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Unfair Advantage

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Equity Restoration: An Experimental Test of Self-Sabotage
Following Unfair Advantage

by

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Abstract

Participants were told that they were competing in an online trivia competition against a classmate (Study 1) or a stranger (Study 2). Halfway through this competition, participants in the manipulation condition in Study 1 received an unfair advantage when their competitor was marked wrong for a correct answer. In Study 2 there was an added condition where participants were unfairly advantaged by being marked correct for their own wrong answer. Then participants were given the opportunity to sabotage their subsequent performance to restore equity by choosing how difficult their following task would be (Study 1 and 2), or by actually performing a task that required clicking (Study 1). There were no significant effects of the manipulation in either study, despite evidence that the participants did view what happened to their competitor as an injustice.

Introduction

Inequity Aversion

There is something satisfying about the idea of a just world. Individuals wish to see the world as a place where bad things happen to bad people and good things happen to good people, where people are punished for their wrongdoings and rewarded for a job well done, where outcomes are fair and just and equitable. In fact, this idea is so satisfying that when things do not happen according to this idyllic framework individuals are prone to experience feelings of discomfort and will do cognitive work to restore apparent justice -for example, by derogating the victim of a crime, who, because the world is just, “must” have deserved her fate (Rubin & Peplau, 1975; Miller, 1977; Lerner & Miller, 1978; Lerner, 1980). It is easy to understand, then, how an unjust situation that leaves someone in a disadvantaged position produces adverse reactions and behaviors designed to restore an equitable balance (Fehr & Schmidt, 1999; Bolton & Ockenfels, 2000). For example, workers who receive an unfair pay cut have been found to literally lose sleep over the breach of equity (Greenberg, 2006), and to respond by stealing from their employer, presumably in an effort to restore balance (Greenberg, 1990). Similarly, workers who were randomly assigned to a worse office during a workplace renovation responded to the injustice by working less hard (Greenberg, 1988). The remarkable part is that research has shown that individuals’ preference for equity—i.e. for balance between inputs and outputs—is so strong that even when a situation ends up giving an individual an unfair advantage the individual may still experience feelings of discomfort, and may still engage in behaviors designed to restore equity (Adams, 1965; Haynes & Gilovich, 2010). Just as those assigned to a worse office decreased their work productivity, those assigned to a nicer office *increased* theirs (Greenberg,

1988). Inequity aversion appears to strike those who are unfairly advantaged just as it does those who are unfairly disadvantaged.

What little is known about how individuals respond to violations of equity comes from research in behavioral economics on how humanistic concerns for equity affect the ways in which people handle their money. A dogmatic economist might argue that there are limits to equity restoration, and that any rational human would always choose to be fiscally selfish in order to maximize his or her financial standing (Kirzner, 1960). In practice however, evidence has shown that people routinely violate this assumption, demonstrating that people do not always act selfishly. People are sometimes willing to sabotage their own opportunity to gain extra money in an attempt to ensure equity following an unfair situation (Camerer & Thaler, 1995; Kahneman, Knetsch, & Thaler, 1986). Commonly this phenomenon has been demonstrated using the Dictator's Game. In this decision-making paradigm there are two participants, one of whom is given a fixed amount of money, \$10 for example. This participant is given the power to distribute the money between him- or herself and the other participant in whatever way he or she chooses, without any input from the other participant, and the participants is not given the option to reject the offer. Based on purely economic assumptions of self-interest and rationality, the "dictator" participant should, of course, choose to keep all of the money, and share none with the other person. However, that is not the behavior that is observed when the game is actually played. In one study only 34% of participants chose to keep all of the money they were allocated for themselves, indicating that 66% of participants were motivated by something other than rationality to share their money (Forsythe, Horowitz, Savin, & Sefton, 1994). There are a number of possible interpretations of this finding, including the individual's interest in his or her own reputation (Emler, 1990) or concerns over possible retaliation (Barclay, Bashshur & Fortin,

2017), but since these interactions are isolated, it is likely that the participants will not be interacting with one another ever again, so these social concerns will be less salient. Therefore, is likely that at least some of the motivation stems from concerns of fairness, and a desire for equity – even if that means a smaller profit (Bolton, Katok, & Zwick, 1998). The current study attempts to view inequity aversion outside of the domain of economics to see how influential feelings of inequity can be on social interactions. Specifically, we are interested in performance, and on how the performance of people in unfair situations is affected. This will add to the inequity aversion literature by applying the phenomenon to purely social interactions in the absence of economic incentives.

Morality, Sympathy and Empathy

In order for inequity to become an issue of note or importance, it is imperative that humans share a common understanding of what is “right” and what is “wrong.” The distinction between the two ideas is the basis of human morality (Hauser, 2006). The idea of fairness and justice is similarly grounded in the basic ethical question of how people believe others ought to be treated in society (Rupp & Cropanzano, 2002; Fehr & Gächter, 2002). Therefore, the discomfort that accompanies inequity aversion stems from the principal question of morality in itself. To understand the mechanisms of inequity aversion, it becomes important to understand why people are motivated to adhere to the confines of morality in the first place. Many scholars agree that the motivation for morality comes from recognizing the “preciousness” of the human, and which causes the individual to want to protect, respect and foster good relations with the other person (Johnstone, 2018). Morality is the basic human drive to treat others in a fair and respectful manner because we, as a society, have decided that is the right thing to do.

A human who follows basic moral standards is innately motivated to care for other humans, and with this motivation comes an allocation of feelings for the other (Johnstone, 2018); the most common feeling being sympathy. Sympathy is the ability to understand what another person is feeling to the degree that it causes negative feelings for the observer (Burton, 2010). Sympathy is a precursor for morality because the feelings associated with sympathy motivate the individual to act to rid themselves of these negative feelings by helping out the person in distress. Helping this person would, of course, be the morally correct thing to do (Johnstone, 2018). However, although sympathy encourages an individual to do the “right” thing, alone it does not morally oblige a person to do anything. In other words, it is possible to feel the need to act in a moral manner in the absence of sympathy. For example, most people do not recycle because they feel sympathy for any person: they do so because it is simply the right thing to do. When it comes to inequity aversion, a feeling dictated primarily by morality, it seems as though sympathy will work as a moderator for whether or not a person works to restore equity in an obviously unfair situation.

Inequity Aversion and Performance

In direct relation to inequity aversion, Haynes and Gilovich (2010) examined an especially compelling example of self-sabotage by looking at footage of professional basketball games. They examined instances in which obviously incorrect foul calls were made, and then studied how well players shot on the free throws that they didn’t deserve. They found that players were about 20% less likely to make their first free throw following a bad call than they were to make their first free throw following a fair call. Although this study was correlational (meaning it documents a relationship between two variables without determining causality), the results are particularly compelling because professional athletes typically possess strong

motivations to perform well. Indeed, they are some of the last people one would expect to sabotage their own performance for the purposes of equity restoration.

As an extension to this original paper, Axt and Oishi (2016) have gone on to take a closer look at how inequity affects performance, specifically studying disadvantageous treatment. They repeated the previous correlational study with NBA players, but instead looked for instances in which an obvious scoring opportunity was taken from a player because of a blatant and unfair foul. As predicted, Axt and Oishi (2016) found that in these instances players were more likely to make their free throws than players in normal free throw circumstances, a finding they interpreted as another demonstration of equity restoration, this time with the players righting a wrong against themselves.

In two correlational studies, then, NBA players have been shown to adjust their basketball performance in an effect to restore equity. Although these findings are compelling, it is necessary to corroborate them experimentally. In addition to their correlational study, Axt and Oishi (2016) do test their hypothesis in a controlled laboratory setting. They had participants put golf balls, only for one of their best puts to be “accidentally” knocked away by a confederate, putting the participant in an unfair and disadvantaged situation. The participant was then asked to retake the shot, and how well they shot was measured as the dependent variable. They found that shots following an unfair nullification were significantly closer to the target than were participants’ original, untampered shots. The results of increased performance following unfair treatment were replicated, which demonstrated the causal effect of a disadvantageous interruption on performance. This, of course, is the exact opposite of the effect that Haynes and Gilovich (2010) found, and together these two papers indicate that performance is sensitive to perceptions of fairness and justice.

The purpose of the present study was to further explore the phenomenon of self-sabotage as a means to restore equity that was found by Haynes & Gilovich (2010). Their results are very intriguing, but they are only correlational, which makes it hard to make any conclusions about the robustness of their findings. In order to strengthen the literature, this study created an online paradigm that allowed us to artificially create an unfair advantage for the participant to see how their subsequent performance would be affected. The ability to randomly assign participants to condition and to isolate the independent variable created a platform to gather results in a more controlled manner. There were two major goals for this study. One was to examine the self-sabotage effect in an experimental context, in which causation could be established, and verify its replicability. The second goal was to manipulate, and thereby explore the influence of, a number of situational variables, some of which appeared to make a difference in the basketball study. In other words, the goal was to first make sure the effect is real, and then to understand its psychology. I believe that this study will add to the small, but growing, body of literature on inequity aversion and performance.

Study 1a

Method

Participants were 40 Mechanical Turk workers. Workers completed an online survey where they were told to imagine that they had been paired with another worker, against whom they were competing to see who could answer the most trivia questions correctly. Then they were presented with four different scenarios in which the computer had graded their competitor's answer as incorrect. In the first scenario, their competitor answered the question one hundred percent correctly, but the computer graded their answer as incorrect due to some computer error. In the second scenario, their competitor clearly knew the answer, but they were marked wrong

by the computer because they did not capitalize a proper noun in their answer. In the third scenario, their competitor once again clearly knew the answer, but they were marked wrong because of a spelling error. In the fourth scenario, the participant was presented with a situation in which they had just received a trivia question that was significantly easier than the question that their competitor received, and then they were told that their competitor had answered this much more difficult question incorrectly. The scenarios were presented to participants in a counterbalanced order. For each of these scenarios the participant was asked to judge how unfair the situation seemed, to what extent did they think that their competitor had suffered an injustice, to what extent they would feel guilty if this actually happened to their competitor, and to what extent they would purposely answer a subsequent question wrong in order to even the score and restore equity. All questions were answered on a 5-point Likert scale ranging from 0 (not at all) to 4 (very much).

Results

Participants thought that when their competitor answered the trivia question one hundred percent correct, but they were graded wrong due to a computer error was the most unfair scenario ($M=3.55$, $SD=0.84$). This was followed by the scenario in which their competitor was marked wrong due to a capitalization error ($M=3.10$, $SD=1.03$), followed by the question difficulty ($M=2.13$, $SD=1.26$), and then by the spelling error ($M=1.85$, $SD=1.25$). When it came to what extent the participant thought their competitor had suffered an injustice again participants ranked getting the question 100% correct as the biggest injustice ($M=3.50$, $SD=0.90$), then the capitalization error ($M=2.85$, $SD=1.17$), then the more difficult question ($M=1.63$, $SD=1.41$), followed by the spelling error ($M=1.53$, $SD=1.30$). Participants did not seem to think that they

would feel very guilty if any of these scenarios occurred, but again said that had their competitor been one hundred percent correct then they would feel the most guilty ($M=1.83$, $SD=1.48$), followed by the capitalization error ($M=1.60$, $SD=1.39$), then the difficult question ($M=1.18$, $SD=1.26$), and finally the spelling error ($M=1.03$, $SD=1.23$). Lastly, participants indicated that they would be most willing to sabotage their performance on the next question if their competitor had answered correctly ($M=1.33$, $SD=1.40$), followed by a capitalization error ($M=1.13$, $SD=1.44$), then if their competitor had been given a difficult question ($M=0.83$, $SD=1.13$), and finally participants said that they would be least willing to sabotage their performance if their competitor had made a spelling error ($M=0.78$, $SD=1.07$).

Discussion

It was clear that participants found the situation in which their competitor correctly answered the question, but was marked wrong by the computer to be the most unjust. This makes sense because it shows that the competitor clearly knew the answer, but was not rewarded for this knowledge. Interestingly, participants did not think that it would be equally unjust if their competitor were marked wrong for a capitalization or a spelling error, even though their competitor clearly knew the answer to the question in these situations as well. In fact, participants were the least sympathetic to spelling errors of all situations, including when their competitor didn't know the answer to a difficult question. This may be because a missed capitalization may just indicate some informality on the competitor's part, but this informality does not indicate that the competitor did not know the answer. Whereas a spelling error may indicate uncertainty in the answer, or that the answer was more of a guess than a certain

response, and this sort of error may indicate to the participant that the competitor is not as deserving of a point.

Although participants found a capitalization error to be the second most unjust situation the experimenters chose to use this situation in the subsequent study. This was done in order to create a more believable “error.” It was also done to create a situation where the competitor committed some sort of error, but was unjustly punished for their actions. This set up mirrors the scenario looked at by Haynes & Gilovich (2010), where an NBA player is sent to the line after an unjust foul is called. Here, the defensive player was directly involved in the play, however he was unjustly punished for his actions (i.e. his defense). This is different than a situation in which the competitor does absolutely nothing wrong, but is punished anyway. This would be more synonymous to a player who is nowhere near the player with the ball unjustly getting a foul called on them. Since Haynes and Gilovich (2010) found evidence of self-sabotage occurring in their paper, we wanted to emulate their setup as closely as possible.

Additionally, answers to questions that asked about unfairness and questions that asked about whether the described situation would lead the participant to self-sabotage showed similar trends. This indicates a potential link between self-sabotage and unfairness, but from these data alone no conclusions can be drawn.

Study 1b

Method

Participants were 166 undergraduate students at Williams College who were enrolled in either Introductory Psychology or Social Psychology. All students participated in exchange for extra credit in their class. The study was created using Qualtrics software. Participants were told

that they would be paired online with another student in their class, and the two of them would then compete in an online trivia competition for an additional point of extra credit. In fact, the students were not actually paired with anyone else, but in order to maintain the illusion that they would be competing against a real person participants were told that they had to sign up to complete the study during very specific times when other participants would also be available to take the study. Additionally, the researcher did not email the link to the study to the participants until just a few minutes before the participant was scheduled to begin to ensure that no one took the study outside of their scheduled time. Once the participant opened the study, they were asked to provide a two letter identifying code name. Then all participants were told that they were paired with an anonymous classmate with the initials BR, and that they would be competing with BR in a 15-question trivia competition, in which the winner would be awarded an additional point of extra credit. They were also told that halfway through the competition one of them would be randomly chosen to answer an “advantage question,” which would be in the form of a fill-in-the-blank trivia question. If the person given the advantage question answered the question correctly, then they would be given the opportunity to perform a short task to earn 2 extra points in the competition, but if they answered incorrectly then their competitor would be given the chance to perform the task and earn 2 extra points in the competition.

Before beginning the competition participants were asked to rate how proud, uncomfortable, nervous, excited and awkward they felt on a 5-point Likert scale from 1(not at all) to 5(very). After completing 7 moderately difficult multiple choice trivia questions all participants were told that they got five of the questions correct, while BR only got three of the questions correct, putting the participant ahead of BR by 2 points. This was done to simulate the findings from Haynes & Gilovich (2010), in which they found that NBA free throw percentage

only decreased after an unfair foul was called if the team shooting the free throws was ahead. In other words, the basketball players were only willing to sabotage their performance if they were already beating the other team, so it would make sense that participants would have a similar logic and only sabotage their trivia performance if they were already ahead of their classmate.

After the standings update all participants were told that BR had been randomly selected to receive the advantage question, however the way that BR was said to have answered the advantage question varied by condition. In both conditions the advantage question was, “What artist is famous for having a blue period in the early 1900s?” to which the correct response would be “Pablo Picasso.” In the *legitimate condition* BR was said to have given the answer “Van Gough,” and their answer was graded as incorrect. In the *illegitimate condition* BR was said to have given the answer “pablo picasso,” which is the correct answer, but it was un-capitalized and so it was graded as incorrect. Consequentially, all participants in both conditions were given the chance to perform the bonus task as a way to potentially earn 2 extra points in the competition. First, participants were asked to rate the same feelings they were asked about earlier for a second time, and then they were randomly assigned to complete one of two bonus tasks, which acted as the dependent variable.

For the *difficult task*, participants were told that they would be completing 10 visual puzzles, and if they solved 5/10 puzzles they would earn one additional point in the competition, and if they solved 8/10 puzzles then they would earn two additional points. Participants were instructed to choose the difficult level of the 10 visual puzzles. They were able to choose how many of the 10 puzzles would be easy, how many would be medium, and how many would be difficult. However, no matter their choice, all participants were told that they would actually not have to complete the puzzles, and then they were automatically granted the two bonus points.

For the *click task*, participants were told to click their mouse/track pad/screen, as many times as they could in 10 seconds, and if they clicked above a certain undisclosed threshold they would be awarded an extra point. Participants completed this task two times in a row, and did not learn if they had earned any extra points until after both attempts. Regardless of how many times the participants clicked they were all told that they had earned two bonus points. At this time, participants in all conditions were given a score update that showed them having 7 points, while BR still only had 3 points, putting the participant up 4 points. Finally, the participants completed the remaining eight trivia questions, and then completed a manipulation check. In the manipulation check participants were asked to report what BR's exact answer to the advantage question was (including proper capitalization), as well as whether or not the computer graded this answer as correct. We also asked whether the participant thought that grading was fair or not. The decision was made a priori that any participants that failed to answer the manipulation check correctly would be left out of analyses. Lastly, all participants were awarded the additional point of extra credit for winning the competition for a total of two extra credit points awarded per student.

Results

Nine participants in the legitimate condition and seven participants in the illegitimate condition failed to correctly answer the manipulation check; therefore they have been excluded from all further analyses. The manipulation check revealed that the study did indeed create an unjust situation, as was intended. 95% of participants in the illegitimate condition said that BR's answer was graded unfairly or somewhat unfairly, where as only 3% of the participants in the legitimate condition indicated that BR's answer was graded unfairly. Data analyses indicated that

there were no significant main effects between the two conditions for either dependent variable. For the task difficulty dependent variable, out of 10 questions participants chose an average of 7.95 easy questions in the legitimate condition and 7.97 easy questions in the illegitimate condition ($t(79)=0.0349, p=0.972$), 1.31 medium questions in the legitimate condition and 1.10 medium questions in the illegitimate condition ($t(79)= -0.5312, p=0.596$), and 0.738 hard questions in the legitimate condition and 0.923 hard questions in the illegitimate condition ($t(78)=0.4715, p=0.639$). For the first round of the clicking task participants clicked an average of 57.48 times in the legitimate condition and 61.39 times in the illegitimate condition ($t(77)=1.0557, p=0.294$), and in round 2 participants clicked an average of 60.79 times in the legitimate condition and 59.83 times in the illegitimate condition ($t(78)=-0.2445, p=0.808$).

The final eight questions of the trivia competition were used as an additional dependent variable since these questions were answered after the manipulation. The two conditions did not differ in the percentage of questions answered correctly for the first 7 questions, which was 57% for the legitimate condition and 55% for the illegitimate condition ($t(149)=0.500, p=0.618$). The two conditions also did not differ for the percentage of questions answered correctly for the final 8 questions, which was 88% for the legitimate condition and 90% for the illegitimate condition ($t(152)=-1.007, p=0.315$).

Participants were asked to rate their feelings before beginning the trivia competition and participants in the two conditions did not differ in their ratings for any emotion except for “excited.” Participants in the illegitimate condition were more excited at the start of the competition ($M=2.93$) than participants in the legitimate condition ($M=2.43, t(149)=-2.75, p=0.007$). Additionally, when participants were asked to rate their feelings for a second time, once again, participants in the illegitimate condition were more excited ($M=3.08$) than

participants in the legitimate condition ($M=2.65$, $t(152)=-2.36$, $p=0.020$). However, participants in the illegitimate condition did not differ in their responses to how excited they were at time 1 and at time 2 ($t(78)=-0.784$, $p=0.434$), and neither did the participants in the legitimate condition ($t(77)=-1.28$, $p=0.203$). In both conditions participants reported feeling significantly more proud at time 2 than at time 1 (*legitimate*: $t(77)=-2.78$, $p=0.006$, *illegitimate*: $t(78)=-2.02$, $p=0.044$), however participants did not differ in their ratings at either time between conditions.

Discussion

Despite the fact that this study successfully created an injustice there was no evidence of the self-sabotage hypothesis being supported. Many participants left comments such as, “It seems unfair that my task was MUCH easier than BR’s,” and “BR had the right answer. They just didn’t capitalize the name...they shouldn’t be penalized for that,” and “I felt for BR because they gave the right answer. The test was unfair,” reinforcing the idea that the test did create an injustice obvious enough for people to comment on.

There are many reasons why Haynes & Gilovich (2010) witnesses self-sabotage following an unfair advantage, and this study did not. It is possible that the study did not yield the desired results because of the anonymous nature of the participant and the competitor. Hughes & Louw (2013) found that when individuals interact anonymously they become more sensitive to situational cues, and because of the distinct lack of individuating information about the other players, people acting in anonymous situations are more likely to become immersed in the game, or competition, which will lead to anti-social behavior. This information implies that because of the anonymous nature of this study, the participants became acutely focused on the

competition, and because they were given almost no information about their competitor, concerns of sympathy did not become an issue for participants.

Additionally, a study in economics found that people who felt sympathy for others experienced a decrease in their own self-interest (Hausken, 1996). Therefore, it is possible that the participants in this study experienced an increase in self-interest, and therefore in anti-social behaviors, because the anonymity discouraged participants from feeling sympathetic for their counterpart when they experienced an injustice. Alternatively, it is possible that the basketball players in the original study were externally motivated by concerns of social image to appear sympathetic, whereas the participants in the study did not experience this same pressure. The players were surrounded by friends, teammates, colleagues and fans, whereas no one was watching the participants. Evidence shows that people like to be *perceived* as fair even more than they like to actually be fair (Andreoni & Bernheim, 2009). This finding indicates that at least some component of inequity aversion is most likely externally motivated.

It is also possible that the extra-credit was too valuable for students to give up, and the desire to gain extra credit was stronger than any feelings of inequity that were created. Haynes and Gilovich (2010) only saw the self-sabotage phenomenon occur if the team shooting the free throws was already ahead, or in other words, if the points from the free throws were not as valuable to the player. Since the only reason any of the students participated in the study was for the sole purpose of gaining extra credit, it makes sense that gaining the most amount of extra credit possible was their primary motivating factor. The basketball players, on the other hand, were motivated to play for a great deal of reasons, potentially including love for the sport, love for their teammates, it's their job, they enjoy performing for an audience, etc. Therefore, although the players are undoubtedly motivated to win, it seems as though their feelings of

inequity might have been more salient because they had more external motivations for playing basketball than the students had for participating in the study, including image preservation.

Another issue may have been that because the study was framed as a competition, people were motivated to win for the sake of being competitive. While studying motivations of online auction bidders, Malhotra (2010) found that the desire to win is heightened when rivalry and time pressure coincide. In this study, participants experienced both rivalry and time pressure, which may have interacted to create an increased desire to win the competition. Also, IQ has been found to be correlated with competitiveness, and since all participants in this study were students at an elite academic institution, there is reason to believe that this population is naturally more competitive than average (Furnham & Treglown, 2018). Competitiveness can help push people to work harder, and strive for excellence in whatever it is they are doing, but being competitive can also have some downsides. Psychologist Alfie Kohn studies different classroom learning styles (competitive vs. collaborate), and he found that highly competitive people tend to be less sympathetic because they view other people's as obstacles to their own success, therefore it would be irrational to help other people (Kohn, 1993). Therefore, because the study was framed as a completion, this may have led to a decrease in sympathy of the participants, resulting in non self-sabotaging behavior. It is worth noting that professional athletes, such as the basketball players in the Haynes & Gilovich study, are also highly competitive. Therefore, if participants in this study were less sympathetic because they were involved in a competition, but the basketball players still exhibited self-sabotaging behavior despite being in a competitive setting, that would indicate that concerns with image preservation are stronger than a competitive drive to win.

Any number of these reasons may have contributed to why we were not able to find significant results in our study. In order to gain a better understanding of the mechanisms behind why participants did not exhibit self-sabotaging behavior in order to restore equity we sent out a follow-up questionnaire to all of the participants, asking them about their thought processes during the study. Participants were not compensated in any way for completing this questionnaire.

Study 1c

Method

The follow-up questionnaire was sent to the 82 students who participated in the previous study, and were randomly assigned to the *illegitimate condition*. 42 students completed the follow-up questionnaire for a response rate of 51%. In the questionnaire, participants were told that BR was in fact not a real person, and that the study was set up to make it look like BR was unfairly counted wrong for their answer. We also told them that we were interested in whether or not this act of injustice would result in participants undermining their own performance in order to restore equity, and it was clear from the results of the study that was not the case, and we wanted to understand why. We asked participants to consider six different statements that could explain why we did not find the effect we were looking for, and then indicate how similar each statement was to what they were thinking while taking the study. At the end, participants were given the option to share additional thoughts they had while taking the study that were not asked about.

Results

All of the questions were asked on a 3-point scale (0=not what I was thinking, 1=maybe a little, 3=Yes, this is what I was thinking). Overall, the sentiment that most matched what the participants were thinking was, "I felt bad for BR, but it wasn't my fault so it's not my mess to clean up" (m=1.05). Participants indicated that the next most common thought during the study was "The extra credit was too valuable to pass up" (m=0.800). This was followed by "I didn't feel bad because BR was anonymous" (m=0.650), "I knew that BR was fake" (m=0.575), and "The injustice did not directly involve me, but if it had I might have felt worse" (m=0.400). Importantly, when asked if the study was too complicated to follow very few participants indicated that this is what they were thinking (m=0.135).

Discussion

Many participants indicated that they believe that the reason why they didn't sabotage their performance in order to restore equity is because they did not feel responsible for fixing an injustice that was not their fault. Participants left comments saying, "ultimately trivia can be kind of random too," and "we were competing for a chance event, he didn't get it and I didn't feel the need to restore justice." These comments reinforce the idea that although they may have felt bad for their competitor, ultimately they did not feel as though the injustice was their fault, so they were not responsible for restoring justice. Comparing this with the results from the Haynes & Gilovich study, this indicates that maybe a "negative injustice" that unfairly harms your adversary might not necessarily feel the same as a "positive injustice" that unfairly benefits you, the latter being more consistent with the basketball study. Initially it was assumed that these concepts were functionally equivalent, but the two may not actually feel the same

psychologically. In the first study, the injustice happened to BR, which was not the participant's fault, and therefore the participant felt as though nothing that they do is ever going to change that fact. So while the participant may feel bad about it, it's arguably not their responsibility to fix it.

To account for this, we added 2 conditions to the study that required the participant to become more involved with the injustice by having the participant answer the advantage question. The original conditions, where BR answers the advantage question, were kept as negative injustice conditions, and the 2 new conditions worked as positive injustice conditions. This would allow us to compare the two types of injustices to see if they function differently.

The second most common answer from participants was that the extra credit was too valuable to pass up. Therefore, even if they did feel bad for BR, their desire to win overwhelmed any negative feelings. In the next study, we adjusted for this by removing the possibility of participants winning anything extra for winning the competition. Instead, we told participants that they would be paid at a higher base pay rate than their competitor, therefore they would not have a chance to win a bonus, but their competitor would. To account for people saying that they would have felt bad if BR wasn't anonymous, and leaving comments such as, "I would have felt worse if I knew the person," we added a few personal questions at the beginning of the study. We shared BR's answers with the participant in an attempt to create a personal connection between BR and the participant, and to make BR seem less anonymous. Also, some participants recorded that they did not view the study as an injustice because it was the competitor's fault that they did not capitalize a proper noun. Initially, the capitalization error was chosen to make the error seem more believable, but in doing this we blurred the line between what people think is just and what people think is unjust. It is important to keep these two categories as distinct as possible for this study, so for the next study we removed the capitalization error, and replaced it

with the situation where the BR answers the answer completely correct, but is marked wrong anyway.

Finally, a small amount of participants left comments similar to “I could tell BR was fake,” which is a problem because if participants don’t believe that BR is a real person, then they will not be able to feel sympathetic towards them since sympathy is a human-to-human interaction (Johnstone, 2018). In the previous study, participants were told that they were competing with BR in real time. To make this believable, participants were told that they could only start the study during very specific times when other people were logged on, and also timing delays were added to other parts of the study to make it look like someone else was online. However, this may not have been enough to convince everyone that BR was a real person. Therefore, in the next study, we told participants that their competitor had already completed the study earlier that day, so they would not be competing in real time, and their competitor would receive a summary of the participant’s performance.

Study 2

Method

Participants were Amazon’s Mechanical Turk (MTurk) workers. The setup was very similar to that in Study 1b, except in this study participants were told that the worker that they had been paired with, BR, had already completed their part of the study earlier that day. Also, participants were told that if BR wins the competition then he or she will be awarded a bonus payment, whereas if the participant wins they will *not* receive a bonus payment. This was done to avoid having the participant’s desire to earn a bonus payment overpower any other effects that

might be seen. To explain this discrepancy we told the participant that we were exploring different pay structures, and that they were being paid at different base rates. Participants were asked to answer a few questions about themselves, such as ‘What is your favorite TV series?’ and ‘Do you prefer the mountains or the beach?’ and then they were shown BR’s answers to the same questions as a way to make their relationship seem less anonymous. Similar instructions were given regarding the advantage question as in the previous study. Then, participants completed the first 7 multiple-choice trivia questions. All participants were told that they correctly answered 6 of the questions, and BR had correctly answered only 3 of the questions, putting the participant ahead by 3 points. After this, participants were asked to rate the same emotions from Study 1b. Participants were then informed that one person would be randomly chosen to answer the advantage question. The same advantage question was asked in every condition, “How long is the Michigan River? (Answers within 15 miles will be accepted)” This question was chosen because there is no such thing as the Michigan River; therefore no participants would know the answer to this question. Participants were randomly assigned to one of four conditions.

In the *BR answers-legitimate condition* the participants opponent, BR, was chosen to answer the advantage question. The participant was shown the correct answer, and BR’s answer, which was very obviously wrong. The computer graded the response as incorrect, and the participant was informed that because BR was incorrect they would have the opportunity to gain two extra points by completing a short task. In the *BR answers-illegitimate condition* again BR was chosen to answer the advantage question. However, this time BR’s response was clearly correct and matched up with the shown correct response. Nevertheless, the computer still graded the response as incorrect, and the participant was informed that because BR was incorrect they

would have the opportunity to gain two extra points by completing a short task. In the *participant answers-legitimate condition* the participant was chosen to answer the advantage question. The participant was forced to type a numeric answer to the question, and then the study was coded to automatically add +3 to whatever the participant guessed and report that as the correct answer. In doing this we were able to manipulate it so that the participants guess was correct no matter what number the participant guessed. The participant was informed that because they were correct they would have the opportunity to gain two extra points by completing a short task. In the *participant answers-illegitimate condition* the participant was again chosen to answer the advantage question. This time +123 was added to whatever the participant answered, ensuring that the participants answer was wrong no matter what they put. However, the computer graded their answer as correct, despite it being obviously wrong, and the participant was informed that because they were correct they would have the opportunity to gain two extra points by completing a short task.

All participants were then told that for the extra task they would be solving one visual puzzle, and it was up to them to decide how difficult the puzzle would be on a scale from 1 (very easy) to 5 (very difficult). This gave the participants who felt guilty for unfairly gaining a chance to gain two extra points an opportunity to undermine their performance by choosing a higher difficulty level. Participants then rated their emotions for a second time before completing the final 8 trivia questions. Lastly, as a manipulation check participants were asked to indicate whether the advantage question was graded as correct or incorrect by the computer. They were also asked if the computer graded the answer accurately. At the end all participants were informed that they had won the competition.

Results

215 workers participated in the survey, however the data of 11 participants were excluded because they incorrectly answered the manipulation check, which was a decision made a priori. An additional 15 participants were excluded from analysis because they completed less than 99% of the study, and 21 participants were excluded because they did not provide an answer to the advantage question, which is a crucial part to the manipulation. Therefore, the data from 168 participants were included in the analyses (*BR answers-illegitimate condition*= 45, *BR answers-legitimate condition*=44, *participant answers-illegitimate condition*=42, *participant answers-legitimate condition*=37).

Participants chose an average difficulty rating of $M=2.38$ ($SD=1.29$) in the *BR answers-legitimate condition*, 2.64 ($SD=1.17$) in the *BR answers-illegitimate condition*, 2.22 ($SD=1.11$) in the *participant answers-legitimate condition*, and 2.31 ($SD=1.14$) in the *participant answers-illegitimate condition*. A one-way ANOVA revealed that there was no main effect between any of the conditions for the difficulty dependent variable ($F(3)=1.06$, $p=0.366$). Additionally, there were no main effect between any of the conditions for percentage of final eight trivia questions answered correctly ($F(3)=1.25$, $p=0.292$).

For the feelings measures, there were no main effects between conditions for any of the reported feelings measures at time 2 (*proud*: $F(3)=0.136$, $p=0.938$, *uncomfortable*: $F(3)=0.112$, $p=0.938$, *nervous*: $F(3)= 1.508$, $p=0.214$, *excited*: $F(3)=0.472$, $p=0.702$, *awkward*: $F(3)=0.089$, $p=0.966$). Additionally, there were no differences in reported feelings from time 1 to time 2 in any of the conditions, except for participants in the *participant answers-illegitimate condition* reported feeling significantly less proud at time two than at time one ($t(82)=2.29$, $p=0.025$).

Discussion

After rerunning the study with the aforementioned changes on a different population, there was still no evidence of self-sabotage. This suggests that the current measure might not be the best way to detect this phenomenon. By framing the experiment as a trivia competition, in a way, the participants were forced to engage in an online game, and “game rules” and “real rules” are different (Remmele, & Whitton, 2014). People are expected to act different while playing a game than they are in the real world, and it is possible that in online games without real world repercussions there is a lower expectation for sympathy. Therefore, creating a game like environment limits the ability to generalize study findings to how people would interact in real life. A basketball game is obviously also a game, but it has its own set of defined rules associated with it, and it seems as though acting sympathetic when unfair situations arise is within the rules of professional basketball. As mentioned before, the anonymous nature of this game is probably also stifling the level of sympathy felt by the participants, hence acting in anonymous games might result in the least sympathetic gestures. Haynes & Gilovich (2010) witnessed self-sabotage in a game where players are competing face to face, whereas in this study participants never saw one another, or even learned each other’s names. We chose to use an online platform for this study because it would give us access to a large number of participants, but it is possible that the phenomenon that we are looking for only exists during face-to-face interactions.

Additionally, participants were only provided with a very overt opportunity to sabotage their performance. They were asked to choose the difficulty level of their bonus task, and the difficulty chosen was used as a measurement for self-sabotage. Participants may not have viewed this as a means for self-sabotage, since choosing the difficulty did not automatically mean that their performance would suffer. In the basketball example, players shot significantly worse on

their first free throw following an unfair advantage, but their second free throw was not affected. This may have been because the players felt as though they had made up for the inequity by missing the first free throw, and so they no longer felt the need to restore justice when they were shooting their second free throw. Alternatively, inequity aversion might be a feeling that does not last very long; therefore, the feelings had worn off by the second free throw. If this is the case, then it makes sense that there was not a decrease in performance on the final eight trivia questions because by then the feelings of inequity had already worn off by the time that participants were asked to finish the trivia competition. The basketball paradigm had a lot of variables that seem important for inequity restoration through self-sabotage to occur, such as the fact that it was a face-to-face interaction, there was an audience, the players were given the opportunity to shoot two free throws, and the action is fairly nuanced, so even a small change in mindset can result in a poor quality shot (Southard & Miracle, 1993). However, since this study did not find significant results it is not possible to conclude which of these variables are actually required in order to see evidence of self-sabotage.

General Discussion

After the two experiments that were run for this study, no conclusive evidence was found supporting self-sabotage as a means to restore inequity. This either suggests that this phenomenon does not actually exist or that we did not test for it under the correct conditions. For continuing this research, it will be important to design an in-person study to see if not acting anonymously has an affect on whether or not people are willing to sabotage their performance. Only running online experiments was a limiting factor for this study. Additionally, the literature suggests that both sympathy and concerns for social image mediate this effect; therefore it would

be intriguing to determine if this is true, and how significantly each variable mediates self-sabotage.

If evidence of self-sabotage to reduce inequity aversion is found in a non-correlational experiment, it could have important implications. It would suggest that people are willing to restore equity if they are made aware of the inequity happening in the first place. For example, if people are made aware of specific pay inequalities in the work place, then workers receiving a higher pay might be more willing to lessen the pay gap. Often times, males are unaware that they are getting paid more than their female counterparts (Reskin, 1988). In order to gain a better understanding of inequity aversion, and how it affects performance further research will need to be conducted.

References

- Adams, J. S. (1965). Inequity in social exchange. *Advances in experimental social psychology*, 2, 267-299.
- Andreoni, J., & Bernheim, B. D. (2009). Social image and the 50–50 norm: A theoretical and experimental analysis of audience effects. *Econometrica*, 77(5), 1607-1636.
- Axt, J., & Oishi, S. (2016). When unfair treatment helps performance. *Motivation and Emotion*, 40(2), 243-257.
- Barclay, L. J., Bashshur, M. R., & Fortin, M. (2017). Motivated cognition and fairness: Insights, integration, and creating a path forward.
- Bolton, G. E., & Ockenfels, A. (2000). ERC: A theory of equity, reciprocity, and competition. *American economic review*, 166-193.
- Burton, N. L. (2015). *Heaven and hell: The psychology of the emotions*. Kent, UK: Acheron Press.
- Camerer, C., & Thaler, R. H. (1995). Anomalies: Ultimatums, dictators and manners. *The Journal of Economic Perspectives*, 9(2), 209-219.
- Emler, N. (1990). A social psychology of reputation. *European review of social psychology*, 1(1), 171-193.
- Fehr, E., Fischbacher, U., & Gächter, S. (2002). Strong reciprocity, human cooperation, and the enforcement of social norms. *Human nature*, 13(1), 1-25.
- Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *The quarterly journal of economics*, 114(3), 817-868
- Forsythe, R., Horowitz, J. L., Savin, N. E., & Sefton, M. (1994). Fairness in simple bargaining experiments. *Games and Economic behavior*, 6(3), 347-369.

- Furnham, A., & Treglown, L. (2018). High potential personality and intelligence. *Personality and Individual Differences, 128*, 81-87.
- Greenberg, J. (1988). Equity and workplace status: A field experiment. *Journal of applied Psychology, 73*(4), 606.
- Greenberg, J. (1990). Employee theft as a reaction to underpayment inequity: The hidden cost of pay cuts. *Journal of applied psychology, 75*(5), 561.
- Greenberg, J. (2006). Losing sleep over organizational injustice: attenuating insomniac reactions to underpayment inequity with supervisory training in interactional justice. *Journal of applied psychology, 91*(1), 58.
- Hauser, M. (2006). *Moral minds: How nature designed our universal sense of right and wrong*. Ecco/HarperCollins Publishers.
- Hausken, K. (1996). Self-interest and sympathy in economic behaviour. *International Journal of Social Economics, 23*(7), 4-24.
- Haynes, G., & Gilovich, T. (2010). "The ball don't lie": How inequity aversion can undermine performance. *Journal of Experimental Social Psychology, 46*(6), 1148-1150.
- Hughes, M., & Louw, J. (2013). Playing games: The salience of social cues and group norms in eliciting aggressive behaviour. *South African Journal of Psychology, 43*(2), 252-262.
- Johansson, L. O., & Svedsäter, H. (2009). Piece of cake? Allocating rewards to third parties when fairness is costly. *Organizational Behavior and Human Decision Processes, 109*, 107–119.
- Johnstone, A. A. (2018). Why morality?. *The Humanistic Psychologist*,
doi:10.1037/hum0000090
- Kahneman, D., Knetsch, J. L., & Thaler, R. (1986). Fairness as a constraint on profit seeking:

- Entitlements in the market. *The American economic review*, 728-741.
- Kirzner, I. M. (1960). *The economic point of view: an essay in the history of economic thought*. Ludwig von Mises Institute. pg. 51-52.
- Kohn, A. (1993). Is competition ever appropriate in a cooperative classroom. *Cooperative Learning Magazine*, 13(3), 1-5.
- Lerner, M. J. (1980). The belief in a just world. In *The Belief in a just World* (pp. 9-30). Springer US.
- Lerner, M. J., & Miller, D. T. (1978). Just world research and the attribution process: Looking back and ahead. *Psychological bulletin*, 85(5), 1030.
- Oishi, S., Kesebir, S., & Diener, E. (2011). Income inequality and happiness. *Psychological Science*, 22(9), 1095–1100.
- Remmele, B., & Whitton, N. (2014). Disrupting the magic circle: the impact of negative social gaming behaviours. In *Psychology, Pedagogy, and Assessment in Serious Games* (pp. 111-126). IGI Global.
- Reskin, B. F. (1988). Bringing the men back in: Sex differentiation and the devaluation of women's work. *Gender & Society*, 2(1), 58-81.
- Rupp, D. E., & Cropanzano, R. (2002). The mediating effects of social exchange relationships in predicting workplace outcomes from multifoci organizational justice. *Organizational behavior and human decision processes*, 89(1), 925-946.
- Southard, D., & Miracle, A. (1993). Rhythmicity, ritual, and motor performance: A study of free throw shooting in basketball. *Research Quarterly for Exercise and Sport*, 64(3), 284-290.

Consent

Consent

Thank you for your interest in our study. This study concerns computer grading of written responses and computer-mediated competition. This study is being conducted by Brenna Martinez ('18) and is supervised by Professor Savitsky.

If you agree to participate, you will be paired with another student from your psychology class and the two of you will compete on a task. The study will take approximately 30 minutes to complete.

Compensation

You will automatically receive one extra credit point for your participation. There will also be a chance to earn one additional extra credit point, for a possible total of two.

Confidentiality

You will be paired anonymously with another student from your psychology class.

Subject Rights

Your participation in this study is voluntary. You have the right to change your mind and leave the study at any time.

By clicking "I agree" and clicking >> below, you indicate that you agree to take part in a competition with another student from your psychology class, that you are at least 18 years old, and that you have read and understood the information provided on this page.

I agree

Browser Meta Info

This question will not be displayed to the recipient.

Browser: **AppleWebKit**

Version: **603.2.4**

Operating System: **Macintosh**

Screen Resolution: **1440x900**

Flash Version: **-1**

Java Support: **1**

User Agent: **Mozilla/5.0 (Macintosh; Intel Mac OS X 10_12_5) AppleWebKit/603.2.4 (KHTML, like Gecko)**

Please indicate the class in which you would like to receive extra credit.

PSYC 101

PSYC 242

Your name.

Your email address (in case we have any questions about your extra credit).

Instructions

In just a moment you will be paired with another $\{q://QID230/ChoiceGroup/SelectedChoices\}$ student and the two of you will compete for an additional extra credit point, beyond the extra credit point you will automatically receive for participating, by answering 15 multiple-choice trivia questions.

Each correct answer to a multiple choice question is worth **one star** in the competition, and the player with the most stars at the end will be awarded the additional extra credit point.

May the best player win!

Important note: please read carefully

Halfway through the competition, one player (randomly chosen) will have an opportunity to answer an “advantage” question. Advantage questions are fill-in-the-blank and will be graded by the computer.

If the chosen player answers the advantage question correctly, he or she will be given a chance to complete an extra task to earn up to *two extra stars* in the competition -- and thus a greater shot at the additional extra credit point.

But if the chosen player answers incorrectly, the other player will get to complete the extra task

for up to two extra stars.

Please type a two letter code into the space below (not your initials). This will be your identity in today's competition and will be shared with the other student.

Please wait while you are being paired with another student. This may take a moment; please be patient. (If you are not paired with another worker within three minutes, please email Brenna Martinez at brm2.)

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Click Count: *0 clicks*

Pairing is complete.

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You have been paired with another student from your $\{q://QID230/ChoiceGroup/SelectedChoices\}$ class.

Player 1: " $\{q://QID66/ChoiceTextEntryValue\}$ "

Player 2: "**BR**"

You will be competing against one another for an additional point of extra credit, in addition to your

point for participating. You will interact in real time and your interaction will be anonymous.

Please note: You must both click >> to advance some pages. Other pages will be advanced by one player while the other observes.

7 Questions

Before you begin the competition, please rate how you are feeling at this moment.

Right now I feel...

	1= Not at All	2= Slightly	3= Moderately	4= Very	5= Extremely
Proud	<input type="radio"/>				
Uncomfortable	<input type="radio"/>				
Nervous	<input type="radio"/>				
Excited	<input type="radio"/>				
Awkward	<input type="radio"/>				

Each question will appear on the screen for a limited time so there is no time to look anything up. Work quickly but do your best. If you are not sure of the answer please go with your best guess. If you leave a question blank an answer will be chosen for you at random. Each correct answer is worth one star. We will take a break after 7 questions.

Each participant will work through the questions separately. It may take a few moments when you finish for the other player to finish his or her first 7 questions.

Click >> when you are ready to begin the task.

1. Which U.S. president appears on the quarter?

- Abraham Lincoln
- George Washington
- Thomas Jefferson
- John F. Kennedy

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Click Count: *0 clicks*

2. Which Apollo space mission was the first to successfully land on the moon?

Apollo 13

Apollo 8

Apollo 11

Apollo 1

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3. How many electoral votes does a candidate need to win the United States Presidential election?

270

210

300

400

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4. What is the capital of Vermont?

- Burlington
- Newport
- Bennington
- Montpelier

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5. Which of the following states was not one of the 13 original colonies?

- North Carolina
- New York
- West Virginia
- Massachusetts

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6. Which city has the largest population in the world?

- Sao Paulo, Brazil
- Beijing, China
- New Delhi, India
- Miami, Florida

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7. In what year was the Pledge of Allegiance written?

1932

1892

1798

1912

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Please wait while the other competitor finishes answering his or her questions.

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Click Count: 0 clicks

Standings (ahead)

UPDATE: After the first 7 questions, these are the current standings:

1st place: **#{q://QID66/ChoiceTextEntryValue}**- ★★ ★★ ★★ ★★ ★★ (5/7 stars)

2nd place: **BR-** ★★ ★★ ★★ ★★ ★★ (3/7 stars)

Player **#{q://QID66/ChoiceTextEntryValue}** is ahead by **2** stars.

(The page will not advance until both players click >>)

Next, one player will be chosen at random to receive the "advantage" question. The advantage question is fill-in-the-blank and will be graded by the computer.

Recall:

If the chosen player answers the advantage question correctly, he or she will be given a chance to complete an extra task that can earn him or her up to two extra stars in the competition -- and thus a greater shot at the additional point of extra credit.

But if the chosen player answers the advantage question incorrectly, the other player will get to complete the extra task and will have a chance to earn up to two extra stars in the competition.

(The page will not advance until both players click >>)

Next, one player will be chosen at random to receive the "advantage" question. The advantage question is fill-in-the-blank and will be graded by the computer.

Recall:

If the chosen player answers the advantage question correctly, he or she will be given a chance to complete an extra task that can earn him or her up to two extra stars in the competition -- and thus a greater shot at the additional point of extra credit.

But if the chosen player answers the advantage question incorrectly, the other player will get to complete the extra task and will have a chance to earn up to two extra stars in the competition.

(The page will not advance until both players click >>)

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Click Count: *0 clicks*

BR has been chosen to answer the advantage question. He/she will have 10 seconds to answer. **#{q://QID66/ChoiceTextEntryValue}** will also see the advantage question but will not be able to participate.

(The page will not advance until both players click >>)

BR your question is:

What artist is famous for having a "blue period" in the early 1900s?

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Click Count: *0 clicks*

Legit

Time's up!

BR's answer: Van Gough.

Correct answer: **Pablo Picasso.**

BR, you answered the advantage question incorrectly. As a result, you will not have an opportunity to gain extra stars by completing the extra task.

(The page will not advance until both players click >>)

Time's up!

BR's answer: Van Gough.

Correct answer: **Pablo Picasso.**

BR, you answered the advantage question incorrectly. As a result, you will not have an opportunity to gain extra stars by completing the extra task.

(The page will not advance until both players click >>)

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Click Count: *0 clicks*

Congratulations, **#{q://QID66/ChoiceTextEntryValue}**, because **BR** did not know the answer to the advantage question, you will now have the opportunity to win up to two extra stars before completing the remainder of the multiple choice questions.

Click >> when you are ready to move on to the extra task.

Illegit

Time's up!

BR's answer: pablo picasso
Correct answer: **Pablo Picasso**

BR, you answered the advantage question incorrectly. As a result, you will not have an opportunity to gain extra stars by completing the extra task.

(The page will not advance until both players click >>)

Time's up!

BR's answer: pablo picasso.
Correct answer: **Pablo Picasso.**

BR, you answered the advantage question incorrectly. As a result, you will not have an opportunity to gain extra stars by completing the extra task.

(The page will not advance until both players click >>)

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Click Count: *0 clicks*

Congratulations, **#{q://QID66/ChoiceTextEntryValue}**, because **BR** did not know the answer to the advantage question, you will now have the opportunity to win up to two extra stars before completing the remainder of the multiple choice questions.

Click >> when you are ready to move on to the extra task.

Emotion ratings

Before you complete the bonus task, please rate how you are feeling at this moment.

Right now I feel...

	1= Not at All	2= Slightly	3= Moderately	4= Very	5= Extremely
Proud	<input type="radio"/>				
Uncomfortable	<input type="radio"/>				
Nervous	<input type="radio"/>				
Excited	<input type="radio"/>				
Awkward	<input type="radio"/>				

Task 2-Difficulty

#{q://QID66/ChoiceTextEntryValue}, for the extra task you will solve as many visual puzzles out of 10 as you can in a limited amount of time. If you get at least 5 correct you will earn one additional star in the competition. If you get at least 8 correct you will earn two additional stars in the competition. Before beginning the task, you may determine the difficulty level of the 10 puzzles you will solve.

As you make your choice, remember that you have been granted this opportunity because **BR** did not know the answer to the advantage question. **BR** can see your selections below, and will see your performance on the puzzle task, but will not be able to participate.

Choose the number of puzzles you would like from each difficulty level (the total must sum to 10) and then click >> when you are ready to begin.

easy puzzles medium puzzles difficult puzzles

Congratulations, **#{q://QID66/ChoiceTextEntryValue}**! In the interest of time we are going to skip the bonus task and award you an extra TWO STARS in your competition with BR.

#{q://QID66/ChoiceTextEntryValue}, these stars are your reward for **BR** not knowing the answer to the advantage question.

After the bonus task the current standings are:

1st place: **{q://QID66/ChoiceTextEntryValue}**- ★★★★★★★ (7/7 stars)

2nd place: **BR**- ★★☆☆☆☆ (3/7 stars)

Player **{q://QID66/ChoiceTextEntryValue}** is ahead by 4 stars.

(The page will not advance until both players click >>)

Task 2-Clicks

{q://QID66/ChoiceTextEntryValue}, for your extra task, you will click your mouse (or control pad) as many times as you can before a timer runs out. You may click anywhere on the screen. You will do this twice, meaning you can earn up to two stars in the competition. We won't tell you ahead of time how many clicks you need to earn a star (the number of clicks required will be the same for each round), and we won't give you any feedback after the first round. But we will tell you how many extra stars you have earned after both rounds are done.

As you click, remember that you have been granted this opportunity because **BR** did not know the answer to the advantage question. **BR** will observe your performance on this task but will not be able to participate.

When the time is up you will automatically be taken to the next page. Click >> when you are ready to begin the task.

ROUND ONE...Click now!!!

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Click Count: 0 clicks

Click >> when you are ready for round two.

ROUND TWO...Click now!!!

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Page Submit: 0 seconds

Click Count: 0 clicks

Congratulations, **#{q://QID66/ChoiceTextEntryValue}**! You have clicked enough times to earn an extra TWO STARS in your competition with **BR**. **#{q://QID66/ChoiceTextEntryValue}**, these stars are your reward for **BR** not knowing the answer to the advantage question.

After the bonus task the current standings are:

1st place: **#{q://QID66/ChoiceTextEntryValue}**- ★★★★★★★(7/7 stars)

2nd place: **BR**- 3/7 ★★☆☆☆☆(3/7 stars)

Player **#{q://QID66/ChoiceTextEntryValue}** is ahead by 4 stars.

(The page will not advance until both players click>>)

Final 8 Questions

You will now complete the remaining 8 questions in the competition.

Each participant will work through the questions separately. It may take a few moments when you finish for the other player to finish his or her first 7 questions.

Click >> when you are ready to begin the task.

8. In what year was Williams College founded?

1940

1855

1793

1823

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Click Count: *0 clicks*

9. Which state was the last and final state to be added to the United States?

Hawaii

Alaska

Utah

Washington

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Click Count: *0 clicks*

10. Which fast food restuarnt has famously branded itself with the slogan "Eat fresh"?

Jimmy John's

Wendy's

Chipotle

Subway

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Click Count: *0 clicks*

11. Who performed at halftime during the 52nd Super Bowl in 2018?

- Lady Gaga
- Bruno Mars
- Justin Timberlake
- Beyoncé

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Click Count: *0 clicks*

12. When was women's suffrage gained?

- 1905
- 1815
- 1990
- 1920

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Click Count: *0 clicks*

13. What is the capital of Mexico?

- Chihuahua
- Mexico City
- Cancún
- Tijuana

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Click Count: *0 clicks*

14. Where were the 2016 Summer Olympics held?

- Rio, Brazil
- Los Angeles, California, USA
- Lisbon, Portugal
- London, England

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15. In which sport did Jackie Robinson famously make his debut as the first African-American player?

- Football
- Track and Field
- Basketball
- Baseball

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Click Count: *0 clicks*

Please wait while the other competitor finishes answering his or her questions.

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Click Count: *0 clicks*

Final Thoughts and Debriefing

You have now been disconnected from **BR**. Please complete the remainder of the study on your own.

A few moments ago, the other player, **BR**, was chosen to answer an "advantage" question: which artist is famous for having a "blue period" in the early 1900s. What was BR's exact answer to this question?

- Van Gough
- Pablo Picasso
- pablo picasso

Did the computer grade BR's answer to the advantage question as correct or incorrect?

- The computer said that BR's answer was correct.
- The computer said that BR's answer was incorrect.

Sometimes questions are graded in a way that is fair and appropriate: right answers are marked right and wrong answers are marked wrong. Other times questions are graded in a way that may seem unfair.

Would you say that BR's answer to the advantage question was graded fairly or unfairly by the computer?

- BR's answer was graded fairly.
- BR's answer was graded somewhat unfairly.
- BR's answer was graded very unfairly.

Please record any comments or thoughts you might have about this study here (optional).

That is the end of this questionnaire. We will email you a full summary of our findings when this research is complete (you may email Brenna Martinez at brm2 if you have any questions before that).

In the meantime, congratulations: you have earned TWO POINTS of extra credit in `#{q://QID230/ChoiceGroup/SelectedChoices}` for participating in this study. Thank you very much for your time.

Consent

Consent

Thank you for your interest in our survey. If you agree to participate, you will be matched with another MTurk worker with whom you will be competing on a task. The survey will take approximately 10 minutes to complete.

Compensation

You will be paid \$1.00 in exchange for your participation.

Confidentiality

No personally identifying information about you will be collected.

Subject Rights

Your participation in this study is voluntary. You have the right to change your mind and leave the study at any time.

By clicking "I agree" and clicking >> below, you indicate that you agree to take part in a competition with another MTurk worker, that you are at least 18 years old, and that you have read and understood the information provided on this page.

I agree

Instructions

In just a moment you will be paired with another MTurk worker who has already completed this survey earlier today. The two of you will be competing in a trivia competition. The competition consists of 15 multiple-choice questions, and the worker who answers the most questions correctly will be the winner.

We are exploring different pay structures. The other worker was paid at a lower base pay, but if they win the competition they will be awarded a bonus payment. You are being paid at a higher base rate for taking the survey, but you will not have an opportunity to win a bonus payment. Do your best to win the

competition!

After you complete the survey your competitor will be sent a summary of your responses letting them know who the winner is, as well as whether or not they have earned a bonus. Keep in mind that although we will not share your identity with your competitor, he or she will have access to keep your responses.

May the best player win!

Please answer the following questions about yourself. Your responses will be shared with your competitor.

What is your favorite TV show?

Do you prefer the mountains or the beach?

What is your favorite holiday?

What is your drink of choice in the morning?

Type two letters into the space below (your initials or some other letters). This will be your identity in today's competition and will be shared with the other worker.

{q://QID66/ChoiceTextEntryValue}, you have been matched with MTurk worker **BR**. Here is some info about BR to help you get acquainted.

BR's favorite TV show is Game of Thrones, he/she prefers the mountains, his/her favorite holiday is Thanksgiving, and he/she prefers to drink coffee with cream in the morning.

You will be competing against one another in a trivia competition. Remember that **BR** has already completed this survey, but will receive a summary of your responses, and will learn which one of you is the winner, after you have completed the survey. Both of your identities will remain anonymous.

IMPORTANT PROCEDURAL NOTE. Halfway through the competition you will be given an update on both your score and **BR's** score. Then one player (randomly chosen) will have an opportunity to answer an “advantage” question. Advantage questions are fill-in-the-blank and will be graded by the computer.

If the chosen player answers the advantage question correctly, he or she will complete a short task for up to two extra points in the competition.

But if the chosen player answers incorrectly, the other player will get to complete the extra task for up to two extra points.

7 Questions

You will now complete the trivia questions. Each question will appear on the screen for a limited time so there is no time to look anything up. Work quickly but do your best. If you are not sure of the answer please go with your best guess. If you leave an answer blank a response will be chosen for you at random. Each correct answer is worth one point. We will take a break after 7 questions.

Click >> when you are ready to begin the task.

1. Which U.S. president appears on the quarter?

- Abraham Lincoln
- George Washington
- Thomas Jefferson
- John F. Kennedy

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Click Count: *1 clicks*

2. Which Apollo space mission was the first to successfully land on the moon?

- Apollo 13
- Apollo 8
- Apollo 11
- Apollo 1

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Click Count: *1 clicks*

3. In which decade was the American Ballet set up in New York?

- 1900's
- 1950's
- 1960's
- 1930's

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Click Count: *1 clicks*

4. What is the capital of Colorado?

- Arvada
- Colorado Springs
- Denver
- Boulder

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Click Count: *1 clicks*

5. Which of the following states is not considered to be a part of the Northeast?

- Massachusetts
- New York
- Connecticut
- Vermont

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Click Count: *1 clicks*

6. Which city has the largest population in the world?

- Sao Paulo, Brazil
- Beijing, China
- New Delhi, India
-

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Click Count: *1 clicks*

7. In what year was women's suffrage established in the United States?

1920

1860

1980

1900

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Page Submit: *0 seconds*

Click Count: *1 clicks*

UPDATE: After the first 7 questions, these are the current standings:

1st place: **$\{q://QID66/ChoiceTextEntryValue\}$** - *6 points*

2nd place: **BR**- *3 points*

Player **$\{q://QID66/ChoiceTextEntryValue\}$** is ahead by **3** points.

Before continuing, please rate how you are feeling at this moment.

Right now I feel...

	1=Not at all	2=Slightly	3=Moderately	4=Very	5=Extremely
Proud	<input type="radio"/>				
Uncomfortable	<input type="radio"/>				

Nervous	<input type="radio"/>				
Excited	<input type="radio"/>				
Awkward	<input type="radio"/>				

Participant answers-illegit

Next, one player will be chosen at random to receive the "advantage" question.

If the chosen player answers the advantage question correctly, he or she will be given a chance to complete an extra task that can earn him or her up to two extra points in the competition.

But if the chosen player answers the advantage question incorrectly, the other player will get to complete the extra task and will have a chance to earn up to two extra points in the competition.

#{q://QID66/ChoiceTextEntryValue}, you have been chosen to answer the advantage question. You will have 10 seconds to answer, and your response will be graded by the computer. **BR** will be able to see your answer, and how it was graded, when they receive a summary of your performance.

Press >>> when you are ready to answer the advantage question. You will have 10 sec to answer.

#{q://QID66/ChoiceTextEntryValue} your question is:
How many miles long is the Michigan River? (Within 15 miles)

These page timer metrics will not be displayed to the recipient.

First Click: *1.739 seconds*

Last Click: *1.739 seconds*

Page Submit: *0 seconds*

Click Count: *1 clicks*

Time's up!

Question: How many miles long is the Michigan River? (Within 15 miles)

Your answer: **123 miles**

Correct answer: **123 miles**

Computer scoring: CORRECT

Congratulations! You have answered the advantage question correctly. Because you knew the answer to the advantage question, you have earned the opportunity to gain up to two extra points before completing the remainder of the multiple choice questions.

Click >> when you are ready to move on to the extra task.

123 miles, for the extra task you will be given one visual puzzle. If you correctly solve this puzzle you will earn two additional points in the competition. Before beginning the task, you may determine the difficulty level of the visual puzzle that you will complete.

You have been granted this opportunity because you correctly answered the advantage question. **BR** will receive a summary of your chosen difficulty level and performance on the puzzle task.

Choose the difficulty level of the visual puzzle that you will complete and then click >> when you are ready to begin.

	(1) Very Easy	(2) Easy	(3) Medium	(4) Difficult	(5) Very Difficult
Visual Puzzle Difficulty Level	1	2	3	4	5

Participant answers-legit

Next, one player will be chosen at random to receive the "advantage" question.

If the chosen player answers the advantage question correctly, he or she will be given a chance to complete an extra task that can earn him or her up to two extra points in the competition.

But if the chosen player answers the advantage question incorrectly, the other player will get to complete the extra task and will have a chance to earn up to two extra points in the competition.

#{q://QID66/ChoiceTextEntryValue}, you have been chosen to answer the advantage question. You will have 10 seconds to answer. **BR** will be able to see your answer, and how it was graded, when they receive a summary of your performance.

Press >>> when you are ready to answer the advantage question. You will have 10 sec to answer.

#{q://QID66/ChoiceTextEntryValue} your question is:
How many miles long is the Michigan River? (Within 15 miles)

These page timer metrics will not be displayed to the recipient.

First Click: *1.733 seconds*

Last Click: *1.733 seconds*

Page Submit: *0 seconds*

Click Count: *1 clicks*

Time's up!

Question: How many miles long is the Michigan River? (Within 15 miles)

Your answer: **#{q://QID254/ChoiceTextEntryValue}** miles

Correct answer: **3 miles**

Computer scoring: CORRECT

Congratulations! You have answered the advantage question correctly. Because you knew the answer to the advantage question, you have earned the opportunity to gain up to two extra points before completing the remainder of the multiple choice questions.

Click >> when you are ready to move on to the extra task.

QID66/ChoiceTextEntryValue, for the extra task you will be given one visual puzzle. If you correctly solve this puzzle you will earn two additional points in the competition. Before beginning the task, you may determine the difficulty level of the visual puzzle that you will complete.

You have been granted this opportunity because you correctly answered the advantage question. **BR** will receive a summary of your chosen difficulty level and performance on the puzzle task.

Choose the difficulty level of the visual puzzle that you will complete and then click >> when you are ready to begin.

	(1) Very Easy	(2) Easy	(3) Medium	(4) Difficult	(5) Very Difficult
	1	2	3	4	5
Visual Puzzle Difficulty Level	<input type="range" value="3"/>				

BR answers-illegit

Next, one player will be chosen at random to receive the "advantage" question.

If the chosen player answers the advantage question correctly, he or she will be given a chance to complete an extra task that can earn him or her up to two extra points in the competition.

But if the chosen player answers the advantage question incorrectly, the other player will get to complete the extra task and will have a chance to earn up to two extra points in the competition.

BR has been chosen to answer the advantage question. **BR** has already completed the advantage question and their response has been graded by the computer. A summary of their performance is on the next slide.

BR's question was:

How many miles long is the Michigan River? (Within 15 miles)

BR's answer: **507 miles**

Correct answer: **510 miles**

Computer scoring: **INCORRECT**

BR answered the advantage question incorrectly. As a result, he/she did not earn an opportunity to gain extra points by completing the extra task.

Congratulations **#{q://QID66/ChoiceTextEntryValue}**, because **BR** did not know the answer to the advantage question, you have earned the opportunity to gain up to two extra points before completing the remainder of the multiple choice questions.

Click >> when you are ready to move on to the extra task.

#{q://QID66/ChoiceTextEntryValue}, for the extra task you will be given one visual puzzle. If you correctly solve this puzzle you will earn two additional points in the competition. Before beginning the task, you may determine the difficulty level of the visual puzzle that you will complete.

You have been granted this opportunity because **BR** did not know the answer to the advantage question. **BR** will receive a summary of your chosen difficulty level and performance on the puzzle task.

Choose the difficulty level of the visual puzzles that you will complete and then click >> when you are ready to begin.

	(1) Very Easy	(2) Easy	(3) Medium	(4) Difficult	(5) Very Difficult
Visual Puzzle Difficulty Level	1	2	3	4	5

BR answers-legit

Next, one player will be chosen at random to receive the "advantage" question.

If the chosen player answers the advantage question correctly, he or she will be given a chance to complete an extra task that can earn him or her up to two extra points in the competition.

But if the chosen player answers the advantage question incorrectly, the other player will get to complete the extra task and will have a chance to earn up to two extra points in the competition.

BR has been chosen to answer the advantage question. **BR** has already completed the advantage question and their response has been graded by the computer. A summary of their performance is on the next slide.

BR's question was:

How many miles long is the Michigan River? (Within 15 miles)

BR's answer: **507 miles**

Correct answer: **310 miles**

Computer scoring: INCORRECT

BR answered the advantage question incorrectly. As a result, he/she did not earn an opportunity to gain extra points by completing the extra task.

Congratulations **BR**, because **BR** did not know the answer to the advantage question, you have earned the opportunity to gain up to two extra points before completing the remainder of the multiple choice questions.

Click >> when you are ready to move on to the extra task.

BR, for the extra task you will be given one visual puzzle. If you correctly solve this puzzle you will earn two additional points in the competition. Before beginning the task, you may determine the difficulty level of the visual puzzle that you will complete.

You have been granted this opportunity because **BR** did not know the answer to the advantage question. **BR** will receive a summary of your chosen difficulty level and performance on the puzzle task.

Choose the difficulty level of the visual puzzle that you will complete and then click >> when you are ready to begin.

	(1) Very Easy	(2) Easy	(3) Medium	(4) Difficult	(5) Very Difficult
	1	2	3	4	5
Visual Puzzle Difficulty Level	[Shaded bar from 1 to 2]				

Final Questions

Before completing the extra task, please rate how you are feeling at this moment.

Right now I feel...

	1=Not at all	2=Slightly	3=Moderately	4=Very	5=Extremely
Proud	<input type="radio"/>				
Uncomfortable	<input type="radio"/>				
Nervous	<input type="radio"/>				
Excited	<input type="radio"/>				
Awkward	<input type="radio"/>				

Congratulations, **#{q://QID66/ChoiceTextEntryValue}**! In the interest of time we are going to skip the bonus task and award you an extra TWO POINTS in your competition with **BR**.

These points are your reward for **BR** not knowing the answer to the advantage question.

After the advantage question, these are the current standings:

1st place: **#{q://QID66/ChoiceTextEntryValue}**- 8 points

2nd place: **BR**- 3 points

Player **#{q://QID66/ChoiceTextEntryValue}** is ahead by 5 points.

You will now complete the remaining 8 questions in the competition. Remember that **BR** has already completed this survey, but will receive a summary of your responses after you have completed the survey.

Click >> when you are ready to begin the task.

8. Who painted the Sistine Chapel?

- Pablo Picasso
- Vincent van Gogh
- Claude Monet

Michelangelo

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Click Count: *1 clicks*

9. Which state was the last and final state to be added to the United States?

Hawaii

Alaska

Utah

Washington

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Click Count: *1 clicks*

10. Which fast food restaurant has famously branded itself with the slogan "Eat fresh"?

Jimmy John's

Wendy's

Chipotle

Subway

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Last Click: *1.719 seconds*

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Click Count: *1 clicks*

11. Who performed at halftime during the 52nd Super Bowl in 2018?

- Lady Gaga
- Bruno Mars
- Justin Timberlake
- Beyoncé

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Click Count: *1 clicks*

12. In what year was the Constitution of the United States ratified?

- 1812
- 1795
- 1776
- 1788

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Page Submit: *0 seconds*

Click Count: *1 clicks*

13. What is the capital of Mexico?

- Chihuahua
- Mexico City
- Cancún
- Tijuana

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Last Click: *1.7 seconds*

Page Submit: *0 seconds*

Click Count: *1 clicks*

14. Where were the 2016 Summer Olympics held?

- Rio, Brazil
- Los Angeles, California, USA
- Lisbon, Portugal
- London, England

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Last Click: *1.694 seconds*

Page Submit: *0 seconds*

Click Count: *1 clicks*

15. In which sport did Jackie Robinson famously make his debut as the first African-American player?

- Football
- Track and Field
- Basketball
- Baseball

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Last Click: *1.689 seconds*

Page Submit: *0 seconds*

Click Count: *1 clicks*

Please answer the following questions before receiving your final score.

A few moments ago, the "advantage" question was asked: How many miles long is the Michigan River?

Did the computer grade the answer to the advantage question as correct or incorrect?

- The computer said that the answer was **CORRECT**.
- The computer said that the answer was **INCORRECT**.

The computer does not always accurately grade fill-in-the-blank answers. Sometimes right answers are marked wrong and wrong answers are marked right because of a computer error or because the computer is not able to use discretion when grading.

Would you say that the answer to the advantage question was graded accurately by the computer?

- Yes, the answer was graded accurately.
- No, the answer was graded inaccurately.

That is the end of this questionnaire. You are the winner of the competition. In our research, we are looking at how different people respond to competition when there is a bonus payment on the line and how concerns about fairness impact their choices and behavior.

All individuals who take part in this survey will receive their full payment by entering the code shown below on MTurk.

Triviacomp-`{e://Field/idnum}`