p=0.05$ ). Again, we find that decision-makers are more likely to choose agents with self-promotions providing such information. The probability for agents to be chosen in SP-blind when they do not provide the illustrated word is only 0.47, while it is 0.52 for those who do (MWU-test:  $p<0.01$ ).

makers choose correctly when self-promotions are provided (see positive and significant coefficient for SP x dif. beliefs). Furthermore, adding these controls explains the positive effect of the SP dummy, which decreases to around 0 in column 2. Analyzing the effects of modesty, we find positive effects on the probability of being chosen (see positive and significant interaction of SP x dif. modesty), while controls do not affect the coefficient of the SP dummy (see columns 3 and 7 of Panel (a)). Both effects are in line with those of the Math Study. In the Ideation Study, we can further examine the effect of including credible information by controlling for differences in the length of the provided description of the idea included in self-promotions. We find that a longer description significantly increases the probability that the better agent is chosen. The additional control does not affect the SP dummy in column 4, which is already fully explained through belief transmission. However, we also observed only a weak correlation of performance with the length of the description of the idea. Effects are similar but weaker in the gender-revealed setting (see columns 4-7 of Panel (a)).

We continue investigating Finding 2 (*Revealing self-promotions does not lead to women being selected less frequently than men*) in Panel (b) of Table 6, first focusing on the gender-blind setting (columns 1-4). Column 2 shows that women are chosen more often when self-promotions are revealed, the higher their performance beliefs are compared to the competing men (see positive and significant coefficient of SP x dif. beliefs in column 2). We further observe that the coefficient for the SP dummy becomes significant and larger in column 2. This suggests that the probability of women being selected would be even higher, absent of gender differences in performance beliefs, and thus, implies disadvantage through these lower beliefs. Controlling for differences in modesty in column 3 again lowers the coefficient, where it also becomes less significant. This finding aligns with women offsetting potential disadvantages through lower performance beliefs by their more modest writing style. However, there is still a positive and significant effect of self-promotion on the probability that women are chosen. Controlling for the difference in the length of descriptions in column 4, the coefficient for SP in column 4 becomes close to zero and insignificant. This finding reveals that women have this additional advantage in settings where provision of credible information is possible, by providing more such information than men.

Table 6: LPM of effects of self-promotion absent of performance indicators

	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel (a): Correct choice</b>								
SP	0.014 (0.009)	0.009 (0.009)	0.006 (0.011)	0.006 (0.009)	0.010 (0.009)	0.002 (0.009)	0.002 (0.009)	-0.001 (0.009)
SP x dif. beliefs		0.030*** (0.009)	0.032*** (0.009)	0.033*** (0.009)		0.051*** (0.009)	0.052*** (0.009)	0.053*** (0.009)
SP x dif. modesty			0.042*** (0.009)	0.037*** (0.009)			0.012 (0.009)	0.008 (0.009)
SP x dif. descr.				0.074*** (0.009)			0.047*** (0.010)	0.054*** (0.009)
Constant	0.500*** (0.006)	0.501*** (0.007)	0.501*** (0.006)	0.501*** (0.006)	0.494*** (0.007)	0.498*** (0.007)	0.498*** (0.007)	0.498*** (0.007)
Performance controls	No	No	No	No	No	No	No	No
Base level controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,790	12,790	12,790	12,790	12,990	12,990	12,990	12,990
n decision-makers	1,279	1,279	1,279	1,279	1,299	1,299	1,299	1,299
<b>Panel (b): Woman chosen</b>								
SP	0.012 (0.009)	0.020** (0.009)	0.016* (0.009)	0.007 (0.009)	-0.028*** (0.011)	-0.018* (0.011)	-0.019* (0.011)	-0.026** (0.011)
SP x dif. beliefs		0.034*** (0.009)	0.035*** (0.009)	0.034*** (0.009)		0.047*** (0.009)	0.047*** (0.009)	0.047*** (0.009)
SP x dif. modesty			0.041*** (0.009)	0.037*** (0.009)			0.013 (0.009)	0.010 (0.009)
SP x dif. descr.				0.073*** (0.009)				0.056*** (0.009)
Constant	0.501*** (0.007)	0.500*** (0.007)	0.500*** (0.007)	0.501*** (0.007)	0.566*** (0.009)	0.563*** (0.010)	0.563*** (0.010)	0.563*** (0.009)
Performance controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Base level controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,790	12,790	12,790	12,790	12,990	12,990	12,990	12,990
n decision-makers	1,279	1,279	1,279	1,279	1,299	1,299	1,299	1,299
<b>Panel (c): Same gender chosen</b>								
SP	0.009 (0.009)	0.009 (0.009)	0.008 (0.009)	0.010 (0.009)	-0.027** (0.011)	-0.028*** (0.011)	-0.028*** (0.011)	-0.028** (0.011)
SP x dif. beliefs		0.030*** (0.009)	0.032*** (0.009)	0.032*** (0.009)		0.051*** (0.009)	0.051*** (0.009)	0.052*** (0.009)
SP x dif. modesty			0.043*** (0.009)	0.038*** (0.009)			0.011 (0.009)	0.007 (0.009)
SP x dif. descr.				0.074*** (0.009)				0.053*** (0.009)
Constant	0.497*** (0.007)	0.497*** (0.007)	0.497*** (0.006)	0.497*** (0.006)	0.526*** (0.010)	0.526*** (0.010)	0.526*** (0.010)	0.526*** (0.010)
Performance controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Base level controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,790	12,790	12,790	12,790	12,990	12,990	12,990	12,990
n decision-makers	1,279	1,279	1,279	1,279	1,299	1,299	1,299	1,299

Note: Coefficients are from LPMs with random effects at the agent level. Dependent variables equal 1 if the better agent is chosen (correct choice) in Panel (a), if the woman is chosen in Panel (b), or if the same-gender-agent is chosen in Panel (c), and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are No-blind (columns 1-4) and No-revealed (columns 5-8). Dif. beliefs are standardized differences between the agents' performance beliefs and computed such that higher values indicate higher performance beliefs for the better agent. Similarly, for Panel (b), higher values indicate that the woman has a higher performance belief, and in Panel (c) that the same-gender-agent has a higher performance belief. Dif. modesty and dif. descr. are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea. Base level controls indicate the inclusion of controls for dif. modesty and dif. belief, whenever we add the interactions, while performance controls indicate that we similarly control for performance (see Appendix A for the respective coefficients). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

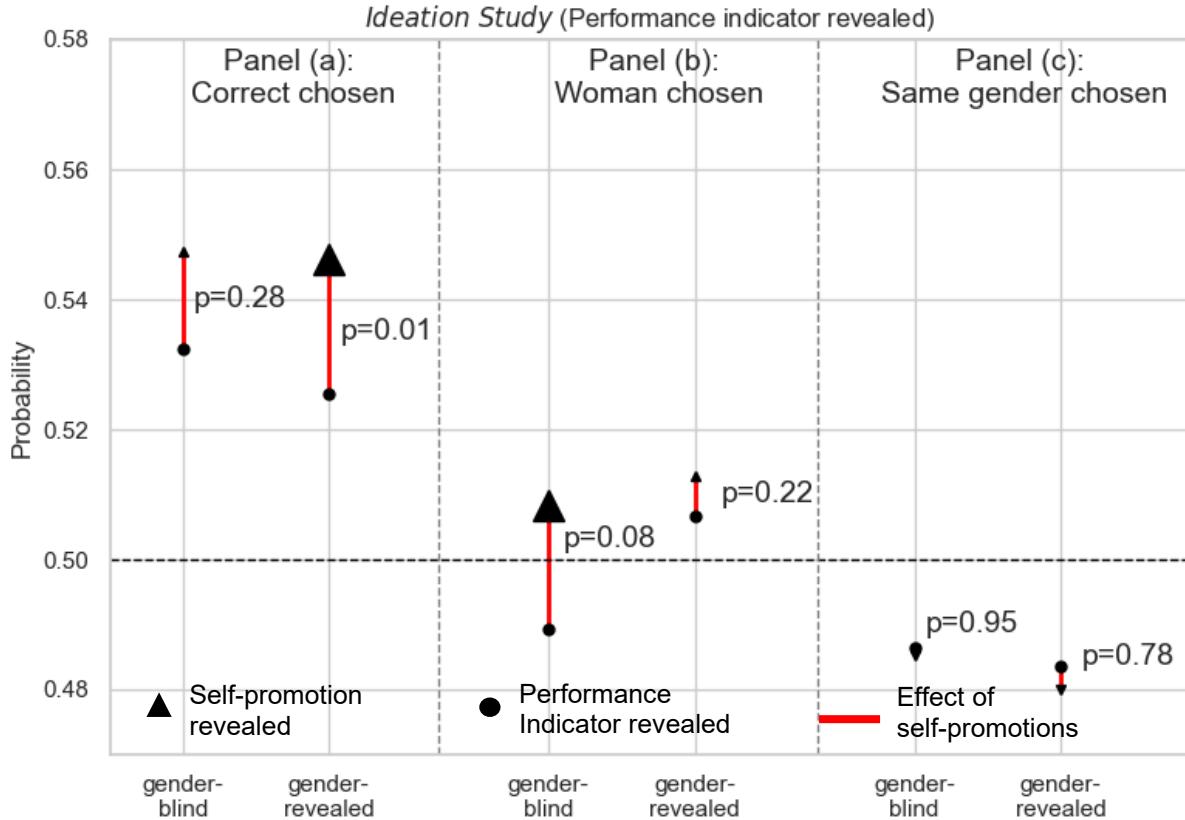
Lastly, we investigate Finding 3 (*Revealing self-promotions significantly reduces pre-existing gender bias*). Therefore, we focus on the gender-revealed setting where we observed such biases. For both the probability of women chosen and in-group favoritism, we observe that decision-makers' choices are significantly affected by differences in beliefs and length of descriptions, which is reflected in their positive and significant interactions with the SP dummy (see columns 4-8 in Panel (b) and Panel (c)). These results align with a bias reduction effect through a shift in focus from the agents' gender to the characteristics of the provided self-promotions (see Appendix A for supporting analysis for this explanation).

Besides replicating our findings from the Math Study, the Ideation Study allows us to compare the effects of features of self-promotions that can be interpreted as elements of cheap talk (performance beliefs and modesty) to that of credible information (length of description). Therefore, we focus on the gender-blind setting, where we can assess effects more cleanly. While a one standard deviation increase in the difference in beliefs or modesty increases the probability of being chosen by the decision-maker by 3-4 percentage points, the effect of a one standard deviation increase in the length of the description is almost twice as large. Having a one standard deviation higher description increases the probability of being chosen by around 7 percentage points. Comparing the effects on decision-makers' choices, we find that across all specifications, decision-makers put more weight on descriptions than on beliefs and modesty (Wald tests:  $p < 0.05$ ). This suggests that decision-makers weigh information that is costly to generate, such as descriptions of ideas, strongest. As shown earlier, the length of descriptions is positively, but only weakly and insignificantly related to performance. This explains why we do not observe larger improvements in decision quality as compared to the Math Study, despite decision-makers paying more attention to the provided descriptions. One reason may lie in the complexity of the performance measure. Thus, one may find stronger effects on decision quality for tasks with less complex performance measures.

In the Ideation Study, we can generate additional insights on how the effect of self-promotions compares to performance indicators that are less subjective than self-promotions. We can further evaluate how self-promotions impact choices in the presence of performance indicators. Figure 7 shows the effects of self-promotion in the presence of performance indicators. Note that, in contrast to Figure 6, we now interpret effects relative to Indicator-blind for the gender-blind setting and Indicator-revealed for the gender-revealed setting, respectively. The circles indicate the probabilities of the

respective outcomes when only performance indicators are revealed, while triangles show the effect when decision-makers are additionally provided with self-promotions. We provide the corresponding results from these models in Table 7 (see columns 1 and 4).

Figure 7: Effects of self-promotions in presence of performance indicators (Ideation Study)



Note This graph is based on the estimates from LPMs reported in columns 1 and 3 in Table 7. Dots indicate the constants, triangles indicate the sum of the constants and the coefficient for a dummy that equals 1 when self-promotions are shown. Dots indicate the respective constants, triangles the sum of constants, and the coefficient for the self-promotion dummy SP (equals 1 when self-promotions are revealed). Constants reflect probabilities in Indicator-blind and Indicator-revealed, respectively. The difference (red lines) shows the effect of revealing self-promotions. Headers indicate the respective binary outcome. P-values refer to the effect of self-promotion (i.e., a p-value of the estimate for SP). The size of the triangles reflects the statistical significance of the result.

Focusing on decision quality first, Figure 7 shows that under the provision of performance indicators, decision quality is with over 0.53 higher than it is under the provision of self-promotions. Comparing the effect of the sole provision of self-promotions to that of performance indicators in a joint model (see Appendix A), we find that decision quality is significantly higher for the latter (Wald-test:  $p=0.04$ ). However, Panel (a) of Figure 7 shows that self-promotions still increase decision quality when provided in addition to performance indicators. This increase is with around 1-2 percentage points small. While insignificant in the gender-blind setting ( $p=0.26$ ), it

reaches statistical significance in the gender-revealed setting ( $p=0.01$ ). Thus, we do not observe that self-promotions deteriorate decisions in the presence of performance indicators, and Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*) holds.

To investigate gender bias, we first analyze whether the provision of self-promotions induces a gender bias that harms women. Therefore, focusing on the gender-blind setting (see Panel (b) of Figure 7), we find that the probability that women are chosen again slightly but significantly increases through the provision of self-promotions ( $p=0.08$ ). While this is a significant increase, the probability is not statistically different from 0.5 (Wald-test:  $p=0.56$ ), aligning with Finding 2 (*Revealing self-promotions does not lead to women being selected less frequently than men*) holds in the presence of performance indicators.<sup>32</sup>

Note that performance indicators already eliminate the pre-existing gender biases observed. Focussing on the gender-revealed setting in Panel (b), one can observe that the fraction of women chosen absent of self-promotions are already decreased to being close to 0.50 (recall that in No-revealed, this fraction was 0.57). In fact, the probability that women are chosen in Indicator-blind is not statistically different from 0.5 (Wald-test:  $p=0.43$ ). Similarly, the provision of performance indicators in Indicator-blind reduces the in-group favoritism observed in the absence of performance signals. In Indicator-blind, the probability that an agent of the same gender is chosen is also not statistically different from 0.50 (Wald-test:  $p=0.53$ ). In an additional regression analysis in Appendix A, we show that both reduction effects are highly significant and that the fraction of women and agents of the same gender chosen under the provision of indicators in Indicator-blind also do not differ significantly from No-blind. Therefore, self-promotions cannot have additional bias reduction effects in the presence of performance indicators.

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<sup>32</sup> Panel (c) of Figure 7 further shows that in the gender-blind context, the provision of self-promotions has no effect on the probability of choosing an agent of the same gender ( $p=0.95$ ). Thus, we do not observe a bias induction arising concerning in-group favoritism.

Table 7: LPM of effects of self-promotion in presence of performance indicators

	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel (a): Correct choice</b>								
SP	0.010 (0.009)	0.011 (0.009)	0.010 (0.009)	0.009 (0.009)	0.021** (0.009)	0.021** (0.009)	0.021** (0.009)	0.020** (0.009)
SP x dif. beliefs		-0.003 (0.009)	-0.003 (0.009)	-0.003 (0.009)		0.004 (0.009)	0.005 (0.009)	0.005 (0.009)
SP x dif. modesty				0.001 (0.009)			0.012 (0.009)	0.011 (0.009)
SP x dif. descr.					0.016* (0.009)			0.011 (0.009)
Constant	0.531*** (0.010)	0.526*** (0.010)	0.526*** (0.010)	0.525*** (0.010)	0.514*** (0.010)	0.510*** (0.010)	0.510*** (0.009)	0.509*** (0.009)
Performance controls	No							
Base level controls	No	Yes						
Observations	12,370	12,370	12,370	12,370	12,639	12,639	12,639	12,639
n decision-makers	1,237	1,237	1,237	1,237	1,264	1,264	1,264	1,264
<b>Panel (b): Woman chosen</b>								
SP	0.016* (0.009)	0.015* (0.009)	0.015* (0.009)	0.014 (0.009)	0.011 (0.009)	0.014 (0.009)	0.013 (0.009)	0.012 (0.009)
SP x dif. beliefs		-0.003 (0.009)	-0.003 (0.009)	-0.003 (0.009)		0.011 (0.009)	0.011 (0.009)	0.011 (0.009)
SP x dif. modesty				-0.000 (0.009)			0.009 (0.009)	0.009 (0.009)
SP x dif. descr.					0.016* (0.009)			0.010 (0.009)
Constant	0.491*** (0.012)	0.497*** (0.012)	0.494*** (0.012)	0.490*** (0.011)	0.505*** (0.012)	0.511*** (0.012)	0.509*** (0.012)	0.503*** (0.012)
Performance controls	Yes							
Base level controls	No	Yes						
Observations	12,370	12,370	12,370	12,370	12,639	12,639	12,639	12,639
n decision-makers	1,237	1,237	1,237	1,237	1,264	1,264	1,264	1,264
<b>Panel (c): Same gender chosen</b>								
SP	-0.001 (0.009)	-0.000 (0.009)	0.000 (0.009)	-0.001 (0.009)	-0.003 (0.009)	-0.003 (0.009)	-0.002 (0.009)	-0.002 (0.009)
SP x dif. beliefs		-0.004 (0.009)	-0.004 (0.009)	-0.004 (0.009)		0.009 (0.009)	0.010 (0.009)	0.010 (0.009)
SP x dif. modesty				-0.001 (0.009)			0.012 (0.009)	0.010 (0.009)
SP x dif. descr.					0.015* (0.009)			0.013 (0.009)
Constant	0.492*** (0.010)	0.492*** (0.010)	0.492*** (0.010)	0.492*** (0.009)	0.494*** (0.010)	0.494*** (0.010)	0.494*** (0.010)	0.494*** (0.010)
Performance controls	Yes							
Base level controls	No	Yes						
Observations	12,370	12,370	12,370	12,370	12,639	12,639	12,639	12,639
n decision-makers	1,237	1,237	1,237	1,237	1,264	1,264	1,264	1,264

Note: Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the better agent is chosen (correct choice) in Panel (a) if the woman is chosen in Panel (b), or if the same-gender-agent is chosen in Panel (c), and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are Idea-blind (columns 1-4) and Idea-revealed (columns 5-8). Dif. beliefs are standardized differences between the agent's performance beliefs and are computed such that higher values indicate higher performance beliefs for the better agent. Similarly, for Panel (b), higher values indicate that the women have a higher performance belief and in Panel (c) the same-gender-agent has a higher performance belief. Dif. modesty and dif. descr. are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea. Base level controls indicate the inclusion of controls for dif. modesty and dif. belief, whenever we add the interactions, while performance controls indicate that we similarly control for performance (see Appendix B for the respective coefficients). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

In Table 7 we display the effects of controls for self-promotion characteristics under the provision of performance indicators (see columns 2-4 and 6-8, respectively). With respect to decision quality, we find that improvements are driven by differences in the length of the description. Despite the weak correlation with performance, they explain the complementary effect of self-promotions in the presence of indicators, while beliefs have no effects (see column 4 of Panel (a)). However, in the gender-revealed setting, we can only capture a small part of the effect, while we can show in Appendix B that this effect is driven by agents who include the illustrated word. We find similar but less pronounced effects with respect to the driver of the positive effect of self-promotions in Panel (b) on women through their more comprehensive description.

Across all models, we observe that in the presence of performance indicators, decision-makers are less affected by features of the provided self-promotions. While beliefs and modesty have no impact on choices, differences in the length of descriptions still have at least small effects. This implies that decision-makers only consider credible information when provided with better performance indicators and are less influenced by factors associated with cheap talk.

In summary, we replicate the main results from the Math Study with the data collected in the Ideation Study. Moreover, we add insights into the effect of self-promotions through additional treatments in which we reveal performance indicators. We show that *Finding 1* (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*) holds in the presence of performance indicators. Despite their lower value as a performance signal, self-promotions provide some complementary value. The included description of the underlying idea drives this complementary effect. Similarly, we found *Finding 2* (*Revealing self-promotions does not lead to women being selected less frequently than men*) holds in the presence of performance indicators. If anything, revealing self-promotion advantages women. We further show that *Finding 3* (*Revealing self-promotions significantly reduces pre-existing gender bias*) does not apply in the presence of performance indicators, as they already fully eliminate gender biases.

Interestingly, we observe that the bias reduction effect of self-promotions is very similar to that of performance indicators despite self-promotions being highly subjective and less informative. Concerning the systemic gender bias favoring women, we find that performance indicators fully eliminate this bias, while self-promotions only reduce part

of it. Concerning in-group favoritism, we find that self-promotions eliminate this bias equivalently to performance indicators.

## 6 Conclusion

We provide causal evidence for the effects of self-promotion on decision quality and gender bias in two experimental studies by varying decision-makers' access to self-promotions, agents' gender, and performance indicators. In both studies, we mimic a conflict of interest arising in many labor-market contexts involving self-promotion. The studies differ in their possibility of including (credible) information in the self-promotion and the availability of additional performance indicators.

Concerning decision quality, we find that written self-promotions have little informational value but do not deteriorate decisions. Revealing self-promotions can slightly increase the probability of selecting the better agent, while effects do not always meet conventional levels of significance (Finding 1). In the Ideation Study we show that the effect holds in the presence of performance indicators. We find that self-promotions provide some complementary value despite being highly subjective and less informative than performance indicators. Exploring possible mechanisms behind improvements in decision quality, we show that in both studies, our results are in line with a noisy transmission of performance beliefs, while the complementary value in the Ideation Study arises through self-promotions providing descriptions of the underlying idea. This connects our work to previous research on lying. This literature has shown similar effects in settings involving a conflict of interest in the context of numerical reports (see, e.g., Gneezy, 2005). We add to this research by showing that results also hold for messages sent in written form and regarding more complex outcomes, such as performance in an ideation task.

Concerning gender bias, we first find that revealing self-promotions does not lead to women being selected less frequently than men (Finding 2). We further explore why this is the case for written-self-promotions, while prior literature finds that self-promotions can induce negative effects when provided on numerical scales (Bohnet et al., 2021; Exley & Kessler, 2022; Exley & Nielsen, 2024). In line with findings in this literature, women in both of our studies have lower performance beliefs. However, our exploratory analysis suggests that women can offset potential disadvantages resulting from this gender gap by their more modest writing style. While some experiments from economics and psychology find modesty to have positive effects on likeability (Hoorens et al., 2012;

O'Mara et al., 2019; Manian & Sheth, 2021), other studies find negative impacts, suggesting that a more modest writing style may explain lower success rates of women in academia (Lerchenmüller & Sorenson, 2019; Kolev et al., 2020). Our results add to the understanding of these effects, suggesting that negative outcomes of women may rather be driven by transmitted performance beliefs, that women fail to offset in these contexts, or are driven by other known gender differences found in the context of academia (see, e.g., Ceci et al., 2014). In the Ideation Study, we can further show that women increase their probability of success by providing more informative self-promotions, including more comprehensive descriptions of their ideas. This further adds to findings on gender differences in information disclosure (Exley et al., 2024). In the settings observed in prior literature, women face disadvantages through disclosing more information, while we can show that more comprehensive information disclosure can also contribute to women's chances of success in other settings.

Concerning gender bias, we second find that written self-promotions can eliminate prevailing gender bias when no other performance signals are available (Finding 3). For both studies, we find significant evidence for in-group favoritism in gender-revealed settings that is fully eliminated by providing self-promotion. In the Ideation Study, we can further show that the effect of self-promotions is similar to the effect of an objective performance indicator despite their limited information value and highly subjective nature. Our additional analysis suggests that the effect is driven by a shift in decision-makers' focus from the agents' gender to the agents' self-promotions. We have shown that certain characteristics of self-promotion drive decision-makers choices. Choosing based on these characteristics decreases in-group favoritism through decisions in which the agent of the opposite gender has the more favorable characteristics. Previous research has shown that gender biases can be reduced by the provision of information (Castillo & Petrie, 2010; Reuben et al., 2014; Bohren et al., 2019). We can add to this literature by showing that even performance signals with limited informational value (such as self-promotion) may be a suitable means of reducing gender biases.

Our research provides valuable insights for practitioners on the effect of different designs of decision procedures, providing guidance on how to design such procedures in practice. Our results show that written self-promotions can serve as (very noisy) performance signals without harming women and can reduce existing gender bias. These findings are particularly relevant for decision-making settings in which no other performance indicators are available, such as in innovation-related contexts. In these

settings, decisions are often based on the sole description of an idea. Based on our research, written self-promotions can provide value when other performance signals are unavailable.

Our findings are also relevant for designing decision processes in contexts where the availability of other performance signals is more likely, such as hiring, promotion, and job assignments. Many firms include self-promotion in the form of self-evaluations in performance reviews. This practice is discussed in- and outside research, particularly focusing on potential biases arising from it (Bohnet et al., 2022; Abraham, 2023). We can add to this discussion that written self-promotions can provide complementary value in the presence of other performance indicators. Concerning gender bias, our results imply that, when designing decision processes, one should carefully consider the format of self-promotion. In contrast to self-promotions on numerical scales, written self-promotions in our setting do not harm the success of women. Their provision may even enhance women's success rates by reducing in-group favoritism since most labor-market-relevant settings are still dominated by male decision-makers (AllRaise, 2020; Burns et al., 2021)

We end this article by discussing limitations and highlighting the fruitful directions for further research that our study offers. First, in our setting, women do not face disadvantages through written self-promotion. However, additional studies are needed to investigate whether this holds in the context of face-to-face interaction or other formats of self-promotion. Second, in our setting, women succeed in offsetting potential disadvantages due to lower performance beliefs. However, it is still to be determined which effects dominate other settings. On the one hand, this points towards empirically testing the effects in different contexts. On the other hand, our findings suggest additional settings in which women succeed to offset potential disadvantages through lower performance beliefs, which would be interesting to investigate. Lastly, we find that despite their limited informational value, self-promotion can reduce gender bias. More research is needed to understand what requirements need to be fulfilled so that a specific signal is suitable to reduce gender bias.

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## Appendix A

### A.1 Relevant features of self-promotions

We use k-means clustering to validate our PCA approach. We show in Table A 1 that we obtain two clusters, where cluster 1 is associated with a significant higher probability to be chosen in SP-blind, than cluster 2 (MWU-test:  $p<0.01$ ). This implies that cluster 1 describes the favorable writing style. Table 1 further shows that this writing style is most distinguished by the linguistic features clout and authentic, which aligns with the index generated by the PCA reported in the main paper. While there are significant differences in all values, clout and authentic are most distinct between clusters. Thus, we can equivalently label this cluster as indicative for modesty in writing style. The coefficients from the LPM in Table A 2 further support this result.

Table A 1: K-means cluster of linguistic features

	Cluster 1 (Modest)	Cluster 2 (Assertive)	Difference
Chosen in SP-blind	0.51 (0.12)	0.48 (0.11)	0.03***
Analytic	-0.16 (0.99)	0.27 (0.94)	-0.43***
Clout	-0.55 (0.47)	0.94 (0.96)	-1.49***
Authentic	0.50 (0.75)	-0.85 (0.75)	1.35***
Emotional tone	-0.06 (0.97)	0.10 (1.03)	-0.16
N	274	142	416

Note: The table reports means and standard deviations below in parentheses. Cluster 1 and Cluster 2 are obtained through k-means analysis of the linguistic features obtained by the LIWC – analytic, clout, authentic and emotional tone, explaining differences in Chosen in SP-blind. Chosen in SP-blind is the fraction of choices in which agents in the respective cluster got chosen in SP-blind. Linguistic features are standardized within study, to be comparable. Significances are indicated from pairwise MWU-tests, where \*\*\*  $p<0.01$ , \*\*  $p<0.05$ , \*  $p<0.1$ . The sample includes all agents from both studies ( $n=416$ ).

In an additional LPM reported in Table A 2 we compare effects in predicting that a workers' self-promotion is in cluster 1, i.e., the modest self-promotions. We compare coefficients for authenticity and clout to the other linguistic features, confirming their relevance to be significantly higher (Wald-tests:  $p<0.01$ ).

**Table A 2: LPM of modesty (cluster 1)**

	Cluster 1 (Modest)
Analytic	-0.054*** (0.012)
Clout	-0.256*** (0.019)
Authentic	0.224*** (0.015)
Emotional tone	-0.010 (0.012)
Constant	0.659*** (0.013)
<hr/>	
Observations	416

Note: LPM predicting being part of the modest writing style (cluster 1). Analytic, clout, authentic and emotional tone are the linguistic features obtained by the LIWC (standardized within study). Robust standard errors are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

For both studies we can show that we find gender differences in line with those reported in the main text. While 70% of women belong to cluster 1, the one aligning with the modest writing style favored by decision makers, only 60% of men do (Fisher-Exact-test: p=0.05).

Similarly, we use a k-means approach to generate clusters based on characteristics we obtain from our post-experimental survey and belief elicitation. Table A 3 shows that performance beliefs and competitiveness are most distinct between clusters, while the cluster with agents with a higher performance belief (and values of competitiveness) has a significant higher probability to be chosen in SP-blind (MWU-test: p=0.02). This implies, these features seem to be correlated with self-promotions and favored by the decision-maker. We validate the importance of the features again using a LPM (Table A 4). While we observe competitiveness to have a larger difference in the mean comparison, controlled for the other factors the difference between beliefs and competitiveness is not significantly different, while the effect of beliefs is higher, although not significantly (see below). Based on findings from the prior literature and to connect our study to findings of self-promotions on numerical scales, we decided to include beliefs only in our approach.

**Table A 3: K-means cluster of agents' characteristics**

	Cluster 1	Cluster 2	Difference
Chosen in SP-blind	0.51 (0.12)	0.48 (0.11)	0.03**
Performance beliefs	0.46 (0.86)	-0.66 (0.80)	1.12***
Competitiveness	0.48 (0.71)	-0.69 (0.96)	1.17***
Persuasiveness	0.35 (0.91)	-0.51 (0.90)	0.86***
Risk preferences	0.47 (0.76)	-0.68 (0.90)	1.15***
Task difficulty	-0.30 (0.93)	0.43 (0.93)	0.73***
N	246	170	416

Note: The table reports means and standard deviations below in parentheses. Cluster 1 and Cluster 2 are obtained through k-means analysis of the agent characteristics mentioned below. Performance beliefs cover the range of the respective performance measure. Competitiveness, Persuasiveness, Risk preferences and (perceived) Task difficulty are asked in the post-experimental survey on a 7-point-likert-scale. All values are standardized within study. Chosen in SP-blind is the fraction of choices in which agents in the respective cluster got chosen in SP-blind. Significances are indicated from pairwise MWU-tests, where \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The sample includes all agents from both studies (n=416).

**Table A 4: LPM of cluster 1, representing favorable agents' characteristics**

	DV:	Cluster 1
Performance beliefs		0.175*** (0.017)
Competitiveness		0.137*** (0.018)
Persuasiveness		0.057*** (0.016)
Risk		0.159*** (0.016)
Task difficulty		-0.078*** (0.015)
Constant		0.591*** (0.014)
Observations		416

Note: LPM predicting being part of cluster 1 (favorable agent characteristics cluster). Performance beliefs cover the range of the respective performance measure. Competitiveness, Persuasiveness, Risk preferences and (perceived) Task difficulty are asked in the post-experimental survey on a 7-point-likert-scale. All values are standardized within study. Robust standard errors are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## A.2 Non-parametric analysis (Math Study)

In Table A 5, we present the summary statistics for decision-maker behavior in our three treatments and the Baseline. We report the fraction of correct decisions (first row), women chosen (second row) and decisions in which an agent of the same gender is chosen (second row) for the gender-blind (left column) and the gender-revealed setting. Remember that decision-makers faced binary decisions between choosing a male or female agent. Thus, gender-equality in choices would result in average values of 0.5.

Table A 5: Summary statistics of decision-makers choices

Chosen (frac.)	Gender blind		Gender revealed	
	No-blind	SP-blind	No-revealed	SP-revealed
<u>Panel (a): All</u>				
Correct	0.53 (0.12)	0.55 (0.11)	0.55 (0.13)	0.55 (0.12)
Woman	0.50 (0.12)	0.50 (0.10)	0.51 (0.22)	0.52 (0.16)
Same gender	0.50 (0.12)	0.49 (0.10)	0.56 (0.21)	0.51 (0.16)
N decisions	4,500	4,220	4,240	4,020
n decision maker	225	211	212	201
<u>Panel (b) Excl. decisions where agents performed equally well</u>				
Correct	0.49 (0.13)	0.52 (0.12)	0.51 (0.14)	0.51 (0.12)
N decisions	4,202	3,883	3,704	3,912
n decision maker	225	211	201	212

Note: Mean values and standard deviations in parentheses. Data is aggregated on decision-maker level. The first row indicates the fraction of correct decisions, that are those in which decision-makers choose the better performing agent. The second indicates the fraction of women chosen and the third the fraction of decisions in which the decision makers choose an agent of the same gender (that is, for female decision makers if they choose a woman, for male decision makers if they choose a man). 43% of decision makers are female. Panel (a) shows all decisions, where decisions in which both agents performed equally well are classified as correct. Panel (b) shows correct decisions restricted to the sample where agents' have performed differently, excluding those decisions in which they have equal performance.

We start by examining the effect of self-promotions on decision quality. In Table A 5 report two fractions of correct choices. Panel (a) reports the fraction when classifying decisions in which both agents have performed equally well always as correct, and Panel (b) where we exclude these decisions. We can observe in both Panel (a) and Panel (b), that providing self-promotions slightly increases the fraction of correct choices between 0.02 and 0.03 in the gender-blind setting (MWU-tests: p=0.03 in Panel (a) and p=0.11 in Panel (b)) and has no effect in the gender revealed setting (MWU-tests: p=0.48 in Panel (a) and p=0.40 in Panel (b)). These findings align with Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*).

Table A 5 further shows that the fraction of women chosen is not affected through revealing self-promotions in the gender-blind setting (MWU-test:  $p=0.91$ ). It is also only marginally, but statistically insignificant in the gender revealed setting (MWU-test:  $p=0.47$ ). These findings align with Finding 2 (*Revealing self-promotion does not lead to women being selected less frequently than men*).

With respect to prevalent gender biases absent of self-promotions, we can replicate that there is no systemic gender bias. Table A 5 shows that revealing gender has only small and insignificant effects on the fraction of women chosen (MWU-test:  $p=0.45$ ). We can further replicate strong in-group favoritism among decision-makers. Once gender is revealed, decision-makers are more likely to choose the agent of the same gender. The fraction of decisions in which they choose an agent of their gender is around 0.06 larger than in SP-blind (MWU-test:  $p=0.05$ ).

We can further replicate the bias reduction effect of self-promotions. When self-promotions are revealed in addition to the agents' gender in SP-revealed, the fraction of agents of the same gender chosen decreases to the point that it is not significantly different from No-blind anymore (MWU-test:  $p=0.05$ ). This confirms Finding 3 (*Revealing self-promotions significantly reduces pre-existing gender bias*).

### A.3 Analysis on agent-level (Math Study)

Table A 6 shows results from a random effect regression. Therefore, we summarize the fraction of decisions in which an agent was chosen by treatment and regress it on a dummy indicating whether self-promotions are revealed (SP), for the gender blind setting (columns 1-3), where the base category are fractions in No-blind, and the gender revealed setting (columns 4-5), where No-revealed is the base category. We interact SP with standardized values of performance, showing that with increasing performance, the fraction of decisions in which an agent gets chosen once self-promotions are revealed increases (see coefficients of SP x performance). However, effects do not meet conventional levels of statistical significance ( $p=0.11$  for gender-blind and  $p=0.13$  for gender-revealed setting), aligning with Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*).

Table A 6 further confirms that women are chosen slightly more often, although not significantly, once self-promotions are revealed (see coefficients SP x female), which aligns with Finding 2 (*Revealing self-promotion does not lead to women being selected less frequently than men*).

Results in Table A 6 further confirm the proposed mechanism of an increase of decision quality through belief transmissions (compare decreasing effect of SP x performance between column 2 and 3, and 6 and 7 respectively). We further replicate significant effects of beliefs and modesty, once self-promotions are revealed (see significant interactions with SP of both) and the compensating effect of modesty, explaining the slight advantage of women through revealing self-promotions (compare SP x female between columns 3 and 4, and 7 and 8, respectively).

To analyze the bias reduction effect of self-promotions we estimate additional models, in which we estimate the effects treatment dummies on the fraction of decisions in which an agent gets chosen by a decision-maker of their gender in a random effects regression reported in Table A 7. The significant negative effect of No-revealed confirms the in-group favoritism found. The coefficient for SP-revealed is not significantly different from No-blind (reference category), indicating that self-promotions fully eliminate the in-group favoritism observed in No-revealed. Thus, the analysis on agent level further confirms Finding 3 (*Revealing self-promotions significantly reduces pre-existing gender bias*).

Table A 6: Random effects regression on agent level

	DV: Frac. dec. chosen in gender-blind				DV: Frac. dec. chosen in gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	-0.000 (0.011)	-0.007 (0.013)	-0.008 (0.013)	0.000 (0.013)	-0.000 (0.011)	-0.013 (0.015)	-0.014 (0.015)	-0.010 (0.016)
Performance		-0.000 (0.006)	0.001 (0.007)	0.001 (0.007)		0.004 (0.005)	0.003 (0.006)	0.003 (0.006)
SP x performance		0.020 (0.013)	0.009 (0.014)	0.005 (0.013)		0.019 (0.012)	0.013 (0.014)	0.011 (0.014)
Woman		0.003 (0.012)	0.002 (0.012)	0.003 (0.011)		0.022** (0.011)	0.022** (0.011)	0.021* (0.011)
SP x Woman		0.013 (0.023)	0.016 (0.023)	-0.001 (0.022)		0.026 (0.023)	0.028 (0.023)	0.019 (0.024)
Beliefs			-0.002 (0.006)	-0.003 (0.006)			0.001 (0.007)	0.001 (0.007)
SP x Beliefs			0.026** (0.011)	0.028** (0.012)			0.013 (0.013)	0.014 (0.013)
Modesty				-0.001 (0.005)				0.002 (0.005)
SP x modesty				0.041*** (0.013)				0.021 (0.013)
Constant	0.500*** (0.005)	0.499*** (0.008)	0.499*** (0.008)	0.499*** (0.008)	0.500*** (0.005)	0.489*** (0.008)	0.489*** (0.008)	0.489*** (0.008)
Observations	328	328	328	328	328	328	328	328
Agents	164	164	164	164	164	164	164	164

Note: Coefficient are from random effects regressions with random effects on the agent level. The dependent variable is the fraction of decisions in which an agent is chosen. Columns 1-3 show results from gender-blind treatments, where the base category is the fractions of decisions in which agents are chosen in No-blind. Columns 4-6 show the respective results from gender-revealed treatments, where the base category is fractions of decisions in which agents are chosen in No-revealed. Performance are standardized values of performance, modesty are standardized values of modesty. Woman is a dummy that equals 1 if the agent is a woman. Standard errors are clustered at the agent level and shown in parentheses.). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table A 7: Random effects regression on in-group favoritism on agent level**

DV: Frac. dec. chosen by decision-maker of same gender	
	(1)
SP-blind	-0.003 (0.014)
SP-revealed	0.015 (0.014)
No-revealed	0.063*** (0.011)
Constant	0.498*** (0.008)
Observations	656
Agents	164

Note: Coefficient are from random effects regressions with random effects on the agent level. The dependent variable is the fraction of decisions in which an agent is chosen. SP-blind, SP-revealed and No-revealed are dummies that equal 1 for the respective treatment, while No-blind serves as reference category. Standard errors are clustered at the agent level and shown in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

#### A.4 Conditional logit models (Math Study)

Below we provide conditional logit models, replicating Finding 1 (see significant coefficient for better in columns 4 of Table A 8 and Table A 9), Finding 2 (see insignificant effects, but log odds above 1 for coefficients of female chosen in columns 4 of Table A 8 and Table A 9), as well as Finding 3 (see significant coefficients for same gender in Table A 9 for chosen in No-revealed, which become close to 1 and insignificant for chosen in SP-revealed). We observe similar mechanisms as in the main paper (see changes in coefficients and significant effects of controls for beliefs and modesty in columns 5 and 6 of Table A 8 and Table A 9). Note that, given that we include the dummy indicating who the better agent is, we thereby also control for performance differences between agents.

Table A 8: Conditional logit models of choices in gender-blind setting

	DV: Chosen in No-blind			DV: Chosen in SP-blind		
	(1)	(2)	(3)	(4)	(5)	(6)
Better	0.976 (0.032)	0.978 (0.034)	0.978 (0.034)	1.070** (0.034)	1.017 (0.034)	1.003 (0.034)
Female	0.998 (0.033)	0.997 (0.033)	0.999 (0.034)	1.030 (0.031)	1.050 (0.032)	0.987 (0.031)
Same gender	0.994 (0.031)	0.994 (0.031)	0.994 (0.031)	0.979 (0.028)	0.980 (0.028)	0.982 (0.028)
Beliefs		0.996 (0.023)	0.996 (0.023)		1.111*** (0.026)	1.118*** (0.027)
Modesty			0.997 (0.022)			1.173*** (0.029)
Observations	9,000	9,000	9,000	8,440	8,440	8,440

Note: Coefficients are odds ratios from a conditional logit model. Better is a dummy indicating that the agent is the better performing agent (one randomly drawn for equal-performance pairings). Female is a dummy indicating that the agent is female and same gender is a dummy indicating that the agent has the same gender as the decision-maker. Belief is a control for performance beliefs and modesty are the values of the writing style index describing a modest writing style (see Section 2 of the main paper for details). Controls are standardized. Standard errors are clustered by decision-makers and reported in parentheses.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 9: Conditional logit model of choices in gender-revealed setting

	DV: Chosen in No-revealed			DV: Chosen in SP-revealed		
	(1)	(2)	(3)	(4)	(5)	(6)
Better	1.043 (0.036)	1.044 (0.038)	1.043 (0.038)	1.110*** (0.038)	1.075** (0.038)	1.068* (0.038)
Female	1.104 (0.071)	1.103 (0.071)	1.100 (0.071)	1.120** (0.052)	1.134*** (0.053)	1.093* (0.053)
Same gender	1.285*** (0.082)	1.285*** (0.082)	1.285*** (0.082)	1.048 (0.046)	1.049 (0.046)	1.050 (0.046)
Belief		0.998 (0.022)	0.998 (0.022)		1.069** (0.028)	1.072*** (0.028)
Modesty			1.007 (0.023)			1.100*** (0.026)
Observations	8,040	8,040	8,040	8,480	8,480	8,480

Note: Coefficients are odds ratios from a conditional logit model. Better is a dummy indicating that the agent is the better performing agent (one randomly drawn for equal-performance pairings). Female is a dummy indicating that the agent is female and same gender is a dummy indicating that the agent has the same gender as the decision-maker. Belief is a control for performance beliefs and modesty are the values of the writing style index describing a modest writing style (see Section 2 of the main paper for details). Controls are standardized. Standard errors are clustered by decision-makers and reported in parentheses.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## A.5 Models with all treatments (Math Study)

We additionally replicate our main findings providing estimates from joint models, which include all treatments. Table A 10 shows the respective models of correct choice, Table A 11 for women chosen and in Table A 12 for same gender chosen. No-blind is the reference category in all models.

Table A 10: LPM of correct choice (all treatments)

	DV: Correct choice		
	(1)	(2)	(3)
SP-blind	0.020*	0.009	0.010
	(0.011)	(0.011)	(0.011)
SP-revealed	0.024**	0.013	0.014
	(0.011)	(0.012)	(0.012)
No-revealed	0.012	0.012	0.012
	(0.012)	(0.012)	(0.012)
Dif. beliefs	-0.002	-0.002	
	(0.006)	(0.006)	
SP x dif. beliefs	0.028***	0.032***	
	(0.008)	(0.008)	
Dif. modesty	0.001		
	(0.006)		
SP x dif. modesty	0.045***		
	(0.008)		
Constant	0.495***	0.497***	0.496***
	(0.010)	(0.010)	(0.009)
Observations	16,980	16,980	16,980

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the better agent is chosen (correct choice) and is 0 otherwise. SP-blind, SP-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the better agent and the competing agent. We compute the difference such that higher values indicate higher performance beliefs for the better agent. Dif. modesty is similarly computed based on differences in agents' values of the writing style index. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

Table A 11: LPM of woman chosen (all treatments)

	DV: Woman chosen			
	(1)	(2)	(3)	(4)
SP-blind	0.000 (0.011)	0.011 (0.011)	0.013 (0.011)	0.001 (0.011)
SP-revealed	0.016 (0.013)	0.027** (0.014)	0.029** (0.014)	0.016 (0.014)
No-revealed	0.008 (0.017)	0.008 (0.017)	0.008 (0.017)	0.008 (0.017)
Dif. beliefs		-0.004 (0.007)	-0.005 (0.007)	
SP x dif. beliefs		0.028*** (0.009)	0.030*** (0.009)	
Dif. modesty			-0.004 (0.006)	
SP x dif. modesty			0.044*** (0.008)	
Dif. performance	0.001 (0.007)	0.002 (0.008)	0.003 (0.008)	
SP x dif. performance	0.029*** (0.008)	0.016* (0.009)	0.012 (0.009)	
Constant	0.502*** (0.010)	0.502*** (0.011)	0.502*** (0.010)	0.503*** (0.010)
Observations	16,980	16,980	16,980	16,980

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the woman is chosen and is 0 otherwise (i.e., when the man is chosen). SP-blind, SP-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the female agent and the competing male agent. We compute the difference such that higher values indicate higher performance beliefs for the female agent. Dif. modesty and dif. performance is similarly computed based on differences in agents' values of the writing style index and the agents' performance, respectively. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

Table A 12: LPM of same gender chosen (all treatments)

	DV: Agent of same gender chosen			
	(1)	(2)	(3)	(4)
SP-blind	-0.004 (0.011)	-0.005 (0.011)	-0.005 (0.010)	-0.004 (0.010)
SP-revealed	0.011 (0.013)	0.009 (0.013)	0.009 (0.013)	0.011 (0.013)
No-revealed	0.060*** (0.017)	0.060*** (0.017)	0.060*** (0.017)	0.060*** (0.017)
Dif. beliefs		0.000 (0.007)	0.000 (0.007)	
SP x dif. beliefs		0.026*** (0.009)	0.029*** (0.009)	
Dif. modesty			0.003 (0.006)	
SP x dif. modesty			0.045*** (0.008)	
Dif. performance		0.001 (0.007)	0.001 (0.007)	-0.000 (0.007)
SP x dif. performance		0.024*** (0.008)	0.012 (0.009)	0.012 (0.009)
Constant	0.499*** (0.009)	0.500*** (0.009)	0.500*** (0.009)	0.499*** (0.009)
Observations	16,980	16,980	16,980	16,980

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the same-gender agent is chosen and is 0 otherwise (i.e., when the agent of the opposite gender is chosen). SP-blind, SP-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the same-gender agent and the competing agent of the opposite gender. We compute the difference such that higher values indicate higher performance beliefs for the same-gender agent. Dif. modesty and dif. performance are similarly computed based on differences in agents' values of the writing style index and the agents' performance, respectively. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

## A.6 Models from main paper reporting all coefficients (Math Study)

The following tables Table A 13-Table A 15 show the full set of controls of the models presented in Table 3 in the main paper. Table A 13 shows those for Panel (a), Table A 14 for Panel (b) and Table A 15 for Panel (c).

Table A 13: LPM of correct choice

	DV: Correct choice					
	Gender-blind			Gender-revealed		
	(1)	(2)	(3)	(4)	(5)	(6)
SP	0.020*	0.006	0.007	0.012	0.003	0.004
	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)
Dif. beliefs		-0.001	-0.001		-0.002	-0.002
		(0.008)	(0.008)		(0.008)	(0.008)
SP x dif. beliefs		0.037***	0.041***		0.022*	0.024**
		(0.012)	(0.012)		(0.012)	(0.012)
Dif. modesty			-0.001			0.006
			(0.008)			(0.008)
SP x dif. modesty			0.057***			0.033***
			(0.011)			(0.012)
Constant	0.494***	0.495***	0.494***	0.506***	0.507***	0.507***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
Observations	8,720	8,720	8,720	8,260	8,260	8,260

Note: This table shows the full set of controls from Table 3 Panel (a) in the main paper. Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the better agent is chosen (correct choice) and is 0 otherwise. SP-blind, SP-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the better agent and the competing agent. We compute the difference such that higher values indicate higher performance beliefs for the better agent. Dif. modesty is similarly computed based on differences in agents' values of the writing style index. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

Table A 14: LPM of woman chosen

	DV: Woman chosen							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	0.012 (0.011)	0.014 (0.011)	-0.002 (0.011)	0.012 (0.011)	0.008 (0.019)	0.019 (0.020)	0.020 (0.020)	0.011 (0.020)
Dif. beliefs		-0.010 (0.010)	-0.010 (0.010)				-0.001 (0.009)	
SP x dif. beliefs		0.037*** (0.012)	0.040*** (0.012)				0.031*** (0.011)	
Dif. modesty			-0.005 (0.008)			0.004 (0.009)	0.003 (0.009)	
SP x dif. modesty			0.057*** (0.011)			0.019 (0.013)	0.020 (0.013)	
Dif. performance	-0.000 (0.009)	0.003 (0.010)	0.004 (0.010)	-0.000 (0.009)		0.004 (0.009)	0.001 (0.010)	0.002 (0.010)
SP x dif. performance	0.029** (0.012)	0.012 (0.013)	0.006 (0.013)	0.029** (0.012)		0.029** (0.012)	0.020 (0.013)	0.018 (0.013)
Constant	0.502*** (0.010)	0.501*** (0.010)	0.502*** (0.010)	0.502*** (0.010)	0.510*** (0.019)	0.511*** (0.020)	0.511*** (0.020)	0.512*** (0.020)
Observations	8,720	8,720	8,720	8,720	8,260	8,260	8,260	8,260

Note: This table shows the full set of controls from Table 3 Panel (b) in the main paper. Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the woman is chosen and is 0 otherwise (i.e., when the man is chosen). SP-blind, SP-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the female agent and the competing male agent. We compute the difference such that higher values indicate higher performance beliefs for the female agent. Dif. modesty and dif. performance are similarly computed based on differences in agents' values of the writing style index and the agents' performance, respectively. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

Table A 15: LPM of same gender chosen

	DV: Same gender chosen							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	-0.004 (0.011)	-0.005 (0.011)	-0.005 (0.011)	-0.003 (0.010)	-0.049*** (0.019)	-0.051*** (0.019)	-0.051*** (0.019)	-0.049*** (0.019)
Dif. beliefs			-0.002 (0.009)	-0.002 (0.009)		0.001 (0.009)	0.001 (0.009)	
SP x dif. beliefs			0.036*** (0.012)	0.040*** (0.012)		0.018 (0.012)	0.020 (0.012)	
Dif. modesty				-0.002 (0.008)			0.009 (0.009)	
SP x dif. modesty				0.057*** (0.011)			0.031*** (0.011)	
Dif. performance		-0.001 (0.009)	0.000 (0.010)	-0.000 (0.010)		-0.001 (0.009)	-0.001 (0.010)	-0.001 (0.010)
SP x dif. performance		0.024** (0.011)	0.007 (0.013)	0.007 (0.013)		0.023* (0.012)	0.015 (0.013)	0.016 (0.013)
Constant	0.498*** (0.009)	0.499*** (0.009)	0.499*** (0.009)	0.499*** (0.009)	0.559*** (0.017)	0.560*** (0.017)	0.560*** (0.017)	0.560*** (0.017)
Observations	8,720	8,720	8,720	8,720	8,260	8,260	8,260	8,260

Note: This table shows the full set of controls from Table 3 Panel (c) in the main paper. Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the same-gender-agent is chosen and is 0 otherwise. SP-blind, SP-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the same-gender agent and the competing agent of the opposite gender. We compute the difference such that higher values indicate higher performance beliefs for the same-gender agent. Dif. modesty is similarly computed based on differences in agents' values of the writing style index. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

## A.7 Shift in focus explaining bias reduction effect of self-promotions (Math Study)

In Table A 16, we split the decisions by favorability of self-promotions provided by the agent of the same gender. Particularly, we condition on decisions in which the agent of the same gender has lower beliefs or is less modest (see columns 2 and 3), and on those where the opposite is true (columns 4 and 5). Coefficients of SP are significantly negative in columns 3 and 3, and positive in columns 4 and 5. Thus, the bias reduction effect strongly depends on the favorability of the self-promotion provided. These results show that decision-makers choose based on the provided self-promotions, once provided, instead of based on the agents' gender. This aligns with a shift in focus from the agents' gender to its self-promotions, once revealed. Table A 17 shows that we obtain similar results with controls for performance differences between agents.

**Table A 16: LPM of same gender chosen – sample splits by favorability of self-promotion**

	DV: Same gender chosen					
	All	Same-gender agent has lower belief	Same-gender agent is less modest	Same gender agent has higher belief	Same gender agent is less modest	
		(1)	(2)	(3)	(4)	
SP		-0.004 (0.011)	-0.035** (0.017)	-0.071*** (0.015)	0.024 (0.015)	0.066*** (0.016)
Constant		0.498*** (0.009)	0.492*** (0.013)	0.503*** (0.013)	0.502*** (0.011)	0.497*** (0.011)
Observations		8,720	3,904	4,445	4,149	4,275

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the same-gender-agent is chosen and is 0 otherwise. Column (2) conditions on decisions in which the same-gender agent has lower performance beliefs than the competitor, column (3) on decisions in which the same-gender agent provides a less modest self-promotion, respectively. Columns (4) and (5) show the opposite decisions, where the agent of the same gender has a higher belief, and more modest self-promotion, respectively. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Coefficients are interpreted relative to No-revealed (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

Table A 17: LPM of same gender chosen controlling for performance – sample splits by favorability of self-promotions

	DV: same gender chosen				
	All	Same-gender agent has lower belief	Same-gender agent is less modest	Same gender agent has higher belief	Same gender agent is less modest
		(1)	(2)	(3)	(4)
SP	-0.005 (0.011)	-0.031* (0.018)	-0.074*** (0.014)	0.016 (0.017)	0.068*** (0.016)
Dif. performance	-0.001 (0.009)	-0.005 (0.012)	-0.012 (0.012)	-0.002 (0.012)	0.013 (0.011)
SP x dif. performance	0.024** (0.011)	0.010 (0.017)	0.043*** (0.015)	0.016 (0.016)	0.009 (0.016)
Constant	0.499*** (0.009)	0.490*** (0.014)	0.504*** (0.012)	0.503*** (0.012)	0.496*** (0.011)
Observations	8,720	3,904	4,445	4,149	4,275

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the same-gender-agent is chosen and is 0 otherwise. Column (2) conditions on decisions in which the same-gender agent has lower performance beliefs than the competitor, column (3) on decisions in which the same-gender agent provides a less modest self-promotion, respectively. Columns (4) and (5) show the opposite decisions, where the agent of the same gender has a higher belief, and more modest self-promotion, respectively. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Coefficients are interpreted relative to No-revealed (base category). Dif. performance is the standardized performance difference between the agent of the same gender and the competing agent, where higher values indicate that the agent of the same gender has the higher performance. Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=164).

## A.8 Non-parametric analysis (Ideation Study)

In Table A 18, we report the summary statistics for decision-maker behavior across treatments for the Ideation Study. Means and standard deviations in the left columns are from the gender-blind setting, and in the right columns from the gender revealed setting, respectively. Recall, that decision-makers faced binary decisions between choosing a male or a female agent. Thus, gender-equal choices would result in average values of 0.5 of woman chosen.

Table A 18: Summary statistics of decision-makers choices

Chosen (in frac.)	Gender-blind				Gender-revealed			
	No-blind	SP-blind	Indicator -blind	SP- Indicator -blind	No- revealed	SP- revealed	Indicator -revealed	SP- Indicator -revealed
<b>Panel (a): All</b>								
Correct	0.63 (0.15)	0.64 (0.15)	0.65 (0.15)	0.66 (0.15)	0.62 (0.15)	0.63 (0.15)	0.64 (0.15)	0.66 (0.15)
Women	0.50 (0.16)	0.51 (0.16)	0.49 (0.16)	0.51 (0.16)	0.57 (0.21)	0.54 (0.17)	0.51 (0.17)	0.52 (0.16)
Same gender	0.50 (0.16)	0.51 (0.16)	0.49 (0.16)	0.49 (0.16)	0.52 (0.22)	0.50 (0.17)	0.49 (0.17)	0.49 (0.16)
N decisions	6,500	6,290	6,190	6,180	6,610	6,380	6,369	6,270
n decision maker	650	629	619	618	661	638	637	627
<b>Panel (b): Excl. decisions where agents performed equally well</b>								
Correct	0.50 (0.19)	0.51 (0.19)	0.53 (0.19)	0.55 (0.18)	0.49 (0.18)	0.50 (0.18)	0.52 (0.19)	0.54 (0.19)
N decisions	4,828	4,747	4,652	4,605	4,996	4,783	4,744	4,721
n decision maker	650	629	619	618	661	638	637	627

Note: Mean values and standard deviations in parentheses. Data is aggregated on decision-maker level. Correct choice is the fraction of correct decisions made by decision-makers. Women chosen is the fraction of decisions in which the decision-maker chooses a female agent. Same gender chosen is the fraction of decisions in which the decision-maker chooses the option provided by an agent of the same gender. High potential women chosen is the fraction of decisions in which a female is chosen in a decision situation in which the performance of the female agent is higher than that of the male agent (note that this reduces the number of decisions). Panel (a) shows all decisions, where decisions in which both agents performed equally well are classified as correct. Panel (b) shows correct decisions restricted to the sample where agents' have performed differently, excluding those decisions in which they have equal performance. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 18 shows that revealing self-promotions increases the fraction of correct decisions in the gender-blind setting by around 0.01 in both, Panel (a) and Panel (b), where we restrict the sample to decisions in which we can clearly identify a better agent (dropping decisions in which they performed equally well), in the latter. The fraction of correct choices in SP-blind are however, not significantly different from those in No-blind (MWU-test: p=0.30). When dropping equal-value pairings (see Panel (b)), we find that the effect is marginally larger (0.015, MWU-test: p=0.11). In the gender revealed setting we similarly find marginal but significant improvements in decision quality through self-

promotions (MWU-test:  $p=0.08$ ), while they are insignificant in Panel (b) (MWU-test:  $p=0.17$ ). These findings align with Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*).

Second, we investigate the effects of self-promotion on gender bias, where we first focus on the effect on women. Comparing the fraction of women chosen between No-blind and SP-blind in Table A 18, we find an insignificant increase of 0.01 (MWU-test:  $p=0.15$ ), which is in line with Finding 2 (*Revealing self-promotion does not lead to women being selected less frequently than men*).

Next, we examine the existence of ex-ante gender biases, absent of self-promotions. We find a systemic gender bias favoring women emerges once gender is revealed. Absent of performance signals, the fraction of decisions in which decision-makers choose woman is by 0.06 larger when gender is revealed (MWU-test:  $p<0.01$ ). Providing self-promotions in the gender revealed setting reduce this gender bias significantly by around 0.03 (MWU-test:  $p<0.01$ ). However, the remaining fraction is still higher than in No-blind (MWU-test:  $p<0.01$ ). With respect to in-group favoritism, we replicate an ex-ante bias aligning with in-group favoritism. The fraction of decisions in which decision-makers choose an agent of the same gender is by 0.02 higher when gender is revealed and no performance signals are available (MWU-test:  $p<0.01$ ). Providing self-promotions significantly reduces this in-group favoritism (MWU-test:  $p<0.01$ ) to the point that it is no longer significantly different from No-blind (MWU-test:  $p = 0.96$ ). These results align with Finding 3 (*Revealing self-promotions significantly reduces pre-existing gender bias*).

Next, we investigate performance indicators and effects of self-promotion in their presence. Table A 18 shows that the provision of performance indicators results in significant improvements in decision quality in both gender-blind and gender-revealed settings (MWU-tests:  $p\leq 0.02$  for both, Panel (a) and (b)). Decision quality is also higher under the provision of performance indicators than under the provision of self-promotions (MWU-tests:  $p=0.12$  in the gender-blind setting and  $p<0.01$  in the gender revealed setting for Panel (a);  $p=0.09$  in the gender-blind setting and  $p=0.12$  in the gender revealed setting for Panel (b)). Comparing improvements in decision quality when providing decision-makers with performance indicators in the presence of self-promotions, we see significant improvements in both gender-blind and gender-revealed settings (MWU-tests:  $p<0.01$  for both Panel (a) and Panel (b)). Vice versa, adding self-promotions in the presence of performance indicators also improves decision quality, while improvements are smaller (MWU-tests:  $p\leq 0.06$  for Panel (b)) and not always

significant in Panel (b) (MWU-tests:  $p=0.15$  in gender-blind setting and  $p=0.06$  in gender-revealed setting). These results imply that Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*) holds in the presence of performance indicators.

Concerning an induced gender bias Table A 18 shows that the provision of performance indicators does neither significantly affect the fraction of women chosen nor the fraction of same-gender agents chosen (MWU-tests:  $p\geq0.26$ ). We find that in the presence of objective performance indicators, providing self-promotions keeps increasing the fraction of women chosen, although not meeting conventional levels of statistical significance (MWU-test:  $p=0.11$  in gender-blind and  $p=0.13$  in gender-revealed setting). In both settings, the resulting fraction of women chosen is above 0.50 and thus, Finding 2 (*Revealing self-promotion does not lead to women being selected less frequently than men*) holds in the presence of performance indicators.

Concerning a bias reduction effect, we find that performance indicators mitigate both the systemic bias favoring women, and in-group favoritism (MWU-tests:  $p<0.01$ ) to the point that the fractions are not different to No-blind (MWU-tests:  $p\geq0.61$ ). Lastly, we compare the bias reduction effect of self-promotions to performance indicators. Concerning a systemic gender bias, we find that performance indicators are more effective in reducing the bias, reflected in the higher fraction of women chosen in SP-revealed compared to Indicator-revealed (MWU-test:  $p<0.01$ ). Strikingly, with respect to in-group favoritism we find no such difference (MWU-test:  $p=0.59$ ). Given that performance indicators fully reduce pre-existing biases, no further bias reduction effect can arise through the additional provision of self-promotions.

## A.9 Analysis on agent-level (Ideation Study)

In the following tables we confirm that our findings hold when estimating effects of self-promotions on agent-level. Table A 19 shows results for the gender-blind setting, absent of performance indicators, Table A 20 shows the equivalent results for the gender-revealed context. Table A 21 and Table A 22 equivalently show results in the presence of performance indicators. In all models we summarize the fraction of decisions in which an agent was chosen by treatment and regress it on a dummy indicating whether self-promotions are revealed (SP). The respective base categories are No-blind in Table A 19, No-revealed in Table A 20, Indicator-blind in Table A 21 and Indicator-revealed in Table A 22.

We interact SP with standardized values of performance, showing that with increasing performance, the fraction of decisions in which an agent gets chosen once self-promotions are revealed increases (see coefficients of SP x performance). In models where no performance indicators are chosen we see slight positive effects, that however, do not meet conventional levels of statistical significance ( $p \leq 0.19$ , see coefficients of SP x performance in Table A 19 and Table A 20), while we see significant effects when performance indicators are revealed (see columns 2 of Table A 21 and Table A 22). Thus, results align with Finding 1 (*Revealing self-promotions does not deteriorate decisions and can slightly increase the probability of selecting the better agent*).

We further replicate the slight, but insignificant advantage of women once self-promotions are revealed in the gender-blind setting (see column 2 of Table A 19) and thus, (*Revealing self-promotion does not lead to women being selected less frequently than men*). The positive effect gets more pronounced and significant, once we control for performance beliefs (see column 3 of Table A 19). In columns 4 and 5 of Table A 19 the effect is again mitigated and loses statistical significance, supporting the proposed mechanism that women offset disadvantage due to lower performance beliefs by their more modest writing and longer descriptions. Similar effects are observed in the presence of performance indicators (see SP x woman in Table A 21).

In Table A 20 and Table A 22, which show results in the gender-revealed setting, we replicate the systemic bias favoring women (see significant positive coefficient for Woman). The significant negative interaction SP x woman in Table A 20 shows the significant bias reduction effect of self-promotions with respect to the systemic bias (while the positive and significant coefficient for SP indicates that the fraction of decisions in which men are chosen increases). Thus, we confirm Finding 3 (*Revealing self-*

*promotions significantly reduces pre-existing gender bias*) for the systemic bias favoring women. Note that in the presence of performance indicators we do not observe such an effect, as performance indicators already have reduced the bias (see constant in Table A 22).

To analyze the bias reduction effect of self-promotions we estimate additional models, in which we estimate the effects treatment dummies on the fraction of decisions in which an agent gets chosen by a decision-maker of their gender in a random effects regression reported in Table A 23. The significant negative effect of No-revealed confirms the in-group favoritism found. The coefficient for SP-revealed is not significantly different from No-blind (reference category), indicating that self-promotions fully eliminate the in-group favoritism observed in No-revealed. Thus, the analysis on agent level further confirms Finding 3 (*Revealing self-promotions significantly reduces pre-existing gender bias*).

Table A 19: Random effects regression on agent level in gender-blind setting and absent of performance indicators

	DV: Frac. chosen absent of performance indicators, gender-blind				
	(1)	(2)	(3)	(4)	(5)
SP	-0.000 (0.008)	-0.013 (0.012)	-0.016 (0.012)	-0.014 (0.012)	-0.010 (0.011)
Performance		-0.002 (0.004)	-0.001 (0.004)	-0.001 (0.004)	-0.001 (0.004)
SP x performance		0.010 (0.008)	0.006 (0.008)	0.007 (0.008)	0.005 (0.007)
Woman		0.002 (0.008)	0.001 (0.008)	0.001 (0.008)	0.002 (0.008)
SP x woman		0.025 (0.017)	0.032* (0.017)	0.028* (0.016)	0.020 (0.015)
Beliefs			-0.005 (0.004)	-0.005 (0.004)	-0.004 (0.004)
SP x beliefs			0.024*** (0.008)	0.025*** (0.008)	0.024*** (0.008)
Modesty				-0.001 (0.004)	-0.001 (0.004)
SP x modesty				0.028*** (0.008)	0.026*** (0.008)
Length descr.					-0.008* (0.004)
SP x length descr.					0.051*** (0.008)
Constant	0.500*** (0.004)	0.499*** (0.006)	0.500*** (0.006)	0.500*** (0.006)	0.499*** (0.006)
Observations	504 252	504 252	504 252	504 252	504 252

Note: Coefficient are from random effects regressions with random effects on the agent level. The dependent variable is the fraction of decisions in which an agent is chosen. The base category is the fractions of decisions in which agents are chosen in No-blind. Only treatments in which no performance indicators are revealed are included. Performance, modesty and length descr. are standardized values of performance, modesty and the length of the description that the agent provides in the self-promotion. Woman is a dummy that equals 1 if the agent is a woman. Standard errors are clustered at the agent level and shown in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 20: Random effects regression on agent level in gender-revealed setting and absent of performance indicators

	DV: Frac. chosen absent of performance indicators, gender-revealed				
	(1)	(2)	(3)	(4)	(5)
SP	0.000 (0.008)	0.029** (0.011)	0.023** (0.011)	0.024** (0.011)	0.027** (0.011)
Performance		-0.001 (0.004)	0.000 (0.004)	0.000 (0.004)	0.001 (0.004)
SP x performance		0.010 (0.007)	0.004 (0.007)	0.004 (0.007)	0.002 (0.007)
Woman		0.133*** (0.008)	0.130*** (0.009)	0.130*** (0.009)	0.130*** (0.009)
SP x woman		-0.057*** (0.015)	-0.047*** (0.015)	-0.048*** (0.015)	-0.054*** (0.015)
Beliefs			-0.010** (0.004)	-0.010** (0.004)	-0.010** (0.004)
SP x beliefs			0.033*** (0.008)	0.034*** (0.008)	0.033*** (0.007)
Modesty				0.000 (0.004)	0.001 (0.004)
SP x modesty				0.009 (0.008)	0.007 (0.007)
Length descr.					-0.002 (0.004)
SP x length descr.					0.039*** (0.009)
Constant	0.500*** (0.006)	0.433*** (0.006)	0.435*** (0.006)	0.435*** (0.006)	0.435*** (0.006)
Observations	504	504	504	504	504
Agents	252	252	252	252	252

Note: Coefficient are from random effects regressions with random effects on the agent level. The dependent variable is the fraction of decisions in which an agent is chosen. Only treatments in which no performance indicators are revealed are included. The base category is the fractions of decisions in which agents are chosen in No-revealed. Performance, modesty and length descr. are standardized values of performance, modesty and the length of the description that the agent provides in the self-promotion. Woman is a dummy that equals 1 if the agent is a woman. Standard errors are clustered at the agent level and shown in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 21: Random effects regression on agent level in gender-blind setting and in presence of performance indicators

	DV: Frac. chosen in in presence of performance indicators, gender-blind				
	(1)	(2)	(3)	(4)	(5)
SP	0.000 (0.007)	-0.015* (0.009)	-0.015 (0.009)	-0.015 (0.009)	-0.014 (0.009)
Performance		0.017** (0.009)	0.014 (0.009)	0.014 (0.009)	0.013 (0.009)
SP x performance		0.012 (0.008)	0.013* (0.008)	0.013 (0.008)	0.012 (0.008)
Woman		-0.017 (0.018)	-0.012 (0.018)	-0.015 (0.018)	-0.019 (0.017)
SP x woman		0.031** (0.013)	0.030** (0.013)	0.030** (0.014)	0.029** (0.014)
Beliefs			0.018* (0.009)	0.018** (0.009)	0.018** (0.009)
SP x beliefs			-0.003 (0.007)	-0.003 (0.007)	-0.004 (0.007)
Modesty				0.017** (0.008)	0.015* (0.008)
SP x modesty				-0.001 (0.007)	-0.002 (0.006)
Length descr.					0.030*** (0.008)
SP x length descr.					0.009 (0.007)
Constant	0.500*** (0.009)	0.508*** (0.013)	0.506*** (0.013)	0.507*** (0.013)	0.509*** (0.013)
Observations	504 252	504 252	504 252	504 252	504 252

Note: Coefficient are from random effects regressions with random effects on the agent level. The dependent variable is the fraction of decisions in which an agent is chosen. The base category is the fractions of decisions in which agents are chosen in Indicator-blind. Only treatments in which performance indicators are revealed are included. Performance, modesty and length descr. are standardized values of performance, modesty and the length of the description that the agent provides in the self-promotion. Woman is a dummy that equals 1 if the agent is a woman. Standard errors are clustered at the agent level and shown in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 22: Random effects regression on agent level in gender-revealed setting and in presence of performance indicators

	DV: Frac. chosen in presence of performance indicators, gender-revealed				
	(1)	(2)	(3)	(4)	(5)
SP	0.000 (0.006)	-0.011 (0.008)	-0.012 (0.008)	-0.011 (0.008)	-0.010 (0.009)
Performance		0.012 (0.008)	0.009 (0.008)	0.009 (0.008)	0.008 (0.008)
SP x performance		0.015** (0.006)	0.014** (0.006)	0.014** (0.006)	0.014** (0.006)
Woman		0.011 (0.016)	0.016 (0.016)	0.015 (0.016)	0.010 (0.016)
SP x woman		0.022* (0.012)	0.023* (0.013)	0.022* (0.013)	0.021 (0.013)
Beliefs		0.018** (0.009)	0.018** (0.009)	0.018** (0.009)	0.018** (0.008)
SP x beliefs		0.006 (0.007)	0.006 (0.007)	0.006 (0.007)	0.006 (0.007)
Modesty		0.007 (0.008)	0.007 (0.008)	0.006 (0.008)	0.006 (0.008)
SP x modesty				0.006 (0.006)	0.029*** (0.006)
Length descr.					0.008 (0.008)
SP x length descr.					0.008 (0.007)
Constant	0.500*** (0.008)	0.495*** (0.012)	0.492*** (0.012)	0.493*** (0.012)	0.495*** (0.011)
Observations	504 252	504 252	504 252	504 252	504 252

Note: Coefficient are from random effects regressions with random effects on the agent level. The dependent variable is the fraction of decisions in which an agent is chosen. The base category is the fractions of decisions in which agents are chosen in Indicator-revealed. Only treatments in which performance indicators are shown are included. Performance, modesty and length descr. are standardized values of performance, modesty and the length of the description that the agent provides in the self-promotion. Woman is a dummy that equals 1 if the agent is a woman. Standard errors are clustered at the agent level and shown in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 23: Random effects regression on in-group favoritism on agent-level

DV: Chosen by decision-maker of same gender

	(1)
SP-blind	-0.006 (0.012)
Indicator-blind	0.010 (0.011)
SP-Indicator-blind	-0.006 (0.012)
SP-revealed	-0.004 (0.011)
Indicator-revealed	-0.001 (0.011)
SP-Indicator-revealed	-0.006 (0.011)
No-revealed	0.030*** (0.010)
Constant	0.499*** (0.006)
Observations	2,016
Agents	252

Note: Coefficient are from random effects regressions with random effects on the agent level. SP-blind, SP-revealed, Indicator-blind, Indicator-revealed, SP-Indicator-blind, SP-Indicator-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. Standard errors are clustered at the agent level and shown in parentheses. No-blind is the reference category. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## A.10 Conditional logit models (Ideation Study)

Below we provide conditional logit models, replicating Finding 1 (see significant coefficient for better in columns 4 of Table A 24 and similar tendency, but insignificant in Table A 25), Finding 2 (see log odds above 1 for coefficients of female chosen in columns 4 of Table A 24 and Table A 25), as well as Finding 3 (see significant coefficients for same gender in Table A 25 for chosen in No-revealed, which become close to 1 and insignificant for chosen in SP-revealed). We observe similar mechanisms as in the main paper (see changes in coefficients and significant effects of controls for beliefs, modesty and length of descriptions in columns 5, 6 and 7 of Table A 24 and Table A 25). Note that, given that we include the dummy indicating who the better agent is, we thereby also control for performance differences between agents. Table A 26 and Table A 27 show the respective models in the presence of performance indicators.

Table A 24: Conditional logit model of choices in gender-blind setting absent of performance indicators

	DV: Chosen in No-blind				DV: Chosen in SP-blind			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Better	0.999 (0.0252)	1.003 (0.0256)	1.003 (0.0256)	1.005 (0.0257)	1.062** (0.0268)	1.043* (0.0264)	1.043* (0.0267)	1.030 (0.0264)
Female	1.003 (0.0250)	0.998 (0.0254)	0.998 (0.0257)	1.003 (0.0258)	1.060** (0.0272)	1.086*** (0.0281)	1.069** (0.0279)	1.038 (0.0276)
Same gender	0.987 (0.0247)	0.987 (0.0247)	0.987 (0.0247)	0.987 (0.0247)	1.031 (0.0264)	1.032 (0.0264)	1.029 (0.0264)	1.034 (0.0270)
Beliefs		0.981 (0.0176)	0.981 (0.0176)	0.982 (0.0176)		1.081*** (0.0192)	1.085*** (0.0194)	1.083*** (0.0196)
Modesty			0.996 (0.0179)	0.998 (0.0180)			1.117*** (0.0196)	1.109*** (0.0195)
Length descr.				0.970* (0.0175)				1.201*** (0.0246)
Observations	13,000	13,000	13,000	13,000	12,580	12,580	12,580	12,580

Note: Coefficients are odds ratios from a conditional logit model. Better is a dummy indicating that the agent is the better performing agent (one randomly drawn for equal-performance pairings). Female is a dummy indicating that the agent is female and same gender is a dummy indicating that the agent has the same gender as the decision-maker. Belief is a control for performance beliefs and modesty are the values of the writing style index describing a modest writing style (see Section 2 of the main paper for details). Length descr. is the sum of characters describing the underlying idea in the self-promotion. Controls are standardized. Standard errors are clustered by decision-makers and reported in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 25: Conditional logit model of choices in gender-revealed setting absent of performance indicators

	DV: Chosen in No-revealed				DV: Chosen in SP-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Better	0.979 (0.0242)	0.988 (0.0249)	0.988 (0.0249)	0.988 (0.0249)	1.020 (0.0245)	0.997 (0.0246)	0.997 (0.0246)	0.986 (0.0243)
Female	1.318*** (0.0439)	1.302*** (0.0442)	1.302*** (0.0441)	1.303*** (0.0443)	1.165*** (0.0315)	1.201*** (0.0336)	1.194*** (0.0339)	1.166*** (0.0333)
Same gender	1.125*** (0.0374)	1.126*** (0.0375)	1.126*** (0.0375)	1.126*** (0.0375)	0.999 (0.0270)	0.997 (0.0270)	0.997 (0.0271)	0.997 (0.0272)
Belief		0.960** (0.0174)	0.960** (0.0174)	0.960** (0.0174)		1.101*** (0.0204)	1.102*** (0.0204)	1.102*** (0.0206)
Modesty			1.003 (0.0176)	1.003 (0.0175)			1.040** (0.0196)	1.030 (0.0195)
Length descr.				0.993 (0.0177)				1.171*** (0.0239)
Observations	13,220	13,220	13,220	13,220	12,760	12,760	12,760	12,760

Note: Coefficients are odds ratios from a conditional logit model. Better is a dummy indicating that the agent is the better performing agent (one randomly drawn for equal-performance pairings). Female is a dummy indicating that the agent is female and same gender is a dummy indicating that the agent has the same gender as the decision-maker. Belief is a control for performance beliefs and modesty are the values of the writing style index describing a modest writing style (see Section 2 of the main paper for details). Length descr. is the sum of characters describing the underlying idea in the self-promotion. Controls are standardized. Standard errors are clustered by decision-makers and reported in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 26: Conditional logit model of choices in gender blind setting in presence of performance indicators

	DV: Chosen in Indicator-blind				DV: Chosen in SP-Indicator-blind			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Better	1.139*** (0.0293)	1.121*** (0.0293)	1.123*** (0.0295)	1.117*** (0.0294)	1.184*** (0.0310)	1.169*** (0.0310)	1.168*** (0.0309)	1.156*** (0.0308)
Female	0.970 (0.0246)	0.989 (0.0256)	0.979 (0.0256)	0.961 (0.0255)	1.031 (0.0275)	1.051* (0.0284)	1.042 (0.0286)	1.017 (0.0285)
Same gender	0.968 (0.0246)	0.968 (0.0246)	0.966 (0.0246)	0.967 (0.0248)	0.970 (0.0258)	0.971 (0.0258)	0.973 (0.0259)	0.968 (0.0260)
Belief		1.068*** (0.0197)	1.070*** (0.0198)	1.068*** (0.0198)		1.063*** (0.0206)	1.064*** (0.0207)	1.063*** (0.0206)
Modesty			1.069*** (0.0196)	1.062*** (0.0195)			1.060*** (0.0193)	1.053*** (0.0193)
Length descr.				1.123*** (0.0203)				1.175*** (0.0229)
Observations	12,380	12,380	12,380	12,380	12,360	12,360	12,360	12,360

Note: Coefficients are odds ratios from a conditional logit model. Better is a dummy indicating that the agent is the better performing agent (one randomly drawn for equal-performance pairings). Female is a dummy indicating that the agent is female and same gender is a dummy indicating that the agent has the same gender as the decision-maker. Belief is a control for performance beliefs and modesty are the values of the writing style index describing a modest writing style (see Section 2 of the main paper for details). Length descr. is the sum of characters describing the underlying idea in the self-promotion. Controls are standardized. Standard errors are clustered by decision-makers and reported in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 27: Conditional logit model of choices in gender revealed setting in presence of performance indicators

	DV: chosen in Indicator-revealed				DV: Chosen in SP-Indicator-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Better	1.072*** (0.0271)	1.056** (0.0272)	1.056** (0.0272)	1.049* (0.0272)	1.178*** (0.0301)	1.153*** (0.0297)	1.155*** (0.0298)	1.144*** (0.0296)
Female	1.025 (0.0280)	1.048* (0.0290)	1.043 (0.0292)	1.023 (0.0289)	1.070*** (0.0277)	1.104*** (0.0289)	1.094*** (0.0291)	1.068** (0.0288)
Same gender	0.972 (0.0264)	0.972 (0.0265)	0.972 (0.0265)	0.973 (0.0267)	0.973 (0.0251)	0.973 (0.0251)	0.974 (0.0252)	0.973 (0.0253)
Belief		1.077*** (0.0203)	1.078*** (0.0205)	1.076*** (0.0204)		1.109*** (0.0214)	1.110*** (0.0214)	1.108*** (0.0214)
Modesty			1.036* (0.0193)	1.031 (0.0193)			1.063*** (0.0203)	1.054*** (0.0202)
Length descr.				1.125*** (0.0209)				1.162*** (0.0220)
Observations	12,738	12,738	12,738	12,738	12,540	12,540	12,540	12,540

Note: Coefficients are odds ratios from a conditional logit model. Better is a dummy indicating that the agent is the better performing agent (one randomly drawn for equal-performance pairings). Female is a dummy indicating that the agent is female and same gender is a dummy indicating that the agent has the same gender as the decision-maker. Belief is a control for performance beliefs and modesty are the values of the writing style index describing a modest writing style (see Section 2 of the main paper for details). Length descr. is the sum of characters describing the underlying idea in the self-promotion. Controls are standardized. Standard errors are clustered by decision-makers and reported in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## A.11 Models with all treatments (Ideation Study)

We additionally replicate our main findings providing estimates from joint models, which include all treatments. Table A 28 shows the respective models of correct choice, Table A 29 for women chosen and in Table A 30 for same gender chosen. No-blind is the reference category in all models.

Table A 28: LPM of correct choice (all treatments)

	DV: correct choice			
	(1)	(2)	(3)	(4)
SP-blind	0.015*	0.011	0.011	0.009
	(0.009)	(0.009)	(0.009)	(0.009)
Indicator-blind	0.033***	0.033***	0.033***	0.034***
	(0.009)	(0.009)	(0.009)	(0.009)
SP-Indicator-blind	0.043***	0.040***	0.039***	0.037***
	(0.009)	(0.009)	(0.009)	(0.009)
SP-revealed	0.004	0.000	0.000	-0.002
	(0.009)	(0.009)	(0.009)	(0.009)
Indicator-revealed	0.019**	0.019**	0.019**	0.019**
	(0.009)	(0.009)	(0.009)	(0.009)
SP-Indicator-revealed	0.041***	0.037***	0.038***	0.036***
	(0.009)	(0.009)	(0.009)	(0.009)
No-revealed	-0.006	-0.006	-0.006	-0.006
	(0.009)	(0.009)	(0.009)	(0.009)
Dif. beliefs	0.009**	0.010**	0.009**	
	(0.004)	(0.004)	(0.004)	
SP x dif. beliefs	0.021***	0.022***	0.022***	
	(0.005)	(0.005)	(0.005)	
Dif. modesty		0.010***	0.010***	
		(0.004)	(0.004)	
SP x dif. modesty		0.016***	0.013***	
		(0.004)	(0.004)	
Dif. descr.			0.021***	
			(0.004)	
SP x dif. descr.			0.040***	
			(0.005)	
Constant	0.498***	0.497***	0.497***	0.497***
	(0.008)	(0.008)	(0.008)	(0.008)
Observations	50,789	50,789	50,789	50,789

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the better agent is chosen (correct choice) and is 0 otherwise. SP-blind, SP-revealed, Indicator-blind, Indicator-revealed, SP-Indicator-blind, SP-Indicator-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the better agent and the competing agent. We compute the difference such that higher values indicate higher performance beliefs for the better agent. Dif. in modesty and dif. descr. is similarly computed based on differences in agents' values of the writing style index and length of the description of the idea provided in the self-promotion, respectively. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

Table A 29: LPM of woman chosen (all treatments)

	DV: woman chosen			
	(1)	(2)	(3)	(4)
SP-blind	0.013 (0.009)	0.018** (0.009)	0.016* (0.009)	0.012 (0.009)
Indicator-blind	-0.010 (0.009)	-0.010 (0.009)	-0.010 (0.009)	-0.010 (0.009)
SP-Indicator-blind	0.005 (0.009)	0.010 (0.009)	0.009 (0.009)	0.005 (0.009)
SP-revealed	0.038*** (0.009)	0.043*** (0.009)	0.041*** (0.009)	0.036*** (0.009)
Indicator-revealed	0.004 (0.009)	0.004 (0.009)	0.004 (0.009)	0.004 (0.009)
SP-Indicator-revealed	0.015* (0.009)	0.020** (0.009)	0.018** (0.009)	0.014 (0.009)
No-revealed	0.066*** (0.010)	0.066*** (0.010)	0.066*** (0.010)	0.066*** (0.010)
Dif. beliefs		0.007* (0.004)	0.010** (0.004)	0.008** (0.004)
SP x dif. beliefs		0.023*** (0.005)	0.023*** (0.005)	0.022*** (0.005)
Dif. modesty			0.016*** (0.004)	0.014*** (0.004)
SP x dif. modesty			0.016*** (0.005)	0.014*** (0.005)
Dif. descr.				0.016*** (0.004)
SP x dif. descr.				0.039*** (0.005)
Dif. performance	-0.001 (0.004)	-0.002 (0.004)	-0.001 (0.004)	0.001 (0.004)
SP x dif. performance	0.017*** (0.004)	0.013*** (0.005)	0.013*** (0.005)	0.011** (0.005)
Constant	0.501*** (0.009)	0.503*** (0.009)	0.501*** (0.009)	0.499*** (0.008)
Observations	50,789	50,789	50,789	50,789

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the woman is chosen and is 0 otherwise (i.e., when the man is chosen). SP-blind, SP-revealed, Indicator-blind, Indicator-revealed, SP-Indicator-blind, SP-Indicator-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the female agent and the competing male agent. We compute the difference such that higher values indicate higher performance beliefs for the female agent. Dif. in modesty, dif. descr and dif. performance is similarly computed based on differences in agents' values of the writing style index, the difference in the length of the description of the idea that the agent provides in the self-promotion and the agents' performance, respectively. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

Table A 30: LPM of same gender chosen (all treatments)

	DV: same gender chosen			
	(1)	(2)	(3)	(4)
SP-blind	0.008 (0.009)	0.008 (0.009)	0.008 (0.009)	0.009 (0.009)
Indicator-blind	-0.006 (0.009)	-0.006 (0.009)	-0.006 (0.009)	-0.006 (0.009)
SP-Indicator-blind	-0.006 (0.009)	-0.006 (0.009)	-0.006 (0.009)	-0.006 (0.009)
SP-revealed	-0.002 (0.009)	-0.002 (0.009)	-0.002 (0.009)	-0.002 (0.009)
Indicator-revealed	-0.005 (0.009)	-0.005 (0.009)	-0.005 (0.009)	-0.005 (0.009)
SP-Indicator-revealed	-0.007 (0.009)	-0.007 (0.009)	-0.007 (0.009)	-0.006 (0.009)
No-revealed	0.026** (0.011)	0.026** (0.011)	0.026** (0.011)	0.026** (0.011)
Dif. beliefs		0.007* (0.004)	0.007* (0.004)	0.007* (0.004)
SP x dif. beliefs		0.020*** (0.005)	0.021*** (0.005)	0.021*** (0.005)
Dif. modesty			0.010*** (0.004)	0.009** (0.004)
SP x dif. modesty			0.017*** (0.004)	0.014*** (0.004)
Dif. descr.				0.016*** (0.004)
SP x dif. descr.				0.039*** (0.005)
Dif. performance	0.008** (0.004)	0.007* (0.004)	0.007** (0.004)	0.007* (0.004)
SP x dif. performance	0.017*** (0.004)	0.014*** (0.005)	0.014*** (0.005)	0.012*** (0.005)
Constant	0.499*** (0.008)	0.499*** (0.008)	0.499*** (0.008)	0.499*** (0.007)
Observations	50,789	50,789	50,789	50,789

Note: Coefficients are from a LPM with random effects at the agent level. The dependent variables equal 1 when the same-gender agent is chosen and is 0 otherwise (i.e., when the agent of the other gender is chosen). SP-blind, SP-revealed, Indicator-blind, Indicator-revealed, SP-Indicator-blind, SP-Indicator-revealed and No-revealed are dummies that equal 1 for the respective treatment and are 0 otherwise. SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. beliefs is the (standardized) difference in performance beliefs between the same-gender agent and the competing agent of the opposite gender. We compute the difference such that higher values indicate higher performance beliefs for the same-gender agent. Dif. in modesty, dif. descr. and dif. performance is similarly computed based on differences in agents' values of the writing style index, the difference in the length of the description of the idea that the agent provides in the self-promotion and the agents' performance, respectively. Coefficients are interpreted relative to No-blind (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

## A.12 Models from main paper reporting all coefficients (Ideation Study)

The following tables show the full set of controls of the models presented in Table 6 in the main paper. Table A 31 and shows those for Panel (a), Table A 32 for Panel (b) and Table A 33 for Panel (c).

Table A 31: LPM of correct choice in absence of performance indicators

	DV: correct choice							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	0.014 (0.009)	0.009 (0.009)	0.009 (0.009)	0.006 (0.009)	0.010 (0.009)	0.002 (0.009)	0.002 (0.009)	-0.001 (0.009)
Dif. beliefs		-0.006 (0.006)	-0.006 (0.006)	-0.007 (0.006)		-0.026*** (0.007)	-0.026*** (0.007)	-0.026*** (0.007)
SP x dif. beliefs		0.030*** (0.009)	0.032*** (0.009)	0.033*** (0.009)		0.051*** (0.009)	0.052*** (0.009)	0.053*** (0.009)
Dif. modesty			-0.001 (0.006)	-0.000 (0.006)			0.003 (0.007)	0.004 (0.007)
SP x dif. modesty			0.042*** (0.009)	0.037*** (0.009)			0.012 (0.009)	0.008 (0.009)
Dif. descr.				-0.011* (0.006)				0.001 (0.007)
SP x dif. descr				0.074*** (0.009)				0.054*** (0.009)
Constant	0.500*** (0.006)	0.501*** (0.007)	0.501*** (0.006)	0.501*** (0.006)	0.494*** (0.007)	0.498*** (0.007)	0.498*** (0.007)	0.498*** (0.007)
Observations	12,790	12,790	12,790	12,790	12,990	12,990	12,990	12,990

Note: This table is equivalent to Panel (a) in Table 6. Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the better agent is chosen and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are No-blind (columns 1-4) and No-revealed (columns 5-8). Dif. beliefs are standardized differences between the agent's performance beliefs and are computed such that higher values indicate higher performance beliefs for the better agent. Dif. modesty, dif. descr. and dif. performance are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea and performance to the performance. Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

Table A 32: LPM of woman chosen in absence of performance indicator

	DV: Woman chosen							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	0.012 (0.009)	0.020** (0.009)	0.016* (0.009)	0.007 (0.009)	-0.028*** (0.011)	-0.018* (0.011)	-0.019* (0.011)	-0.026** (0.011)
Dif. beliefs		-0.006 (0.007)	-0.006 (0.007)	-0.006 (0.007)		-0.016** (0.007)	-0.016** (0.007)	-0.016** (0.007)
SP x dif. beliefs		0.034*** (0.009)	0.035*** (0.009)	0.034*** (0.009)		0.047*** (0.009)	0.047*** (0.009)	0.047*** (0.009)
Dif. modesty			-0.002 (0.007)	-0.001 (0.007)			0.003 (0.006)	0.003 (0.006)
SP x dif. modesty			0.041*** (0.009)	0.037*** (0.009)			0.013 (0.009)	0.010 (0.009)
Dif. descr.				-0.011 (0.007)				-0.004 (0.007)
SP x dif. descr				0.073*** (0.009)				0.056*** (0.009)
Dif. performance	-0.002 (0.007)	-0.001 (0.007)	-0.001 (0.007)	-0.000 (0.007)	-0.003 (0.006)	-0.000 (0.006)	-0.000 (0.007)	0.000 (0.006)
SP x dif. performance	0.014 (0.009)	0.009 (0.009)	0.010 (0.009)	0.006 (0.009)	0.014 (0.009)	0.005 (0.009)	0.006 (0.009)	0.003 (0.009)
Constant	0.501*** (0.007)	0.500*** (0.007)	0.500*** (0.007)	0.501*** (0.007)	0.566*** (0.009)	0.563*** (0.010)	0.563*** (0.010)	0.563*** (0.009)
Observations	12,790	12,790	12,790	12,790	12,990	12,990	12,990	12,990

Note: This table is equivalent to Panel (b) in Table 7. Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the female agent is chosen and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are No-blind (columns 1-4) and No-revealed (columns 5-8). Dif. beliefs are standardized differences between the agent's performance beliefs and are computed such that higher values indicate higher performance beliefs for the female agent. Dif. modesty, dif. descr. and dif. performance are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea and performance to the performance. Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

Table A 33: LPM of same gender chosen in absence of performance indicators

	DV: Same gender chosen							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	0.009 (0.009)	0.009 (0.009)	0.008 (0.009)	0.010 (0.009)	-0.027** (0.011)	-0.028*** (0.011)	-0.028*** (0.011)	-0.028** (0.011)
Dif. beliefs		-0.006 (0.006)	-0.006 (0.006)	-0.006 (0.006)		-0.024*** (0.007)	-0.024*** (0.007)	-0.025*** (0.007)
SP x dif. beliefs		0.030*** (0.009)	0.032*** (0.009)	0.032*** (0.009)		0.051*** (0.009)	0.051*** (0.009)	0.052*** (0.009)
Dif. modesty			-0.001 (0.006)	-0.001 (0.006)			0.006 (0.007)	0.006 (0.007)
SP x dif. modesty			0.043*** (0.009)	0.038*** (0.009)			0.011 (0.009)	0.007 (0.009)
Dif. descr.				-0.010 (0.006)				0.003 (0.007)
SP x dif. descr					0.074*** (0.009)			0.053*** (0.009)
Dif. performance	-0.002 (0.007)	-0.001 (0.007)	-0.001 (0.007)	-0.000 (0.007)	-0.005 (0.006)	-0.001 (0.007)	-0.000 (0.007)	-0.000 (0.007)
SP x dif. performance	0.014 (0.009)	0.009 (0.009)	0.010 (0.009)	0.007 (0.009)	0.015* (0.009)	0.005 (0.009)	0.006 (0.009)	0.003 (0.009)
Constant	0.497*** (0.007)	0.497*** (0.007)	0.497*** (0.006)	0.497*** (0.006)	0.526*** (0.010)	0.526*** (0.010)	0.526*** (0.010)	0.526*** (0.010)
Observations	12,790	12,790	12,790	12,790	12,990	12,990	12,990	12,990

Note: This table is equivalent to Panel (c) in Table 6. Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the same-gender agent is chosen and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are No-blind (columns 1-4) and No-revealed (columns 5-8). Dif. beliefs are standardized differences between the agent's performance beliefs and are computed such that higher values indicate higher performance beliefs for the same-gender agent. Dif. modesty, dif. descr. and dif. performance are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea and performance to the performance. Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

The following tables show the full set of controls of the models presented in Table 7 in the main paper. Table A 34 shows those for Panel (a), Table A 35 for Panel (b) and Table A 36Table A 35 for Panel (c).

Table A 34: LPM of correct choice in presence of performance indicators

	DV: Correct choice							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	0.010 (0.009)	0.011 (0.009)	0.010 (0.009)	0.009 (0.009)	0.021** (0.009)	0.021** (0.009)	0.021** (0.009)	0.020** (0.009)
Dif. beliefs		0.034*** (0.007)	0.035*** (0.007)	0.034*** (0.007)		0.030*** (0.007)	0.031*** (0.007)	0.030*** (0.007)
SP x dif. beliefs		-0.003 (0.009)	-0.003 (0.009)	-0.003 (0.009)		0.004 (0.009)	0.005 (0.009)	0.005 (0.009)
Dif. modesty			0.022*** (0.007)	0.021*** (0.007)			0.014* (0.007)	0.013* (0.007)
SP x dif. modesty			0.001 (0.009)	0.001 (0.009)			0.012 (0.009)	0.011 (0.009)
Dif. descr.				0.043*** (0.007)				0.052*** (0.007)
SP x dif. descr				0.016* (0.009)				0.011 (0.009)
Constant	0.531*** (0.010)	0.526*** (0.010)	0.526*** (0.010)	0.525*** (0.010)	0.514*** (0.010)	0.510*** (0.010)	0.510*** (0.009)	0.509*** (0.009)
Observations	12,370	12,370	12,370	12,370	12,639	12,639	12,639	12,639

Note: This table is equivalent to Panel (a) in Table 7. Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the better agent is chosen and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are Idea-blind (columns 1-4) and Idea-revealed (columns 5-8). Dif. beliefs are standardized differences between the agent's performance beliefs and are computed such that higher values indicate higher performance beliefs for the better agent. Dif. modesty, dif. descr. and dif. performance are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea and performance to the performance. Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

Table A 35: LPM of woman chosen in presence of performance indicators

	DV: Woman chosen							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	0.016*	0.015*	0.015*	0.014	0.011	0.014	0.013	0.012
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dif. beliefs	0.029***	0.032***	0.029***			0.026***	0.029***	0.026***
	(0.007)	(0.008)	(0.008)			(0.008)	(0.008)	(0.008)
SP x dif. beliefs	-0.003	-0.003	-0.003		0.011	0.011	0.011	
	(0.009)	(0.009)	(0.009)		(0.009)	(0.009)	(0.009)	
Dif. modesty		0.032***	0.029***			0.024***	0.020***	
		(0.008)	(0.007)			(0.008)	(0.008)	
SP x dif. modesty		0.000	-0.000			0.009	0.009	
		(0.009)	(0.009)			(0.009)	(0.009)	
Dif. descr.			0.037***				0.045***	
			(0.007)				(0.007)	
SP x dif. descr			0.016*				0.010	
			(0.009)				(0.009)	
Dif. performance	0.006	0.001	0.003	0.004	0.005	0.000	0.002	0.002
	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)
SP x dif. performance	0.017*	0.018*	0.017*	0.016*	0.020**	0.018**	0.018**	0.017**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
	0.491***	0.497***	0.494***	0.490***	0.505***	0.511***	0.509***	0.503***
Constant	(0.012)	(0.012)	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)
Observations	12,370	12,370	12,370	12,370	12,639	12,639	12,639	12,639

Note: This table is equivalent to Panel (b) in Table 7. Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the female agent is chosen and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are Idea-blind (columns 1-4) and Idea-revealed (columns 5-8). Dif. beliefs are standardized differences between the agent's performance beliefs and are computed such that higher values indicate higher performance beliefs for the female agent. Dif. modesty, dif. descr. and dif. performance are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea and performance to the performance. Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

Table A 36: LPM of same gender chosen in presence of performance indicators

	DV: Same gender chosen							
	Gender-blind				Gender-revealed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SP	-0.001 (0.009)	-0.000 (0.009)	0.000 (0.009)	-0.001 (0.009)	-0.003 (0.009)	-0.003 (0.009)	-0.002 (0.009)	-0.002 (0.009)
Dif. beliefs		0.023*** (0.007)	0.024*** (0.007)	0.024*** (0.007)		0.027*** (0.007)	0.027*** (0.007)	0.027*** (0.007)
SP x dif. beliefs		-0.004 (0.009)	-0.004 (0.009)	-0.004 (0.009)		0.009 (0.009)	0.010 (0.009)	0.010 (0.009)
Dif. modest			0.023*** (0.007)	0.021*** (0.007)			0.011 (0.007)	0.010 (0.007)
SP x dif. modest			-0.000 (0.009)	-0.001 (0.009)			0.012 (0.009)	0.010 (0.009)
Dif. descr.				0.038*** (0.007)				0.039*** (0.007)
SP x dif. descr				0.015* (0.009)				0.013 (0.009)
Dif. performance	0.023*** (0.007)	0.019** (0.007)	0.020*** (0.007)	0.018** (0.007)	0.017** (0.007)	0.012* (0.007)	0.013* (0.007)	0.011 (0.007)
SP x dif. performance	0.018** (0.009)	0.019** (0.009)	0.018** (0.009)	0.017* (0.009)	0.020** (0.009)	0.019** (0.009)	0.019** (0.009)	0.018** (0.009)
Constant	0.492*** (0.010)	0.492*** (0.010)	0.492*** (0.010)	0.492*** (0.009)	0.494*** (0.010)	0.494*** (0.010)	0.494*** (0.010)	0.494*** (0.010)
Observations	12,370	12,370	12,370	12,370	12,639	12,639	12,639	12,639

Note: This table is equivalent to Panel (c) in Table 7. Coefficients are from a LPM with random effects at the agent level. Dependent variables equal 1 if the same-gender agent is chosen and 0 otherwise. SP is a dummy indicating whether self-promotions are provided. Effects are interpreted relative to the base category, which are Idea-blind (columns 1-4) and Idea-revealed (columns 5-8). Dif. beliefs are standardized differences between the agent's performance beliefs and are computed such that higher values indicate higher performance beliefs for the same-gender agent. Dif. modesty, dif. descr. and dif. performance are computed likewise, where modesty refers to the writing style index and descr. to the length of the description of the idea and performance to the performance. Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

## A.13 Shift in focus explaining bias reduction effect of self-promotions (Ideation Study)

If self-promotions reduce prevalent bias through a shift in focus, then the bias reduction effect only arises if the self-promotion of the agent of the opposite gender is more favorable (i.e., has higher performance beliefs, provides a more modest self-promotion or a more comprehensive description). We show this for in-group favoritism, where the bias reduction effect is the strongest. We therefore split the sample of decisions by those in which the agent of the opposite gender has the more favorable self-promotion compared to the competing agent of the same gender, i.e., scores higher on two out of the three dimension that we derived to be relevant: Performance beliefs, modesty and length of description. Table A 37 shows that the characteristics of the self-promotions are crucial for a bias reduction effect to arise, supporting the argument that this effect arises through a shift in focus. Columns 2 shows, that the agent of the same gender is chosen significantly less often when self-promotions are revealed, when the agent of the opposite gender has more favorable characteristics (significant negative effect of SP), while we observe the opposite effect arises in columns 4, where the agent of the same gender has the more favorable self-promotion. We replicate results controlling for performance differences between agents (see columns 3 and 5). Table A 38 shows the equivalent results for the bias reduction effect with respect to the systemic bias favoring women, which aligns with this interpretation.

**Table A 37: LPM of same gender chosen – sample splits by favorability of self-promotion**

	DV: Same gender chosen				
	Same-gender agent has less favorable self- promotion		Same-gender agent has more favorable self- promotion		
	All	(1)	(2)	(3)	(4)
SP	-0.027** (0.011)	-0.075*** (0.015)	-0.074*** (0.015)	0.026* (0.015)	0.025 (0.015)
Dif. performance			-0.007 (0.010)		-0.006 (0.010)
SP x dif. performance			0.016 (0.013)		0.014 (0.013)
Constant	0.525*** (0.010)	0.526*** (0.013)	0.525*** (0.013)	0.526*** (0.012)	0.526*** (0.012)
Observations	12,990	5,405	5,405	5,361	5,361

Note: Coefficients are from a LPM with random effects at the agent level. Columns 2 and 3 condition on the same-gender agent having the less favorable self-promotion, i.e. meets two of the three following conditions; higher performance beliefs, more modest self-promotion or longer description provided in the self-promotion, compared to the competing opposite-gender agent. Columns 4 and 5 show the decisions in which the opposite is true. The dependent variables equal 1 when the same-gender agent is chosen and is 0 otherwise (i.e., when the agent of the opposite gender is chosen). SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. performance is the (standardized) difference in performance between the same-gender agent and the competing agent. We compute the difference such that higher values indicate higher performance for the same-gender agent. Coefficients are interpreted relative to No-revealed (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

Table A 38: LPM of woman chosen – sample splits by favorability of self-promotions

	DV: Woman chosen				
	All	Woman has less favorable self-promotion		Woman has more favorable self-promotion	
	(1)	(2)	(3)	(4)	(5)
SP	-0.029*** (0.011)	-0.079*** (0.015)	-0.076*** (0.015)	0.024 (0.015)	0.024 (0.015)
Dif. performance			0.001 (0.010)		-0.009 (0.009)
SP x dif. performance			0.019 (0.013)		0.008 (0.013)
Constant	0.567*** (0.009)	0.569*** (0.013)	0.570*** (0.013)	0.564*** (0.012)	0.564*** (0.012)
Observations	12,990	5,155	5,155	5,611	5,611

Note: Coefficients are from a LPM with random effects at the agent level. Columns 2 and 3 condition on the woman having the less favorable self-promotion, i.e. meets two of the three following conditions; higher performance beliefs, more modest self-promotion or longer description provided in the self-promotion, compared to the competing men. Columns 4 and 5 show the decisions in which the opposite is true. The dependent variables equal 1 when the woman is chosen and is 0 otherwise (i.e., when the man is chosen). SP is a dummy that equals 1 when self-promotions are revealed and 0 otherwise. Dif. performance is the (standardized) difference in performance between the female agent and the competing male agent. We compute the difference such that higher values indicate higher performance for the female agent. Coefficients are interpreted relative to No-revealed (base category). Standard errors are clustered at the decision-maker level (reported in parentheses). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Decisions in all specifications are based on the full sample of agents (n=252).

# Appendix B

## B.1 Instructions agents (Math Study)

[Click to review previous instructions](#)

### Welcome to this task

You will receive a fixed payment of £1.5. Additionally, half of the participants will receive a £3 **bonus**. This bonus is awarded based on your performance on the task and a decision of a third party.

Please carefully read the following instructions before starting to work. Note that there will be an attention check. If you do not pass it, you are not eligible to participate in this task. To be eligible for payment, you have to perform all tasks within the next 2 hours.

At any point in time, you will be able to review previous instruction by clicking on "Click to review previous instructions" in the right top corner of your screen.

Please indicate your Prolific ID, so that we can send you your bonus, if applicable.

Next

Figure A 1: Screen 1

[Click to review previous instructions](#)

### Your task

In the following it is your task to complete a test. In this test, you will be asked to answer up to 20 questions equivalent to those from the Armed Services Vocational Aptitude Battery (ASVAB). Each question will test your aptitude in one of the following five categories: General Science, Arithmetic Reasoning, Math Knowledge, Mechanical Comprehension, and Assembling Objects. In addition to being used by the military to determine which jobs armed service members are qualified for, performance on the ASVAB is often used as a measure of cognitive ability by academic researchers.

You will be presented with each of the 20 questions on separate pages. You will be given up to **30 seconds to answer each question**, although you may push the "Next"-button at the bottom of the page to answer a question before the 30 seconds are up.

Half of the participants will receive a bonus. Whether or not you receive a bonus depends on the **perception of a third party regarding how many of your answers are correct**.

Next

Figure A 2: Screen 2

## Your participation in the study

Your participation in this study will involve answering up to 20 questions equivalent to those from the ASVAB. Additionally, you will ask you some questions at the end. If you wish to withdraw from the study you can close your browser window at any time. If you wish to continue, please confirm the following:

- I have read, understood and accept the instructions
- I understand that my participation is totally voluntary. I am free to withdraw at any time without having to give a reason
- We can collect your anonymous, non-sensitive personal data (like age, gender etc.) and can use this data for research purposes
- I agree that the data gathered in this study may be stored anonymously and securely
- I agree that the data gathered in this study may be used for research purposes
- I agree to take part in the study

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Figure A 3: Screen 3

[Click to review previous instructions](#)

## Attention check

Whether or not you receive a bonus depends on...

- ... a coinflip.
- ... whether a third party thinks I performed well on the test.
- ... whether I complete the test in less than 5 minutes.
- There is no bonus in this task

[Next](#)

Figure A 4: Screen 4

[Click to review previous instructions](#)

## Question 1

Time left to complete this page: **0:26**

Solve:  $(-3)^3 =$

- 9
- 9
- 27
- 27

[Next](#)

Figure A 5: Screen 5<sup>33</sup>

---

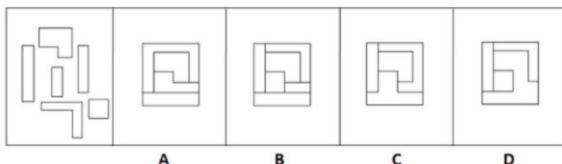
<sup>33</sup> Note that the order of the questions was randomized.

[Click to review previous instructions](#)

## Question 2

Time left to complete this page: **0:26**

Which of these images *best* solves the problem in the first picture?



- A
- B
- D
- C

[Next](#)

Figure A 6: Screen 6

[Click to review previous instructions](#)

## Question 3

Time left to complete this page: **0:26**

Which is the best description of centrifugal force?

- the response of bodies with inertia to the straight-moving or curved behavior of their container
- the force by which bodies are propelled forward
- the relationship between two opposing forces
- the force responsible for the changes made to water during distillation

[Next](#)

Figure A 7: Screen 7

[Click to review previous instructions](#)

## Question 4

Time left to complete this page: **0:26**

A phone company charges \$2 for the first five minutes of a phone call and 30 cents per minute thereafter. If Malik makes a phone call that lasts 25 minutes, what will be the total cost of phone call?

- \$8.00
- \$8.50
- \$9.00
- \$9.50

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Figure A 8: Screen 8

[Click to review previous instructions](#)

## Question 5

Time left to complete this page: **0:28**

Five years ago, Amy was three times as old as Mike. If Mike is 10 years old now, how old is Amy?

- 15
- 20
- 25
- 30

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Figure A 9: Screen 9

[Click to review previous instructions](#)

## Question 6

Time left to complete this page: **0:27**

There are 5 blue marbles, 4 red marbles, and 3 yellow marbles in a box. If Jim randomly selects a marble from the box, what is the probability of selecting a red or yellow marble?

- $\frac{3}{4}$
- $\frac{1}{4}$
- $\frac{1}{3}$
- $\frac{7}{12}$

[Next](#)

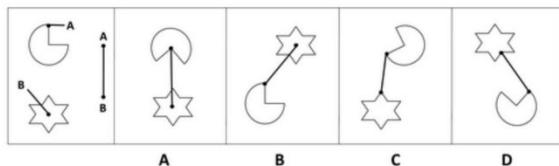
Figure A 10: Screen 10

[Click to review previous instructions](#)

## Question 7

Time left to complete this page: **0:23**

Which figure best shows how the objects in the left box will touch if the letters for each object are matched?



- B
- A
- C
- D

[Next](#)

Figure A 11: Screen 11

[Click to review previous instructions](#)

## Question 8

Time left to complete this page: **0:26**

What is the pH of water?

- 7
- 6
- 1
- 0

[Next](#)

Figure A 12: Screen 12

[Click to review previous instructions](#)

## Question 9

Time left to complete this page: **0:29**

In a classroom of 32 students, 14 are male. What percentage of the class is female?

- 56%
- 46%
- 52%
- 44%

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Figure A 13: Screen 13

[Click to review previous instructions](#)

## Question 10

Time left to complete this page: **0:29**

Simplify:  $(x^6)(x^5)$

- $2x^{11}$
- $2x^{30}$
- $x^{11}$
- $x^{30}$

[Next](#)

Figure A 14: Screen 14

[Click to review previous instructions](#)

## Question 11

Time left to complete this page: **0:29**

What is a component of potential energy?

- Upward reactive force
- The energy of movement
- Newtons and distance
- Gravity's relationship to mass

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Figure A 15: Screen 15

[Click to review previous instructions](#)

## Question 12

Time left to complete this page: **0:29**

The energy possessed by a moving object is called \_\_\_\_ energy.

- kinetic
- acceleration
- potential
- true

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Figure A 16: Screen 16

[Click to review previous instructions](#)

## Question 13

Time left to complete this page: **0:29**

Gene expression in physical characteristics such as eye or hair color is referred to as \_\_\_\_.

- phenotype
- genotype
- allele
- homozygous allele

[Next](#)

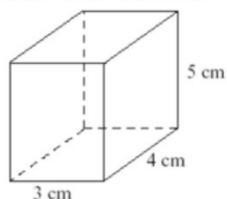
Figure A 17: Screen 17

[Click to review previous instructions](#)

## Question 14

Time left to complete this page: **0:26**

The volume of this box is \_\_\_\_.



- 12
- 60
- 20
- 15

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Figure A 18: Screen 18

[Click to review previous instructions](#)

## Question 15

Time left to complete this page: **0:27**

What is the advantage of a single pulley?

- It allows you to lift something with less force
- It changes the direction of the effort
- It diminishes the effects of gravity
- It decreases the chances of injury

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Figure A 19: Screen 19

[Click to review previous instructions](#)

## Question 16

Time left to complete this page: **0:28**

According to the electromagnetic spectrum, which is the highest frequency (shortest wavelength) wave known to exist?

- gamma rays
- infrared waves
- ultraviolet light waves
- radio waves

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Figure A 20: Screen 20

[Click to review previous instructions](#)

## Question 17

Time left to complete this page: **0:29**

What is the function of a *vise* in mechanical applications?

- In mechanical applications, vises are used to arrest motion.
- Vises are designed to function as a source of stability, much like how legs function beneath a table.
- In mechanical applications, vises are designed to assist movement.
- Vises are used to suspend quick movements, slowing the effects of conveyor belts.

[Next](#)

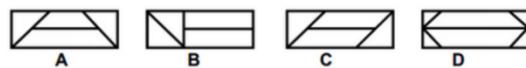
Figure A 21: Screen 21

[Click to review previous instructions](#)

## Question 18

Time left to complete this page: **0:26**

Which of these images *best* solves the problem in the first picture?



- C
- B
- A
- D

[Next](#)

Figure A 22: Screen 22

[Click to review previous instructions](#)

## Question 19

Time left to complete this page: **0:28**

The sixth root of 64 is:

- 6
- 2
- 4
- 8

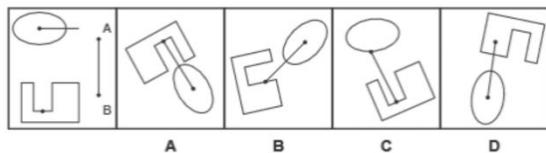
[Next](#)

Figure A 23: Screen 23

## Question 20

Time left to complete this page: **0:27**

Which figure best shows how the objects in the left box will touch if the letters for each object are matched?



- A
- C
- B
- D

[Next](#)

Figure A 24: Screen 24

[Click to review previous instructions](#)

## Your bonus

Whether or not you receive a **£3 bonus** depends on the decision of a third party who has to choose between your performance and the one of a competing participant from this task. You receive the bonus **only if the third party chooses your performance** over that of a competitor.

The third party earns more money if he or she chooses the better performance of the two. Which performances is better, is determined by the number of correctly answered questions on the test.

[Next](#)

Figure A 25: Screen 25

[Click to review previous instructions](#)

## Your bonus

### Your task

It is your task now to **promote** your performance in order to **persuade the third party** to choose your performance over that of your competitor so that you receive the bonus.

Please write your promotion in this box.

Next

Figure A 26: Screen 26

[Click to review previous instructions](#)

## Your task

Please answer the following questions. One of the answers may be shown to the third party when deciding between you and your competitor.

On a scale from 0 (entirely disagree) to 100 (entirely agree), please indicate the extent to which you agree with each of the following statements:

**I performed well on the test I took in part 1.**

Entirely disagree

Entirely agree

0

100

Your answer:

**Please indicate how well you think you performed on the test you took in part 1.**

Terrible

Very poor

Neutral

Good

Very good

Exceptional

Next

Figure A 27: Screen 27

## Questionnaire

Are you a native English speaker?

 ----- 

Out of the 20 questions on the test you took in part 1, how many questions do you think **you** answered correctly?

 ----- 

Out of the 20 questions on the test you took in part 1, how many questions do you think **your competitor** answered correctly?

 ----- 

How difficult did you find the task?

Not difficult at all	Very difficult
<input type="radio"/>	<input type="radio"/>

Do you think this task rather favors male or female participants?

Female	None	Male
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely do you think is it, that you receive the bonus?

Not likely at all	Very likely
<input type="radio"/>	<input type="radio"/>

How convincing do you think was your verbal promotion?

Not convincing at all	Very convincing
<input type="radio"/>	<input type="radio"/>

How do you see yourself: Are you someone who is willing to take risks or do you try to avoid them?

Not willing at all to take risks	Very willing to take risks
<input type="radio"/>	<input type="radio"/>

Do you like to compete with others?

I don't like competitions at all	I like competitions very much
<input type="radio"/>	<input type="radio"/>

**Next**

Figure A 28: Screen 28

You have completed the task.

You have completed the task. Your completion code is 7D35BCF3. You will receive your bonus, if applicable, within 6 days after the completion of this task.

Figure A 29: Screen 29

## B.2 Instructions decision-makers (Math Study)

[Click to review previous instructions](#)

### Welcome to this task

You will receive a fixed payment of \$0.30. Additionally, you can earn a \$1.50 **bonus**. This bonus is awarded based on your performance on the task.

Please carefully read the following instructions before starting to work. Note that there will be an attention check. If you do not pass it, you cannot participate in this task. To be eligible for payment, you further have to perform all tasks within the next 2 hours.

At any point in time, you will be able to review previous instruction by clicking on "Click to review previous instructions" in the right top corner of your screen.

[Next](#)

Figure A 30: Screen 1

[Click to review previous instructions](#)

### Your task

This task consists of 20 rounds. In each round, you will have to choose between two workers. You choose a worker by clicking on the button, indicating the respective worker. If the worker is **female** this button is **purple**. If the worker is **male** this button is **blue**.

#### The workers

The workers were participating in another task in which they completed a test. On the test, they were asked to answer up to 20 questions equivalent to those from the Armed Services Vocational Aptitude Battery (ASVAB). Each question tested their aptitude in one of the following five categories: General Science, Arithmetic Reasoning, Math Knowledge, Mechanical Comprehension, and Assembling Objects. In addition to being used by the military to determine which jobs armed service members are qualified for, performance on the ASVAB is often used as a measure of cognitive ability by academic researchers.

#### Your decision

It is your goal to **choose the worker with the higher performance on the test**. The workers' performance on the test is defined as the number of questions that he or she solved correctly.

#### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 20 rounds after you completed the task.

- If you chose the worker with the **higher performance** in the selected round, your bonus is **\$1.50**.
- If you chose the worker with the **lower performance** in the selected round, your bonus is **\$0**.
- If both workers have the **same performance** in the selected round, your bonus is **\$0.75**.

You will be provided with a description written by the workers in the respective round. Workers know that the description may be shown to you and have an incentive to convince you that they performed well on the test.

[Next](#)

Figure A 31: Screen 2 (SP-revealed)

[Click to review previous instructions](#)

## Your task

This task consists of 20 rounds. In each round, you will have to choose between two workers. You choose a worker by clicking on the button, indicating the respective worker.

### The workers

The workers were participating in another task in which they completed a test. On the test, they were asked to answer up to 20 questions equivalent to those from the Armed Services Vocational Aptitude Battery (ASVAB). Each question tested their aptitude in one of the following five categories: General Science, Arithmetic Reasoning, Math Knowledge, Mechanical Comprehension, and Assembling Objects. In addition to being used by the military to determine which jobs armed service members are qualified for, performance on the ASVAB is often used as a measure of cognitive ability by academic researchers.

### Your decision

It is your goal to **choose the worker with the higher performance on the test**. The workers' performance on the test is defined as the number of questions that he or she solved correctly.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 20 rounds after you completed the task.

- If you chose the worker with the **higher performance** in the selected round, your bonus is **\$1.50**.
- If you chose the worker with the **lower performance** in the selected round, your bonus is **\$0**.
- If both workers have the **same performance** in the selected round, your bonus is **\$0.75**.

You will be provided with a description written by the workers in the respective round. Workers know that the description may be shown to you and have an incentive to convince you that they performed well on the test.

[Next](#)

Figure A 32: Screen 2 (SP-blind)

[Click to review previous instructions](#)

## Your task

This task consists of 20 rounds. In each round, you will have to choose between two workers. You choose a worker by clicking on the button, indicating the respective worker. If the worker is **female** this button is **purple**. If the worker is **male** this button is **blue**.

### The workers

The workers were participating in another task in which they completed a test. On the test, they were asked to answer up to 20 questions equivalent to those from the Armed Services Vocational Aptitude Battery (ASVAB). Each question tested their aptitude in one of the following five categories: General Science, Arithmetic Reasoning, Math Knowledge, Mechanical Comprehension, and Assembling Objects. In addition to being used by the military to determine which jobs armed service members are qualified for, performance on the ASVAB is often used as a measure of cognitive ability by academic researchers.

### Your decision

It is your goal to **choose the worker with the higher performance on the test**. The workers' performance on the test is defined as the number of questions that he or she solved correctly.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 20 rounds after you completed the task.

- If you chose the worker with the **higher performance** in the selected round, your bonus is **\$1.50**.
- If you chose the worker with the **lower performance** in the selected round, your bonus is **\$0**.
- If both workers have the **same performance** in the selected round, your bonus is **\$0.75**.

[Next](#)

Figure A 33: Screen 2 (No-revealed)

[Click to review previous instructions](#)

## Your participation in the study

Your participation in this study will involve guessing the value of an illustration and gender of its creator, based on provided descriptions of the illustrations. If you wish to withdraw from the study you can close your browser window at any time. If you wish to continue, please confirm the following:

- I have read, understood and accept the Instructions
- I understand that my participation is totally voluntary. I am free to withdraw at any time without having to give a reason
- I agree that the data gathered in this study may be stored anonymously and securely
- I agree that the data gathered in this study may be used for research purposes
- I agree to take part in the study

[Next](#)

Figure A 34: Screen 3

[Click to review previous instructions](#)

## Attention check

Which of the following statements is true?

- For completing this task, I will receive a fixed payment of \$0.30. There is no additional bonus payment.
- For completing this task, I will receive a fixed payment of \$0.30, and I will receive an additional bonus of \$1.50 if I choose the worker with the higher performance in the randomly selected round.
- For completing this task, I will receive a fixed payment of \$0.30, and I will receive an additional bonus of \$1.50 if I choose the worker with the lower performance in the randomly selected round.
- For completing this task, I will receive a fixed payment of \$0.30, and I will receive an additional bonus of \$1.50 independent of my decisions.

[Next](#)

Figure A 35: Screen 4

[Click to review previous instructions](#)

## Your decision

Please decide between the following workers. Which one do you think performed better on the test?

### Worker 1:

The worker describes its performance as follows:

*I was able to answer most questions fairly quickly and, I think, correctly. Speed of answer is also a component of knowledge/intelligence that may not be captured just by looking at a tally of correct scores.*

### Worker 2:

The worker describes its performance as follows:

*I knew what every single question was asking and answered carefully taking the whole 30s to make sure I have the right answer.*

Please decide which worker you want to choose:

[Worker 1](#)

[Worker 2](#)

Figure A 36: Screens 5-24 (SP-revealed)

[Click to review previous instructions](#)

## Your decision

Please decide between the following workers. Which one do you think performed better on the test?

Worker 1:

The worker describes its performance as follows:

***You should choose the individual who objectively performed better on the test. If they got more questions correct than I did, they should be awarded the bonus. If I got more questions correct, then I should be awarded the bonus. You should pick whoever performed better overall. I believe I answered to the best of my ability, and while I do hope I was good enough for the bonus, it should go to whoever was better.***

Worker 2:

The worker describes its performance as follows:

***I believe that I should receive this promotion because I am very math minded and I knew how to do all the math related questions. My weakness was the sciences related questions because I have not taken a course on science in about 4 years. Therefore, I performed to the best of my ability showing the strengths that I have.***

Please decide which worker you want to choose:

[Worker 1](#)

[Worker 2](#)

Figure A 37: Screens 5-24 (SP-blind)

[Click to review previous instructions](#)

## Your decision

Please decide between the following workers. Which one do you think performed better on the test?

Please decide which worker you want to choose:

[Worker 1](#)

[Worker 2](#)

Figure A 38: Screens 5-24 (No-revealed)

## Questionnaire

Please answer some additional questions.

Please indicate your gender.

----- ▾

Are you a native English speaker?

----- ▾

Do you think the workers task (completing math and science questions equivalent to those from the ASVAB test) rather favors male or female participants?

Female	None	Male
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely do you think is it, that you receive the bonus?

Not likely at all	Very likely
<input type="radio"/>	<input type="radio"/>

How do you see yourself: Are you someone who is willing to take risks or do you try to avoid them?

Not willing at all to take risks	Very willing to take risks
<input type="radio"/>	<input type="radio"/>

Do you like to compete with others?

I don't like competitions at all	I like competitions very much
<input type="radio"/>	<input type="radio"/>

**Next**

Figure A 39: Screen 25

**You have completed the task**

You have completed the task. You will receive your bonus, if applicable, within 6 days after the completion of this task. Your completion code is LUH2021.

Figure A 40: Screen 26

### B.3 Instructions for follow-up data collection: Predictions of gender based on self-promotions (Math Study)

[Click to review previous instructions](#)

#### Welcome

You will receive a fixed payment of **\$0.30**. Additionally, you can **earn a bonus** of up to **\$5.00**. This bonus is awarded based on your performance on the task.

Please carefully read the following instructions before starting to work. Note that there will be an attention check. If you do not pass it, you are not eligible to participate in this task. To be eligible for payment, you have to perform all tasks within the next 2 hours.

At any point in time, you will be able to review previous instruction by clicking on "Click to review previous instructions" in the right top corner of your screen.

[Next](#)

Figure A 41: Screen 1

[Click to review previous instructions](#)

#### Instructions

In the following, you will see **20 descriptions** of the performance of workers in a prior task. These other workers answered 20 questions on a **test from the Armed Service Vocational Aptitude Battery (ASVAB)**. Each question tested their aptitude in the following five categories: General Science, Arithmetic Reasoning, Math Knowledge, Mechanical Comprehension, and Assembling Objects.

After completing this test, participants were asked to describe their performance on the test. Workers had an incentive to provide favourable descriptions of their performance since their earnings depended on being perceived as high performers on the test.

[Next](#)

Figure A 42: Screen 2

[Click to review previous instructions](#)

#### Instructions

##### Your task

Based on the descriptions it is your task to guess:

1. How many questions did the worker get right on the test
2. What is the gender of the worker

##### Payment

You will receive your payment only if you complete the entire task. You receive **\$0.30** for participating in the task. In addition, you can receive a bonus of up to **\$5.00** depending on the accuracy of your guess. To determine the bonus, we will randomly choose one out of the 20 rounds after you completed the task.

[Next](#)

Figure A 43: Screen 3

[Click to review previous instructions](#)

## Instructions

### Guess the number of correctly answered questions

Your guess is a number from 0 to 20, indicating your guess regarding the number of correctly answered questions. You choose your guess by clicking a response bar similar to the one in figure 1. The width of the **red part** of the bar indicates **your guess of the number of correctly answered questions**.

For your guess with respect to the number of correctly answered questions, payment depends on the deviation from the true number of correctly answered questions:

- If your answer **is correct** your **bonus is \$4.00**.
- If your answer deviates by **1 question** your **bonus is \$2.00**.
- If your answer deviates by **2 questions** your **bonus is \$1.00**.
- Otherwise you do not receive a bonus.

Please use the slider to indicate **how many questions out of 20** you think the worker answered correctly on the task.



Your answer: The worker answered **12 questions** correctly.

Figure 1: Example of the response bar for guessing the number of correctly answered questions

[Next](#)

Figure A 44: Screen 4

[Click to review previous instructions](#)

## Instructions

### Guess the gender of the worker

Your guess is a percentage probability from 0 to 100 – with 0 indicating a 0-out-of-100 chance that the gender of the worker is female and 100 indicating a 100-out-of-100 chance that the gender of the worker is female. The number you provide is called *Your Guess*. You choose *Your Guess* by clicking the response bar that will be shown on your screen. The width of the **red part** of the bar indicates **your guess that the worker is female**.

- Larger values of *Your Guess* (larger width of red part) represent a greater chance that the creator is female and a smaller chance that the creator is male.
- Smaller values of *Your Guess* (larger width of blue part) represent a greater chance that the creator is male and a smaller chance that the creator is female.

The width of the **blue part** of the bar is  $100 - \text{Your Guess}$  and represents **your guess that the worker is male**.

Your guess will be used to determine your chances of winning a **bonus of 1\$**. Your chance of winning the bonus is set so that **more accurate guesses lead to a higher chance of winning**.

Please use the slider to indicate your guess for the **chance** that the worker who wrote the text **is female**.

I believe the creator is male

I believe the creator is female



Your answer: **52% chance** that the worker is female.

Figure 1: Example of the response bar for guessing the gender of the worker

[Next](#)

Figure A 45: Screen 5

[Click to review previous instructions](#)

## Your participation in the study

Your participation in this study will involve guessing the value of an illustration and gender of its creator, based on provided descriptions of the illustrations. If you wish to withdraw from the study you can close your browser window at any time. If you wish to continue, please confirm the following:

- I have read, understood and accept the Instructions
- I understand that my participation is totally voluntary. I am free to withdraw at any time without having to give a reason
- I agree that the data gathered in this study may be stored anonymously and securely
- I agree that the data gathered in this study may be used for research purposes
- I agree to take part in the study

[Next](#)

Figure A 46: Screen 6

[Click to review previous instructions](#)

## Attention check

Whether or not you earn a bonus depends on...

- ... a coinflip.
- ... the accuracy of your guess regarding the number of correctly answered questions and the gender of the worker in the randomly selected round.
- ... your performance on the test from the Armed Service Vocational Aptitude Battery (ASVAB).
- There is no bonus in this task.

[Next](#)

Figure A 47: Screen 7

[Click to review previous instructions](#)

## Task

The worker describes its performance as follows:

*„I knew what every single question was asking and answered carefully taking the whole 30s to make sure I have the right answer.“*

Please use the slider to indicate **how many questions out of 20** you think the worker answered correctly on the task.

Please use the slider to indicate your guess for the **chance** that the worker who wrote the text **is female**.

I believe the creator is male

I believe the creator is female

[Next](#)

Figure A 48: Screen 8-27

[Click to review previous instructions](#)

## Questionnaire

Please indicate your gender.

Are you a native English speaker?

Next

Figure A 49: Screen 28

You have completed the task

Thank you for participating in this task. Your completion code is LUH2021.

Figure A 50: Screen 29

## B.4 Instructions agents (Ideation Study)

[Click to review previous instructions](#)

### Welcome to this task

You will receive a fixed payment of £2.5. Additionally, half of the participants will receive a £3 **bonus**. This bonus is awarded based on your performance on the task and a decision of a third party.

Please carefully read the following instructions before starting to work. Note that there will be an attention check. If you do not pass it, you are not eligible to participate in this task. To be eligible for payment, you have to perform all tasks within the next 2 hours.

At any point in time, you will be able to review previous instruction by clicking on "Click to review previous instructions" in the right top corner of your screen.

Please indicate your Prolific ID, so that we can send you your bonus, if applicable.

Next

Figure A 51: Screen 1

## Technology

On the next page you will see objects that you can move, resize and rotate in the following ways:

**Move:** Select the object you want to **move, drag it and drop it**.

**Rotate:** Select the object you want to rotate. A control box will appear (see Figure 1). To rotate objects, click on the **green circle** on the top and **rotate it**.

**Resize and rescale:** Select the object you want to resize. A control box will appear (see Figure 1). **You can resize objects by dragging the blue circles** in the desired direction.

**Change layer:** **Right click** on an object to **change its layer**. A menu will appear (see Figure 2), in which you can select between different options. To bring an object one step closer to the front, click "Bring Forward". To send an object one step toward the back, click "Send Backward". To bring an object to the front of all overlapping elements, click "Bring to Front". To send an object to the back of all overlapping elements, click "Send to Back".

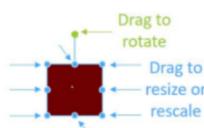


Figure 1: Control box (on click)

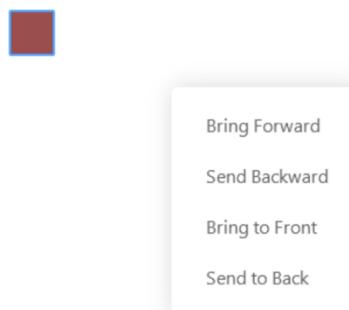


Figure 2: Menu (on right click)

[Next](#)

Figure A 52: Screen 2

## Try it yourself!

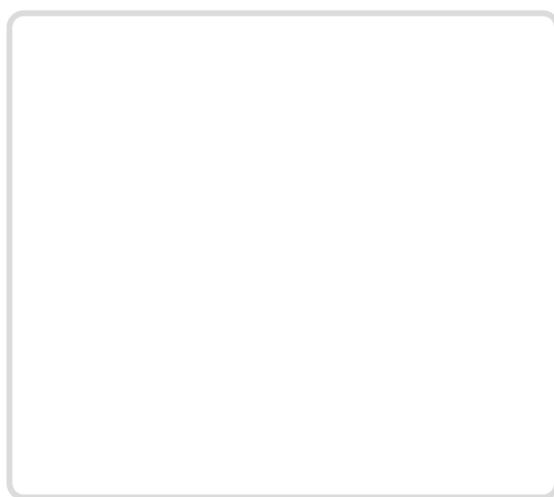
To test the technology, please try it yourself. Below you see the picture area (large white area) and the object area (smaller grey area). We ask you to rebuild the illustration provided below in the picture area, using the objects provided in the object area, and to submit it when you are done.

1. Rebuild the picture below in the **picture area**. Note that **only the content in the picture area will be submitted**.



2. Press "preview" to preview your work. Click inside the picture area to end the preview.

3. Press "submit" to submit the result and advance to the next page.



[Preview](#) [Submit](#)

Figure A 53: Screen 3

[Click to review previous instructions](#)

## Your task

Your task is to create an illustration in the picture area. To do so, you can use all or some of the objects provided in the object area. Your illustration should represent an English-language word. Thus, you should come up with a word for an object, item, action, etc. that can be drawn or visualized. Please indicate which word you illustrated by writing it in the text field, which is provided above the picture area. Note that in the picture area, you should **illustrate words and not write them** and that you should only write in the text field.

In doing so, there are some rules:

- Work **inside the picture area**.
- You are only allowed to illustrate **single words** (no blanks allowed in the text field).
- The word you illustrate should be included in a **standard English dictionary**.

Whether or not you receive a bonus depends on whether a third party thinks that your illustration is original and recognizable. Thus your illustration should be:

1. **Original:** The word is **not** among a set of 50 illustrated words from this task.
2. **Recognizable:** People can **recognize the illustrated word** when they see your illustration.

Half of the participants will receive a bonus.

[Next](#)

Figure A 54: Screen 4

[Click to review previous instructions](#)

## Attention check

This is an attention check. If you pass it, you will advance to the next page of the task. If you do not pass it, you cannot participate in this task.

Whether or not you receive a bonus depends on...:

- ... the assessment of a third party regarding the aesthetic value of your illustration and the number of objects used.
- ... the assessment of a third party regarding the originality and the recognizability of your illustration.
- ... the number of objects used in your illustration and the assessment of a third party regarding its originality.
- ... the length of the illustrated word and the assessment of a third party regarding the recognizability.

[Next](#)

Figure A 55: Screen 5

[Click to review previous instructions](#)

## Your task

Please proceed as follows:

1. Illustrate your word in the picture area. Only the content of this area will be saved when you submit your result. Everything outside will be cropped out.
2. Indicate the word you illustrated in the text field.
3. Press the "preview" button if you want to preview your illustration. Click inside the picture area to end the preview.
4. Press the button "submit" to submit your result and advance to the next page.



What word have you illustrated?

[Preview](#) [Submit](#)

Figure A 56: Screen 6

[Click to review previous instructions](#)

## Your bonus

Whether or not you receive a **£3 bonus** depends on the decision of a third party who has to choose between your illustration and that of a competing participant from this task. You receive the bonus **only if the third party chooses your illustration** over that of a competitor.

The third party earns more money if he or she chooses the better illustration of the two. Which illustration is better, is determined based on whether the illustration is original (within a group of 50 participants, no one else illustrated the same word) and how well the word illustrated in an original illustration can be recognized.

[Next](#)

Figure A 57: Screen 7

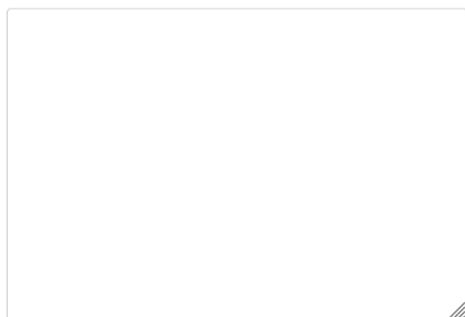
[Click to review previous instructions](#)

## Your bonus

### **Your task**

It is your task now to **promote** your illustration in order to **persuade the third party** to choose your illustration over that of your competitor so that you receive the bonus.

Please write your promotion in this box. (You can review your illustration below.)



*You illustrated the word "Example". This is your illustration:*



[Next](#)

Figure A 58: Screen 8

## Questionnaire

Please answer some additional questions.

Are you a native English speaker?

1

Do you have a red-green colorblindness?

-----

## How creative are you?

Not creative at  
all

Very creative

○ ○ ○ ○ ○ ○ ○

### How difficult did you find the task?

Not difficult at all

Very difficult

○ ○ ○ ○ ○ ○ ○

Do you think this task rather favors male or female participants?

Female

None

Male

○ ○ ○ ○ ○ ○ ○

How likely do you think is it, that you receive the bonus?

Not likely at  
all

Very likely

○ ○ ○ ○ ○ ○ ○

How convincing do you think was your verbal promotion?

Not  
convincing at  
all

Very  
convincing

○ ○ ○ ○ ○ ○ ○ ○

Figure A 59: Screen 9

Figure A 60: Screen 9 cont.

[Click to review previous instructions](#)

Your guess and the actual originality of your illustration

In the following you can earn a bonus of £0.50. You have to guess the chance that your illustration is original. Your guess will be used to determine your chances of winning the bonus. Your chance of winning the bonus is set so that more accurate guesses lead to a higher chance of winning.

Your guess is a percentage probability from 0 to 100 – with 0 indicating a 0-out-of-100 chance that the illustration is original and 100 indicating a 100-out-of-100 chance that the illustration is original. The number you provide is called *Your Guess*. You choose *Your Guess* by clicking the response bar on your screen. The width of the red part of the bar indicates your guess that the illustration is original.

- Larger values of *Your Guess* represent a greater chance that your illustration is original and a smaller chance that your illustration is not original.
  - Smaller values of *Your Guess* represent a greater chance that your illustration is not original and a smaller chance that your illustration is original.

The width of the blue part of the bar is  $100 - \text{Your Guess}$  and represents your guess that the illustration is not original.

Please use the slider to indicate your guess for the chance that your illustration is original.



Figure A 61: Screen 10

[Click to review previous instructions](#)

## Win an extra bonus

In the following, you can win an additional bonus by guessing the percentage of raters that will be able to recognize the illustrated word. Your bonus is determined by the deviation of your guess from the true value.

- If your answer deviates by 5 or less percentage points your bonus is £0.50.
- If your answer deviates by more than 5 but less than 15 percentage points your bonus is £0.10.
- If your answer deviates by 15 or more percentage points your bonus is £0.

### **What percentage of raters will be able to recognize the illustrated word based on your illustration?**

Please use the slider to indicate what percentage of raters will be able to recognize the illustrated word based on your illustration.



Figure A 62: Screen 11

You have completed the task.

You have completed the task. Your completion code is 64B107A8. You will receive your bonus, if applicable, within 6 days after the completion of this task.

Figure A 63: Screen 12

## B.5 Instructions decision-makers (Ideation Study)

[Click to review previous instructions](#)

### Welcome to this task

You will receive a fixed payment of \$0.30. Additionally, you can earn a \$1.50 **bonus**. This bonus is awarded based on your performance on the task.

Please carefully read the following instructions before starting to work. Note that there will be an attention check. If you do not pass it, you cannot participate in this task. To be eligible for payment, you further have to perform all tasks within the next hour.

At any point in time, you will be able to review previous instruction by clicking on "Click to review previous instructions" in the right top corner of your screen.

[Next](#)

Figure A 64: Screen 1

[Click to review previous instructions](#)

### Your task

This task consists of 10 rounds. In each round, you will have to choose between two illustrations provided by two different creators. You choose an illustration by clicking on the button, indicating the respective illustration. If the creator of the illustration is **female** this button is **purple**. If the creator of the illustration is **male** this button is **blue**. The creators are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials.

It is your goal to **choose the illustrations with the highest value**. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it **is original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

#### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 10 rounds after you completed the task.

- If you chose the illustration with the **higher value** in the selected round, your bonus is **\$1.50**.
- If you chose the illustration with the **lower value** in the selected round, your bonus is **\$0**.
- If both illustrations have the **same value** in the selected round, your bonus is **\$0.75**.

You will be provided with a description written by the the creators of the respective illustrations. Creators know that the description may be shown to you and have an incentive to convince you that their illustration is of high value.

[Next](#)

Figure A 65: Screen 2 (SP-revealed)

[Click to review previous instructions](#)

## Your task

This task consists of 10 rounds. In each round, you will have to choose between two illustrations provided by two different creators. You choose an illustration by clicking on the button, indicating the respective illustration. If the creator of the illustration is **female** this button is **purple**. If the creator of the illustration is **male** this button is **blue**. The creators are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials.

It is your goal to **choose the illustrations with the highest value**. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it is **original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 10 rounds after you completed the task.

- If you chose the illustration with the **higher value** in the selected round, your bonus is **\$1.50**.
- If you chose the illustration with the **lower value** in the selected round, your bonus is **\$0**.
- If both illustrations have the **same value** in the selected round, your bonus is **\$0.75**.

In addition to the illustrations, you will be provided with a description written by the creators of the respective illustrations. Creators know that this description may be shown to you and have an incentive to convince you that their illustration is of high value.

[Next](#)

Figure A 66: Screen 2 (SP-Indicator-revealed)

[Click to review previous instructions](#)

## Your task

This task consists of 10 rounds. In each round, you will have to choose between two illustrations provided by two different creators. You choose an illustration by clicking on the button, indicating the respective illustration. If the creator of the illustration is **female** this button is **purple**. If the creator of the illustration is **male** this button is **blue**. The creators are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials.

It is your goal to **choose the illustrations with the highest value**. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it is **original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 10 rounds after you completed the task.

- If you chose the illustration with the **higher value** in the selected round, your bonus is **\$1.50**.
- If you chose the illustration with the **lower value** in the selected round, your bonus is **\$0**.
- If both illustrations have the **same value** in the selected round, your bonus is **\$0.75**.

[Next](#)

Figure A 67: Screen 2 (Indicator-revealed)

[Click to review previous instructions](#)

## Your task

This task consists of 10 rounds. In each round, you will have to choose between two illustrations provided by two different creators. You choose an illustration by clicking on the button, indicating the respective illustration. The creators are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials.

It is your goal to **choose the illustrations with the highest value**. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it **is original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 10 rounds after you completed the task.

- If you chose the illustration with the **higher value** in the selected round, your bonus is **\$1.50**.
- If you chose the illustration with the **lower value** in the selected round, your bonus is **\$0**.
- If both illustrations have the **same value** in the selected round, your bonus is **\$0.75**.

You will be provided with a description written by the creators of the respective illustrations. Creators know that the description may be shown to you and have an incentive to convince you that their illustration is of high value.

Next

Figure A 68: Screen 2 (SP-blind)

[Click to review previous instructions](#)

## Your task

This task consists of 10 rounds. In each round, you will have to choose between two illustrations provided by two different creators. You choose an illustration by clicking on the button, indicating the respective illustration. The creators are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials.

It is your goal to **choose the illustrations with the highest value**. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it **is original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 10 rounds after you completed the task.

- If you chose the illustration with the **higher value** in the selected round, your bonus is **\$1.50**.
- If you chose the illustration with the **lower value** in the selected round, your bonus is **\$0**.
- If both illustrations have the **same value** in the selected round, your bonus is **\$0.75**.

In addition to the illustrations, you will be provided with a description written by the creators of the respective illustrations. Creators know that this description may be shown to you and have an incentive to convince you that their illustration is of high value.

Next

Figure A 69: Screen 2 (SP-Indicator-blind)

[Click to review previous instructions](#)

## Your task

This task consists of 10 rounds. In each round, you will have to choose between two illustrations provided by two different creators. You choose an illustration by clicking on the button, indicating the respective illustration. The creators are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials.

It is your goal to **choose the illustrations with the highest value**. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it **is original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 10 rounds after you completed the task.

- If you chose the illustration with the **higher value** in the selected round, your bonus is **\$1.50**.
- If you chose the illustration with the **lower value** in the selected round, your bonus is **\$0**.
- If both illustrations have the **same value** in the selected round, your bonus is **\$0.75**.

[Next](#)

Figure A 70: S: Screen 2 (Indicator-blind)

[Click to review previous instructions](#)

## Your task

This task consists of 10 rounds. In each round, you will have to choose between two illustrations provided by two different creators. You choose an illustration by clicking on the button, indicating the respective illustration. If the creator of the illustration is **female** this button is **purple**. If the creator of the illustration is **male** this button is **blue**. The creators are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials.

It is your goal to **choose the illustrations with the highest value**. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it **is original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

### Your bonus

To determine whether or not you receive the bonus, we will randomly choose one out of the 10 rounds after you completed the task.

- If you chose the illustration with the **higher value** in the selected round, your bonus is **\$1.50**.
- If you chose the illustration with the **lower value** in the selected round, your bonus is **\$0**.
- If both illustrations have the **same value** in the selected round, your bonus is **\$0.75**.

[Next](#)

Figure A 71: Screen 2 (No-revealed)

[Click to review previous instructions](#)

## Attention check

What determines the value of an illustration?

- Its aesthetic value and the number of objects used.
- Its originality and its recognizability.
- Its aesthetic value and its recognizability.
- Its originality and the number of objects used.

[Next](#)

Figure A 72: Screen 3

[Click to review previous instructions](#)

## Your decision

Please decide between the following illustrations. Which one do you think has the higher value?

Keep in mind:

- **Value of illustration = 0** if it is **not original** (i.e. **someone else** among a random set of 50 other creators **illustrated the same word**).
- **Value of illustration = recognition rate** (from 0 to 100) if it is **original** (i.e. **no one else** among a random set of 50 other creators **illustrated the same word**).

Illustration 1:

The creator of this illustration describes it as follows:

*I feel as though the candle will be original and that no other parties will have drawn it. I would say that it is recognisable as well to the majority of people. It took a lot longer than expected as due to the limited colours and shapes,*

Illustration 2:

The creator of this illustration describes it as follows:

*I have used all of the different shapes available and made good use of the rotational and re-sizing tools. I have layered shapes on top of others and believe that my design is recognisable.*

Please decide which illustration you want to choose:

[Illustration 1](#)

[Illustration 2](#)

Figure A 73: Screens 4-13 (SP-revealed)

## Your decision

Please decide between the following illustrations. Which one do you think has the higher value?

Keep in mind:

- **Value of illustration = 0** if it is not original (i.e. **someone else** among a random set of 50 other creators **illustrated the same word**).
- **Value of illustration = recognition rate** (from 0 to 100) if it is original (i.e. **no one else** among a random set of 50 other creators **illustrated the same word**).

Illustration 1:

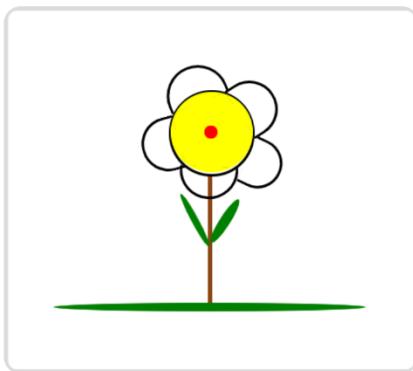
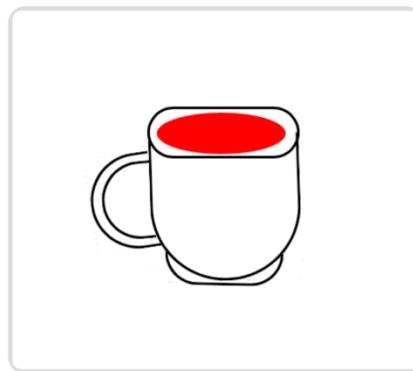


Illustration 2:



The creator of this illustration describes it as follows:

*Let's be honest, my flower is pretty much a masterpiece. Such simple lines and shapes, but wow, what a constructive four and a half minutes that turned out to be.... My three year old just walked up to the computer and said "I love that flower daddy". Case closed....!*

The creator of this illustration describes it as follows:

*here is a beautifully simple design of a university recognised common house hold object, it is bold and eye catching and could be used for a multitude of things, would look great any size, printed out, for function and for pleasure*

Please decide which illustration you want to choose:

Illustration 1

Illustration 2

Figure A 74: Screens 4-13 (SP-Indicator-revealed)

## Your decision

Please decide between the following illustrations. Which one do you think has the higher value?

Keep in mind:

- **Value of illustration = 0** if it is not original (i.e. **someone else** among a random set of 50 other creators **illustrated the same word**).
- **Value of illustration = recognition rate** (from 0 to 100) if it is original (i.e. **no one else** among a random set of 50 other creators **illustrated the same word**).

Illustration 1:

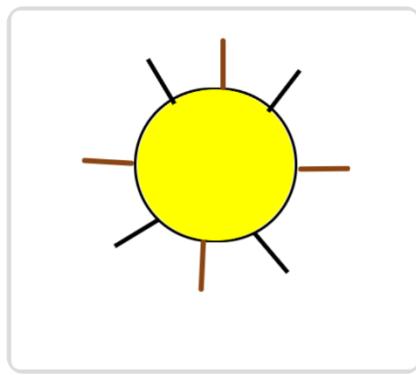
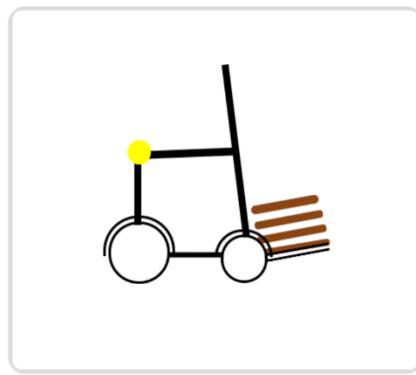


Illustration 2:



Please decide which illustration you want to choose:

[Illustration 1](#)

[Illustration 2](#)

**Figure A 75: Screens 4-13 (Indicator-revealed)**

## Your decision

Please decide between the following illustrations. Which one do you think has the higher value?

Keep in mind:

- **Value of illustration = 0** if it is not original (i.e. **someone else** among a random set of 50 other creators **illustrated the same word**).
- **Value of illustration = recognition rate** (from 0 to 100) if it is original (i.e. **no one else** among a random set of 50 other creators **illustrated the same word**).

Illustration 1:

The creator of this illustration describes it as follows:

*Let's be honest, my flower is pretty much a masterpiece. Such simple lines and shapes, but wow, what a constructive four and a half minutes that turned out to be.... My three year old just walked up to the computer and said "I love that flower daddy". Case closed....!*

Illustration 2:

The creator of this illustration describes it as follows:

*It is a simple but recognisable image of a fork - an object with one long thicker handle and four narrower parallel tines. If you asked anyone, including a young child, what this object is they would all agree it is a fork.*

Please decide which illustration you want to choose:

[Illustration 1](#)

[Illustration 2](#)

**Figure A 76: Screens 4-13 (SP-blind)**

## Your decision

Please decide between the following illustrations. Which one do you think has the higher value?

Keep in mind:

- **Value of illustration = 0** if it is not original (i.e. **someone else** among a random set of 50 other creators **illustrated the same word**).
- **Value of illustration = recognition rate** (from 0 to 100) if it is **original** (i.e. **no one else** among a random set of 50 other creators **illustrated the same word**).

Illustration 1:

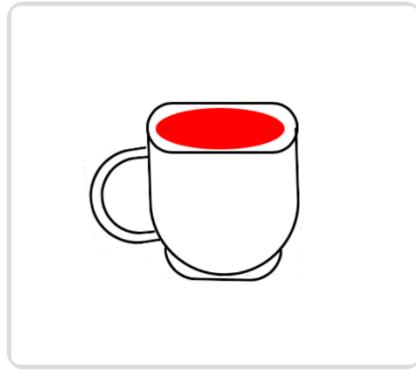
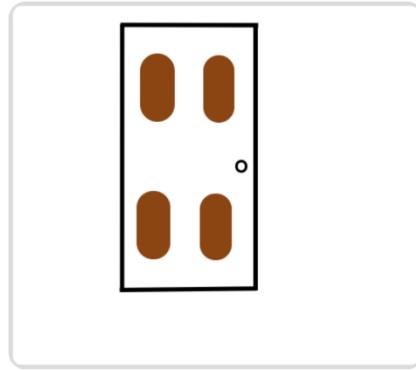


Illustration 2:



The creator of this illustration describes it as follows:

*here is a beautifully simple design of a university recognised common house hold object, it is bold and eye catching and could be used for a multitude of things, would look great any size, printed out, for function and for pleasure*

The creator of this illustration describes it as follows:

*Here we have a traditional wooden door. Complete with the classic 4 panels, and finished with a door knob to allow the door to be opened and closed at ease. "If it ain't broke, don't fix it"*

Please decide which illustration you want to choose:

[Illustration 1](#)

[Illustration 2](#)

Figure A 77: Screens 4-13 (SP-Indicator-blind)

[Click to review previous instructions](#)

## Your decision

Please decide between the following illustrations. Which one do you think has the higher value?

Keep in mind:

- **Value of illustration = 0** if it is not original (i.e. **someone else** among a random set of 50 other creators **illustrated the same word**).
- **Value of illustration = recognition rate** (from 0 to 100) if it is original (i.e. **no one else** among a random set of 50 other creators **illustrated the same word**).

Illustration 1:

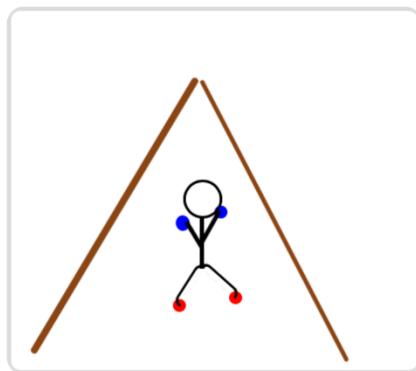
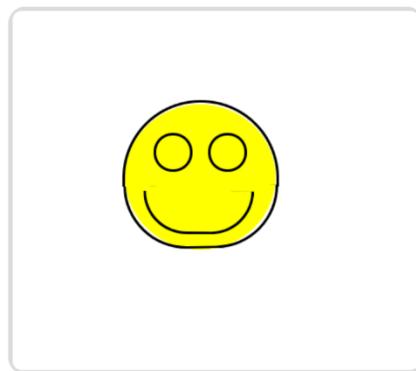


Illustration 2:



Please decide which illustration you want to choose:

[Illustration 1](#)

[Illustration 2](#)

Figure A 78: Screens 4-13 (Indicator-blind)

[Click to review previous instructions](#)

## Your decision

Please decide between the following illustrations. Which one do you think has the higher value?

Keep in mind:

- **Value of illustration = 0** if it is not original (i.e. **someone else** among a random set of 50 other creators **illustrated the same word**).
- **Value of illustration = recognition rate** (from 0 to 100) if it is original (i.e. **no one else** among a random set of 50 other creators **illustrated the same word**).

Please decide which illustration you want to choose:

[Illustration 1](#)

[Illustration 2](#)

Figure A 79: Screens 4-13 (No-revealed)

[Click to review previous instructions](#)

## Questionnaire

Please answer some additional questions.

Please indicate your gender.

----- ▾

Are you a native English speaker?

----- ▾

Do you have a red-green colorblindness?

----- ▾

Do you think the creators task (illustrating words with a given set of materials) rather favors male or female participants?

Female	None	Male
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely do you think is it, that you receive the bonus?

Not likely at all	Very likely
<input type="radio"/>	<input type="radio"/>

How do you see yourself: Are you someone who is willing to take risks or do you try to avoid them?

Not willing at all to take risks	Very willing to take risks
<input type="radio"/>	<input type="radio"/>

Do you like to compete with others?

I don't like competitions at all	I like competitions very much
<input type="radio"/>	<input type="radio"/>

**Next**

Figure A 80: Screen 14

You have completed the task

You have completed the task. You will receive your bonus, if applicable, within 6 days after the completion of this task. Your completion code is LUH2021.

Figure A 81: Screen 15

## B.6 Instructions for follow-up data collection: Rater for quantifying quality of ideas (Ideation Study)

[Click to review previous instructions](#)

### Welcome to this task

You will receive a fixed payment of **\$0.30**. Additionally, you can receive a bonus of up to **\$5.00**.

Please carefully read the following instructions before starting to work. To be eligible for payment, you have to perform all tasks within the next 2 hours.

At any point in time, you will be able to review previous instruction by clicking on "Click to review previous instructions" in the right top corner of your screen.

[Next](#)

Figure A 82: Screen 1

[Click to review previous instructions](#)

### Instructions

Next, you will see 50 consecutive illustrations on your screen. These illustrations were created by workers in a prior task. These workers' task was to illustrate words, such as objects, items or actions with a provided set of elements. The words could be chosen freely and had to consist of **only one** (British English) word.

**Your task is to identify the illustrated words.** In order to receive payment for an illustration, you must enter the **exact word** that the other worker assigned to that illustration.

Please note that the words were illustrated by different workers. This means that it is possible to see more than one illustration of the same word.

#### Payment

You will receive your payment only if you complete the entire task. You receive **\$0.30** for participating in the task. In addition, you receive **\$0.10** for each illustration that you correctly identify.

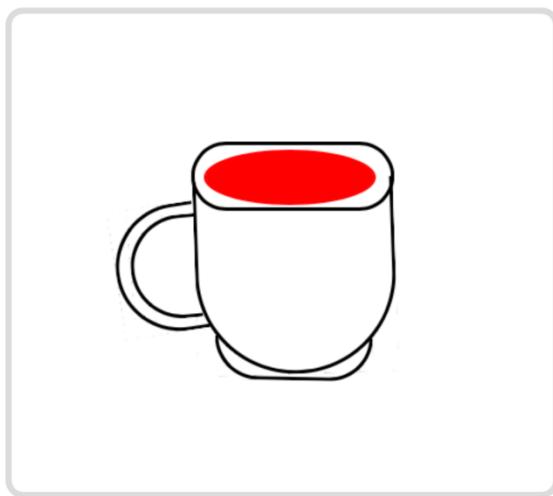
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Figure A 83: Screen 2

[Click to review previous instructions](#)

## Task

You receive **\$0.10** for each correctly identified word. A word is correctly identified if you enter the **exact word** that the other worker assigned to that illustration.



Please write down the word that is illustrated.

Next

Figure A 84: Screen 3-52

You have completed the task

Thank you for participating in this task. You will receive your payoff within 6 days after the completion of this task. Your completion code is LUH2021.

Figure A 85: Screen 53

## B.7 Instructions for follow-up data collection: Predictions of gender based on self-promotions (Ideation Study)

[Click to review previous instructions](#)

### Welcome

You will receive a fixed payment of **\$0.30**. Additionally, you can **earn a bonus** of up to **\$5.00**. This bonus is awarded based on your performance on the task.

Please carefully read the following instructions before starting to work. Note that there will be two attention checks. If you do not pass them, you are not eligible to participate in this task. To be eligible for payment, you have to perform all tasks within the next 2 hours.

At any point in time, you will be able to review previous instruction by clicking on "Click to review previous instructions" in the right top corner of your screen.

[Next](#)

Figure A 86: Screen 1

[Click to review previous instructions](#)

### Instructions

Next, you will see 20 descriptions of illustrations on your screen. The creators and writers of the descriptions are workers from another task who were asked to illustrate words (e.g., objects, items or actions) using a fixed set of materials. Creators have an incentive to convince others that their illustration is of high value. The value of an illustration is determined as follows:

- **Value of illustration = 0 if it is not original**
  - An illustration is **original** if **no other creator** among 50 randomly drawn creators in this task **illustrated the same word**.
- **Value of illustration = recognition rate** (from 0 to 100) if it **is original**
  - The **recognition rate** is the fraction of people (from 0-100%) that recognized the word when we asked them to guess the illustrated word based on the illustration only.

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Figure A 87: Screen 2

[Click to review previous instructions](#)

### Instructions

#### Your task

Based on the descriptions, your task is to guess:

1. The value of the illustration
2. The gender of the creator

#### Payment

You will receive your payment only if you complete the entire task. You receive **\$0.30** for participating in the task. In addition, you can receive a bonus of up to **\$5.00** depending on the accuracy of your guesses. To determine the bonus, we will randomly choose one out of the 20 rounds after you completed the task.

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Figure A 88: Screen 3

[Click to review previous instructions](#)

## Instructions

### Guess the value of the illustration

Your guess is a number from 0 to 100, indicating your guess regarding the value of the illustration. You choose your guess, by clicking a response bar, similar to the one in figure 1. The width of the **red part** of the bar indicates **your guess of the value of the illustration**.

For your guess with respect to the value of the described illustration, payment depends on the deviation from the true value:

- If your guess deviates by **5 or less** your **bonus is \$4.00**.
- If your guess deviates by **more than 5 and 15 or less** your **bonus is \$2**.
- If your guess deviates by **more than 15** your **bonus is \$0**.



*Figure 1: Example of the response bar for guessing the value of the illustration*

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## Figure A 89: Screen 4

[Click to review previous instructions](#)

## Instructions

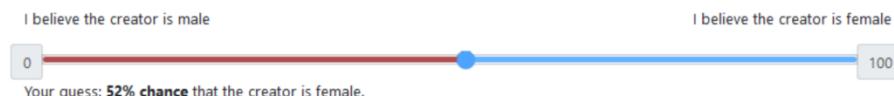
### Guess the gender of the creator

Your guess is a percentage probability from 0 to 100 – with 0 indicating a 0-out-of-100 chance that the gender of the creator is female and 100 indicates a 100-out-of-100 chance that the gender of the creator is female. The number you provide is called *Your Guess*. You choose *Your Guess* by clicking the response bar that will be shown on your screen. The width of the **red part** of the bar indicates **your guess that the creator is female**.

- Larger values of *Your Guess* (larger width of red part) represent a greater chance that the creator is female and a smaller chance that the creator is male.
- Smaller values of *Your Guess* (larger width of blue part) represent a greater chance that the creator is male and a smaller chance that the creator is female.

The width of the **blue part** of the bar is 100 - *Your Guess* and represents **your guess that the creator is male**.

Your guess will be used to determine your chances of winning a **bonus of 1\$**. Your chance of winning the bonus is set so that **more accurate guesses lead to a higher chance of winning**.



*Figure 2: Example of the response bar for guessing the gender of the creator*

[Next](#)

## Figure A 90: Screen 5

[Click to review previous instructions](#)

## Your participation in the study

Your participation in this study will involve guessing the value of an illustration and gender of its creator, based on provided descriptions of the illustrations. If you wish to withdraw from the study you can close your browser window at any time. If you wish to continue, please confirm the following:

- I have read, understood and accept the Instructions
- I understand that my participation is totally voluntary. I am free to withdraw at any time without having to give a reason
- I agree that the data gathered in this study may be stored anonymously and securely
- I agree that the data gathered in this study may be used for research purposes
- I agree to take part in the study

[Next](#)

Figure A 91: Screen 6

[Click to review previous instructions](#)

## Attention check

Whether or not you earn a bonus depends on...

- ... a coinflip.
- ... the accuracy of your guess regarding the value of the illustration that the worker created in the randomly selected round.
- ... your performance on a creative task that requires you to illustrate words with given objects.
- There is no bonus in this task.

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Figure A 92: Screen 7

[Click to review previous instructions](#)

## Attention check

What determines the value of an illustration?

- Its aesthetic value and the number of objects used.
- Its originality and its recognizability.
- Its aesthetic value and its recognizability.
- Its originality and the number of objects used.

[Next](#)

Figure A 93: Screen 8

[Click to review previous instructions](#)

## Task

The creator describes its illustration as follows:

*„I have illustrated an old school Tv set from way back into the 70's. This is a reminder of how far we have come in technology advancement. From antenna tv's of black and white to LED's of today.“*

Please use the slider to indicate how high you think the **value** of the described illustration is.

Keep in mind:

- Value of illustration = 0 if it is not original (i.e. someone else among 50 other creators illustrated the same word).
- Value of illustration = recognition rate (from 0 to 100) if it is original (i.e. no one else among 50 other creators illustrated the same word).



Please use the slider to indicate your guess for the **chance** that the creator who wrote the text **is female**.

I believe the creator is male

I believe the creator is female



[Next](#)

Figure A 94: Screen 9-28

[Click to review previous instructions](#)

## Questionnaire

Please indicate your gender.

Are you a native English speaker?

[Next](#)

Figure A 95: Screen 29

You have completed the task

Thank you for participating in this task. Your completion code is LUH2021.

Figure A 96: Screen 30