

The Effects of Superstitious Beliefs on Motor Skill Performance

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Background Information

- Superstitions are often utilized in situations such as athletics, academics, performances, etc., as a tool to improve overall performance because it provides people with a sense of control in an otherwise chaotic world (Mundada, 2013).
- People who carry a lucky charm have been shown to perform better on an anagram task because it boosted self-efficacy and persistence (Damisch, Stoberock, & Mussweiler, 2010).
- When a superstition that is supposed to invite good luck is employed, there is an improvement in performance because superstitions provide people with a sense of false confidence which increases persistence for the task at hand (Damisch, et al., 2010).
- Previous research explains that when participants were exposed to a stressful situation (e.g., they were asked to deliver a speech) and were provided with a pen that was labelled as 'lucky', they experienced lower levels of anxiety and perceived their overall performance to be better (Lasikiewicz & Teo, 2018).
- Damisch and colleagues (2010) observed that participants who used a 'lucky ball' performed better than others who used a 'normal ball' [on a putting task]. They also observed that participants who brought a 'lucky charm' along with them performed better at a memory task.
- The present study measured the accuracy of the golf putts for a ball labeled as 'lucky', as well as for a ball that is labeled 'unlucky' in order to expand the research involving the effects of negative superstition on performance. Additionally, the condition that each participants was being placed in was critical to the data analysis because the implicit (video) and explicit (verbal cue) exposure to the superstition was being studied to determine how superstitions are most effectively developed.

Methods

- There were a total of eight Penn State Berks students that were recruited through SONA and quasi-randomly assigned to one of three conditions:
 - Implicit condition
 - The implicit group was shown an instructional putting video that included a confederate.
 - It taught the participants how to hold, aim, and swing the putter while using two different colored golf balls: yellow and orange.
 - When providing good and bad examples of technique, the confederate made 80% of the shots using a yellow ball and only 20% of the shots using an orange ball.
 - Explicit condition
 - Individuals in the explicit group were shown a very similar video, but with some changes in the demonstration portion. During the video, when the participants are shown good and bad examples of technique, the color of the balls will be different.
 - All of the balls were the same color (white), and the confederate made 50% of the putts.
 - Control
 - They were shown the same video as the explicit condition, not told about the lucky/unlucky ball
- Each participants got one practice shot with the selection between the orange or yellow ball. This is where participants in the explicit group were told that the yellow ball was lucky and orange was unlucky.
- The participants were given a bucket of 20 golf balls (10 yellow and 10 orange) and the distance from the hole was recorded.
 - The number of the putt and the color of the ball was recorded.
 - A numbered sticker was placed down where the ball landed.
 - If the putt > 90 cm away from the target, it did not count.
 - If the putt crossed the target, it counted as a made shot.
 - The distance, in centimeters, was measured for all of the stickers.
- Two surveys
 - The Five Facet Mindfulness Questionnaire (FFMQ) (Baer, Smith, Hopkins, Krietemeyer, & Tony, 2006).
 - The Belief in Good Luck Scale (BIGL Scale) (Darke & Freedman, 1997).

Results

Figure 1: Mean for Each Condition

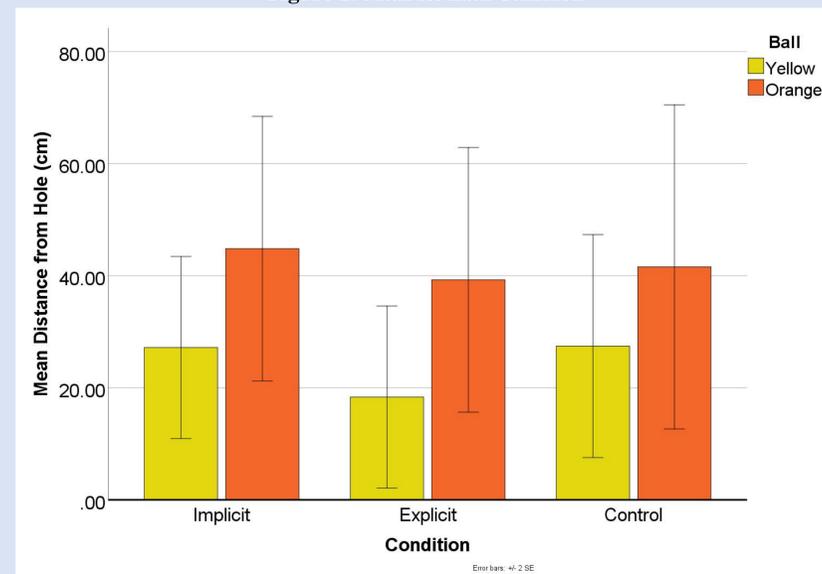


Table 1: 2x3 ANOVA

Source	Df	Mean Square	F	Sig	Eta Squared
Ball	1	1191.23	4.77	0.08	0.488
Ball x Group	2	13.99	0.06	0.95	0.02
Error (ball)	5	249.85			

- The conditions that the participants were divided into did not have a significant effect on their overall performance scores.
- The color of the ball had a marginally significant effect on participants' overall accuracy.
- This data illustrates that the participants performed better using the yellow luck ball – and worse with the orange ball – regardless of the condition that they were placed into.

Table 2: Correlations Between Surveys and Accuracy

	Dist Y	Dist O
FFMQ Obs.	0.56	0.19
FFMQ Desc.	-0.28	0.001
FFMQ ActA.	0.34	-0.10
FFMQ Nonj.	0.39	0.03
FFMQ Nonr.	-0.35	-0.25
BIGL Mean	0.33	0.46

Results

- Figure 1 depicts that the mean distance for the orange ball is greater than the yellow ball for each of the three conditions.
- On average, the orange golf balls had the greatest distance away from the target in the implicit group.
- The mean distance for the yellow ball across all of the conditions was 23.93 cm, and the mean distance for the orange ball was 41.93 cm.
- No significant correlations between the overall accuracy of the putts and scores on the FFMQ and the BIGL Scale.

Figure 3: Survey Means

	FFMQ Observe Items	FFMQ Describe Items	FFMQ Act & Awareness Items	FFMQ Non-Judge Items	FFMQ Non-React Items	BIGL Scale
Mean	3.42	3.11	2.70	2.83	3.07	3.38

Discussion

Our results indicated a trend for superior performance with the lucky (yellow) ball, regardless of condition. However, the trend was most pronounced in the explicit condition where the experimenter made participants aware of the superstition. Performance with the lucky ball was comparable between the implicit and control condition suggesting that conscious awareness may be necessary for the development of superstitions over a short duration.

However, there were not any significant correlations between the scores on the FFMQ and the BIGL Scale and the accuracy of the putts. This is most likely due to the limited number of participants that were available as a result of unexpected global circumstances.

Limitations & future directions

As this study was being administered, it was clear that there were some limitations. First, the participants should have been given more than just one practice shot in order to establish a baseline. For some of them, their first few putts were overshot because they were still getting used to putting on a flat surface. If they were given more time to practice, they would have been able to have more putts that were measured.

References

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