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Behavioral Trust in Competence Versus Morality: Experimental Evidence of Differences and Similarities

Detlef Fetchenhauer[1] | David Dunning[2] | Daniel Ehlebracht[1] | Thomas Graczyk[1] | Thomas Schlösser[3]

[1]Department of Sociology and Social Psychology, Faculty of Management, Economics and Social Sciences, University of Cologne, Cologne, Germany | [2]Psychology Department, University of Michigan, Ann Arbor, Michigan, USA | [3]Faculty of Engineering and Business Sciences, South Westphalia University of Applied Sciences, Meschede, Germany

Correspondence: Detlef Fetchenhauer (detlef.fetchenhauer@uni-koeln.de)

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ABSTRACT

Life is full of decisions about whether to trust other people. At a cognitive level, people can be skeptical about another person's trustworthiness but are averse to signaling their suspicions at a behavioral level. This phenomenon of "principled trustfulness" has been documented for trust implicating the moral character of another person but not explored for cases involving their competence. We introduce a new game-theoretical paradigm, the competence game, in which participants can bet money on whether an interaction partner will pass an intelligence test, thus placing trust in their partner's competence. Across four studies ($N = 3337$ participants analyzed, each making a decision to risk), we compared behavior in competence games and traditional trust games, which focus on moral choice and lottery gambles. In competence games, participants were significantly less likely to trust their interaction partner than in trust games even if the pay-off structure and likelihood of reaching a positive outcome were identical. Thus, trust in competence is not as principled to the same degree as trust in moral character but seems to be approached more like a self-interested investment decision.

Trust is vital for the functioning of social relationships (Simpson 2007), organizations (Kramer 1999), and societies at large (Knack and Keefer 1997; Zak and Knack 2001; Paxton 2002; Uslaner and Brown 2005). Consequently, in the last three decades, much research in judgment and decision making has been devoted to analyzing the antecedents and consequences of trust, focusing on the "trust game" (TG) (originally called "investment game," see Berg et al. 1995), in which participants choose whether to invest money in an anonymous stranger they will never meet who might return the money back with a profit or might instead just keep all the money for themselves.

However, the TG only measures trust in another person's moral character. The main question is whether the other person will make a choice that counters their own self-interest to benefit the person who favors them with trust or will act instead out of pure selfishness. Such questions in everyday life, of course, are of crucial importance, but they neglect another important dimension of trust, whether to rely on another person's competence (e.g., Zheng et al. 2023). To prove trustworthy, for example, a family doctor must not only have an attentive and generous disposition but also knowledge of disease, diagnosis, and treatment.

In this paper, we aim to find how trust in another person's competence compares to trust in another person's morality. We therefore developed a new game theoretical paradigm (which we call the *competence game* [CG]), in which "Persons A" must decide whether to trust "Persons B" ability to solve a certain

task, and that otherwise mirrors the pay-off structure of ordinary binary TGs. We focused on two potential patterns people might show in their decisions in CGs. First, they might show "principled trustfulness" as they do in the traditional TG, sending money to Person B out of an unwillingness to signal their distrust (see Dunning et al. 2019, for a review), even when they expect to lose money. Second, they might instead pursue trust in competence as a rational investment—thus risking trust only when expecting a positive material reward for such trustfulness. Thus, in four studies, we compared trust behavior related to another's competence and another's morality, along with basic risk-taking, testing these two potential empirical outcomes against each other.

1 | Trust in Morality

Over the past few decades, studies of the TG have produced vexing results that defy explanation, at least at first blush. In the binary version of this game, two people interact under conditions of total anonymity. Persons A are given, for example, $US5 that they can either keep for themselves or send to someone else (Persons B). If Persons A send their money to Person B, this amount is multiplied by 3 (thus, Persons B get $US15). In the next step, Persons B are free to decide whether they keep all the $US15 for themselves or whether they split the money evenly between themselves and Person A (for overviews, see Evans and Krueger 2016; N. D. Johnson and Mislin 2011; Thielmann and Hilbig 2015). Although simple and spare, the TG covers one central aspect of trust: by sending their money, Persons A make themselves vulnerable to the preferences of Person B (see Mayer et al. 1995; Rousseau et al. 1998). Thus, the TG does measure the trustfulness of Persons A and the trustworthiness of Persons B.

According to a strict rational actor perspective, Persons B should never be trustworthy, and Persons A therefore should not be trustful (Berg et al. 1995). Yet, empirical outcomes belie these expectations. Majorities of Persons A choose to trust, and vast majorities of Persons B reciprocate in return (Dunning et al. 2014, 2019; Evans and Krueger 2016; Fetchenhauer and Dunning 2009, 2010; Schlösser, Fetchenhauer, et al. 2016), violating the straightforward tenets of the rational actor model. More strikingly, these violations occur even though people hold expectations that are in line with that rational actor model. Indeed, most participants expect Person B to keep the money, and they forecast a negative return for any investment in that person they may make. To be sure, in doing so, they greatly underestimate the trustworthiness of others (Fetchenhauer and Dunning 2009, 2010), as they more generally tend to underestimate others' willingness to be kind and helpful (Bohns 2016). However, their subsequent trust behavior does not follow their expectations, even when clearly stated, as they frequently then choose to trust the other person with their money. Ultimately, in TGs, people tend to be much more risk-taking than they are in other risky decisions with identical pay-off structures, incentives, and risks (Evans and Krueger 2016; Fetchenhauer, Lang, et al. 2020; Fetchenhauer and Dunning 2009, 2012).

Thus, this previous work makes an important distinction between trust as cognition (i.e., Person A's expectations about Person B's trustworthiness) and trust as behavior (i.e., choosing to send the money) (Dunning et al. 2012). In most treatments of trust (e.g., Rousseau et al. 1998), cognition and behavior are considered equivalent. Positive expectations about Persons B's trustworthiness are a necessary condition for trust on a behavioral level—an axiomatic truth so assumed that it does not seem to require empirical confirmation (see also Bhattacharya et al. 1998; Lewicki et al. 1998; Mayer et al. 1995; Rempel et al. 1985).

However, research shows that cognitive trust and behavioral trust are only weakly correlated (Dunning et al. 2012, 2014, 2017, 2019; Evans and Krueger 2016; Fetchenhauer, Dunning, et al. 2017; Fetchenhauer and Dunning 2009). Although many definitions of trust—for example, "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other part" (Mayer et al. 1995, 712) refer to risk-taking as one of its central components (e.g., Mayer et al. 1995; Rousseau et al. 1998), neither individual risk attitudes nor behavior in other kinds of gambles predict the behavior of Persons A in TGs (Ashraf et al. 2006; Eckel and Wilson 2004; Fetchenhauer and Dunning 2012; Houser et al. 2010; Kanagaretnam et al. 2009).

What explains this greater willingness to gamble on the trustworthiness of others at a far higher rate than people should, compared to the rate suggested by their pessimistic expectations that their trust will be rewarded and their attitudes of risk, as well as the rate they gamble on comparable nonsocial gambles? Past work, at least in part, suggests this "excessive" rate of trust is buoyed by a norm to respect the character of the other person. Thus, the decision to trust is not economic as much as it is principled. Supporting this analysis, high trust rates were statistically explained by reports about what one "should" do in the TG rather than what one "wanted" to do (Dunning et al. 2014). Indeed, TGs changed the very meaning of "should" in Person A's thinking. In a TG, the word referred more to being respectful, polite, and considerate than it did in random lotteries, where it referred more to being logical, intelligent, and objective (Schlösser, Mensching, et al. 2015). Thinking about withholding trust made participants feel agitated and anxious, an affective sign that normative pressures were in play in the decision-making, which then predicted trust rates (Dunning et al. 2014; Schlösser, Fetchenhauer, et al. 2016). Removing questions about Person B's character (by having Person B flip a coin to choose their response) caused trust rates to collapse (Dunning et al. 2014).

In sum, trust in behavior appears importantly concerned with signaling one's respect to a potential trustee (Dunning et al. 2012, 2014; Evans and Krueger 2016). People hold an internalized norm not to openly question the moral integrity of another person, and report becoming anxious at the prospect of doing so (Dunning et al. 2014; Fetchenhauer, Lang, et al. 2020; Fetchenhauer and Dunning 2009, 2012).

2 | Trust in Competence?

However, although Mayer et al. (1995) clearly distinguish between the morality (or benevolence and integrity) and competence (or ability) dimensions of trustworthiness, there is

surprisingly little research as to when and why people trust if another person's *competence* is in question. This omission is a surprise. Humans perceive each other along two main dimensions—competence and morality (Martin and Slepian 2017; Wojciszke 2005), with the competence dimension referring to attributes like *smart*, *intelligent*, *skillful*, or *competent*, and the morality dimension referring to attributes like *warm*, *caring*, *fair*, or *loyal*. This idea is at the core of many theories of person perception, although these theories use different terms for these two dimensions: intellectually good–bad versus socially good–bad (Rosenberg et al. 1968), agency and communion (Gebauer et al. 2013; Helgeson and Fritz 1999; Ybarra et al. 2008), competence versus morality (Wojciszke 2005), or warmth versus competence (Fiske et al. 2002, 2007; Judd et al. 2005). Thus, based on the high relevance of these two distinct dimensions in person perception, they have been named the "Big Two" (Martin and Slepian 2017).

Trust in competence plays a major role in diverse fields of human endeavor. For example, research about "epistemic trust" has shown that both children and adults regard the putative expertise of informants when evaluating the quality of information (McGinnies and Ward 1980; Mills 2013; Pornpitakpan 2004; Shafto et al. 2012). Basic theories of persuasion such as the Yale School highlighted both dimensions in their analysis of what makes a good persuader. A credible source must be honest and fair on the one hand, coupled with being knowledgeable and intelligent on the other (Hovland et al. 1953).

The importance of competence has been acknowledged in applied fields like marketing (Doney and Cannon 1997; D. Johnson and Grayson 2005; Selnes 1998; Swan et al. 1999), risk communication (Earle 2010; Twyman et al. 2008), and for institutions (Earle and Siegrist 2006). Trust in competence has also been investigated in relationships between medical doctors and their patients (Hall et al. 2001; Leisen and Hyman 2004; Pearson and Raeke 2000), as well as for trust in politicians (Citrin and Green 1986; Levi and Stoker 2000) or psychology of law (Brodsky et al. 2010; Neal et al. 2012).

Further, theorists in organizational psychology make a clean distinction between trust in competence and trust in morality (Costigan et al. 1998; Mayer et al. 1995; McAllister 1995). Specifically, Mayer et al. (1998) differentiate three factors of trustworthiness: ability, integrity, and benevolence, which are largely based on Aristotle's definition of the ethos of a speaker: intelligence, character (reliability and honesty), and goodwill (favorable intentions). In a similar vein, we differentiate between competence (ability) and morality, where the latter combines the dimensions of integrity and benevolence. Trust in competence is an important component of both trust in organizations (for a review, see Fulmer and Gelfand 2012; Kramer 1999) as well as trust in leadership (Burke et al. 2007).

3 | The Competence Game

To explore trust in competence, we developed a new game-theoretical paradigm. The CG allows us to study competence like trust in morality (based on an earlier paradigm by Schwieren and Sutter 2008, see also Zheng et al. 2023). As in the TG, two people interact with each other under total anonymity. Persons A receive money that they can either keep or send to Person B. If Persons A choose to send the money, the outcome of both players depends on whether Person B passes a certain performance. For example, both Persons A and Persons B attempt to solve 10 items on a standard intelligence test. They are then randomly assigned to be Person A or Person B. Persons A are given $US5 that they can keep or send to an anonymous Person B. If they send the money to Person B, there are two potential outcomes. If Person B has solved at least five items in that intelligence test, both persons go home with $US7.50. If Person B has solved fewer than five, both persons go home with nothing.

We argue that this game is an appropriate way to measure trust in another participant's competence. As in the TG, trust in competence is a risky choice in which Persons A make themselves vulnerable to Person B. However, instead of making themselves vulnerable to Person B's morality, they do so to Person B's competence. When trust is warranted, Person A is better off trusting that other person. When trust is unwarranted, Person A is better off by keeping their money for sure. When playing both games with identical pay-off structures and chances to win for Person A, it is possible to directly compare the willingness to trust in both the TG and the CG. Additionally, it is possible to investigate whether people can accurately estimate the competence of their fellow participants and, thus, whether the trust they show behaviorally is grounded in a rational analysis of the situation. Most importantly, it is possible to measure whether people engage in "excessive" and principled trust on a behavioral level even if they do not expect that person to solve the task at hand.

That said, we note a basic difference between TGs and CGs. In TGs, there is an indissoluble conflict of interest between Persons A and B, as a self-interested trustee will always keep all the money when being sent the money by Person A. Such a conflict does not exist in the CG: both Persons A and B profit if Person B can pass the criterion of competence. We argue that this difference aligns with many situations in real life. For example, both the pilot and the passengers of an airplane are interested in a safe landing.

4 | Two Predictive Accounts for Trust in Competence

Given what the literature has shown about trust in morality, what are the predictions to be made about trust in competence? How will participants behave in the CG as described above in comparison to TGs, or to risky, nonsocial gambles?

We assert that two perspectives are plausible.

4.1 | The Respect Hypothesis

First, we can argue that trust in competence follows the same norms revealed in the work on trust in moral character, with people showing principled trustfulness. According to this

perspective, people are averse to questioning the competence of another person and will shy away from openly signaling their skepticism about the other person's aptitude. Persons A will choose the risky option more often in CGs than their expectations would suggest and in lottery paradigms with identical pay-off structures and chances of winning. Further, if Person B is allowed to state their preference, Persons A will follow Persons B's request on whether to trust their competence, independent of information about Persons B's objective level of competence.

This perspective follows from the observation that many competence-related traits (e.g., *intelligent*, *wise*, *mature*, and *imaginative*), much like morality-related ones, are desirable relative to their opposites (Alicke 1985; Anderson 1968). Indeed, morality and competence are often cited as the two most important evaluative dimensions in self and social judgment (Cwalina and Falkowski 2016; Wojciszke 2005). Thus, people will avoid calling the intelligence and knowledge of another person into question.

4.2 | The Rational Investment Hypothesis

However, trust in competence may differ from trust in morality, taking place more as a rational investment. Accordingly, people make their decisions based on their objective chances of winning or losing money, the pay-off structure of a given CG, and their individual preference for risk-seeking. According to this perspective, behavior in CGs will more resemble behavior in nonsocial decisions under risk and uncertainty. Further, if Person B is allowed to state their preference, Persons A will ignore it and will instead rely on Persons B's objective level of competence to make their choice.

This perspective follows from some crucial differences between morality- and competence-related traits. Morality-related traits are seen as under the control of the individual. Whether a person is trustworthy, honest, or fair is their choice and an expression of their free will. Competence, however, is more uncontrollable (Alicke 1985). Thus, trusting another person's competence is different from trusting morality in three different respects. First, people may learn to trust unproven morality in real life because it might prompt the person to act in a trustworthy way via reciprocity (Falk and Fischbacher 2006). In contrast, trust in competence does not ensure adequate skill in the other person. Trusting another person's competence, then, opens the trustor to a lottery in that there is no guarantee that the other person can reciprocate trust via skill and intellect, and people are typically averse to uncertainty and risk (Kimball 1993; Morin and Suarez 1983).

Second, if a person violates trust in morality, the attribution for that violation lies with the other person—they are responsible for being untrustworthy when they could have avoided it. In a competence task, if a person fails a task that another person's decision assigned them to do, the responsibility for the failure is shared by the trustor who put the person up to it. Third, people may wish to avoid the potential of embarrassing other people by placing them in a position where they could fail.

Finally, although both competence and morality are central dimensions of human judgment, there is evidence that most people wish more to be considered moral than competent (Allison et al. 1989; Landy et al. 2018; Strohminger et al. 2017; Van Lange and Sedikides 1998). Thus, to the degree that people might have an intuition about this effect, it might be easier to signal one's doubts about another person's competence than to signal one's doubts about another person's morality.

5 | Summary

Both accounts, trust in competence as a matter of respect as well as trust as a matter of rational investment, appear plausible. Thus, we did not want to make specific predictions as to which of these two perspectives might be correct, but rather tested both of them in the remainder of this present manuscript.

6 | Overview of Studies

In four studies, we examined whether trust behavior in the CG aims to signal respect to one's interaction partner or represents a rational decision governed by the expectation of risk and reward. To do so, in Studies 1–3, we compared behavior in CGs with that in TGs. Additionally, in Studies 2 and 3, we compared behavior in CGs with risk-taking in nonsocial lotteries. Additionally, in Study 3, we used a paradigm in which not only the participants but also another person was attached to the outcome of participating in a lottery. In doing so, we aimed to answer whether participants in CGs show risk-taking behavior similar to their level of risk-taking in lotteries, or whether they show an excess of risk-taking when compared to situations where they do not have to signal their doubt about an interaction partner's morality or competence.

Finally, in Study 4, we played CGs and gave participants information about the performance of their interaction partner in an earlier test. Independently, we also gave them information on whether their interaction partner wanted them to trust or not trust in their competence. In this way, we could gauge how much weight participants gave to their partner's preferences (as they should if under principles of interpersonal respect) versus their own self-oriented chances of economic gain (as they should under a rational investment model). Thus, we could put the respect and rational investment hypotheses under a direct competitive test.

The data reported in this manuscript and the corresponding materials are available at https://osf.io/g298s/. The studies presented were not pre-registered. We report all measures, manipulations, and exclusions (sample sizes were determined before data collection).

7 | Study 1

The goal of Study 1 was to compare choices in the standard TG with our newly developed CG, seeing whether people differed in their perceptions of the trustworthiness of Persons B and their decisions to trust.

7.1 | Method

7.1.1 | Sample

A total of 337 students were recruited in July 2019. Excluded were 21 participants who made at least one mistake answering six control questions, resulting in a final sample of 316 participants (165 women, 147 men, and 4 diverse or unspecified) aged between 18 and 53 years ($M = 23.35$, SD = 4.21). For this sample size, a sensitivity analysis for a two-tailed McNemar's test (α error = 0.05, $1-\beta$ error = 0.80) and a proportion of discordant pairs of 32% indicated a minimum detectable OR = 1.80.

7.1.2 | Procedure

After providing a personal code word, participants completed a general knowledge quiz with a €50 grand prize that would be raffled among the best contestants. The quiz comprised 10 multiple-choice questions (e.g., "Which is the official language of Guatemala? A) French, B) English, C) Dutch, D) Spanish") answered in no more than 3 min. No aids were allowed. Participants then learned that they would take part as Person A and Person B in two different decision-making situations, each involving two interaction partners, and that their behavior (either as Person A or Person B) in only one of these situations would involve real-life monetary consequences. Participants faced both games in a random order (i.e., either starting with the TG or the CG followed by the other game, respectively).

In the TG, Person A was endowed with €5 and presented with two alternatives: Alternative 1 was to keep the €5, resulting in a payoff of €5 for Person A and €0 for Person B. Alternative 2 was to send the €5 to Person B. If Person A chose this, the €5 was supplemented by another €10 before being delivered to Person B. Person B could in turn choose between two alternatives: Alternative 1 was to keep all €15 and send no money back to Person A. Alternative 2 was to split the money evenly, sending €7.5 back.

Participants were asked to estimate which percentage of Persons B would decide to keep the €15 for themselves or send €7.5 back to Person A, respectively, if Person A chose to send their €5 to Person B. The latter percentage was used as a measure of participants' cognitive trust in others' morality (i.e., their expectations of others' trustworthiness), as in previous research (e.g., Dunning et al. 2014; Fetchenhauer and Dunning 2009), with participants informed that another €50 would be given to the participant with the closest estimate, thus incentivizing accuracy. Participants then indicated their decision to send or keep their €5 as Person A, assessing their trust at the behavioral level. Finally, participants made their decision as Person B, serving as a measure of behavioral trustworthiness.

The CG was introduced exactly like the TG, including the basic set-up of the game and the alternative choices of Person A (i.e., keeping or sending the €5). However, in the event that Person A decided to send their €5 to Person B, payoffs would depend on the number of questions Person B had previously answered correctly in the general knowledge quiz: If Person B answered fewer than five questions correctly, the money was lost and both Person A and Person B would leave the game with €0. If Person B answered five or more questions correctly, both interaction partners would receive a payoff of €7.5.

After this game description, participants estimated the percentage of participants missing or meeting the specified competence criterion (which was incentivized the same way as in the TG) and served as a measure of cognitive trust in others' competence. Finally, to measure behavioral trust in others' competence, participants indicated their decision in the position of Person A.

After the completion of both games, participants indicated their basic sociodemographic data and student status, were thanked, and received an instruction sheet explaining the payout procedure.

7.2 | Results and Discussion

Overall, it would have been profitable to trust Person B. In the TG, 68.7% of Persons B split the money evenly with Person A, indicating high levels of trustworthiness, and 79.1% of Persons B answered five or more questions correctly in the CG and thus passed the criterion set for competence.

Did their peers, however, trust them? It appears that they did not, at least cognitively. On average, participants estimated that only 47.94% (SD = 26.89) of Persons B would give back money in the TG and only 62.92% (SD = 18.52) would pass the general knowledge test, respectively. Thus, both trustworthiness in the TG, $t(314) = -13.71$, $p < 0.001$, $d = -0.77$, 95% CI [−0.90, −0.65], and skill in the CG, $t(314) = -15.50$, $p < 0.001$, $d = -0.87$, 95% CI [−1.00, −0.74], were considerably underestimated.

However, what about trust in terms of behavior? Once again, participants appeared to trust too little, but behavior did not necessarily follow expectations. Even though participants more optimistically forecasted that Person B would pass the test in the CG than would return money in the standard TG, $t(314) = 8.42$, $p < 0.001$, $d = 0.47$, 95% CI [0.36, 0.59], their behavior showed the exact opposite pattern, in that they chose to trust their peers less in the CG than they did in the standard TG. Overall, only 59.5% of the participants trusted in the CG, whereas 69.3% chose to trust in morality (see Figure 1).

More specifically, of the 316 participants, 153 (48.4%) trusted and 62 (19.6%) distrusted in both games. Notably, of 101 (32.0%) remaining participants showing inconsistent behavior across the two games, 66 (20.9%) only trusted in the standard TG and not more than 35 (11.1%) only trusted in the CG (see Table 1), $\chi^2(1) = 8.91$, $p = 0.003$, OR = 4.11, 95% CI [2.48, 6.80]. Further, analyses showed that trust in morality, $b = 0.04$, $\text{Exp}(B) = 1.04$, $p < 0.001$, 95% CI [1.03, 1.05], and competence, $b = 0.06$, $\text{Exp}(B) = 1.06$, $p < 0.001$, 95% CI [1.05, 1.08], significantly related to expected trustworthiness and competence. However, a significant interaction effect showed a stronger relation in the CG, $b = 0.03$, $\text{Exp}(B) = 1.03$, $p = 0.015$, 95% CI [1.01, 1.05]. Analyses without the exclusion of participants showed no structurally different results.

In sum, participants underestimated Persons B's trustworthiness in the TG, yet a majority of Persons A went ahead to trust Person B at a behavioral level. A similar pattern emerged regarding the CG. However, although Persons A were more optimistic about Persons

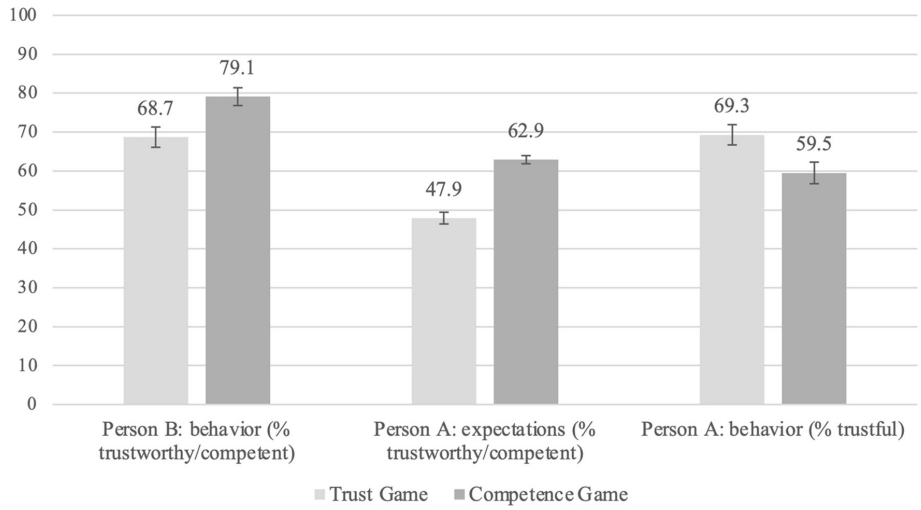

FIGURE 1 | Actual and expected trustworthiness and competence when compared to trust in morality vs. trust in competence (Study 1). *Note:* Error bars depict standard errors.

TABLE 1 | Trust game and competence game decisions crosstabulation (Study 1).

			CG decision		
			Distrust	**Trust**	**Total**
TG decision	Distrust	Count	62	35	97
		Percentage of total	19.6%	11.1%	30.7%
	Trust	Count	66	153	219
		Percentage of total	20.9%	48.4%	69.3%
Total		Count	128	188	316
		Percentage of total	40.5%	59.5%	100.0%

B's competence than they were about their moral character, more participants sent their money to Person B in the TG than in the CG. Thus, as in previous research, participants demonstrated high rates of risk-seeking in the TG as predicted by the principled trustfulness perspective. As participants additionally considered their expectations more regarding another's competence, the data from Study 1 indicate that any such principled trustfulness is at least considerably weaker in the CG.

8 | Study 2

Study 2 was a replication and extension. One could argue that the competence criterion of Study 1 might not have been of any relevance to Person B (e.g., who cares about the official language of Guatemala?). Thus, Persons A might not have felt Persons B's self-esteem was in jeopardy, and so keeping the money showed no disrespect toward them. Therefore, in Study 2, we used questions that were obviously similar to those administered in psychometric intelligence testing (Gibbons and Warne 2019). The trait of intelligence is highly self-relevant to most people, and so it is an issue that people would be more motivated to respect in others (Wojciszke 2005; Wojciszke et al. 2011).

We also compared trust behavior with the willingness to take nonsocial gambles with identical potential outcomes. In this way, we could better gauge whether people approach trust in competence like they would an investment that involved only nonsocial prospects and risks. Also, in Study 1, participants were asked to estimate the trustworthiness of Persons B. These estimates may have been influenced by their willingness to trust Person B on a behavioral level. To avoid such ambiguities, in Study 2, we experimentally fixed the likelihood of winning at either a high or low level. Therefore, participants as Person A took part in a 3×2 between-subjects experimental design. The first experimental factor was the type of game they faced: TG vs. CG vs. lottery game (LG). The second factor referred to the probability of a beneficial outcome (i.e., "winning") for Person A: 32% versus 68%.

8.1 | Method

8.1.1 | Sample

A total of 2001 participants were recruited via the online crowdsourcing platform Prolific in June 2020. A subsample containing 1101 participants (642 women, 449 men, and 10 diverse or unspecified) aged between 18 and 78 years ($M = 34.16$, SD = 12.42) was recruited to take part as Person B.

After excluding 50 participants who answered at least one comprehension question incorrectly, 850 participants were assigned to

the role of Person A (501 women, 342 men, and 7 diverse or unspecified), aged between 18 and 82 years ($M = 34.07$, SD = 12.55). For this sample size, a sensitivity analysis for a two-tailed binary logistic regression (α error = 0.05, $1-\beta$ error = 0.80, $Pr(Y=1|X=1)$ $H_0 = 0.43$, $\pi = 0.33$) indicated a minimum detectable OR = 1.44. As Person A, participants received a flat payment of £0.50, whereas those in the role of Person Breceived a flat payment of £0.25 in the TG and £0.75 in the CG. Additionally, participants received variable bonus payments according to outcomes in the games.

8.1.2 | Procedure

The TG and CG were presented in a similar way to Study 1, the only notable exception consisting of a slight modification of the magnitude of incentives if Person A trusted Person B. The initial endowment for Person A of £2 was quadrupled when sent to Person B, who could either divide the £8 evenly or keep the entire amount. The CG again replicated the incentives in the TG, leading to a payout of £4 for both players if Person B passed the competence criterion. In the LG, participants received the same initial endowment of £2. If they bet the money, they could either win £4 or go home empty-handed.

Before making decisions, all Persons A were truthfully informed about the probability of interacting with a trustworthy or competent Person B or drawing a winning ticket in the lottery, respectively. In the TG and CG, they received the information that Person B had already made their decision (TG) or taken part in the test (CG) in advance and learned that 32 (vs. 68) out of 100 people assigned to the position of Person B had decided to split the money or passed the test. In the LG, they learned that either 32 or 68 out of 100 lottery tickets were winning tickets. Thus, across all three games, we systematically manipulated participants' objective probability of receiving £4 when deciding to risk their initial endowment. Thus, across three games, we manipulated participants' probability of receiving £4 when risking their endowment. In the 68% condition, the expected value was £2.72, higher than the risk-free payout of £2. In the 32% condition, the expected value was £1.28, lower than the initial endowment.

While the proportion of winning tickets could easily be manipulated in the LG, we used a more complex procedure to avoid deceiving participants in the TG and CG. For the 300 Persons A in each of the two games, we needed another 300 Persons B as interaction partners. Of these 300 participants, 150 had to be trustworthy or competent, and 150 had to be untrustworthy or incompetent, respectively, allowing us to build another two subsamples with 150 participants each: one containing 48 (32%) trustworthy/competent and 102 (68%) untrustworthy/incompetent interaction partners, and the other, vice versa. Hence, for each of the two games, we had to keep recruiting participants until obtaining at least 150 trustworthy/competent and 150 untrustworthy/incompetent eligible Persons B.

To avoid any deception, Persons B in the TG or CG were informed that they would participate in two games, but that only one of the games would be played for real money. The first game was the TG or CG; the second game was a coin toss game, allowing participants to bet their money in a fair virtual coin toss. Consequently, we built the final samples of Persons B by assigning trustworthy/competent and untrustworthy/incompetent participants to the respective games until the required quotas were met, with excess participants assigned to the coin toss. In practice, we recruited 350 participants as potential Persons B in the CG (155 incompetent and 195 competent) and 751 as potential Persons B in the TG (152 untrustworthy and 599 trustworthy).

8.2 | Results and Discussion

Given a 32% chance of a beneficial outcome, 40.3% of participants chose to trust in another person's competence, whereas 53.6% decided to put their trust in another's moral character. In contrast, only 26.6% of the participants in the LG were willing to bet their endowment on a 32% chance of doubling it, despite the identical structure of incentives for Person A. However, when the chance of achieving a beneficial outcome rose to 68%, a majority of 69.7% of all participants decided to trust in competence, and 80.4% decided to trust in morality. At these high odds of winning, 59.3% of the participants parted with their money in the LG (see Figure 2).

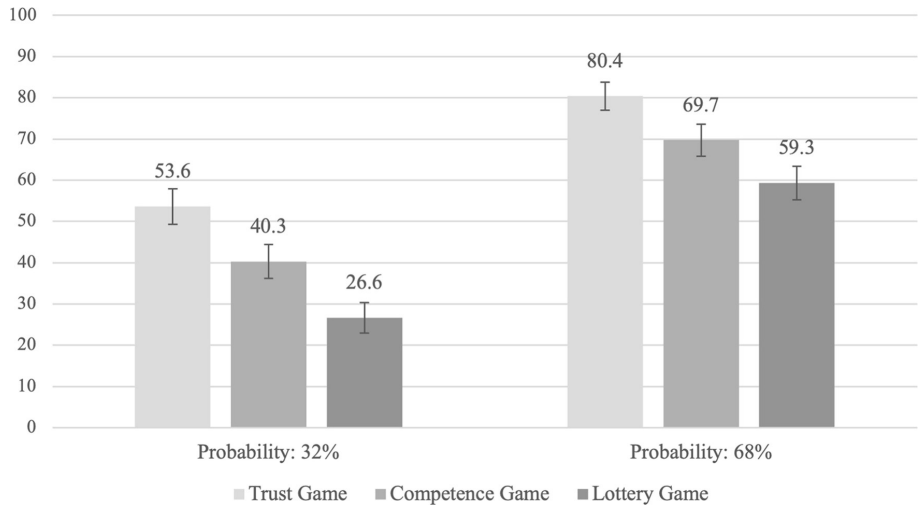

FIGURE 2 | Share of Persons A who parted with their money by game and objective probability of success (Study 2). *Note:* Error bars depict standard errors.

TABLE 2 | Binary logistic regression analysis of Person A's decision as a function of game type and objective probability of success (Study 2).

Predictor	*B*	SE	Wald	df	Exp(*B*)	95% C.I. for Exp(*B*)	
						Lower	Upper
Game type: Trust game	0.56	0.18	9.32	1	1.75**	1.22	2.51
Game type: Lottery game	−0.54	0.18	9.17	1	0.58**	0.41	0.83
Probability: 68%	1.30	0.15	75.58	1	3.66***	2.73	4.90
Contant	−0.43	0.14	8.91	1	0.65**		
Model χ^2	113.34						
df	3						
p	< 0.001						
−2 Log likelihood	1057.09						
Nagelkerke R^2	0.17						

Note: The competence game and 32% probability of beneficial outcome served as reference categories. Two tails *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

To test whether these differences between the six experimental conditions were statistically significant, we conducted a binary logistic regression with Person A's decision as the dependent variable and the two experimental factors as predictors (for details, see Table 2). Adding an interaction term between game type and probability of winning did not yield a significant increase in model fit, $\chi^2(2) = 0.23$, $p = 0.891$. We selected the CG as the reference category and found that Persons A exhibited a significantly higher propensity to send their endowment to Person B in the TG, Exp(*B*) = 1.75, $p = 0.002$, whereas they were less likely to bet their money in the LG, Exp(*B*) = 0.58, $p = 0.002$. We also found that raising the objective probability of a beneficial outcome from 32% to 68% was associated with a significant increase in the odds of Person A parting with their endowment, Exp(*B*) = 3.66, $p < 0.001$. Analyses without the exclusion of participants showed no structurally different results.

Thus, irrespective of the probability of a beneficial outcome, Persons A were more inclined to trust in others' morality rather than their competence and even less willing to gamble on a random chance. Likewise, irrespective of the type of game, higher odds of a beneficial outcome increased the willingness to invest the endowment. Thus, as in Study 1, participants showed a strong degree of principled trustfulness in the TG—even when the chance of approaching a trustworthy Person B was only 32%, a majority went for the risky option (the expected value of taking the risky option being £1.28 as compared to £2.00 when choosing the safe option). The tendency to trust in the other person's competence was significantly weaker, although it was higher than in the lottery paradigm. In Study 3, we investigated whether this actually indicates at least some level of principled trustfulness.

9 | Study 3

So far, one could argue that our results, heightened risk-seeking in the traditional TG and a more moderate level of risk-seeking in the CG relative to the lottery, were at least partly driven by a motivation of Persons A to avoid letting Person B go home empty-handed rather than a motivation not to question Persons B's competence. In both the TG and the CG, the only way for Person A to give Person B the chance to also earn some money and avoid an inequality of outcomes (Bolton and Ockenfels 2000; Fehr and Schmidt 1999) was to send money. The absence of such a motivation in the lottery paradigm might explain the lower level of risk-taking in Study 2.

To avoid such a confound, in Study 3, we first added an additional lottery condition in which the outcome of another person depended on the willingness of Person A to gamble or to choose the safe option, respectively. The payoff structure of this extended LG (ELG) exactly mirrored that of the CG. Second, we varied the outcome of Persons B in case Person A did not send the money. Thus, in all paradigms involving another person, we added a condition in which Person B got the same amount of money as Person A in case Person A decided not to choose the risky option.

9.1 | Method

9.1.1 | Sample

A total of 1758 participants were recruited via Prolific in January 2021, using similar selection criteria as in Study 2. A subsample containing 357 participants (196 women, 157 men, and 4 diverse or unspecified) aged between 18 and 73 years ($M = 34.22$, SD = 12.19) was recruited to take part as Person B.

After excluding 69 participants who answered at least one comprehension question incorrectly, 1332 participants were assigned to be Person A (822 women, 504 men, and 6 diverse or unspecified), aged between 18 and 80 years ($M = 36.17$, SD = 13.23). A sensitivity analysis for a GZLM with multiple Bonferroni-adjusted group comparisons in a full factorial model—that is, 3 × 2 between-subjects design (see below)—(α error = 0.003, $1-\beta$ error = 0.80, $Pr(Y=1|X=1)$ $H_0 = 0.63$, $\pi = 0.166$) indicated for a sample size of $N = 1132$ a minimum detectable OR = 2.01 or $\Delta Pr = 0.14$. As Person A, participants received a flat payment of £0.50; for Person B, participants received a flat payment of £0.25 in the TG and £0.75 in the CG. Additionally, participants received variable bonus payments according to their choices in one of the games.

9.1.2 | Procedure

Participants as Person A were randomly assigned to one of seven conditions in a between-subjects design. Overall, there were four different games: the TG, CG, and ELG, all of which involved an interaction partner (Person B), and the LG introduced in Study 2. Similarly, we duplicated the incentive structure from Study 2: The initial endowment of £2 for Person A was quadrupled when sent to Person B, who could either split the £8 evenly or keep the whole amount in the TG. Sending the money in the CG could lead to a £4 payout for both players if Person B met the competence criterion or nothing if Person B did not succeed. The ELG, new for Study 3, exactly replicated the monetary outcomes of the CG for both Person A and Person B, while simultaneously using the same lottery mechanism to determine the outcome of the game. That is, the only difference between the CG and the ELG was the fact that random chance rather than Person B's competence decided whether both players left with £4 or £0 each if Person A decided to part with their initial endowment. The games used the same structure of incentives as those in Study 2, with one crucial difference: For all games involving an interaction partner (i.e., TG, CG, and ELG), we systematically manipulated whether Person B started with no endowment or whether they too received an initial endowment of £2 (as did Person A).

Overall, this resulted in a 3 (TG vs. CG vs. ELG) × 2 (£0 vs. £2 initial endowment for Person B) factorial between-subjects design with the "regular" LG serving as an additional reference point. For all participants, the probability of a beneficial outcome for Person A was set to a fixed 45%. To avoid recruiting a needlessly large number of participants only serving as Person B in the TG, CG, or ELG, we informed participants playing Person A that only every fifth participant would receive real money according to their decision. Participants playing Person B were split into two subgroups, with their questionnaires each containing two games. Participants in the first group took part as Person B in the TG and in the ELG. Similarly, those in the second group took part as Person B in the CG, which included similar intelligence test questions as in Study 2, and the ELG. All participants in the position of Person B were truthfully informed that they would receive real money only in one of the two games. After reaching the required quota of trustworthy/untrustworthy and competent/incompetent Persons B, all remaining participants in either subgroup were assigned to participate as Persons B in the respective ELG conditions. In practice, to ensure every fifth of the 200 Persons A in the TGs and CGs had an interaction partner, 40 Persons B each (18 trustworthy/competent and 22 untrustworthy/incompetent per condition) were assigned. The remaining 197 Persons B not needed for these quotas participated in one of the two ELG conditions.

9.2 | Results and Discussion

We conducted a stepwise binary logistic regression with Person A's decision as the dependent variable and game type (TG vs. CG vs. ELG), endowment (endowment vs. no endowment for Person B), and interaction terms between game type and endowment as predictors. Overall, the estimated model was highly significant,

TABLE 3 | Stepwise binary logistic regression analysis of Person A's decision as a function of game type and presence of an initial endowment for Person B (Study 3).

	Model 1					Model 2				
				95% C.I. for Exp(*B*)					95% C.I. for Exp(*B*)	
Predictor	***B***	**SE**	**Exp(*B*)**	**Lower**	**Upper**	***B***	**SE**	**Exp(*B*)**	**Lower**	**Upper**
Trust game	0.64	0.16	1.89***	1.38	2.59	0.30	0.24	1.03	0.64	1.65
Competence game	−0.20	0.15	0.82	0.6w1	1.09	−0.60	0.22	0.55**	0.35	0.85
Endowment for both	−0.76	0.13	0.47***	0.37	0.60	−1.34	0.22	0.26***	0.17	0.41
Trust game × Endowment for both						1.10	0.33	2.99***	1.58	5.66
Competence game × Endowment for both						0.73	0.30	2.08*	1.15	3.76
Constant	0.79	0.13	2.20***			1.11	0.17	3.02***		
Model χ^2	66.05					78.25				
df	3					5				
p	< 0.001					< 0.001				
−2 Log likelihood	1434.20					1422.00				
Nagelkerke R^2	0.08					0.09				

Note: The extended lottery game and payout regime including no initial endowment for Person B served as reference categories. Two tails *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

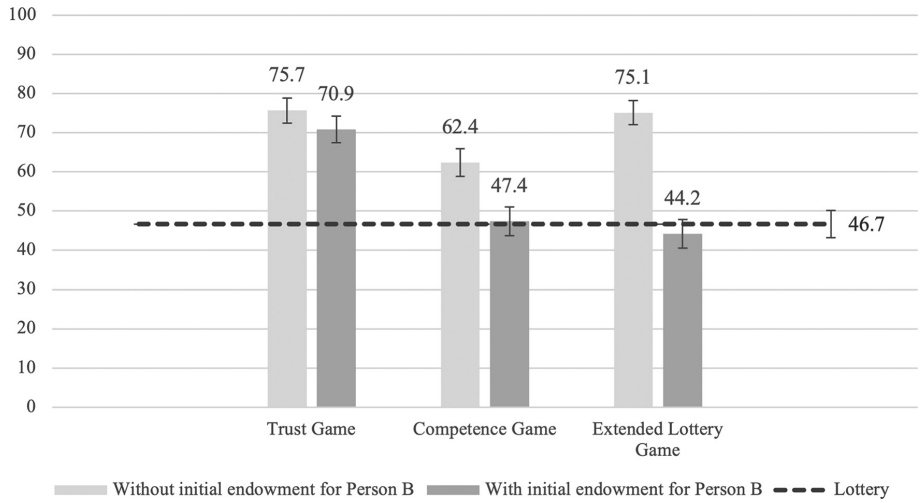

FIGURE 3 | Share of Persons A who parted with their money by the game and presence of an initial endowment for Person B (Study 3). *Note:* Error bars depict standard errors.

$\chi^2(3) = 78.25$, $p < 0.001$, *Nagelkerke* $R^2 = 0.09$ (see Model 2 in Table 3). Figure 3 highlights the result of Study 3.

Using sequential Bonferroni-adjusted pairwise comparisons (see Table 4), we found that behavior in the TG remained virtually unchanged by whether Person B had an endowment (75.7% vs. 70.9%), $p = 1.00$. In contrast, trust in the CG declined sharply if Person B received an initial endowment (62.4% vs. 47.4%), $p = 0.022$. The same decline was also observed in the ELG (75.1% vs. 44.2%), $p < 0.001$.

If Person B did not receive an initial endowment, more Persons A were willing to risk their money in the ELG than in the CG (75.1% vs. 62.4%; $p = 0.038$), whereas there was no significant difference between the ELG and the TG (75.1% vs. 75.7%; $p = 1.00$). However, as in the studies before, fewer participants exhibited trust in another's competence than in another's moral character (62.4% vs. 75.7%; $p = 0.033$).

Turning to the endowment condition, participants were not more likely to risk their money in the ELG than in the CG (44.2% vs. 47.4%; $p = 1.00$), whereas in both the CG and ELG, fewer participants parted with their money than in the TG (70.9%), both $p < 0.001$. Conducting further sequential Bonferroni-adjusted pairwise comparisons including the nonsocial lottery as a reference (see Table 5) revealed that, in both the competence and the ELG, participants' willingness to risk their money was reduced to no higher level than their general risk-taking (46.7%, both $p = 1.00$). Analyses without the exclusion of participants showed no structurally different results.

In sum, providing interaction partners with an initial endowment to avoid inequality aversion did not significantly reduce trust in morality but did reduce risk-taking in the CG to the level observed in nonsocial gambles. If no initial endowment for interaction partners was provided, participants would rather bet their money on a social gamble than trust in the competence of their interaction partners. This pattern suggests that trust in morality is not based on concerns of outcome inequality (e.g., leaving Person B empty-handed) but is more consistent with concerns about avoiding disrespect. In contrast, these results speak against the same explanation for the CG, in that giving Person B their own endowment led to less trust in their competence. Thus, once again, we found principled trustfulness in the TG, but no signs of principled trustfulness in the CG.

10 | Study 4

In the first three studies, we did not find much evidence for "principled trustfulness" in circumstances involving competence. In contrast to TGs involving morality, Persons A in CGs did not seem to care about what signal they were sending to Person B, as they were more likely to keep their money for themselves. Their decisions were also more likely to be influenced by other factors, such as whether the other person had already received a monetary endowment or not.

However, this pattern might be due to one major difference in the pay-off structures of both games. In the TG, it is always in the interest of Person B to have money sent to them, independent of Persons B's trustworthiness and independent of whether they have the same initial endowment as Person A or not. The CG is more complex. For example, if Persons A trusts in the CG, not only will Person A lose if they take the risky option and Person B does not pass the competence criterion, but also Person B will. If Person A does not only want to maximize their own monetary outcome but also considers Persons B's interest, they must confront the following questions: (1) Is Person B actually competent? (2) Does Person B *perceive* themselves to be competent? (3) Which degree of risk proneness or risk aversity does Person B bring to the situation? Does Person B want to take a risk, or do they rather want to play it safe and feel relieved for not being responsible for their joint monetary outcome? And (4) would Person B feel offended if Person A does not trust their competence, thus allowing or disallowing doubts about Person B's competence?

Persons A must give a speculative answer to all these questions if they want to incorporate Persons B's interests into their decision whether to trust Persons B's competence on a behavioral

TABLE 4 | Binary logistic regression with Person A's decision as a function of game type and presence of an initial endowment for Person B with sequential Bonferroni-adjusted pairwise comparisons excluding the non-social lottery (Study 3).

				95% Wald CI for Difference	
I	***J***	**MD (*I*–*J*)**	***p* (seq. Bonferroni)**	**Lower**	**Upper**
TG (w/o initial endowment for Person B) 75.7%	TG (w/)	0.05	1.00	−0.07	0.16
	CG (w/o)	0.13	0.033	0.01	0.26
	CG (w/)	0.28	< 0.001	0.14	0.42
	ELG (w/o)	0.01	1.00	−0.08	0.09
	ELG (w/)	0.31	< 0.001	0.17	0.46
TG (w/initial endowment for Person B) 70.9%	TG (w/o)	−0.05	1.00	−0.16	0.07
	CG (w/o)	0.09	0.387	−0.04	0.21
	CG (w/)	0.24	< 0.001	0.10	0.37
	ELG (w/o)	−0.04	1.00	−0.15	0.07
	ELG (w/)	0.27	< 0.001	0.13	0.41
CG (w/o initial endowment for Person B) 62.4%	TG (w/o)	−0.13	0.033	−0.26	−0.01
	TG (w/)	−0.09	0.387	−0.21	0.04
	CG (w/)	0.15	0.022	0.01	0.29
	ELG (w/o)	−0.13	0.038	−0.25	0.00
	ELG (w/)	0.18	0.003	0.04	0.32
CG (w/initial endowment for Person B) 47.4%	TG (w/o)	−0.28	< 0.001	−0.42	−0.14
	TG (w/)	−0.24	< 0.001	−0.37	−0.10
	CG (w/o)	−0.15	0.022	−0.29	−0.01
	ELG (w/o)	−0.28	< 0.001	−0.41	−0.14
	ELG (w/)	0.03	1.00	−0.08	0.15
ELG (w/o initial endowment for Person B) 75.1%	TG (w/o)	−0.01	1.00	−0.09	0.08
	TG (w/)	0.04	1.00	−0.07	0.15
	CG (w/o)	0.13	0.038	0.00	0.25
	CG (w/)	0.28	< 0.001	0.14	0.41
	ELG (w/)	0.31	< 0.001	0.17	0.45
ELG (w/initial endowment for Person B) 44.2%	TG (w/o)	−0.31	< 0.001	−0.46	−0.17
	TG (w/)	−0.27	< 0.001	−0.41	−0.13
	CG (w/o)	−0.18	< 0.003	−0.32	−0.04
	CG (w/)	−0.03	1.00	−0.15	0.08
	ELG (w/o)	−0.31	< 0.001	−0.45	−0.17

level. What if we removed these uncertainties in Persons A's calculations? We could then see how much weight Persons A were giving to them.

We therefore conducted another study in which we let Persons B's indicate whether they wanted Person A to take the risky option and trust in Persons B's competence. We also gave Persons A information about whether their specific interaction partner had passed a similar competence test before. If Persons A were solely self-interested, they should only regard the information according to what it implied about the competence of Person B. If instead their decision were at least partly driven by considerations of Person B's self-views, they should also give weight to the preferences of Persons B.

TABLE 5 | Binary logistic regression of Person A's decision as a function of game type and presence of an initial endowment for Person B with sequential Bonferroni-adjusted pairwise comparisons including the non-social lottery (Study 3).

				95% Wald CI for difference	
I	***J***	**MD (*I*–*J*)**	***p* (seq. Bonferroni)**	**Lower**	**Upper**
TG (w/o initial endowment for Person B) 75.7%	TG (w/)	0.05	1.00	−0.08	0.17
	CG (w/o)	0.13	0.043	0.00	0.26
	CG (w/)	0.28	< 0.001	0.14	0.42
	ELG (w/o)	0.01	1.00	−0.08	0.09
	ELG (w/)	0.31	< 0.001	0.17	0.46
	LG	0.29	< 0.001	0.15	0.43
TG (w/initial endowment for Person B) 70.9%	TG (w/o)	−0.05	1.00	−0.17	0.08
	CG (w/o)	0.09	0.542	−0.04	0.22
	CG (w/)	0.24	< 0.001	0.09	0.38
	ELG (w/o)	−0.04	1.00	−0.15	0.07
	ELG (w/)	0.27	< 0.001	0.12	0.41
	LG	0.24	< 0.001	0.10	0.38
CG (w/o initial endowment for Person B) 62.4%	TG (w/o)	−0.13	0.043	−0.26	0.00
	TG (w/)	−0.09	0.542	−0.22	0.04
	CG (w/)	0.15	0.027	0.01	0.29
	ELG (w/o)	−0.13	0.050	−0.26	0.00
	ELG (w/)	0.18	0.003	0.04	0.33
	LG	0.16	0.018	0.02	0.30
CG (w/initial endowment for Person B) 47.4%	TG (w/o)	−0.28	< 0.001	−0.42	−0.14
	TG (w/)	−0.24	< 0.001	−0.38	−0.09
	CG (w/o)	−0.15	< 0.027	−0.29	−0.01
	ELG (w/o)	−0.28	< 0.001	−0.42	−0.14
	ELG (w/)	0.03	1.00	−0.08	0.15
	LG	0.01	1.00	−0.09	0.11
ELG (w/o initial endowment for Person B) 75.1%	TG (w/o)	−0.01	1.00	−0.09	0.08
	TG (w/)	0.04	1.00	−0.07	0.15
	CG (w/o)	0.13	0.050	0.00	0.26
	CG (w/)	0.28	< 0.001	0.14	0.42
	ELG (w/)	0.31	< 0.001	0.17	0.45
	LG	0.28	< 0.001	0.14	0.42

(Continues)

TABLE 5 | (Continued)

I	*J*	MD (*I*–*J*)	*p* (seq. Bonferroni)	95% Wald CI for difference	
				Lower	Upper
ELG (w/initial endowment for Person B) 44.2%	TG (w/o)	−0.31	<0.001	−0.46	−0.17
	TG (w/)	−0.27	<0.001	−0.41	−0.12
	CG (w/o)	−0.18	0.003	−0.33	−0.04
	CG (w/)	−0.03	1.00	−0.15	0.08
	ELG (w/o)	−0.31	<0.001	−0.45	−0.17
	LG	−0.03	1.00	−0.13	0.08
LG 46.7%	TG (w/o)	−0.29	<0.001	−0.43	−0.15
	TG (w/)	−0.24	<0.001	−0.38	−0.10
	CG (w/o)	−0.16	0.018	−0.30	−0.02
	CG (w/)	−0.01	1.00	−0.11	0.09
	ELG (w/o)	−0.28	<0.001	−0.42	−0.14
	ELG (w/)	0.03	1.00	−0.08	0.13

10.1 | Method

10.1.1 | Sample

A total of 1051 participants were recruited via Prolific in June 2022, using similar selection criteria as before (excluding participants who participated in similar studies). A subsample containing 150 participants (71 women, 76 men, and 3 diverse or unspecified) aged between 19 and 76 years ($M = 37.52$, SD = 14.27) was recruited to take part as Person B. Of the remaining, 901 played Person A. Excluding 62 participants who answered at least one comprehension question incorrectly resulted in a final sample of 839 Persons A (415 women, 414 men, and 10 diverse or unspecified) aged between 18 and 80 years ($M = 40.09$, SD = 14.51). For this sample size, a sensitivity analysis for a two-tailed binary logistic regression (α error = 0.05, $1-\beta$ error = 0.80, $Pr(Y=1|X=1)$ $H_0 = 0.55$, $\pi = 0.33$) indicated a minimum detectable OR = 1.53. As Person A, participants received a flat payment of £0.81, whereas in the position of Person B, participants received a flat payment of £1.70. Additionally, participants could receive variable bonus payments from the games.

10.1.2 | Procedure

To avoid recruiting a large number of participants as Person B, we adopted the same procedure as in Study 3. That is, we informed participants in the position of Person A that only every tenth participant would receive real money according to their decision. Participants in Person B's position engaged in a CG and then a coin flip, knowing they would receive real money in only one game. After meeting the required quota of Person B to meet the information given about them for every tenth Person A in each condition, the remaining participants were assigned to the coin flip. The CG was presented as in previous studies, including an initial endowment for Person B (see Study 3). The initial endowment for both players was £2, and now (to increase trust levels), the potential win for both players was £5 if Person B met the competence criterion or £0 if they did not.

Participants playing Person B started by completing an IQ test with a total of 20 questions, similar to those administered in Studies 2 and 3. Participants could earn one lottery ticket for a grand prize of £50 for each correctly answered question. After completing the test and reading the specifics of the CG, participants were truthfully informed that the test at the beginning of the questionnaire consisted of two equally difficult sets of 10 questions and that one of these sets would be relevant to this decision-making situation. Then, a subset of randomly assigned Persons B (119 participants) were given the opportunity to express their preferences regarding Persons A decisions in this situation (either "I want Person A to keep the £2" or "I want Person A to send the £2 to me"), however, without knowing about their result on either of the two tests. The remainder were used as interaction partners for Persons A in control conditions without information about Persons B's preferences.

Participants as Person A were randomly assigned to one of nine conditions in a 3 × 3 between-subjects experimental design. The first experimental factor determined the information provided about Person B's objective competence in the equally difficult test: no information (control) vs. incompetent vs. competent. That is, Persons A received either no information *or* they were told that their assigned interaction partner answered fewer *or* at least five out of the questions correctly in the equally difficult test unrelated to this situation. The second factor referred to Person B's preference regarding Person A's decision: no information (control) vs. request to trust vs. request no trust. This information was delivered in random order after participants read

through the specifics of the CG (see above). They were truthfully informed that their interaction partner made their request without knowing the outcome of either test.

Participants then proceeded to make their decision as Person A (either keep or send the £2 to Person B). For exploratory purposes, participants were asked to assess what decision was in the interest of Person B and their own and to state reasons for their trust decision (Persons A) or request (Persons B). These variables are not reported in the analysis below.

10.2 | Results and Discussion

In total, 54.7% of the participants were willing to trust in Person B's competence. When given a competent interaction partner, 74.8% trusted, whereas 57.9% of the participants trusted if there was no information, and only 31.7% if Person B was described as incompetent. If Person B stated a preference for Person A to trust, the money was sent in 64.2% of cases and 59.8% if there was no stated preference. If Person B stated a preference not to send money, Person A trusted in only 39.9% of all cases. Figure 4 illustrates the structure of our results.

We conducted a binary logistic regression predicting Person A's decision. The estimated model was highly significant, $\chi^2(4) = 155.99$, $p < 0.001$, *Nagelkerke* $R^2 = 0.23$ and predicted 70.4% of the decisions correctly, an increase of 15.7 percentage points over the empty model, with interaction terms between Persons B's competence and preferences in the second step yielding a significant increase in the model fit, $\chi^2(4) = 11.51$, $p = 0.021$. Using the no information conditions as reference categories, we found significant main effects of Persons B's objective competence, $\text{Exp}(B) = 3.64$, $p < 0.001$, and incompetence, $\text{Exp}(B) = 0.32$, $p < 0.001$, as well as Persons B's distrust request, $\text{Exp}(B) = 0.34$, $p < 0.001$, and trust request, $\text{Exp}(B) = 2.16$, $p = 0.020$, on Persons A's decisions to trust. Table 6 depicts the results of the analysis.

We conducted two further logistic regressions to get a more comprehensive picture of the results, one investigating the effect of the trust request when no objective competence information was given (for details, see Table 7) and one when it was (see Table 8). The binary logistic regression predicting Person A's decision and the trust request as a categorical predictor—if no objective competence information was given—was highly significant, $\chi^2(2) = 36.01$, $p < 0.001$, *Nagelkerke* $R^2 = 0.17$. As before, compared to the no request condition, a request to trust yielded a significant increase in the odds of sending the money, $\text{Exp}(B) = 2.16$, $p = 0.020$, whereas a request not to trust was associated with a significant decrease in the odds of sending the money, $\text{Exp}(B) = 0.34$, $p < 0.001$.

However, a somewhat different pattern emerges when considering only the participants who were told that Person B was either competent or incompetent. Again, the binary logistic regression with Person A's decision as the dependent variable and the experimental factors as predictors was highly significant, $\chi^2(3) = 126.25$, $p < 0.001$, *Nagelkerke* $R^2 = 0.27$ and predicted 71.6% of the decisions correctly, an increase of 18.4 percentage points over the empty model—including an interaction term yielded no significant increase in model fit, $\chi^2(2) = 3.60$, $p = 0.165$, leading us to recur to the simpler model. Compared to confronting an objectively incompetent interaction partner, being paired with a competent one was associated with a significantly higher propensity to part with the money, $\text{Exp}(B) = 6.90$, $p < 0.001$. As regards Person B's wishes, compared to no request, again, we found a significant decrease in the odds of sending the money if there was a distrust request, $\text{Exp}(B) = 0.42$, $p < 0.001$, but sending a trust request resulted in no significant increase in the willingness to send the money, $\text{Exp}(B) = 0.92$, $p = 0.721$. Results from analyses that included all participants revealed structurally similar results, except for the effect of a trust request, which became only marginally significant when no objective competence information was given, $\text{Exp}(B) = 1.71$, $p = 0.090$, 95% CI [0.92, 3.16].

10.3 | Summary

Thus, in Study 4, we investigated whether participants consider the interests of Person B when they have specific information about

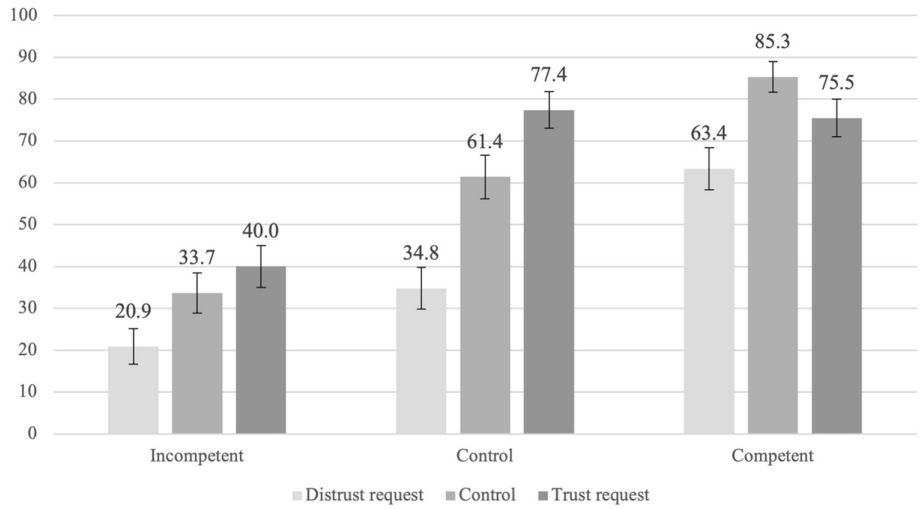

FIGURE 4 | Share of Persons A who parted with their money by Person B's preference and competence in an equally difficult task (Study 4). *Note:* Error bars depict standard errors.

TABLE 6 | Stepwise binary logistic regression analysis of Person A's decision as a function of Person B's objective competence and preference (Study 4).

	Model 1					Model 2				
				95% C.I. for Exp(*B*)					95% C.I. for Exp(*B*)	
Predictor	***B***	**SE**	**Exp(*B*)**	**Lower**	**Upper**	***B***	**SE**	**Exp(*B*)**	**Lower**	**Upper**
Incompetent	−1.17	0.18	0.31***	0.22	0.45	−1.14	0.31	0.32***	0.18	0.58
Competent	0.81	0.19	2.26***	1.55	3.27	1.29	0.36	3.64***	1.79	7.42
Distrust request	−0.96	0.19	0.38***	0.26	0.55	−1.09	0.31	0.34***	0.18	0.62
Trust request	0.20	0.19	1.23	0.85	1.77	0.77	0.33	2.16*	1.13	4.13
Incompetent × Distrust request						0.44	0.46	1.55	0.63	3.78
Incompetent × Trust request						−0.50	0.45	0.61	0.25	1.46
Competent × Distrust request						−0.11	0.48	0.89	0.35	2.27
Competent × Trust request						−1.40	0.50	0.25**	0.09	0.66
Constant	0.59	0.17	1.80***			0.46	0.22	1.59*		
Model χ^2	155.99					167.51				
df	4					8				
p	< 0.001					< 0.001				
−2 Log likelihood	999.66					988.15				
Nagelkerke R^2	0.23					0.24				

Note: For both predictors, the empty information condition served as the reference category. Two tails $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

TABLE 7 | Binary logistic regression analysis of Person A's decision as a function of Person B's preference in the absence of objective competence information (Study 4).

						95% C.I. for Exp(*B*)	
Predictor	***B***	**SE**	**Wald**	**df**	**Exp(*B*)**	**Lower**	**Upper**
Distrust request	−1.09	0.31	12.42	1	0.34***	0.18	0.62
Trust request	0.77	0.33	5.41	1	2.16*	1.13	4.13
Constant	0.46	0.22	4.47	1	1.59*		
Model χ^2	36.01						
df	2						
p	< 0.001						
−2 Log likelihood	335.64						
Nagelkerke R^2	0.17						

Note: The empty information condition (no trust request) served as the reference category. Two tails $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

whether Person B wants them to send the money or not. They do—but only to a limited degree, with this consideration tempered in two separate ways. First, their decisions depended on the objective competence of their interaction partner. If Person B did a good job on a previous similarly difficult task, Person A was more willing to hand over the money. In addition, the preference of Person B did at times play a significant role, especially when Person A had no information about whether Person B had passed the first test. However, in this case, it seems that the preferences of Person B were taken as an indicator of their competence.

TABLE 8 | Binary logistic regression analysis of Person A's decision as a function of Person B's preference when objective competence information is provided (Study 4).

Predictor	*B*	SE	Wald	df	Exp(*B*)	95% C.I. for Exp(*B*)	
						Lower	Upper
Competent	1.93	0.19	99.79	1	6.90***	4.72	10.08
Distrust request	−0.87	0.24	13.59	1	0.42***	0.26	0.67
Trust request	−0.08	0.23	0.13	1	0.92	0.59	1.45
Constant	−0.49	0.18	7.52	1	0.61**		
Model χ^2	126.25						
df	3						
p	<0.001						
−2 Log likelihood	656.10						
Nagelkerke R^2	0.27						

Note: On Person B's preference, the empty information condition (no trust request) served as the reference category, and on Person B's objective competence, the incompetent condition served as the reference category. Two tails $^*p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$.

Second, there was an important asymmetry in the weight participants gave to the wishes of Person B: They only followed the wishes of Person B when being asked to keep the money, but not when asked to send it. Thus, Persons A followed Persons B's request specifically if that request gave them permission to choose the safe option. Note that this honoring does not follow from a principled trustfulness stance: In agreeing with Person B not to trust, Person A is agreeing with the notion that Person B is not competent. (We doubt few readers have followed up a friend's humility by ratifying it decisively in conversation.)

11 | General Discussion

How do people respond to situations that require trust in another person's competence? Based on previous research on trust in morality, two different answers are possible. On one hand, trust in competence might resemble trust in morality in that people shy away from openly signaling their distrust of another person. On the other hand, trust in competence might resemble a rational investment in that people might only be willing to trust someone's competence if such trust is in the trustor's material self-interest.

11.1 | Competence Games Versus Trust Games

By contrasting trust in competence with trust in morality and decisions in gambles, in the four studies of the present paper, we found consistent evidence for the hypothesis that trust in competence resembles a rational investment and only very limited evidence that it is governed by the motivation to respect a person's intellect and abilities.

Repeating past work, participants in the standard TG did not follow classical principles of a standard rational actor model. Relative to that model, they were too risk-seeking, given their skepticism about their fellow participants' trustworthiness. Most striking, in Study 2, most participants sent their money to Person B even when they were told that their chance of doubling their £2 was a mere 32%, and thus their chance to go home without any money was 68%. This "excessive" level of trust in morality, thus, appears not to be an ordinary decision under risk or uncertainty but is consistent with one driven by internal norms not to question the morality of another person, as shown by past data (Dunning et al. 2014; for a review, see Dunning et al. 2019). Remarkably, this pattern did not depend on whether there was an initial endowment for Person B. In Study 3, the TG was the only paradigm in which such an endowment did not lower the rate of participants taking the risky option.

In contrast, no such pattern was repeated when participants faced a CG. In all studies and conditions in which we compared participants' behavior in the CG to the TG, participants were less risk-taking in CGs than they were in TGs. Thus, although participants were in a position to insult the other person's intelligence, they did not shy away from doing it via their choices—quite different from behavior seen when the issue is the other person's character rather than their competence.[1]

This does not mean that decisions in TGs are *only* driven by the wish to avoid insulting Person B. If this were the case, expectations of Person B's trustworthiness would not influence the decisions of Person A whatsoever. However, in both Studies 1 and 2, expectations did influence Persons A's decision not only in the CG but also in the TG. Importantly, however, independent of those subjective expectations (Study 1) or objective probabilities (Study 2), participants sent their money more often to Person B in TGs relative to CGs. This pattern of results suggests that the wish not to insult another person is also given weight—and more weight when the interaction involves questions of morality rather than competence.

11.2 | Is Trust in Competence Nothing but a Rational Investment?

Still, Person A's behavior in CGs might be driven in part by principled trustfulness—albeit to a notably lesser degree than

in standard TGs. In Study 2, participants showed more risk-taking in CGs than in nonsocial lotteries, suggesting some expression of social preferences.[2] To test whether this behavior was motivated by the wish to avoid signals of distrust in Persons B's competence, we introduced an ELG in Study 3, in which the outcome did not depend on their interaction partner's level of competence but solely on luck and chance. In case Persons B's did not receive an initial endowment, risk-taking in both the CG and the ELG was *higher* than in a nonsocial lottery. That is, participants, to some degree, consider Person B in their decision. This result is in line with previous research showing that people often aim to avoid an inequality of outcomes if they cannot justify gaining more money than their interaction partners (Bolton and Ockenfels 2000; Fehr and Schmidt 1999).

However, the fact that such behavior was not restricted to the CG but was even higher in the ELG shows that the excess of risk-taking in CGs observed in Studies 1 and 2 was not due to a motivation to avoid questioning Person B's competence, but rather to a separate motive to avoid leaving them empty-handed. In the situations where Persons B's had received an initial endowment, eliminating the need to rely on trust to avoid inequality, the level of risk-taking was the same in the CG, the ELG, and a nonsocial lottery—again suggesting no special motivation to avoid disrespect in the CG.

In Study 4, we further tested what drove people to trust in another person's competence. We let participants make decisions in a CG but gave some information about their specific interaction partner to Persons A. We told them how Person B had fared in similar tests and whether Person B wished them to play it safe or take a risk and trust their performance, thus signaling whether Person B would permit Person A to doubt their competence or not. Persons A's behavior was mainly driven by their own monetary concerns and not by any worry about what their choices signaled about the other person's intelligence or preferences. If Persons A were informed about Persons B's previous performance, they based their decision mainly on that information.

Beyond that, Persons B's requests about whether to trust them were used rather strategically to inform their decisions. If Person B did not want the money to be sent, Persons A were willing to comply with that wish. However, if Persons B wanted the money to be sent, this wish was largely ignored. Persons A did consider Persons B's stated preferences but only when they failed to have any information about Persons B's competence at all. They likely did not do so to respect Persons B's wishes but rather likely because they took those preferences as an indicator of objective competence.

It has to be noted that we only applied a part of the methods used in earlier work to demonstrate principled trustfulness in TGs. In the present studies, we mainly compared actual trust decisions in TGs versus CGs under different circumstances (e.g., different probabilities to meet a trustworthy Person B) rather than collected measures of underlying cognitive and affective processes. Additionally, in past studies, we showed that participants perceived a moral obligation to send their money to Person B (Dunning et al. 2014) and that participants attached negative emotions to foregoing trust (Schlösser, Fetchenhauer, et al. 2016). In future studies, it would be worthwhile to compare such subjectively perceived ethical concerns and moral emotions to investigate further whether they play a lesser role in CGs as they do in TGs.

In sum, unlike the TG, we can speculate that the CG might stimulate a cognitive scheme similar to making a financial investment. For example, when people consider buying some stocks of a certain company, they will calculate the potential pay-offs and risks of such an investment, but they might not be concerned all that much about offending the self-esteem of that company's CEO.

11.3 | Concluding Remarks

In sum, we did find little evidence for principled trustfulness regarding others' level of competence (although, to be sure, in Study 4, some results were at least marginally significant). Echoing past work, participants shied away from openly signaling their distrust of Person B in the TG (although they were highly skeptical of Person B's trustworthiness); no such effect could be found in the CG. Furthermore, in the CG, participants considered their expectations of a positive outcome more than they did in the TG. Thus, is trust in morality an issue of respect and face, whereas trust in competence is more an issue of rational choice and justified self-interest?

Such a strong conclusion might be premature. Trust in morality and competence is related in complex ways that might be overlooked when comparing behaviors in TG and CG. Both games aim to measure both kinds of trust (and both kinds of trustworthiness) as purely as possible. In the TG, as far as Persons B understand the pay-off structure, they only face a moral decision with no issues of competence being involved. In the CG (at least in the form we applied) Persons B work on their task without being aware that they participate in such a game. Thus, they do not face any moral dilemma like overstating their level of competence or having to consider Person A's interests when choosing their effort level.

However, in real life, the two dimensions of morality and competence will often be intertwined (see Zheng et al. 2023) in complex ways (see, e.g., Judd et al. 2005). Take the simple example of asking a friend to water your plants while you are on vacation. The outcome of such a request will depend on both the friend's competence level (e.g., their experience with different kinds of plants) and their level of morality (e.g., will your friend show up to water your plants regularly?). Often, the degree of competence performed will partly be determined by the effort put into a task, which in turn will be a function of one's felt moral obligation not to disappoint another person's trust. Thus, when distrusting another person's competence, we might indeed signal our distrust as regards their morality—and research on TGs shows that this is a signal people do not like to send (Dunning et al. 2014).

Moreover, in many real-life situations, it is the moral obligation of Person B to signal a potential lack of competence openly. For example, a general practitioner should be aware of and honestly tell their patients to see a specialist if their level of expertise is insufficient. A

bus driver is supposed to avoid driving a bus when they feel dizzy and ill. Thus, not being open about the limits of one's competence is not so much a failure of competence but rather a moral blunder. It would be worthwhile to develop paradigms in which Persons B are incentivized to overstate their level of competence and to measure under which conditions and to what extent Persons B will do so. Furthermore, it should be investigated how sensitive Persons A will be to such temptations for Persons B.

In addition, people are often mandated to report when they are in a morally compromised position—which can lead to paradoxical effects. Work on insinuation anxiety, for example, shows that when professionals disclose financial conflicts of interest, it puts their clients in a dilemma. If those clients decide to choose against any advice they receive from the professional, they call that professional's character into question—and people are reluctant to do so (Sah et al. 2019). Thus, paradoxically, clients who are concerned about a professional's competence but not their morality may feel pressure to trust that professional's advice, against their wishes, after conflicts have been disclosed and issues about the professional's character have been made more explicit.

These are only a few of the questions that future studies could investigate, and the CG (and its potential variations) is a viable tool for this research.

Thus, the present research on trust in competence answered some questions but also raised some new questions. For now, we place trust in the competence of ourselves and other researchers to answer these questions in the future.

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Ethics Statement

All studies follow the ethical guidelines of the APA Code of Conduct and the German Psychological Society (DGPS). At the start, participants were informed that data collection was anonymous, and informed consent was obtained. Participants could withdraw at any time without providing a reason. Studies were approved by the Ethics Committee of the Faculty of Economic and Social Sciences (ERC-FMES) at the University of Cologne.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data reported in this manuscript and the corresponding materials are available at https://osf.io/g298s/.

Endnotes

[1] It should be noted that our competence criterion was not trivial and perceived to be of quite some importance. In another study not reported here, using a similar set of intelligence test items as in Studies 2–4, Persons B indicated that they would feel similarly bad or rejected if others did not trust in their morality or competence (unpublished data). More generally, being perceived as intelligent is important because such a perception does increase one's career prospects (Kristof-Brown 2000; Spisak et al. 2014), one's perception of being kind and humorous (Moore et al. 2011) as well as one's chances to find a long-term romantic partner (Buss 2006; Buss et al. 1990).

[2] This result remained valid when accounting for the subjective likelihood of encountering a moral or competent interaction partner (e.g., Schlösser et al. 2013) compared to winning a coin toss (see Supporting Information on the OSF).

References

Alicke, M. D. 1985. "Global Self-Evaluation as Determined by the Desirability and Controllability of Trait Adjectives." *Journal of Personality and Social Psychology* 49, no. 6: 1621–1630. https://doi.org/10.1037/0022-3514.49.6.1621.

Allison, S. T., D. M. Messick, and G. R. Goethals. 1989. "On Being Better but Not Smarter Than Others: The Muhammad Ali Effect." *Social Cognition* 7, no. 3: 275–296. https://doi.org/10.1521/soco.1989.7.3.275.

Anderson, N. H. 1968. "Likableness Ratings of 555 Personality-Trait Words." *Journal of Personality and Social Psychology* 9, no. 3: 272–279. https://doi.org/10.1037/h0025907.

Ashraf, N., I. Bohnet, and N. Piankov. 2006. "Decomposing Trust and Trustworthiness." *Experimental Economics* 9, no. 3: 123–208. https://doi.org/10.1007/s10683-006-9122-4.

Berg, J., J. Dickhaut, and K. McCabe. 1995. "Trust, Reciprocity and Social History." *Games and Economic Behavior* 10: 122–142. https://doi.org/10.1006/game.1995.1027.

Bhattacharya, R., T. M. Devinney, and M. M. Pillutla. 1998. "A Formal Model of Trust Based on Outcomes." *Academy of Management Review* 23, no. 3: 459–472. https://doi.org/10.2307/259289.

Bohns, V. K. 2016. "(Mis)Understanding Our Influence Over Others: A Review of the Underestimation-Of-Compliance Effect." *Current Directions in Psychological Science* 25, no. 2: 119–123. https://doi.org/10.1177/0963721415628011.

Bolton, G. E., and A. Ockenfels. 2000. "ERC: A Theory of Equity, Reciprocity, and Cooperation." *American Economic Review* 90, no. 1: 166–193. https://doi.org/10.1257/aer.90.1.166.

Brodsky, S. L., M. P. Griffin, and R. J. Cramer. 2010. "The Witness Credibility Scale: An Outcome Measure for Expert Witness Research." *Behavioral Sciences & the Law* 28, no. 6: 892–907. https://doi.org/10.1002/bsl.917.

Burke, C. S., D. E. Sims, E. H. Lazzara, and E. Salas. 2007. "Trust in Leadership: A Multi-Level Review and Integration." *Leadership Quarterly* 18, no. 6: 606–632. https://doi.org/10.1016/j.leaqua.2007.09.006.

Buss, D. M. 2006. "Strategies of Human Mating." *Psychological Topics* 15, no. 2: 239–260.

Buss, D. M., M. Abbott, A. Angleitner, et al. 1990. "International Preferences in Selecting Mates: A Study of 37 Cultures." *Journal of Cross-Cultural Psychology* 21, no. 1: 5–47. https://doi.org/10.1177/0022022190211001.

Citrin, J., and D. Green. 1986. "Presidential Leadership and the Resurgence of Trust in Government." *British Journal of Political Science* 16, no. 4: 431–453. https://doi.org/10.1017/S0007123400004518.

Costigan, R. D., S. S. Ilter, and J. J. Berman. 1998. "A Multi-Dimensional Study of Trust in Organizations." *Journal of Managerial Issues* 10, no. 3: 303–317. https://www.jstor.org/stable/40604201.

Cwalina, W., and A. Falkowski. 2016. "Morality and Competence in Shaping the Images of Political Leaders." *Journal of Political Marketing* 15, no. 2–3: 220–239. https://doi.org/10.1080/15377857.2016.1151121.

Doney, P. M., and J. P. Cannon. 1997. "An Examination of the Nature of Trust in Buyer–Seller Relationships." *Journal of Marketing* 61, no. 2: 35–51. https://doi.org/10.2307/1251829.

Dunning, D., J. E. Anderson, T. Schlösser, and D. Ehlebracht. 2014. "Trust at Zero Acquaintance: More a Matter of Respect Than Expectation of Reward." *Journal of Personality and Social Psychology* 107, no. 1: 122–141. https://doi.org/10.1037/a0036673.

Dunning, D., D. Fetchenhauer, and T. Schlösser. 2012. "Trust as a Social and Emotional Act: Noneconomic Considerations in Trust Behavior." *Journal of Economic Psychology* 33, no. 3: 686–694. https://doi.org/10.1016/j.joep.2011.09.005.

Dunning, D., D. Fetchenhauer, and T. Schlösser. 2017. "The Varying Roles Played by Emotion in Economic Decision Making." *Current Opinion in Behavioral Sciences* 15: 33–38. https://doi.org/10.1016/j.cobeha.2017.05.006.

Dunning, D., D. Fetchenhauer, and T. Schlösser. 2019. "Why People Trust: Solved Puzzles and Open Mysteries." *Current Directions in Psychological Science* 28, no. 4: 366–371. https://doi.org/10.1177/0963721419838255.

Earle, T. C. 2010. "Trust in Risk Management: A Model-Based Review of Empirical Research." *Risk Analysis* 30, no. 4: 541–574. https://doi.org/10.1111/j.1539-6924.2010.01398.x.

Earle, T. C., and M. Siegrist. 2006. "Morality Information, Performance Information, and the Distinction Between Trust and Confidence." *Journal of Applied Social Psychology* 36, no. 2: 383–416. https://doi.org/10.1111/j.0021-9029.2006.00012.x.

Eckel, C. C., and R. K. Wilson. 2004. "Is Trust a Risky Decision?" *Journal of Economic Behavior & Organization* 55, no. 4: 447–465. https://doi.org/10.1016/j.jebo.2003.11.003.

Evans, A. M., and J. I. Krueger. 2016. "Bounded Prospection in Dilemmas of Trust and Reciprocity." *Review of General Psychology* 20, no. 1: 17–28. https://doi.org/10.1037/gpr0000063.

Falk, A., and U. Fischbacher. 2006. "A Theory of Reciprocity." *Games and Economic Behavior* 54, no. 2: 293–315. https://doi.org/10.1016/j.geb.2005.03.001.

Fehr, E., and K. M. Schmidt. 1999. "A Theory of Fairness, Competition, and Cooperation." *SSRN Electronic Journal* 114, no. 3: 817–868. https://doi.org/10.2139/ssrn.106228.

Fetchenhauer, D., and D. Dunning. 2009. "Do People Trust Too Much or Too Little?" *Journal of Economic Psychology* 30, no. 3: 263–276. https://doi.org/10.1016/j.joep.2008.04.006.

Fetchenhauer, D., and D. Dunning. 2010. "Why So Cynical? Asymmetric Feedback Underlies Misguided Skepticism Regarding the Trustworthiness of Others." *Psychological Science* 21, no. 2: 189–193. https://doi.org/10.1177/0956797609358586.

Fetchenhauer, D., and D. Dunning. 2012. "Betrayal Aversion Versus Principled Trustfulness—How to Explain Risk Avoidance and Risky Choices in Trust Games." *Journal of Economic Behavior & Organization* 81, no. 2: 534–541. https://doi.org/10.1016/j.jebo.2011.07.017.

Fetchenhauer, D., D. Dunning, and T. Schlösser. 2017. *The Mysteries of Trust: Trusting Too Little and Too Much at the Same Time*. Vol. 1, 1–20. Oxford Scholarship. https://doi.org/10.1093/oso/9780190630782.001.0001.

Fetchenhauer, D., A. S. Lang, D. Ehlebracht, T. Schlösser, and D. Dunning. 2020. "Does Betrayal Aversion Really Guide Trust Decisions Towards Strangers?" *Journal of Behavioral Decision Making* 33, no. 4: 556–566. https://doi.org/10.1002/bdm.2166.

Fiske, S. T., A. J. Cuddy, and P. Glick. 2007. "Universal Dimensions of Social Cognition: Warmth and Competence." *Trends in Cognitive Sciences* 11, no. 2: 77–83.

Fiske, S. T., A. J. C. Cuddy, P. Glick, and J. Xu. 2002. "A Model of (Often Mixed) Stereotype Content: Competence and Warmth Respectively Follow From Perceived Status and Competition." *Journal of Personality and Social Psychology* 82, no. 6: 878–902. https://doi.org/10.1037/0022-3514.82.6.878.

Fulmer, C. A., and M. J. Gelfand. 2012. "At What Level (and Whom) We Trust: Trust Across Multiple Organizational Levels." *Journal of Management* 38, no. 4: 1167–1230. https://doi.org/10.1177/0149206312439327.

Gebauer, J. E., J. Wagner, C. Sedikides, and W. Neberich. 2013. "Agency-Communion and Self-Esteem Relations Are Moderated by Culture, Religiosity, Age, and Sex: Evidence for the "Self-Centrality Breeds Self-Enhancement" Principle." *Journal of Personality* 81, no. 3: 261–275. https://doi.org/10.1111/j.1467-6494.2012.00807.x.

Gibbons, A., and R. T. Warne. 2019. "First Publication of Subtests in the Stanford-Binet 5, WAIS-IV, WISC-V, and WPPSI-IV." *Intelligence* 75: 9–18. https://doi.org/10.1016/j.intell.2019.02.005.

Hall, M. A., E. Dugan, B. Zheng, and A. K. Mishra. 2001. "Trust in Physicians and Medical Institutions: What Is It, Can It Be Measured, and Does It Matter?" *Milbank Quarterly* 79, no. 4: 613–639. https://doi.org/10.1111/1468-0009.00223.

Helgeson, V., and H. L. Fritz. 1999. "Unmitigated Agency and Unmitigated Communion: Distinctions From Agency and Communion." *Journal of Research in Personality* 33, no. 2: 131–158. https://doi.org/10.1006/jrpe.1999.2241.

Houser, D., D. Schunk, and J. Winter. 2010. "Distinguishing Trust From Risk: An Anatomy of the Investment Game." *Journal of Economic Behavior & Organization* 74, no. 1–2: 72–81. https://doi.org/10.1016/j.jebo.2010.01.002.

Hovland, C. I., I. L. Janis, and H. H. Kelley. 1953. *Communication and Persuasion: Psychological Studies of Opinion Change*. Yale University Press.

Johnson, D., and K. Grayson. 2005. "Cognitive and Affective Trust in Service Relationships." *Journal of Business Research* 58, no. 4: 500–507. https://doi.org/10.1016/S0148-2963(03)00140-1.

Johnson, N. D., and A. A. Mislin. 2011. "Trust Games: A Meta-Analysis." *Journal of Economic Psychology* 35, no. 5: 865–889. https://doi.org/10.1016/j.joep.2011.05.007.

Judd, C. M., L. James-Hawkins, V. Yzerbyt, and Y. Kashima. 2005. "Fundamental Dimensions of Social Judgment: Understanding the Relations Between Judgments of Competence and Warmth." *Journal of Personality and Social Psychology* 89, no. 6: 899–913. https://doi.org/10.1037/0022-3514.89.6.899.

Kanagaretnam, K., S. Mestelman, K. Nainar, and M. Shehata. 2009. "The Impact of Social Value Orientation and Risk Attitudes on Trust and Reciprocity." *Journal of Economic Psychology* 30, no. 3: 368–380. https://doi.org/10.1016/j.joep.2008.12.003.

Kimball, M. S. 1993. "Standard Risk Aversion." *Econometrica* 61, no. 3: 589–611. https://doi.org/10.2307/2951719.

Knack, S., and P. Keefer. 1997. "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation." *Quarterly Journal of Economics* 112, no. 4: 1251–1288. https://doi.org/10.1093/qje/qjr044Advance.

Kramer, R. M. 1999. "Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions." *Annual Review of Psychology* 50, no. 1: 569–598. https://doi.org/10.1146/annurev.psych.50.1.569.

Kristof-Brown, A. L. 2000. "Perceived Applicant Fit: Distinguishing Between Recruiters' Perceptions of Person–Job and Person–Organization Fit." *Personnel Psychology* 53, no. 3: 643–671. https://doi.org/10.1111/j.1744-6570.2000.tb00217.x.

Landy, J. F., J. Piazza, and G. P. Goodwin. 2018. "Morality Traits Still Dominate in Forming Impressions of Others." *Proceedings of the National Academy of Sciences of the United States of America* 115, no. 25: E5636. https://doi.org/10.1073/pnas.1807096115.

Leisen, B., and M. R. Hyman. 2004. "Antecedents and Consequences of Trust in a Service Provider: The Case of Primary Care Physicians." *Journal of Business Research* 57, no. 9: 990–999. https://doi.org/10.1016/S0148-2963(02)00343-0.

Levi, M., and L. Stoker. 2000. "Political Trust and Trustworthiness." *Annual Review of Political Science* 3, no. 1: 475–507. https://doi.org/10.1146/annurev.polisci.3.1.475.

Lewicki, R. J., D. J. McAllister, and R. J. Bies. 1998. "Trust and Distrust: New Relationships and Realities." *Academy of Management Review* 23, no. 3: 438–458. https://doi.org/10.2307/259288.

Martin, A. E., and M. L. Slepian. 2017. "The Big Two." In *The Encyclopedia of Personality and Individual Differences*, edited by V. Zeigler-Hill and T. Shackelford, 1–4. Springer. https://doi.org/10.1007/978-3-319-28099-8_864-1.

Mayer, R. C., J. H. Davis, and F. D. Schoorman. 1995. "An Integrative Model of Organizational Trust." *Academy of Management Review* 20, no. 3: 709–734. https://doi.org/10.2307/258792.

McAllister, D. J. 1995. "Affect- and Cognition-Based Trust as Foundations for Interpersonal Cooperation in Organizations." *Academy of Management Review* 38, no. 1: 24–59. https://doi.org/10.2307/256727.

McGinnies, E., and C. D. Ward. 1980. "Better Liked Than Right: Trustworthiness and Expertise as Factors in Credibility." *Personality and Social Psychology Bulletin* 6, no. 3: 467–472. https://doi.org/10.1177/014616728063023.

Mills, C. M. 2013. "Knowing When to Doubt: Developing a Critical Stance When Learning From Others." *Developmental Psychology* 49, no. 3: 404–418. https://doi.org/10.1037/a0029500.

Moore, F. R., D. Filippou, and D. I. Perrett. 2011. "Intelligence and Attractiveness in the Face: Beyond the Attractiveness Halo Effect." *Journal of Evolutionary Psychology* 9, no. 3: 205–217. https://doi.org/10.1556/JEP.9.2011.3.2.

Morin, R. A., and A. F. Suarez. 1983. "Risk Aversion Revisited." *Journal of Finance* 38, no. 4: 1201–1216. https://doi.org/10.1111/j.1540-6261.1983.tb02291.x.

Neal, T. M. S., R. E. Guadagno, C. A. Eno, and S. L. Brodsky. 2012. "Warmth and Competence on the Witness Stand: Implications for the Credibility of Male and Female Expert Witnesses." *Journal of the American Academy of Psychiatry and the Law* 40, no. 4: 488–497.

Paxton, P. 2002. "Social Capital and Democracy: An Interdependent Relationship." *American Sociological Review* 67, no. 2: 254–277. https://doi.org/10.1177/000312240206700205.

Pearson, S. D., and L. H. Raeke. 2000. "Patients' Trust in Physicians: Many Theories, Few Measures, and Little Data." *Journal of General Internal Medicine* 15, no. 7: 509–513. https://doi.org/10.1046/j.1525-1497.2000.11002.x.

Pornpitakpan, C. 2004. "The Persuasiveness of Source Credibility: A Critical Review of Five Decades' Evidence." *Journal of Applied Social Psychology* 34, no. 2: 243–281. https://doi.org/10.1111/j.1559-1816.2004.tb02547.x.

Rempel, J. K., J. G. Holmes, and M. P. Zanna. 1985. "Trust in Close Relationships." *Journal of Personality and Social Psychology* 49, no. 1: 95–112. https://doi.org/10.1037/0022-3514.49.1.95.

Rosenberg, S., C. Nelson, and P. Vivekananthan. 1968. "A Multidimensional Approach to the Structure of Personality Impressions." *Journal of Personality and Social Psychology* 9, no. 4: 283–294. https://doi.org/10.1037/h0026086.

Rousseau, D. M., S. I. M. B. Sitkin, R. S. Burt, and C. Camerer. 1998. "Not So Different After All: A Cross-Discipline View of Trust." *Academy of Management Review* 23, no. 3: 393–404. https://doi.org/10.5465/amr.1998.926617.

Sah, S., G. Loewenstein, and D. Cain. 2019. "Insinuation Anxiety: Concern That Advice Rejection Will Signal Distrust After Conflict of Interest Disclosures." *Personality and Social Psychology Bulletin* 45, no. 7: 1099–1112. https://doi.org/10.1177/0146167218805991.

Schlösser, T., D. Dunning, and D. Fetchenhauer. 2013. "What a Feeling: The Role of Immediate and Anticipated Emotions in Risky Decisions." *Journal of Behavioral Decision Making* 26: 13–30. https://doi.org/10.1002/bdm.757.

Schlösser, T., D. Fetchenhauer, and D. Dunning. 2016. "Trust Against All Odds? Emotional Dynamics in Trust Behavior." *Decision* 3, no. 3: 216–230. https://doi.org/10.1037/dec0000048.

Schlösser, T., O. Mensching, D. Dunning, and D. Fetchenhauer. 2015. "Trust and Rationality: Shifting Normative Analyses in Risks Involving Other People Versus Nature." *Social Cognition* 33: 459–482. https://doi.org/10.1521/soco.2015.33.5.459.

Schwieren, C., and M. Sutter. 2008. "Trust in Cooperation or Ability? An Experimental Study on Gender Differences." *Economics Letters* 99, no. 3: 494–497.

Selnes, F. 1998. "Antecedents and Consequences of Trust and Satisfaction in Buyer-Seller Relationships." *European Journal of Marketing* 32, no. 3/4: 305–322. https://doi.org/10.1108/03090569810204580.

Shafto, P., B. Eaves, D. J. Navarro, and A. Perfors. 2012. "Epistemic Trust: Modeling Children's Reasoning About Others' Knowledge and Intent." *Developmental Science* 15, no. 3: 436–447. https://doi.org/10.1111/j.1467-7687.2012.01135.x.

Simpson, J. A. 2007. "Foundations of Interpersonal Trust." In *Social Psychology: Handbook of Basic Principles*, edited by A. W. Kruglanski and E. T. Higgins, 587–607. Guilford Press.

Spisak, B. R., N. M. Blaker, C. E. Lefevre, F. R. Moore, and K. F. Krebbers. 2014. "A Face for All Seasons: Searching for Context-Specific Leadership Traits and Discovering a General Preference for Perceived Health." *Frontiers in Human Neuroscience* 8: 792. https://doi.org/10.3389/fnhum.2014.00792.

Strohminger, N., J. Knobe, and G. Newman. 2017. "The True Self: A Psychological Concept Distinct From the Self." *Perspectives on Psychological Science* 12, no. 4: 551–560. https://doi.org/10.1177/1745691616689495.

Swan, J. E., M. R. Bowers, and L. D. Richardson. 1999. "Customer Trust in the Salesperson: An Integrative Review and Meta-Analysis of the Empirical Literature." *Journal of Business Research* 44, no. 2: 93–107. https://doi.org/10.1016/S0148-2963(97)00244-0.

Thielmann, I., and B. E. Hilbig. 2015. "Trust: An Integrative Review From a Person-Situation Perspective." *Review of General Psychology* 19, no. 3: 249–277. https://doi.org/10.1037/gpr0000046.

Twyman, M., N. Harvey, and C. Harries. 2008. "Trust in Motives, Trust in Competence: Separate Factors Determining the Effectiveness of Risk Communication." *Judgment and Decision Making* 3, no. 1: 111–120. https://doi.org/10.1017/S1930297500000218.

Uslaner, E. M., and M. Brown. 2005. "Inequality, Trust, and Civic Engagement." *American Politics Research* 33, no. 6: 868–894. https://doi.org/10.1177/1532673X04271903.

Van Lange, P. A., and C. Sedikides. 1998. "Being More Honest but Not Necessarily More Intelligent Than Others: Generality and Explanations for the Muhammad Ali Effect." *European Journal of Social Psychology* 28, no. 4: 675–680. https://doi.org/10.1002/(SICI)1099-0992(199807/08)28:4<675::AID-EJSP883>3.0.CO;2-5.

Wojciszke, B. 2005. "Morality and Competence in Person- and Self-Perception." *European Review of Social Psychology* 16: 155–188. https://doi.org/10.1080/10463280500229619.

Wojciszke, B., W. Baryla, M. Parzuchowski, A. Szymkow, and A. E. Abele. 2011. "Self-Esteem is Dominated by Agentic Over Communal Information." *European Journal of Social Psychology* 41, no. 5: 317–627. https://doi.org/10.1002/ejsp.791.

Ybarra, O., E. Chan, H. Park, E. Burnstein, B. Monin, and C. Stanik. 2008. "Life's Recurring Challenges and the Fundamental Dimensions: An Integration and Its Implications for Cultural Differences and Similarities." *European Journal of Social Psychology* 38, no. 7: 1083–1092. https://doi.org/10.1002/ejsp.559.

Zak, P. J., and S. Knack. 2001. "Trust and Growth." *Economic Journal* 111, no. 470: 295–321. https://doi.org/10.1111/1468-0297.00609.

Zheng, X., W. Wang, and J. Pinto. 2023. "When Does Competence Matter? Character as a Moderator in the Development of Trust." *Personality and Social Psychology Bulletin*: 1–17. https://doi.org/10.1177/01461672231167693.