



## RESEARCH ARTICLE

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# Whose promises are worth more? How social status affects trust in promises

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**Abstract**

Promises are among the most widely used tools for increasing trust in social hierarchies; yet the effect of social status on trust in promises is unknown. Here we used a modified version of the Trust Game, in which participants, acting as Investors, were paired with Trustees of varying social status who were given the opportunity to promise (or not) to return at least half of the multiplied amount (i.e.,  $4 \times$  the amount invested). No return feedback was provided. Participants invested more in partners who promised than those who did not or whose promise information was concealed. Importantly, in both lab-manipulated (Exps. 1–3: math-induced) and pre-existing (Exp. 4: university-based) hierarchies, participants invested more in promises given by high status than low status partners. Post-experiment measures suggest that this may be due to greater expectations of honesty for high status than low status others. Potential explanations and implications are discussed.

**KEYWORDS**

promise, social hierarchy, social status, trust, Trust Game

## 1 | INTRODUCTION

In a society, promise-related communication is critical for fostering trust between individuals of different social status, whether it be a professor deciding to trust a student promising to get an assignment written or that professor deciding to trust the department chair promising to give him a bigger lab space before a certain time. In fact, virtually all formal social hierarchies involve some sort of promise or pledge by its new members and by its newly elected leaders in relation to their devotion to the hierarchy. However, whether it be a student (i.e., low status) or department chair (i.e., high status), it is unclear how effective promises are in instilling feelings of trust in other members of the social hierarchy.

Trust is a critical component of human social interaction. The absence of trust in social interactions can be very detrimental economically (Zak & Knack, 2001) and interpersonally (Simpson, 2007).

Trust is difficult to define but often involves two components: (a) the trustor is putting him/herself in a vulnerable position that entails a certain level of reliance on the trustee; (b) the trustor has an expectation of reciprocity from the trustee (Rousseau, Sitkin, Burt, & Camerer, 1998). Perhaps the best attempt at operationalizing trust is provided by the Trust Game (TG; Berg, Dickhaut, & McCabe, 1995), in which one player (i.e., Investor) decides how much money to invest (i.e., trust amount) in another player (i.e., Trustee), with the hope/expectation that the Trustee will return a certain amount of the money back to the Investor after having made money from the original investment.

Many factors influence trust, including factors related to the identity of the individual in question, such as an individual's race (Smith, 2010) and social connectedness to the person deciding whether or not to trust (Glaeser, Laibson, Scheinkman, & Soutter, 1999). One other factor affecting trust is the social status of the

individuals involved in the interaction (Hong & Bohnet, 2007; Lount & Pettit, 2012). Social status refers to the amount of respect, competence, prestige, or resources that an individual has along a meaningful dimension in a social hierarchy (Adler, Epel, Castellazzo, & Ickovics, 2000; Fiske, 2010; Kraus, Piff, & Keltner, 2011). There are two main types of social status: prestige-based social status (i.e., one's respect, competence, or prestige in a relevant area (Henrich & Gil-White, 2001)) and socioeconomic status (i.e., SES).

Here we focus on prestige-based status, as it is particularly advantageous for both experimental manipulation and controlling for potential confounds related to social status like power, which are hard to control for when measuring SES (Mills, 1956). In this type of manipulation, researchers give participants a ranking on a certain competence-related task (e.g., quiz: Albrecht, von Essen, Fliessbach, Falk, & Brown, 2013; math competition: Hu et al., 2015; time-estimation task: Hu, Cao, Blue, & Zhou, 2014), which is usually indicated with stars (Ball, Eckel, Grossman, & Zame, 2001; Zink et al., 2008), before measuring the effect of rank-induced social status on a wide array of dependent measures including fairness perception (Hu et al., 2014, 2015), responses to resource allocation (Albrecht et al., 2013; Ball et al., 2001), performance outcomes (Zink et al., 2008), and trust (Blue, Hu, & Zhou, 2018). Past research has shown that rank-induced social status and social status found in natural social hierarchies have very similar effects on economic behavior (D'Exelle, Lecoutere, & Van Campenhout, 2009; Hu et al., 2014, 2015).

Existing research regarding the effects of social status on trust generally suggests that low status individuals are trusted more than their high status counterparts. One particularly relevant study finds that in TG, participants are more trusting of low status partners than high status partners (Lount & Pettit, 2012, Exp. 3). In this study, participants were paired with an anonymous partner from a university that was ranked either higher (i.e., high status) or lower (i.e., low status) than their own, and were asked how much they were willing to invest in their partner, who was presumably playing TG with them via the internet at their respective university. Participants invested more in low status partners than in high status partners, and this difference was mediated by perceptions of benevolence, such that low status partners were perceived as being more benevolent and thus more trustworthy. This finding is in line with research on social comparison, which finds that downward comparisons elicit increased feelings of affective trust (Dunn, Ruedy, & Schweitzer, 2012), which includes factors such as benevolence. Additionally, in situations of social coordination between two individuals who are not allowed to communicate with one another, low status individuals are more willing to act in a way that favors the individual with a higher status (de Kwaadsteniet & van Dijk, 2010), which may help explain why low status partners are perceived as more benevolent than their low status counterparts in Lount and Pettit's study (2012, Exp. 3).

As de Kwaadsteniet and van Dijk's (2010) study illustrates, lack of communication may be a critical component underlying the increased trust in low status others. When the Trustee is not able to communicate with the person making the trust decision, this trust decision may be made based on default modes of social coordination

(Eckel & Wilson, 2007), where low status individuals are expected to defer to their higher status counterparts (Blue, Hu, Wang, van Dijk, & Zhou, 2016). While the omission of communication in the above-mentioned studies helps control for potentially confounding factors (e.g., attractiveness, tone, etc.), communication cannot be overlooked given its crucial role in establishing trust between individuals of different social status.

One form of communication that is particularly important in social hierarchies is promising. In social hierarchies, members of every status are required to give promises or pledges that assure their recipients of their trustworthiness. Promises are so important that there are independent entities that devote themselves to monitoring whether certain promises, such as those given by high status politicians, are kept or broken (e.g., Politifact, 2015). A promise is "a pledge to do or not to do something specified" (Merriam-Webster, 1997). Promises are one of the oldest and most common forms of communication in trust-related social interaction (Baumgartner, Fischbacher, Feierabend, Lutz, & Fehr, 2009; Schniter, Sheremeta, & Sznycer, 2013; Schweitzer, Hershey, & Bradlow, 2006), as they increase trust in the person(s) being promised (i.e., promisee) and increase trustworthiness in the person giving the promise (Charness & Dufwenberg, 2006). The function of promises is to increase cooperation between two or more parties involved in the transmission of the promise (Friedrich & Southwood, 2011). Moreover, promise-related communication is the most influential factor in fostering trust in economic decision-making games such as TG (Sally, 1995).

Given the importance of promises in fostering trust, promise research spans a wide range of fields, ranging from economics (i.e., non-binding pre-play communication; Vanberg, 2008) and organizational psychology (i.e., obligations resulting in a psychological contract; Robinson, Kraatz, & Rousseau, 1994; Rousseau, 1989) to social psychology (i.e., commitments; Rusbult, 1980, 1983) and law (i.e., a statement from one party to another that elicits reliance and could result in financial harm if broken; FindLaw, 2016). Across fields, one crucial factor about promises is that they are often non-binding, which means that the person giving the promise could increase short-term reward by breaking the promise at a moral cost to oneself (i.e., negatively influence one's reputation). Given the unpredictable and varying probability of promisors keeping their promises (Baumgartner, Gianotti, & Knoch, 2013), promisees need to consider what kind of person the promisor is before deciding whether or not to trust the promise. Interestingly, existing research on promises has focused largely on why people keep promises (Baumgartner et al., 2013; Charness & Dufwenberg, 2006, 2010; Ellingsen & Johannesson, 2004; Ismayilov & Potters, 2012, 2016; Orbell, Van de Kragt, & Dawes, 1988; Vanberg, 2008); contextual factors underlying why people trust promises, such as social status, have largely been overlooked.

Regarding the potential effects of promises on the perceived trustworthiness of low and high status others in TG, research on the pragmatics of deontic reasoning (reasoning about what one "should" or "ought" to do) shows that promises given by high status individuals (e.g., medical consultants) are judged as more likely to come to fruition if the conditional statement (If *a*, then *b*) is upheld than promises

given by low status individuals (e.g., hospital receptionists; Kilpatrick, Manktelow, & Over, 2007). Social psychology research has also found that people tend to believe that “experts are right”, as the social status of a communicator can affect the believability and influence of an utterance (i.e., assertion or constative). In one study, participants read about the recommended amount of sleep for maximal health, with the recommendation being given by either a Nobel prize winning physiologist (i.e., high status) or a YMCA director (i.e., low status). The authors found that when participants read that one hour of sleep per night was good for one's health, people were more affected by high status than low status recommendations (Bochner & Insko, 1966). At a more general level, psychology of reasoning research provides potential reasons for why people may be more likely to trust assertions given by high status than low status others. For example, when participants are given a conditional statement along with possible outcomes and asked to indicate whether the outcome supports, contradicts, or tells nothing about the conditional statement, participants are more likely to draw inferences from conditional statements that include someone who is in control over the outcome from the conditional statement than someone who is not in control over the outcome (Evans & Twyman-Musgrove, 1998). Levels of expertise (e.g., professor of medicine vs. first-year medical student) also affect performance on deductive reasoning tasks, as assertions issued by experts are perceived as more likely to occur/be true than assertions issued by novices (Stevenson & Over, 2001). One notable aspect of this body of research is that social status was in the same dimension as (i.e., relevant to) the communication in question.

As a result, the addition of promises between individuals of varying social status in TG, which were absent from Lount and Pettit's (2012, Exp. 3) study, opens up the possibility for a different pattern of results to emerge. In particular, two hypotheses emerge regarding the potential effects of promises on the perceived trustworthiness of prestige-based low and high status others in TG: (a) The “low status benevolence” hypothesis would predict that participants would trust low status individuals more than high status individuals, regardless of whether promises have been found to be trustworthy, given that when interacting with individuals of lower status, people have increased trust and expectations of benevolence than when interacting with individuals of higher status (Lount & Pettit, 2012), (b) The “high status credible” hypothesis would predict that participants would trust high status individuals' promises more than promises given by their low status counterparts, given that high status communication is often perceived as more likely to be accurate or reliable (Kilpatrick et al., 2007).

We conducted four experiments to address these two hypotheses. In these experiments we simultaneously manipulated the social status and promise information given by Trustees in TG to participants acting as Investors, which allowed us to measure the potential interaction between these two factors on trust. We focused on the amount of money invested in the Trustee in each trial of TG (i.e., trust amount). In Experiment 1, we analyzed the effect of lab-manipulated social status on the perceived trustworthiness of promises. To rule out alternative explanations for the pattern

of effects found in Experiment 1 (i.e., that participants simply preferred high status over low status others), in Experiment 2 we tested an independent group of participants, measuring participants' behavior as Dictator in the Dictator Game with partners of different social status. Given that the original finding in Lount and Pettit's (2012) study did not mention promises, in Experiment 3 we looked to replicate the effects of Experiment 1, but we adjusted the TG instructions in the “unknown” condition such that no promise opportunity was given. In Experiment 4 we looked to replicate the effects of Experiments 1 and 3 in a pre-existing social hierarchy and analyzed whether differences in investment reflected increased honesty expectations.

## 2 | EXPERIMENT 1

### 2.1 | Participants

To determine the sample size, we used G\*Power 3 software (Faul, Erdfelder, Lang, & Buchner, 2007), which showed that we needed a sample size of at least 26 for this study to have adequate power ( $1 - \beta > 0.95$ ) to detect a medium-size effect ( $f = 0.30$ ). Among the 33 undergraduate and graduate students who participated in the experiment, five participants failed the post-experiment check for understanding the task. These participants were excluded from the data analysis. The remaining 28 participants (20 females) were between 18 and 25 years of age ( $M = 21.214$  years,  $SD = 2.500$ ). Each participant was informed that the basic payment for participation would be 30 Chinese yuan (about 5 USD) and that a bonus of 0–20 yuan would be added based on performance in TG.

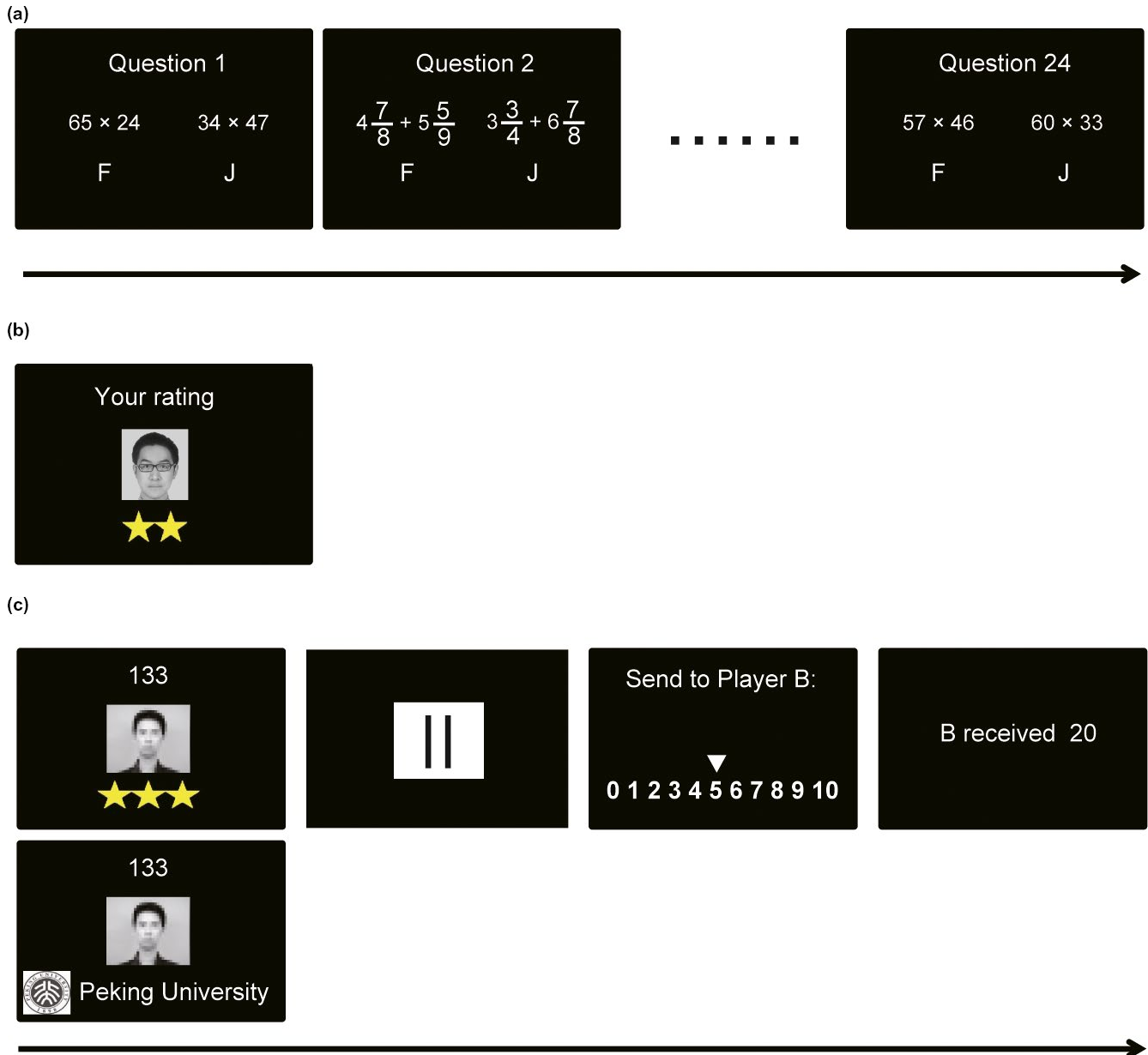
Informed consent from each participant was obtained prior to the experiment (and all the following experiments). The study was in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of the School of Psychological and Cognitive Sciences, Peking University.

### 2.2 | The Trust Game

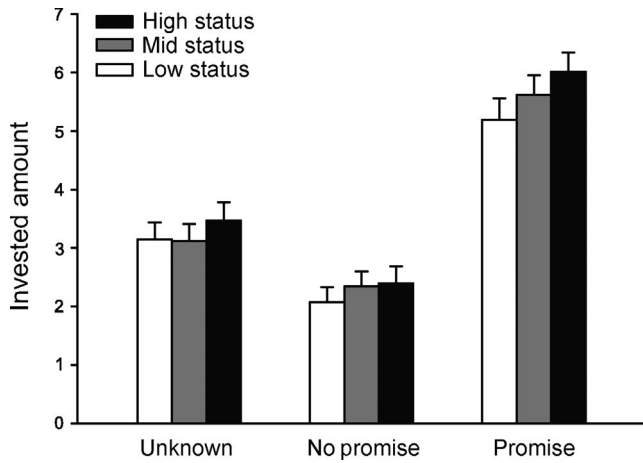
In the current experiment, the primary dependent variables were based on behavior in TG. In TG, the Investor is endowed with a certain amount of money and is allowed to invest any amount of this money (including zero, which means not investing at all) to the Trustee, after which the money is multiplied by a certain amount (in most instances,  $\times 3$  or  $4$ ). The Trustee can then either keep the multiplied sum or send an amount of the multiplied sum back to the Investor. In TG, trust is defined as the amount of money sent from the Investor to the Trustee (Camerer, 2003). Predictions derived from the Subgame Perfect equilibrium (i.e., selfish interest) are that the Investor, as a rational and self-interested agent, would transfer no money to the Trustee, given that a rational Investor should assume that the Trustee would act in a self-interested way (i.e., return none of the multiplied sum to the Investor). However, on average, the Investor sends around 50% of the multiplied money to the Trustee (Berg et al., 1995; Johnson & Mislin, 2011).

Participants played as Investor in a modified version of the iterated TG, in which the confederate partner acting as a Trustee could promise ("promise" condition) or not promise ("no promise"

condition) to return at least half of the multiplied sum (i.e., half of the quadrupled invested amount). To create a condition with no promise information ("unknown" condition), in certain trials,



**FIGURE 1** Experiment 1 was composed of two tasks: the first was a math quiz (i.e., rank-inducing task); the second was the Trust Game (TG). The math quiz was composed of 24 arithmetic expressions (a). For each math question, participants were given 10 s to indicate which expression was of greater value by pressing the "F" or "J" key. After the math quiz, participants were given a rank in relation to previous participants whose math quiz performance and TG decisions had been recorded previously (b). After the rank-inducing task (Exps. 1 and 3) or at the beginning of the experiment (Exp. 4), participants acted as Investor in TG with partners (Trustees) of varying social status (c). Participants played a total of 144 TG trials in Exp. 1 or 96 trials in Experiments 3 and 4; in each trial participants played with a new Trustee who was randomly drawn from the large pool of previous participants. All conditions were randomized across trials. Each trial of TG began with presentation of the ID number, blurred facial portrait, and social status information (Exps. 1 and 3: c, top, math-induced rank; Exp. 4: c, bottom, university-based rank) of the Trustee paired with the participant in that particular trial. After being paired with the Trustee for that trial, the participant viewed the promise information given by Player B ("!" = "promise" condition, indicating a promise to return at least 50% of the multiplied sum; "-" = "no promise" condition, indicating no promise to return at least 50% of the multiplied sum; Exps. 1 and 4: "|" = "unknown" condition, indicating promise information was concealed; Exp. 3: "||" = "unknown/no opportunity" condition, indicating partner did not have the opportunity to make a promise decision). The participant then decided how much money to send to the Trustee for that trial. Finally, the participant viewed the total multiplied sum sent to the Trustee. No feedback was given regarding the Trustee's decision to return



**FIGURE 2** Experiment 1 mean and standard error of the means for amount invested (i.e., trust amount) in partners of different social status across the three promise conditions (“unknown”, “no promise”, and “promise”)

the Trustee's promise decision was not revealed to the participant. Social status was manipulated before TG using a rank-inducing task (i.e., math competition; Hu et al., 2015; Figure 1a). In the rank-inducing task, participants completed a series of 24 math problems, after which they were shown their relative rank in comparison with a large sample of participants who had participated in an earlier version of the experiment (Figure 1b). To facilitate analysis of others' rank on trust, all participants were given a middle status ranking. After receiving their ranking, participants played TG with the large sample of confederate partners from the math competition (Figure 1c, top). In TG, participants first viewed the blurred facial portrait, participation ID number, and social status of the Trustee paired with them for that particular round of TG, after which they were given the promise information from that particular Trustee before making their decision as to how much to invest in the Trustee in that trial. No feedback was given regarding whether the Trustee had returned half of the multiplied sum to the participant in a particular trial.

### 2.3 | Design and procedure

The experiment had a  $3 \times 3$  within-participants factorial design, with the first factor referring to the Trustee social status (low vs. middle vs. high) and the second factor referring to the Trustee promise to return the entrusted amount (“promise” vs. “no promise” vs. “unknown”). The three levels were randomized across trials. Status was assigned using a star system (Zink et al., 2008), with one star indicating low status, two stars indicating middle status, and three stars indicating high status. Trust was defined as the amount (ranging from 0 to 10, increments of 1) invested by the participant in the Trustee during TG.

Groups of same-sex participants ranging from 1 to 3 individuals arrived at the laboratory for each experimental session. Each participant was assigned his or her own room and computer for completing

the experiment, and participants were informed that they would be interacting with participants from earlier sessions of the experiment (not with participants who arrived with them). Before the experiment, participants gave permission to the experimenter to take their photo, which would later be used during the math competition ranking screen to personalize the ranking; at no other time was the picture used. Before the experiment participants were also told that, at the end of the experiment, 10 random TG trials would be selected by the computer after the experiment, and the outcomes of these trials would be implemented for both themselves and their respective Trustee partners on those particular trials (i.e., money sent electronically to the past Trustees). The random payment of 10 trials was used to prevent participants from keeping track of their TG prize money. Participants were assured that their bonus payment would range from 0 to 20 yuan and that they would receive no <30 yuan, which was the basic participation fee.

The experiment consisted of two tasks: the math competition and TG. Participants were led to believe that a large sample of over 200 same-sex participants had previously participated in this experiment; participant performance on the math quiz was in comparison with this previous sample of participants, and Trustees in TG were also drawn from this previous sample. This measure was taken to ensure that participant social status was comparable to the statuses of Trustees in TG. Participants were told that Trustees had indicated their promise decision and return amount in a previous experiment session. In particular, participants were informed that the Trustees first decided whether or not to promise to return 50% of the multiplied sum; then Trustees made separate return decisions for each potential investment amount (i.e., strategy method). Participants were informed that in the “promise” condition, the Trustee had promised to return at least half of the multiplied sum; in the “no promise” condition, the Trustee did not promise to return at least half of the multiplied sum; and in the “unknown” condition, the Trustee's decision whether or not to promise was not revealed to the participant (unknownst to the Trustee). Note: In our instructions to the participant, we avoided the use of words “Investor” and “Trustee” and instead used the words “Player A” to refer to Investor and “Player B” to refer to Trustee.

The first task was the rank-inducing task (i.e., prestige-based status manipulation, Figure 1a), which was composed of a math quiz and which has been proven to be a successful inducer of social status in previous research (e.g., Hu et al., 2015). The math competition was composed of 24 arithmetic problems (12 easy, 12 highly difficult). Participants were given 10 s to select which of two arithmetic expressions was greater in value by pressing the “F” or “J” key with the left or right index finger corresponding to the left or right arithmetic expression; a reminder to quickly make an answer was given to the participants at the bottom of the screen after 7 s. Each item involved either two-digit multiplication (e.g.,  $45 \times 72$ ) or complex fraction addition (e.g.,  $4\frac{7}{8} + 5\frac{5}{9}$ ). After completing the math quiz, the participants viewed their math ranking (two-star, middle status) and their own picture (Figure 1b). Participants were informed that all rankings were based on the percentage of questions answered correctly and on the

speed of their response in comparison with the large sample of participants who had previously participated in the experiment.

In the second task, participants acted as the Investor in TG (Figure 1c, top). At the start of each TG trial (144 trials in total, with 16 trials per condition), participants were shown a blurred picture of the Trustee for that trial (facial portraits, subtended  $1.5 \times 1.6$ ; photographs were drawn from the University of Hong Kong photo database, courtesy of Dr. William Hayward, and were blurred so that their identity was not distinguishable to the participants), in addition to the Trustee's math quiz ranking and participation identification number. All participants were paired with different same-sex Trustees on each trial of TG. Then, the participants were shown the promise decision of the Trustee, with “-” indicating no promise to return at least 50% of the multiplied sum (“no promise” condition), “!” indicating a promise to return at least 50% of the multiplied sum (“promise” condition), and “|” indicating that the Trustee's promise decision would not be revealed to the participant for that particular trial (“unknown” condition). In particular, participants read the following instructions regarding the meaning of the promise decisions in TG (translated from Chinese):

During each round of the game, the screen will notify you whether or not Player B has promised to return at least 50% of the multiplied sum. There are two symbols to indicate Player B's decision: “!” indicates that the partner promises to return at least 50% of the multiplied sum and (“-”) indicates that the partner does not promise to return at least 50% of the multiplied sum. On certain rounds of the game, Player B's decision whether or not to promise to return at least 50% of the multiplied sum is not revealed to you; on these rounds, the screen will show the following symbol (“|”).

Importantly, in situations where a Trustee's promise was visible, Trustees of each status promised an equal amount of times (i.e., Trustees promised 50% of the time and did not promise 50% of the time), thus eliminating the possibility of predicting the likelihood of the promise decision in the “unknown” condition. After viewing the promise decision information, the participant indicated how much he/she would like to invest (ranging from 0 to 10) in the Trustee, with the knowledge that whatever amount sent would be multiplied by four. The Trustee could send any amount of the multiplied sum back to the participant or keep all for him/herself. The participant indicated the investment amount using the “F” and “J” buttons on the computer keyboard to move the indicator left or right, with the space key used as the confirmation of the decision. No time limit was set during the decision screen. The initial position of the indicator was counterbalanced over trials (left, middle, right). After the investment was made, the decision was recorded and the next trial of TG began. Participants were not given feedback regarding the Trustee's behavior and were not informed about the amount of TG trials in total.

Before the experiment began, participants practiced six arithmetic expressions and 10 TG trials. During TG practice trials, participants were not given feedback about their partners' return decisions in order to avoid potential biasing effects of having promises broken or kept before the experiment started. Also, participants were required to accurately identify all three promise symbols before being allowed to begin the experiment. No participant reported difficulty in remembering the promise symbols. After the experiment, participants reported on a 7-point Likert scale to what extent they felt superior or inferior (1 = *very inferior*; 7 = *very superior*) to the other players in the experiment. This measure served as a manipulation check of social status; each participant indicated this rating once for each social status.

## 2.4 | Results

To confirm that the manipulation of social status was successful in changing perceptions of superiority/inferiority in our participants, we conducted a one-factor (star ranking: one star vs. two stars vs. three stars) repeated-measures analysis of variance (ANOVA). One participant failed to respond to the manipulation check, leaving 27 participants in this analysis. This test confirmed the status manipulation,  $F(2, 52) = 96.643$ ,  $p < 0.001$ ,  $\eta^2_{\text{partial}} = 0.788$ , with participants perceiving themselves as more superior when facing a low status Trustee (mean  $\pm$  SE,  $5.889 \pm 0.154$ ) than when facing a middle status Trustee ( $4.630 \pm 0.143$ ) or high status Trustee ( $3.370 \pm 0.208$ ),  $ps < 0.001$ , and more superior when facing a middle status Trustee than when facing a high status Trustee,  $p < 0.001$ .

A repeated-measures ANOVA showed that investment amount varied as a function of both partner social status,  $F(2, 54) = 6.175$ ,  $p = 0.014$ ,  $\eta^2_{\text{partial}} = 0.186$  and promise,  $F(2, 54) = 59.505$ ,  $p < 0.001$ ,  $\eta^2_{\text{partial}} = 0.688$  (Figure 2). Participants invested more in “promise” trials ( $5.607 \pm 0.328$ ) than in “unknown” trials ( $3.248 \pm 0.281$ ) and “no promise” trials ( $2.272 \pm 0.257$ ), and more in “unknown” trials than in “no promise” trials,  $ps < 0.001$ . Participants also invested more in high status Trustees ( $3.963 \pm 0.246$ ) than middle status Trustees ( $3.694 \pm 0.233$ ,  $p = 0.027$ ) and low status Trustees ( $3.470 \pm 0.242$ ,  $p = 0.015$ ), and invested more in middle status Trustees than low status Trustees,  $p = 0.033$ .

Importantly, there was a significant interaction between partner social status and promise,  $F(4, 108) = 6.833$ ,  $p < 0.001$ ,  $\eta^2_{\text{partial}} = 0.202$ . Tests for simple effects showed that after receiving a promise (“promise” condition), participants invested more in high status Trustees ( $6.016 \pm 0.328$ ) than in low status Trustees ( $5.190 \pm 0.368$ ),  $p = 0.007$ , and marginally more than in middle status Trustees ( $5.616 \pm 0.337$ ),  $p = 0.075$ ; in addition, participants invested more in middle status promises ( $5.616 \pm 0.337$ ) than low status promises ( $5.190 \pm 0.368$ ),  $p = 0.001$ . When no promise was given (“no promise” condition), the investment amount for low status Trustees was no different from the amount for middle status Trustees ( $p = 0.081$ ) or high status Trustees ( $p = 0.190$ ), and there was no difference in investment amount for middle and high status Trustees ( $p = 1$ ). When promise information



was concealed (“unknown” condition), participants invested more in high status Trustees ( $3.473 \pm 0.308$ ) than middle status Trustees ( $3.123 \pm 0.286$ ),  $p = 0.022$ , but there was no difference in investment amounts for high status and low status Trustees ( $3.147 \pm 0.291$ ),  $p = 0.333$ ; there was also no difference in investment amounts for low and middle status Trustees,  $p = 1$ .

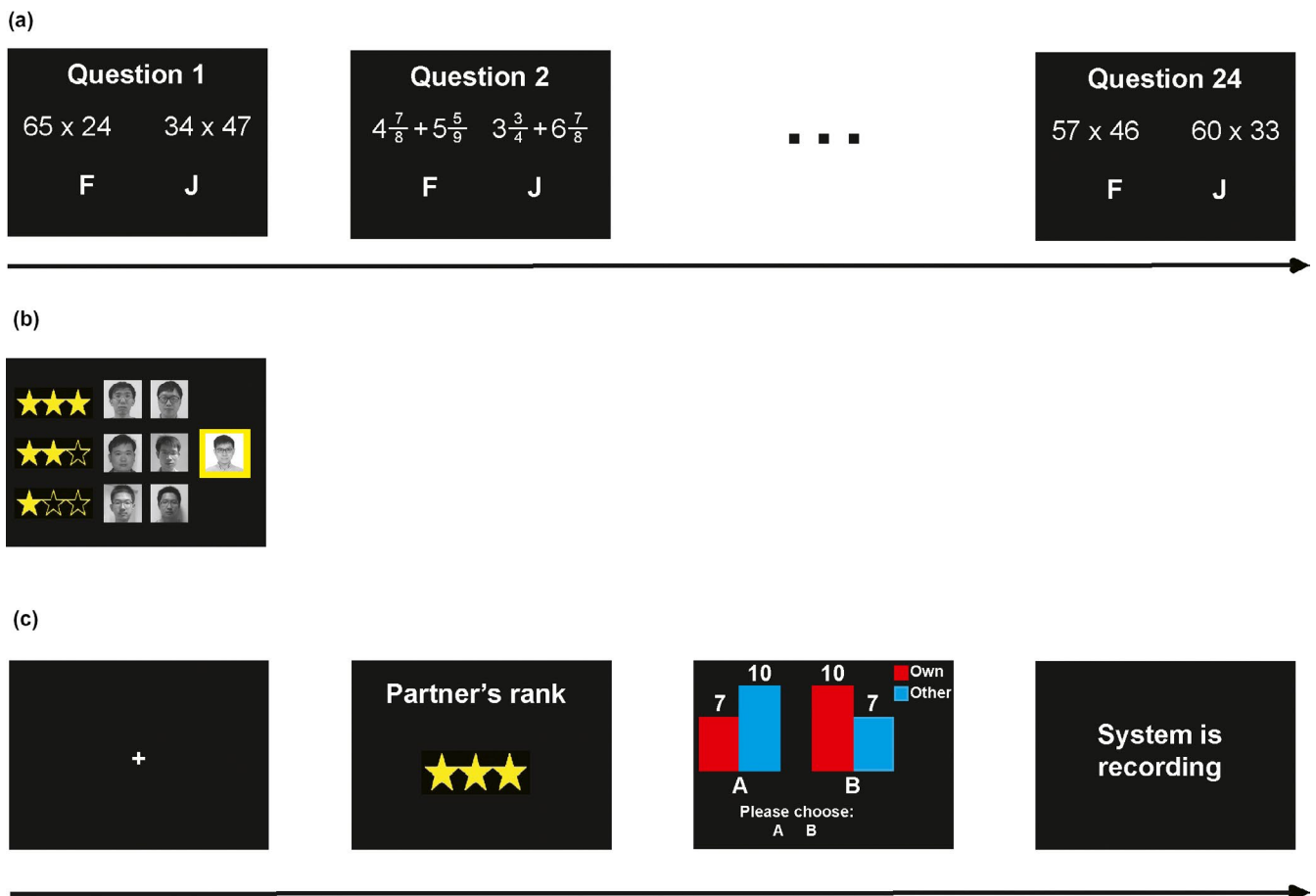
## 2.5 | Discussion

Findings from Experiment 1 showed that participants in a prestige-based social hierarchy invested more in partners who promised to return than those who did not promise or whose promise decision was concealed. When promise information was concealed (“unknown” condition), there was no difference in investment levels for low and high status partners; this finding is in contrast with predictions made by the “low status benevolence” hypothesis (Lount &

Pettit, 2012). Importantly, in line with the “high status credible” hypothesis, participants invested more in promises given by high status partners than in promises given by low status partners.

## 3 | EXPERIMENT 2

To rule out the potential that behavior in TG represented a preference for a certain social status, instead of trust per se, we conducted Experiment 2 with a new group of participants who played DG instead of TG. In Experiment 2, participants acted as Dictator and decided how much money to split between themselves and a low or high status partner; the partner had no option but to accept the proposal. The more money allocated to the partner, the greater the other-regarding preference for the partner. If participants’ behavior in TG is, in fact, driven by other-regarding preferences, we would



**FIGURE 3** Experiment 2 was composed of two tasks: the first was a math quiz (i.e., rank-inducing task); the second was the Dictator Game (DG). The math quiz was the same as that used in Experiment 1 (a). After the math quiz, participants were given a rank in relation to six same-sex confederate players (b). After the rank-inducing task, participants acted as Dictator in DG with partners of varying social status (c). Participants played a total of 44 DG trials; in each trial participants were informed that the computer would randomly pair them with one of the four partners with different social status (low or high status DG partners). Partner status was randomized across trials. Each trial of DG began with the presentation of the social status information of the partner in that particular trial. After being paired with the partner for that trial, the participant viewed the DG choice set, which was composed of two items (i.e., Item A and Item B). The participant indicated their choice using the “F” and “J” buttons on the computer keyboard corresponding to Item A and Item B, respectively. Participants were given 6 s to make their decision. Finally, a screen indicated to the participants that “Your choice is being recorded by the computer”. Participants were informed that their decisions would not be revealed to DG partners after the experiment

expect that participants also send more money to high status partners than low status partners in DG.

### 3.1 | Participants

We determined the sample size using G\*Power 3 software (Faul et al., 2007), which showed that we needed a sample size of at least 50 for this study to have adequate power ( $1 - \beta > 0.95$ ) to detect a small-to-medium-size effect ( $f = 0.20$ ). Among the 54 undergraduate and graduate students who participated in the experiment, one participant's DG behavior was classified as an outlier ( $>3 SD$  above/below group mean) and hence this participant was excluded from data analysis, although including this participant in the data analysis does not change the pattern of results detailed below. The remaining 53 participants (28 females) were between 18 and 26 years of age (mean 21.415 years,  $SD = 2.222$ ). Each participant was informed that the basic payment for participation would be 45 Chinese yuan (about 7 USD) and that a bonus of 0–20 yuan would be added based on performance in the game.

This experiment had a one-factor (partner social status: low vs. high) within-participants design. Status was assigned using a star system (Zink et al., 2008) in the same way as in Experiment 1. Participants arrived alone to the laboratory for each experimental session, where they were told that six same-sex participants (confederates) were waiting in another laboratory. Before the experiment, participants gave permission to the experimenter to take their photo, which would later be used during the math quiz ranking screen, along with the photos of the six confederates (Figure 3a); at no other time was the picture used. Explicit consent was given by all confederate partners before using their photos in the experiment. The experiment consisted of two tasks: the math competition (Figure 3a) and DG (acting as Dictator, Figure 3c). During the instructions, we made sure to avoid using "Dictator" while referring to DG: DG was referred to as "Choice Game". Participant performance on the math quiz was in comparison with six confederates, who would later act as their partners in DG.

The first task was the rank-inducing task (Figure 3a), which was identical to that of Experiment 1, with the exception that, upon completion of the quiz, participants viewed their rank in comparison with the ranks of the six same-sex confederates (Figure 3b). In the second task, participants acted as Dictator in DG, and partners for each round of DG were drawn randomly from the pool of the six confederates from the math quiz (Figure 3c). Participants were informed that they would only be paired with partners who had achieved rankings that were different from their own, so they were only paired with low status (one-star) and high status (three-star) DG partners. This was meant to increase the number of trials in the critical conditions.

At the start of each DG trial (44 trials in total; 20 trials/condition, four filler trials), participants viewed the ranking of their anonymous partner for that particular trial (Figure 3c). Then, the participants were shown the DG choice set, which was composed of two items (i.e., Item A and Item B). In the critical conditions, one choice was better for the DG partner, while the other choice

was better for the participant, which facilitated the zero-sum competitive nature of the task; in filler trials, one choice was better for both the participant and the partner. The participant indicated their choice using the "F" and "J" buttons on the computer keyboard corresponding to the left and right choice, respectively. Participants were given 6 s to make their decision. If the time expired, no choice was recorded and the next trial of DG began. After making their choice, their choice was recorded. Finally, a screen indicated to the participants that "Your choice is being recorded by the computer". During this screen, participants were led to believe that only 80% of their decisions would be recorded by the computer, while the remaining 20% of the choices would be reversed by the computer (e.g., if the participant chose Item A, then the computer would record Item B as their choice). This measure was taken as part of a larger study and is common practice in studies looking to add elements of uncertainty to DG so as to match behavior in other economic games, like Message Game (Gneezy, 2005; Zhu et al., 2014). After the computer recorded the participant's decision, the next round of DG began.

Before the experiment began, participants practiced as many arithmetic and DG trials as needed, with a minimum of six arithmetic expressions and six DG trials. After the experiment, participants completed the same social status manipulation checks as those in Experiment 1.

For behavioral data analysis, each condition (DG/low status, DG/high status) included 20 critical choice pairs along with two filler choice pairs (Table 1). Choice items were based on items drawn from Zhu et al. (2014) and were tested in a pilot experiment ( $n = 32$ , results not shown here). Each item pair was repeated four times (once per condition). In DG, there was a set amount of item pairs that were applied to each condition. If time expired during a particular DG trial, the trial was removed. To keep all conditions equal among participants, we removed this item pair from the three other conditions. This was meant to maintain the statistical comparability between conditions. The statistical patterns reported below remain the same if we include all trials. We conducted two separate ANOVAs. The first ANOVA included the ratio of making a selfish choice in DG. The greater the ratio in DG, the more selfish the participant is in the task. The second ANOVA included the average amount allotted to the partner in DG (i.e., amount given). This amount can range from 5.354 (completely selfish) to 10.636 (completely altruistic).

### 3.2 | Results

To ensure that the social status manipulation elicited perception of inferiority and superiority, we conducted a one-factor (star-ranking: one vs. three) repeated-measures ANOVA, which validated the social status manipulation,  $F(1, 52) = 213.849$ ,  $p < 0.001$ ,  $\eta^2_{\text{partial}} = 0.804$ . Participants reported perceiving themselves as more superior when facing a low status partner (mean  $\pm SE$ ,  $5.472 \pm 0.106$ ) than when facing a high status partner ( $3.377 \pm 0.112$ ).

Regarding the ratio of selfish choices in DG, a one-factor (partner social status: low vs. high) repeated-measures ANOVA showed



**TABLE 1** Full table of DG trial options

Trial type	Option A		Option B	
	Own	Other	Own	Other
G = C	5	20	20	5
G = C	15	5	5	15
G = C	5	10	10	5
G = C	12	10	10	12
G = C	5	6	6	5
G = C	19	6	6	19
G = C	5	12	12	5
G = C	7	4	4	7
G < C	10	5	5	20
G < C	5	15	6	5
G < C	6	5	5	10
G < C	6	15	8	6
G < C	8	2	2	13
G < C	4	14	13	3
G > C	4	5	10	4.99
G > C	10	4.99	6	5
G > C	6	7	9	6.5
G > C	14	6.1	5	7
G > C	4	2	5	1.8
G > C	14	4.4	3	5
Filler	10	5	10	6
Filler	10	12	8	10

G = participant's gain if picking the self-interested option over the option that is better for the DG partner. C = cost of the DG partner if the participant picks the self-interested option over the option that is better for the DG partner.

no difference for low status and high status DG partners,  $F < 1$ ,  $p = 0.857$ . Regarding the average amount given to the DG partner, a one-factor repeated-measures ANOVA showed no difference for low status and high status DG partners either,  $F < 1$ ,  $p = 0.649$ .

### 3.3 | Discussion

Taken together, results from Experiment 2 help rule out the possibility that participants' increased investment in high status promises in Experiment 1 was due to increased preference for high status over low status individuals. In other words, increased trust in high status promises was unlikely to be due simply to liking high status partners more than their low status counterparts, given that there was no difference in DG behavior towards low or high status partners.

## 4 | EXPERIMENT 3

The results from the "unknown" condition in Experiment 1 did not replicate Lount and Pettit (2012). One potential reason for not

finding increased trust in low status Trustees could lie in the differences in experimental instructions. Lount and Pettit (2012) made no reference to promises at any point. As a result, in Experiment 3, we adjusted the instructions to the participants in the "unknown" condition in TG, making them closer to the instructions given to participants in the Lount and Pettit study (2012). Participants were told that the low and high status Trustees in the "unknown" condition did not have the opportunity to make a promise decision. In Experiment 3, we refer to the "unknown" condition as the "unknown/no opportunity" condition. Another reason for this clarification of the "unknown" condition is that there may be a different interpretation of expectation in the "unknown" condition.

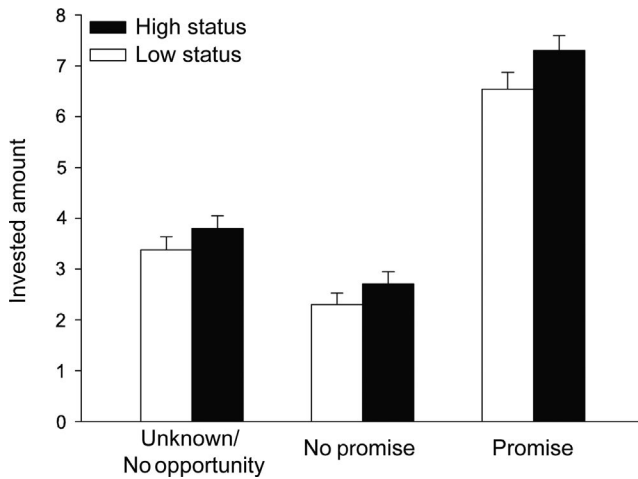
### 4.1 | Participants

The participants in this sample were part of a larger study that included playing one block of TG as Investor and one block as Trustee, the order of which was counterbalanced across participants. Importantly, participants did not know that they were going to switch roles in TG until after they completed their first block of TG. This step was taken so as to avoid the possible confounding effect of knowing one will play both roles in TG (Burks, Carpenter, & Verhoogen, 2003), and to rule out any possibility of reciprocity or order effects on our findings reported below. Among the 117 undergraduate and graduate students who participated in the experiment, 62 participants first acted as Investor before acting as Trustee, and we report their data here. One participant's data as Investor was defined as an outlier ( $>3$  SD above/below group mean). This participant was excluded from the data analysis, although including this participant does not affect the results presented below. Also, including the data from all 117 participants in the data analysis does not affect the results presented below. The remaining 61 participants (33 females) were between 18 and 26 years of age (mean 20.410 years,  $SD = 1.892$ ). Each participant was informed that the basic payment for participation would be 35 Chinese yuan (about 6 USD) and that a bonus of 0–15 yuan would be added based on performance in TG. Before the experiment, informed consent from each participant was obtained. This study was conducted at Zhengzhou University (Zhengzhou, China).

### 4.2 | Design and procedure

The experiment had a  $2 \times 3$  within-participants factorial design, with the first factor referring to Trustee partner social status (low vs. high), and the second factor referring to the opportunity for the Trustee to promise to return at least half of the multiplied sum in TG ("promise" vs. "unknown/no opportunity" vs. "no promise"). The two conditions were randomized across trials within participants (96 trials in total; 16 trials/condition).

Groups of same-sex participants ranging from 2 to 5 individuals arrived at the laboratory for each experimental session, although the vast majority of the groups were composed of four individuals. Due to certain scheduling constraints, occasionally groups were



**FIGURE 4** Experiment 3 mean and standard error of the means for amount invested (i.e., trust amount) in partners of different social status across the three promise conditions (“unknown/no opportunity”, “no promise”, and “promise”)

composed of both males and females; this should not have affected behavior given that participants were told that they were playing TG with same-sex, anonymous participants who had ostensibly participated in previous experiment sessions. Moreover, participants had no chance of interacting with one another once the experiment began. Before the experiment, participants gave permission to the experimenter to take their photo, which would later be used during the math quiz ranking screen to personalize the ranking; at no other time was the picture used. As in Experiment 1, the experiment consisted of two tasks: the math competition and TG. The setups of the two tasks, including experimental procedures and trial numbers for conditions, were exactly the same as in Experiment 1. Importantly, participants were given the following instructions regarding the meaning of the promise decisions in TG (translated from Chinese):

During each round of the game, the screen will notify you whether or not Player B has promised to return at least 50% of the multiplied sum. There are two symbols to indicate Player B's decision: (1) (!) indicates that the partner promises to return at least 50% of the multiplied sum; and (2) (-) indicates that the partner does not promise to return at least 50% of the multiplied sum. *On certain rounds of the game, Player B is not given the opportunity to make a promise or not to return at least 50% of the multiplied sum; on these rounds, the screen will indicate the following symbol (! |).*

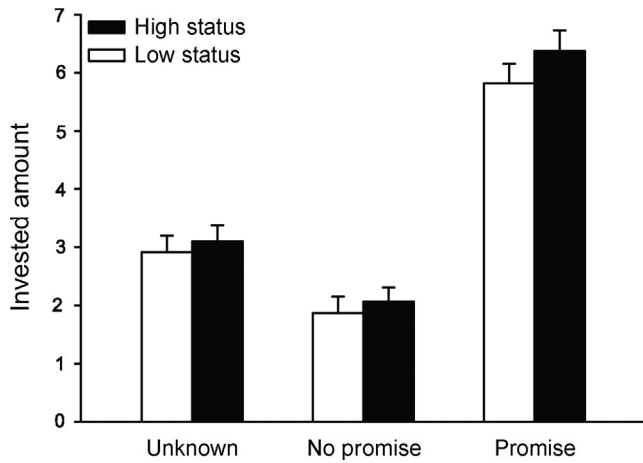
After the experiment, participants reported on a 7-point Likert scale to what extent they felt superior or inferior (1 = *very inferior*; 7 = *very superior*) to the other players in the experiment. We also tested participants' SES, which is composed of Objective SES and Subjective SES, with Objective SES referring to an individual's (or parents') income, occupation, and education levels (Kraus, Piff, & Keltner, 2009; Oakes & Rossi, 2003), and Subjective SES referring to an individual's perception

of where he/she stands in comparison with a relevant group, or with society in general, regarding to his/her income, occupation, and education (Adler et al., 2000). To test for potential effects of Subjective SES, participants indicated their Subjective SES and the Subjective SES of both low and high status partners after completing the experiment. That is, participants rated the Subjective SES for each partner's social status only once. Subjective SES was measured using the MacArthur Subjective Social Status Scale (Adler et al., 2000), which asks participants to indicate the target's subjective status in Chinese society on a ladder, with the lowest rungs indicating individuals with the lowest levels of income, occupation, and education, and the highest rungs indicating individuals with the highest levels of income, occupation, and education. To test for potential effects of Objective SES, participants also indicated their parents' highest level of education (1 = *middle school diploma*; 2 = *high school diploma/middle trade school certificate*; 3 = *trade school certificate*; 4 = *bachelor's degree*; 5 = *graduate degree*) and their parents' annual income (1 = 0–10,000 yuan; 2 = 10,000–100,000 yuan; 3 = 100,000–300,000 yuan; 4 = 300,000–500,000 yuan; 5 = 500,000–1,000,000 yuan; 6 = 1,000,000–5,000,000 yuan; 7 = >5,000,000 yuan). Note, for the sake of privacy, participants were allowed to select “8”, which indicated that they did not want to respond to this question.

### 4.3 | Results

To ensure that the social status manipulation elicited perceptions of inferiority and superiority, we conducted a one-factor (star-ranking: one vs. three) repeated-measures ANOVA, which validated the social status manipulation,  $F(1, 60) = 336.517, p < 0.001, \eta^2_{\text{partial}} = 0.849$ . Participants perceived themselves as more superior when facing a low status partner ( $5.885 \pm 0.115$ ) than when facing a high status partner ( $3.541 \pm 0.083$ ). The status manipulation also affected perceptions of Subjective SES,  $F(2, 118) = 87.099, p < 0.001, \eta^2_{\text{partial}} = 0.596$ , as participants rated three-star partners as having a higher Subjective SES ( $6.567 \pm 0.164$ ) than their own ( $5.250 \pm 0.164$ ),  $p < 0.001$ , and one-star partners as having a lower Subjective SES ( $4.017 \pm 0.138$ ) than their own ( $5.250 \pm 0.164$ ),  $p < 0.001$ . Finally, Objective SES did not affect (interact or correlate with) any of the central findings in the current study.

A 2 (partner social status: low vs. high)  $\times$  3 (promise: unknown vs. no promise vs. promise) repeated-measures ANOVA replicated the pattern of results found in Experiment 1 (Figure 4). The main effect of partner social status,  $F(1, 60) = 12.750, p < 0.001, \eta^2_{\text{partial}} = 0.175$ , showed that participants invested more in high status partners ( $4.604 \pm 0.217$ ) than low status partners ( $4.073 \pm 0.230$ ). The main effect of the promise condition,  $F(2, 120) = 167.053, p < 0.001, \eta^2_{\text{partial}} = 0.736$ , showed that participants invested more in the “promise” condition ( $6.921 \pm 0.298$ ) than in the “unknown/no opportunity” ( $3.590 \pm 0.241$ ) and the “no promise” conditions ( $2.504 \pm 0.224$ ),  $ps < 0.001$ ; participants also invested more in the “unknown/no opportunity” condition ( $3.590 \pm 0.241$ ) than in the “no promise” condition ( $2.504 \pm 0.224$ ),  $p < 0.001$ . Importantly, there was a significant interaction between partner social status and promise,



**FIGURE 5** Experiment 4 mean and standard error of the means for amount invested (i.e., trust amount) in partners of different social status across the three promise conditions (“unknown”, “no promise”, and “promise”)

$F(2, 120) = 5.204, p = 0.012, \eta^2_{\text{partial}} = 0.080$ . Tests for simple effects showed that participants invested more in high status partners than low status partners regardless of the promise condition; however, this effect was stronger in the “promise” condition (low status:  $6.537 \pm 0.338$ ; high status:  $7.305 \pm 0.293, \eta^2_{\text{partial}} = 0.180$ ) than in the “unknown/no opportunity” condition (low status:  $3.380 \pm 0.251$ ; high status:  $3.800 \pm 0.247, \eta^2_{\text{partial}} = 0.156$ ) and the “no promise” condition (low status:  $2.301 \pm 0.230$ ; high status:  $2.707 \pm 0.242, \eta^2_{\text{partial}} = 0.112$ ).

We ran additional analyses to check for the potential unique effect of Subjective SES. While there was no evidence that Subjective SES directly affected trust in the analyses of correlations between SES and the amount of investment in different conditions (data not shown here), when we included SES as a covariate in the above ANOVA analysis, we found that the interaction between social status and promise was no longer significant (participant's own SES as a covariate:  $F(2,118) = 2.048, p = 0.145, \eta^2_{\text{partial}} = 0.034$ ; perceived SES (high status–low status) as a covariate:  $F(2,116) = 2.301, p = 0.128, \eta^2_{\text{partial}} = 0.037$ ), suggesting that the effect of prestige-based status on trust may also have been influenced by perception of SES. There was also no interaction between SES and promise and prestige-based social status (participants' own Subjective SES as a covariate:  $F(2, 118) = 0.862, p = 0.402, \eta^2_{\text{partial}} = 0.014$ ; perceived SES (high status–low status) as a covariate:  $F(2,116) = 0.138, p = 0.819, \eta^2_{\text{partial}} = 0.002$ ), suggesting that SES may explain part of the variance, but the direction of the effect is unclear. The potential unique effects of SES and its influence on the effect of prestige-based status on trust are addressed in General Discussion.

#### 4.4 | Discussion

Experiment 3 replicated the main findings in Experiment 1. As a result, we can conclude that the differences in the findings between those of Lount and Pettit (2012) and Experiments 1 and 3 in the

current study are unlikely to be due to differences in experimental instructions.

## 5 | EXPERIMENT 4

In Experiments 1 and 3, we used a math-based status-inducing task, which is different from the university-based manipulation used by Lount and Pettit (2012). Moreover, we did not directly measure perceived benevolence of low and high status partners, which limits our ability to address the “low status benevolence” hypothesis. In Experiment 4, we adopted the university-based rank-inducing manipulation and benevolence measures from Lount and Pettit (2012). The inclusion of this manipulation allows us to test the robustness of the effect of social status on the perceived trustworthiness of promises in a setting more directly related to the participants' natural social hierarchy (i.e., pre-existing social hierarchy based on university rankings; Lount & Pettit, 2012). All participants were from middle-status universities and played TG with partners from elite universities (i.e., high-status) and community colleges (i.e., low-status). To more directly test whether participants' investment behavior in the “promise” condition represented increased honesty expectations, we also measured participants' predictions of low and high status Trustee return behavior in the “promise” condition along with their self-reported amount of trust in low and high status TG promises.

### 5.1 | Participants

Among the 35 participants, four participants failed the post-experiment check for understanding, and one participant chose to invest 7 out of 10 on every TG trial because 7 was her favorite number. These five participants were excluded from the data analysis. The remaining 30 participants (20 females) were between 18 and 25 years of age ( $M = 22.200$  years,  $SD = 2.188$ ). Each participant was informed that the basic payment for participation would be 30 Chinese yuan (about 5 USD) and that a bonus of 0–20 yuan would be added based on performance in TG. Before the experiment began, informed consent from each participant was obtained. The experiment was in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of the School of Psychological and Cognitive Sciences, Peking University.

### 5.2 | Design and procedure

The experiment had a  $2 \times 3$  within-participants factorial design, with the first factor referring to the Trustee's social status (low vs. high) and the second factor referring to the Trustee's promise to return the entrusted amount (“promise” vs. “no promise” vs. “unknown”). Status was assigned using university-based rankings, with Trustees from China's two top universities (Peking University and Tsinghua University, both located in Beijing) as high status and Trustees from two local community colleges (Beijing City College, Beijing Union University) as low status. Importantly, all participants were from

middle-ranking universities also located in Beijing (China Agriculture University, China Forestry University, University of Science and Technology Beijing, Beihang University, and Beijing Institute of Technology) whose entrance exam scores were between those required for the two community colleges and the two elite universities. The average entrance exam scores of the participants' schools were closer to the elite university scores than the community colleges, but this was to be expected as the test score differences are not linear (i.e., a one-point increase for a high score is much more influential than a one-point increase for a low score). Unlike Experiment 1, we did not include middle-ranking universities to avoid potential in-group/out-group effects.

Groups of same-sex participants ranging from 1 to 3 individuals arrived at the laboratory for each experimental session. Upon arrival, the participants were informed that the experiment was composed of two roles: one role entailed acting as Investor in TG, and the other as Trustee. The experimental procedures and instructions for TG were identical to Experiment 1, with the exception that, in place of a star ranking, the name of the university and the university emblem/logo (black and white) were placed beneath the blurred photo of the Trustee (Figure 1c, Bottom). Only two schools (one low status and one high status) were used for each participant, resulting in 96 trials in total (16 trials/condition). The pairing of the low and high status schools was counterbalanced across participants. All conditions were randomly mixed across trials during TG. After the experiment, participants completed the same social status manipulation checks as those in Experiment 2.

After the experiment, we measured participants' perceptions of benevolence for low and high status TG partners. In addition, we also measured participants' perceptions of ability and integrity of low and high status TG partners, as benevolence, ability, and integrity are three fundamental components underlying perceived trustworthiness (Mayer, Davis, & Schoorman, 1995). The perceived trustworthiness measures were the same measures as those used in Lount and Pettit (2012), which were drawn from previous work in organizational psychology on trustworthiness perception (Mayer & Davis, 1999). The questions are aimed at addressing employees' feelings towards employers ("top management"); we adjusted the questions to be less work-oriented and more suitable for students. Participants received instructions to imagine that they were randomly paired with one student from the inferior and superior ranked university, and to rate each student on each of the three dimensions. Benevolence was composed of five items (e.g., "This individual is concerned about my welfare") ( $\alpha = 0.786$ ); Ability was composed of six items (e.g., "This individual is very efficient") ( $\alpha = 0.928$ ); Integrity was composed of six items (e.g., "This individual has a strong sense of justice") ( $\alpha = 0.788$ ).

To measure for expected honesty, after the experiment participants were asked to indicate on a 7-point Likert scale how much they trusted promises in TG given by partners from the low (high) ranking school (1 = *complete distrust*; 7 = *complete trust*). As an additional measure of expected honesty (i.e., predicted honesty), after the experiment, participants also indicated what percentage of the

multiplied sum they believed low status and high status partners would return after promising in TG (i.e., "promise" condition).

### 5.3 | Results

To confirm that the manipulation of social status was successful in changing perceptions of superiority/inferiority, we conducted a one-factor (university ranking: low vs. high) repeated-measures ANOVA. One participant failed to respond to the manipulation check, leaving 29 participants in this analysis. This test confirmed the status manipulation,  $F(1, 28) = 178.432, p < 0.001, \eta^2_{\text{partial}} = 0.864$ , with participants perceiving themselves as more superior when facing a low status Trustee ( $6.000 \pm 0.211$ ) than when facing a high status Trustee ( $2.586 \pm 0.182$ ),  $p < 0.001$ . Participants' Subjective SES (Adler et al., 2000) also confirmed the university-based social status manipulation,  $F(2, 58) = 82.995, p < 0.001, \eta^2_{\text{partial}} = 0.741$ , with participants rating the low status Trustees as having lower Subjective SES ( $5.033 \pm 0.162$ ) than their own ( $5.867 \pm 0.184$ ),  $p < 0.001$ , and with participants rating high status Trustees as having higher Subjective SES ( $7.667 \pm 0.232$ ) than their own,  $p < 0.001$ . Participants' Objective SES was measured along two dimensions: parents' combined annual salary and parents' highest level of education. Parents' highest level of education, ( $M = 2.467, SE = 0.213$ ) on average ranged from high school diploma/middle trade school certificate to trade school certificate (a level slightly lower than a bachelor's degree); parents' average annual salary ( $M = 2.929, SE = 0.313; n = 28$ ) on average ranged from 10,000 to a little over 100,000 yuan per year (i.e., ~\$1,500–\$20,000). Note that due to concerns over privacy, two participants were not comfortable reporting their parents' annual income; these participants were, however, willing to report parents' highest level of education. Neither level of Objective SES (i.e., parents' average annual income and parents' highest level of education) correlated with behavior in TG (i.e., the interaction between Trustee social status and Trustee promise on investment amount),  $ps > 0.271$ . We do not discuss Objective SES further in the following analysis.

Similar to Experiments 1 and 3, a repeated-measures ANOVA showed that the invested amount varied as a function of both partner social status,  $F(1, 29) = 8.360, p = 0.007, \eta^2_{\text{partial}} = 0.224$  and the promise condition,  $F(2, 58) = 213.927, p < 0.001, \eta^2_{\text{partial}} = 0.881$  (Figure 5). Participants invested more in "promise" trials (mean  $\pm$  SE,  $6.244 \pm 0.334$ ) than in "unknown" trials ( $3.114 \pm 0.268$ ) and "no promise" trials ( $2.067 \pm 0.252$ ) and invested more in "unknown" trials than in "no promise" trials,  $ps < 0.001$ . Participants also invested more in high status Trustees ( $3.940 \pm 0.254$ ) than in low status Trustees ( $3.676 \pm 0.273$ ). Importantly, there was an interaction between partner social status and promise,  $F(2, 58) = 3.698, p = 0.031, \eta^2_{\text{partial}} = 0.113$ . A test for simple effects showed that the investment amount was affected by partner social status only in the "promise" condition, with participants investing more in high status Trustee promises ( $6.485 \pm 0.344$ ) than in low status Trustee promises ( $6.002 \pm 0.335$ ),  $p < 0.001$  ("unknown" condition:  $p = 0.121$ ; "no promise" condition:  $p = 0.342$ ).

Similar to Experiment 3, neither participants' own SES nor their ratings of low and high status partner SES affected TG behavior in any condition. When we included SES as a covariate in the ANOVA analysis, the interaction between promise condition and prestige-based social status was no longer significant (own SES:  $F(2,56) = 0.592$ ,  $p = 0.556$ ,  $\eta^2_{\text{partial}} = 0.556$ ; SES (high status–low status partner):  $F(2,56) = 0.774$ ,  $p = 0.466$ ,  $\eta^2_{\text{partial}} = 0.027$ ). Also similar to Experiment 3, when we included SES in the analysis, the interaction between SES, promise, and prestige-based status failed to reach significance: own SES:  $F(2,56) = 0.230$ ,  $p = 0.795$ ,  $\eta^2_{\text{partial}} = 0.008$ ; SES (high–low status partner):  $F(2,56) = 1.463$ ,  $p = 0.240$ ,  $\eta^2_{\text{partial}} = 0.050$ . Potential implications of these findings are addressed in General Discussion.

Results regarding the post-experiment measurements of ability, benevolence, and integrity were as follows. Participants rated low status partners ( $3.856 \pm 0.148$ ) as having less ability than high status partners ( $5.100 \pm 0.177$ ),  $t(29) = -7.239$ ,  $p < 0.001$ . There was no difference in ratings of benevolence in low status ( $3.687 \pm 0.191$ ) and high status partners ( $3.813 \pm 0.162$ ),  $p = 0.384$ . Participants rated low status partners ( $4.450 \pm 0.154$ ) as having lower integrity than high status partners ( $4.917 \pm 0.138$ ),  $t(29) = -3.558$ ,  $p = 0.001$ .

To test the “low status benevolence” and “high status credibility” hypotheses, we examined the relationship between status differences in perceived ability, benevolence, and integrity and status differences in investment behavior in each of the promise conditions. No correlation reached significance,  $ps > 0.110$ , suggesting that the current study does not provide evidence for the role of perceived ability, benevolence, or integrity in predicting behavior differences in either condition of the TG.

We were also interested in the relationship between ratings of ability, benevolence, and integrity on investment behavior in the low and high status Trustees, regardless of promise condition. For low status, we found that overall investment in low status Trustees (i.e., investment behavior in the low status Trustees averaged over “unknown” and “promise” conditions) correlated positively with low status ability ratings ( $r = 0.419$ ,  $p = 0.021$ ) and low status benevolence ratings ( $r = 0.382$ ,  $p = 0.037$ ), but did not correlate with low status integrity ratings ( $p = 0.305$ ). We also found that overall investment in high status Trustees (i.e., investment behavior in the high status averaged over “unknown” and “promise” conditions) correlated positively with high status benevolence ratings ( $r = 0.362$ ,  $p = 0.049$ ), but did not correlate with high status ability ( $p = 0.267$ ) or high status integrity ( $p = 0.147$ ) ratings. Taken together, we found that, similar to Lount and Pettit (2012), benevolence ratings helped predict investment behavior for both low and high status Trustees, suggesting that participants' investment was affected by how much they believed their partner cared about them. However, these general tendencies are unable to explain the increased investment in high status Trustee promises over low status Trustee promises.

To more directly test the “high status credibility” hypothesis, we analyzed expected honesty ratings of low and high status partners. One participant failed to respond, leaving 29 participants in the analysis. After the experiment, participants indicated that they trusted

promises given by high status partners ( $5.310 \pm 0.141$ ) more than promises given by low status partners ( $4.517 \pm 0.196$ ),  $t(28) = 4.075$ ,  $p < 0.001$ ). As an additional measure of expected honesty (i.e., predicted honesty), participants also indicated how much of the multiplied sum they expected low status and high status partners to return after promising to return at least half of the multiplied sum in TG. Participants indicated that they expected high status partners to return a higher percentage of the multiplied sum ( $49.276 \pm 2.717$ ) than low status partners ( $45.656 \pm 2.588$ ) in the “promise” condition,  $t(28) = -2.254$ ,  $p = 0.032$ . Neither of these measures evidenced significant correlations with investment differences in high and low status Trustees in the “promise” condition (i.e., average investment amount: high status “promise”–low status “promise”),  $ps > 0.160$ .

## 5.4 | Discussion

Experiment 4 successfully manipulated feelings of social status by using a pre-existing social hierarchy (i.e., university-based status). Importantly, the findings from Experiment 4 replicated the findings from Experiments 1 and 3, thus providing further support for the “high status credible” hypothesis. Participants invested more in high status partner promises than in low status partner promises. There was no difference in perceived benevolence between low and high status partners, nor did the difference in benevolence predict investment differences in TG, providing evidence against the “low status benevolence” hypothesis. Interestingly, there was a difference in perceived integrity between low and high status partners, as participants perceived partners from an elite university as having higher integrity than participants in low status, suggesting that social status may have influenced expectations of honesty. There was no correlation between perceived differences in integrity between low and high status Trustees and investment behavior in low and high status Trustees, indicating that future studies are needed to more directly address the effect of social status on expectations of honesty. In particular, future studies could orthogonalize partner ability, integrity, benevolence, and prestige-based status to tease apart their unique effects on trust. Finally, in further support of the tendency for increased honesty expectations for high status over low status others, after the experiment participants reported that in TG they trusted promises given by high status partners more than promises given by low status partners and predicted that, after promising to return at least half of the multiplied sum, high status partners would return a greater percentage of the multiplied sum than their low status counterparts. Potential explanations and implications of these findings, in combination with those from Experiments 1, 2, and 3, are addressed in detail below.

## 6 | GENERAL DISCUSSION

In the current study, we used a modified version of TG to investigate how promises affect trust in partners of different social status.



Results showed that participants invested more in partners who promised than those who did not or whose promise information was concealed. Interestingly, participants invested more in promises given by high status than by low status TG partners. These effects were found in both manipulated and pre-existing forms of social status, demonstrating the robustness of the findings. Moreover, post-experiment measures showed that, in comparison with low status partners, high status partners were perceived as having greater levels of integrity and were predicted to return more of the multiplied sum after promising. Moreover, participants rated high status promises as being more trustworthy than low status promises. Taken together, these findings provide strong support for the “high status credible” hypothesis, which predicts that when given the opportunity to promise, high status partners are trusted more than low status partners (Kilpatrick et al., 2007).

The effect of social status on trust decisions was either diminished (Exp. 1) or non-existent (Exp. 4) when the partner did not choose to promise (“no promise” condition) or when promise information was unknown to the participant (“unknown” condition), suggesting that the findings in the “promise” condition largely drove the effect of social status on trust. Here we offer three possible but not necessarily mutually exclusive explanations for why the effect of social status was more pronounced in the “promise” condition.

One explanation is that participants simply liked high status partners more than low status partners and that this effect was mostly manifested in the “promise” condition. This would suggest that behavior in TG did not represent trust per se, but rather represented participants’ other-regarding preferences (Cox, 2004). However, data from Experiment 2 ruled out this other-regarding preferences account. A second possible explanation is that promises elicited feelings of cooperation. When an individual makes a promise to another individual, the promise acts as a signal to the promisee that the promisor desires some level of cooperation with the promisor (Friedrich & Southwood, 2011). This desire for cooperation, in itself, may have been more rewarding to the participant when the promise was given by high status than by low status partners in TG. *Dominance Theory* suggests that the goal of any individual in a hierarchy is to gain access to resources and increase one’s rank (Cummins, 1996, 1999, 2006). However, in order to do so, one must be able to engage in cooperative relationships with other members of the hierarchy. These cooperative relationships tend to be strategically (or automatically) aimed at high ranking members of the hierarchy, as high status individuals are of the most help in dire situations or when opportunities for resources arise (Silk, 1992; Stevens, Vervaecke, de Vries, & Van Elsacker, 2005; Trivers, 1971; de Waal, 1989). In the current study, participants may have invested more in high status than low status partners because they had an increased desire for cooperation with high status partners. In other words, they may have found high status promises to be more rewarding or valuable than low status promises. Future research could more systematically analyze this account by directly investigating whether receiving a promise from a high status TG partner is perceived as more rewarding than receiving a promise from a low status TG partner; this type of research could be

done using research methods that provide more explicit measures of reward processing such as electroencephalography or functional magnetic resonance imaging.

The third explanation is that the relationship between trust and social status is modulated by the explicitness of the normative behavior in question. Research on unethical behavior shows that when individuals are reminded of their moral standards (“attention to standards”; e.g., reading the 10 Commandments) or when a norm violation is explicit (“categorization”, e.g., taking \$10 from someone’s wallet as opposed to keeping \$10 mistakenly given by a Starbucks employee) people are less likely to break the norm in question (Djawadi & Fahr, 2015), which suggests that people are sensitive to the explicitness of norm violations. In accordance with this line of reasoning, previous research shows that, when the social norm violation in question is explicit (e.g., underpaying one’s personal income taxes), people are more likely to punish a prominent and politically connected New Yorker (i.e., high status) than a Mexican immigrant in New York (i.e., low status) (Fragale, Rosen, Xu, & Merideth, 2009), whereas when the social norm violation in question is less explicit (i.e., accidentally knocking over someone’s suitcase at the airport), people are less likely to derogate professionally dressed violators (i.e., high status) than unkempt and informally dressed violators (i.e., low status; Ungar, 1981). Considering these studies, the findings from the current study could indicate that more is expected of high status individuals when the social norm in question is more explicit (i.e., “promise” condition) than when the norm is less explicit (i.e., “unknown” condition) or nonexistent (“no promise” condition).

The above-mentioned explanations refer to behavior in the “promise” condition; however, one unexpected finding in the current study was that behavior in the “unknown” condition did not replicate findings from a previous study using a similar paradigm (Lount & Pettit, 2012), which found that participants perceived low status others to be more benevolent than high status others, and thus invested more in low status others in TG. One reason for the lack of replication arises from differences in experimental design. We addressed this possibility in Experiment 3 by defining the “unknown” condition to better match the instructions given to participants in the Lount and Pettit study (2012; Experiment 3). The pattern of results for the “unknown/no opportunity” condition in Experiment 3 remained the same as the “unknown” condition in Experiment 1, thus ruling out the possibility that difference in instructions could account for the difference in findings.

A second reason for the difference in findings between the current study and those of Lount and Pettit (2012; Exp. 3) is that the two samples were collected in different cultures (Lount & Pettit: USA; current study: China). Past research comparing behavior in TG between Chinese and US samples shows that Investors from China tend to send more money to their partners than Investors from the United States (Buchan & Croson, 2004; Buchan, Johnson, & Croson, 2006, see also: Buchan, Croson, & Dawes, 2002). However, this increased investment in TG most likely would not explain the interaction between promise information and social status found in the current study. A more likely cultural explanation lies in the perception



and construction of social hierarchies (Dong, Weisfeld, Boardway, & Shen, 1996) as the social hierarchies in the United States and China are fundamentally different (Fei, 1985/2015). Taken in this light, the difference in the findings from the current study and those of Lount and Pettit (2012) may be driven by differing beliefs in the perceived moral character of high status individuals. As this is a topic of great interest in management research (Pellegrini & Scandura, 2008), future research could analyze whether cultural differences in social hierarchy influence trust-related behavior with individuals of different social status.

A third possible reason for a lack of replication of Lount and Pettit (2012) is that Trustee communication in the current study may have acted to individuate high status partners. For example, past research suggests that certain high status people are perceived as less warm and benevolent than their high status counterparts (Fiske, Cuddy, & Glick, 2002; Lount & Pettit, 2012); however, in those studies, participants had no opportunity to interact with (i.e., receive communication from) the people they were perceiving. Introducing promises may have initiated an individuation process, leading the participants to perceive high status partners in a less abstract/stereotyped, and more human fashion. In the current study, participants did not show any difference in their perceived benevolence ratings of low and high status partners. Instead, we found that participants perceived high status others as having greater levels of integrity than low status others. Communication may make an individual more personable and may have acted to counteract the tendency to perceive high status others as less benevolent (Fiske, 2009). It would be interesting for future research to test whether individuation of others modulates the perceived differences between low and high status others.

Four additional points are worth mentioning. First, given that participants in the current study did not receive feedback related to their partners' choices, it is not possible to speculate how trust in promises given by high and low status others differentiates with regard to social learning. Participants did not receive feedback because past research using TG has shown that prior trustworthiness behavior by the Trustee is the most critical factor in the decision-making process for the Investor (King-Casas et al., 2005), as people tend to trust those who have been trustworthy and not to trust those who have been untrustworthy. Given the tendency for participants to learn the trustworthiness of their partners in TG, and given the effects of learning on other factors related to trustworthiness, such as social distance (Fareri, Chang, & Delgado, 2015), perceived moral character (Delgado, Frank, & Phelps, 2005), and perceived facial trustworthiness (Chang, Doll, van't Wout, Frank, & Sanfey, 2010; Van't Wout & Sanfey, 2008), not providing participants with feedback allowed us to better analyze the unique effect of social status and promises on trust, which was the primary aim of the current study. Moreover, this type of design also resembles many trust decisions made in real life, where immediate feedback is not present regarding the subsequent trustworthiness of a particular individual (e.g., voting in a political election or lending money to a stranger). Nevertheless, it would be helpful for future studies to investigate how promises modulate the effect

of status on trustworthiness learning in repeated interactions when feedback is given regarding the trustworthiness of partner promises and behavior in TG. Also, it is worth noting that when trustees communicate in TG, half promise and half do not promise. Participants could infer that this 50–50 probability will also hold in the “unknown” conditions, which is not necessarily the case in other studies or in real life. Future studies may wish to evaluate whether the likelihood of promising in the “promise” condition affects investment behavior in the “unknown” condition.

Second, the rank of the participants in the current study was restricted to middle status so as to maximize statistical power and control for potential emotional differences experienced after achieving low or high ranking (Steckler & Tracy, 2014). Future studies would benefit from evaluating whether the effect of promises on trust for partners of different social status exists when the participant (i.e., Investor) occupies either high or low status. In addition, given that social status is relative and ever-changing, it would be worthwhile to investigate the robustness of the effects of promises on social status as social status changes between situations (e.g., Hu et al., 2014, 2015).

Third, to allow for a realistic one-shot manipulation of social status based on a previous pool of participants, we informed participants that their partners in TG made separate return decisions for each potential investment amount (i.e., strategy method). It is possible that there are differences in the effects of promises on behavior if behavior has already happened, in contrast to the more natural situation in which promises affect future actions. Future studies could address this issue by having participants play TG with each other at the same time.

Finally, while the current study found that the prestige-based status manipulation affected perceptions of Subjective SES, the study is limited in its ability to analyze the unique effects of SES on trust, given that there was no interaction between SES, promise, and prestige-based status, and given that we did not manipulate SES directly. This study was not designed to test the difference between SES and prestige-based status on trust: participants responded to questions related to SES *after* the experiment was completed and questions related to SES were general in nature (i.e., participants rated how they perceived SES of low and high status partners as a whole, not on a trial-by-trial or partner-by-partner basis). Future studies are needed to analyze the unique effects of SES and prestige-based status on trust.

## 7 | CONCLUSION

By manipulating the social status of Trustee partners in TG, the current study showed that participants were more likely to invest in promises given by high status partners than low status partners. This effect was found in both experimentally manipulated and pre-existing social hierarchies, thus confirming the robustness of the “high status credible” hypothesis across different dimensions of social status. Moreover, in comparison with low status partners,

participants perceived high status partners as having greater integrity and high status promises as being more trustworthy. These findings could suggest that, in situations where social ranking emerges, social status may increase one's perceived ability to keep promises in particular and one's honesty in general. Finally, findings from the current study may also explain the pervasiveness and usefulness of promises issued by high status individuals (e.g., campaign promises) and the reactions to them when they are unrealistic or broken (Fabien, 1997; Fiske & Durante, 2014; Politifact, 2015).

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## CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## TRANSPARENCY STATEMENT

The datasets analyzed during the current study are available at this link: <https://osf.io/47d3x/>.

## ETHICAL STATEMENT

The manuscript adheres to ethical guidelines specified in the APA Code of Conduct as well as authors' national ethics guidelines.

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