Luckiness, competition, and performance on a psi task

Abstract:
This paper briefly reviews previous research on luck and psi, and presents a study on luckiness, competition, and performance on a psi task from an ongoing research project into the psychology and parapsychology of luck and luckiness. Participants were classified as either lucky, unlucky, or uncertain, according to their responses on a Luckiness Questionnaire. Participants were then asked to guess the outcomes of a series of pseudo-RNG based coin-flips in either a competitive or non-competitive situation. Prior to completing this task, each subject was asked to rate how well they thought they would do at the task. It was found that lucky participants performed no better than unlucky participants on the psi task and gave nonsignificantly higher ratings of predicted psi performance. Participants in the competitive condition did not perform significantly better on the psi task than participants in the non-competitive condition. Most notably, however, a significant positive correlation was found between predicted psi performance and actual psi performance. The implications of these findings are discussed, as are suggested directions for future research.

Full Text:
This paper presents experimental data from an ongoing program of research into the psychology and parapsychology of luck and luckiness (see Smith, Wiseman, Harris, & Joiner, 1996). Part of this research explores the relationship between luck and psi by examining whether "lucky" people (i.e., individuals who report that seemingly chance events consistently tend to work out in their favor) outperform unlucky individuals on a variety of psi tasks.

In the past, researchers have studied this potential luck-psi relationship from many different perspectives. Greene (1960) investigated whether or not perceived luckiness correlated with psi performance. Participants were classified as lucky or unlucky by their responses on the "Greene Luck Questionnaire," which asked participants about whether or not they tended to win at games of chance, and were then asked to psychically influence the throwing of a ten-sided die. Greene found no relationship between luckiness and PK.

Ratte and Greene (1960) embedded a similar task in a game situation in which throws of the dice determined the outcome of different stages in an imaginary basketball game. Using a revised version of the Greene Luck Questionnaire, lucky participants tended to perform above chance while unlucky ones tended to perform below chance. Ratte (1960) went on to compare the performance of lucky and unlucky individuals in four conditions: game versus non-game and competitive versus non-competitive. Ratte reported that participants tended to perform better in the competitive condition than in the non-competitive condition, and the difference between the conditions tended to be due to the lucky rather than unlucky participants.(1)

More recently, Broughton (1979) carried out a pilot study in which he administered the Greene Luck Questionnaire to participants undertaking a computerized micro-PK task and found a significant positive correlation between luckiness and PK scores, although this correlation was nonsignificant in confirmatory data. Gissurarson and Morris (1991) found nonsignificant correlations between micro-PK performance and individuals' scores on either the Greene Luck Questionnaire or more general questions about everyday luck. Most recently, Rebman and Radin (1995) correlated computerized micro-PK performance with responses on a questionnaire concerning various aspects of luck. Nonsignificant negative correlations were found between psi scores and questions about how lucky participants considered themselves. However, significant negative correlations were reported between psi scores, participants' belief in luck, and whether or not they felt that they controlled their luck.

Other studies have examined perceived luckiness and ESP ability. For example, Rammohan and Krishna Rao (1987) administered multiple-choice questions to participants, the answers to which could only be known by ESP. They found no difference in ESP scores between participants who indicated that they tended to be lucky and those that tended to be unlucky in academic examinations. However, in a later study, Rammohan and Lakshmi (1993) found a significant positive correlation between psi scores and self-rated luckiness in exams on a nonintentional ESP test. Wiseman, Harris, and Middleton (1994) have also recently examined the possible relationship between self-reported luckiness and ESP performance. Perceived luckiness was measured by asking participants to rate how lucky they considered they had been in the past and expected to be in the future, in various aspects of their lives (e.g., health,

relationships, games of chance, etc.). A significant positive correlation was found between perceived luckiness and ESP performance for participants who believed that the ESP task depended on non-chance factors. Perceived luckiness was not correlated with ESP performance for participants who believed that the outcome of the ESP task depended on chance.

The present study builds upon previous research in several ways. First, most of the above studies have employed the Greene Luck Questionnaire. However, this measures a rather limited notion of luck in that it is almost entirely restricted to success at gambling. The present study uses a new questionnaire which widens the definition of luck by asking people to classify themselves on the basis of seemingly chance events in everyday life (e.g., meeting the right person at the right time) as well as games of chance. On the basis of the cited past research, it was predicted that participants who described themselves in our questionnaire as lucky would perform better on the psi task than participants who described themselves as unlucky.

Second, this study examined the relationship between how well the subjects expected to do on the psi task and their perceived luckiness. It was expected that the self-described lucky participants would be more optimistic about their performance on the psi task than unlucky participants (Wiseman, et al, 1994).

Third, it was predicted that there would be a positive correlation between a subject's self-predicted psi performance and their actual psi performance.

Fourth, the study examined the possible role of competition in the potential luckiness-psi relationship. It was predicted that participants in the competitive condition would perform better on the psi task than participants in the non-competitive condition (Ratte, 1960).

METHOD

Design

This study used a mixed design. One between variable consisted of classifying participants' beliefs about their own luckiness into one of three categories: lucky, unlucky, or uncertain. The other between variable was competition, which had two levels, competitive or noncompetitive.

The two dependent variables consisted of participants' predictions concerning how well they would perform on the forthcoming PK task and their actual performance on the task.

Participants

Participants were 56 undergraduates at the University of Hertfordshire. Of these, 19 were male and 37 were female. Ages ranged from 18 to 50 years, with a mean age of 22.5 years. There were 30 participants in the competitive condition (12 males, 18 females; mean age 21.3), and 26 participants in the non-competitive condition (7 males, 19 females; mean age 23.7).

Apparatus/Materials

Luckiness Questionnaire (see Appendix). Participants were presented with two short descriptions: one of lucky people, and one of unlucky people. Lucky people were described as individuals for whom seemingly chance events tended to work out in their favor, while unlucky people were described as individuals for whom such events tend to work out against them. For each description, participants were asked to rate on a 7-point scale how well it described themselves, where 1 = doesn't describe me at all and 7 = describes me very well. Confidence ratings for each of these responses were obtained on another 7-point rating scale where 1 = not at all confident and 7 = extremely confident. Participants who gave the lucky description a rating of 4 or above, gave the unlucky description a lower rating, and had confidence ratings of at least 3 for both of these responses were categorized as lucky. Participants who gave the unlucky description a rating of 4 or above, gave the lucky description a lower rating, and had confidence ratings of at least 3 for both of these responses were categorized as unlucky. Participants who could not be classified as either lucky or unlucky due to, for example, identical ratings for the lucky and unlucky descriptions or low confidence ratings, were categorized as uncertain.

Predicted psi performance. Predicted psi performance was measured by asking participants to rate how well they thought they would do at correctly guessing the outcomes of coin-flips. Ratings were made on a 7-point rating scale where 1 = not at all well and 7 = extremely well.

Psi task. A measure of psi performance was made by asking participants to guess the outcomes of 50 computer-generated coin-flips. The task was programmed in HyperCard[TM] and presented on an Apple Macintosh computer (models varied between SE/30, LCIII, and Performa 475). For each coin-flip, participants are presented with a graphical representation of a boy who flips a coin and asks the participant to guess whether or not the coin has landed heads or tails (participants cannot see whether the coin has landed heads or tails). Participants make a guess by clicking the mouse on a heads box or a tails box. After making a guess, participants are immediately told the outcome of the coin-flip and whether or not he/she was correct. This is repeated for 50 coin-flips. The outcome of each coin-flip is based upon three samplings from the computer's own pseudo-RNG taken at the start of each trial (however, the RNG was seeded only once when the computer was turned on); each sampling produces a number between I and 100. The third sampling of the RNG decides which of the first two samplings is actually used to determine the outcome of the coin-flip (a number from 1-50 means the first sampling is used, a number from 51-100 meant the second sampling would be used). A resulting number from 1-50 translated into heads, a number from 51-100 translated into tails. Thus if, for example, the three samplings were 23, 81, and 56, the outcome of the coin-flip would be tails (56 would designate 81 as the number to determine the coin-flip, which would

translate into tails). The pseudo-RNG output produced an unbiased distribution of heads and tails, and no obvious sequential dependencies (i.e., lag one) were found.

In the competitive condition, a competition score chart was used to record who was winning at each of five stages in the "game," and sweets (candy) were used as prizes for the winner of each stage.

Procedure

Participants in the non-competitive condition were tested in two groups (11 participants in one, 15 in the other) on two consecutive days as part of a research methodology class. In each group participants were tested simultaneously. Each participant sat in front of an Apple Macintosh computer. They were told that they were about to take part in an experiment on the psychology and parapsychology of luck, and were asked to complete our Luckiness Questionnaire. They were then told that they were about be asked to guess the outcomes of a series of computer-generated coin-flips (they were not told how many coin-flips there would be) which would be randomly determined by the computer and presented on the screen. Their aim was to try to correctly guess as many coin-flips as they could. For each coin-flip, they were to make their guess by clicking the mouse on the appropriate box. Before beginning this task, they were each asked to rate how well they thought they would do at correctly guessing the outcome of the coin-flips on a 7-point rating scale. They then started the program, and when 50 coin-flips had been completed, the program asked participants to record their age and gender.

The procedure for the competitive condition was the same as above, apart from the fact that participants were tested in pairs (each pair consisting of two friends), and were instructed to try to beat their friend at correctly guessing the outcomes of the coin-flips. The element of competition was enhanced by recording who was winning at each of five stages; each stage consisted of ten coin-flips, although participants were not told this nor were they told how many stages there would be. For each stage, one participant within each pairing completed ten coin-flips, then the other participant completed ten coin-flips. After each stage, the person who had correctly guessed the most coin-flips in that stage was awarded a small sweet (a piece of candy). The order of play alternated between stages, and as in the non-competitive condition, participants were not told how many coin-flips they would be asked to complete in total.

All participants were thanked for their participation and fully debriefed.

RESULTS

Luckiness, competition and psi performance

The percentages of coin-flips guessed correctly by lucky, unlucky, and uncertain participants in the competitive and non-competitive conditions are given in Table 1.

TABLE 1 PERCENTAGES (MCE = 50%) OF COIN-FLIPS GUESSED CORRECTLY BY LUCKY, UNLUCKY, AND UNCERTAIN PARTICIPANTS IN COMPETITIVE AND NON-COMPETITIVE CONDITIONS

	Luckiness			
	unlucky	uncertain	lucky	Totals
competitive	50.40 (n = 10)	50.33 (n = 12)	53.00 (n = 8)	51.07 (n = 30)
non-competitive	48.67 (n = 12)	44.80 (n = 5)	50.44 (n = 9)	48.54 (n = 26)
Totals	49.46 (n = 22)	48.71 (n = 17)	51.65 (n = 17)	

The relationship between perceived luckiness, competition, and psi performance was analyzed using a two-way factorial ANOVA. The effect of competition upon psi performance was found to be nonsignificant ($F_{[1, 50]} = 2.84$, $p = 0.10$), as was the effect of perceived luckiness upon psi performance ($F_{[2, 50]} = 1.39$, $p = 0.26$). There was no significant interaction between perceived luckiness and competition ($F_{[2, 50]} = 0.33$, $p = 0.72$).

Luckiness and predicted psi performance

The mean ratings for the question, How well do you think you will do at correctly guessing the outcomes of the coin-flips? for lucky, unlucky, and uncertain participants are given in Table 2.

TABLE 2 MEAN RATINGS OF PREDICTED PSI PERFORMANCE FOR LUCKY, UNLUCKY, AND UNCERTAIN PARTICIPANTS

	Luckiness		
	unlucky	uncertain	lucky
Predicted psi performance	3.64 (n = 22)	3.59 (n = 17)	4.18 (n = 17)

The relationship between perceived luckiness and predicted psi performance was analyzed by using a one-way factorial ANOVA. The effect of perceived luckiness upon predicted psi performance was found to be nonsignificant ($F_{[2, 53]} = 2.28$, $p = 0.11$).

Predicted psi performance and actual psi performance

Pearson's product moment correlation coefficients between subject predicted psi performance ratings and percentage of coin-flips correctly guessed were calculated. Table 3 shows the correlation (and associated p-value) for all participants, along with the correlations for participants in the various sub-groups (and associated p-values).

TABLE 3 PEARSON'S PRODUCT MOMENT CORRELATIONS (AND ASSOCIATED p-VALUES) BETWEEN PREDICTED PSI PERFORMANCE AND ACTUAL PSI PERFORMANCE

	Pearson's R	p-value
All participants (n = 56)	0.49	0.0001
Lucky (n = 17)	0.45	0.07
Unlucky (n = 22)	0.24	0.28
Uncertain Luckiness (n = 17)	0.76	0.0004

A significant positive correlation was found between self-predicted psi performance and actual psi performance ($p = 1 \times 10^{-4}$). This correlation was found to be strongest amongst participants who were uncertain about whether they were lucky or unlucky.

DISCUSSION

Lucky participants did not perform significantly better on the psi task than other participants, although they tended to give marginally higher ratings of how well they believed they would do on the psi task than the other participants gave. This difference, however, was not significant. It is possible that seeing oneself as lucky may mean that one is more optimistic about one's performance on a seemingly chance task, but it does not appear to relate to one's actual performance. However, the fact that the effect of luckiness upon psi performance was nonsignificant may simply reflect the lack of statistical power of the present study. For example, the psi task employed was repetitive and uninteresting, so a relatively small number of trials (i.e., 50 coin-flips) were performed by each participant. In addition, only a small number of participants were involved in the study. Similarly, participants in the competitive condition obtained nonsignificantly higher psi scores than participants in the noncompetitive condition. Although these differences were nonsignificant, they were in the direction suggested by the previously mentioned work on luck and psi and may be worthy of further investigation.

The most striking finding from this study is the strong positive correlation between the subjects' predicted psi performance and their actual psi performance. Thus, the better a subject thought they would do at guessing the outcomes of the coin-flips, the better they actually did. This suggests that one's prior expectations of how well one will do at the psi task is a stronger indicator of psi performance than the more abstract perception of how lucky one considers oneself to be. This measurement of participants scoring expectations on the psi task is what Palmer (1972) referred to as Criterion 4 of the sheep-goat variable (Criterion 1 was a belief that ESP could occur in the experiment, Criterion 2 was a belief that ESP exists in the abstract, and Criterion 3 was a belief that one had psychic ability). The present finding from our study suggests that Criterion 4 may be a useful discriminator of psi-hitters and psi-missers. Moreover, it suggests that being optimistic about one's success may help one to be more successful on a seemingly chance task. This may be the important factor in any relationship between perceived luckiness and psi, and future research should assess this possibility.

The present study was not concerned with examining whether luck and luckiness should be more appropriately aligned with ESP or with PK performance. The research reviewed at the beginning of this paper has taken both approaches to studying psi and luck, but future research might examine this issue further. An initial step might be to further understand whether people spontaneously perceive luck as being analogous to ESP or to PK. For example, Wagenaar and Keren (1988) report on attempts to discover the way in which the concept of luck seemed to operate in the minds of gamblers. Most of the gamblers they interviewed did not believe that their luck could influence the randomizing device involved (such as the roulette wheel) but they did believe that luck might influence their choice. Good luck aids the player to bet on the winning number; being lucky would come from being able to consistently guess right, rather than from influencing random processes. Thus, at least in the minds of gamblers, luck is more akin to ESP than to PK.

Our future research in this area will also examine the role of luck and luckiness in non-intentional psi tests. The findings of Rammohan and Lakshmi (1993) suggest that luckiness may correlate with psi scores when participants are not striving to use any form of psi (i.e., participants are not aware that they are taking part in a psi test). This may be a more appropriate method for studying the luck-psi relationship because individuals who consider themselves lucky may be using psi at an unconscious level to make "lucky guesses." In this way, luck may be similar to a psi-mediated instrumental response (see Stanford, 1990).

It would appear that analyzing the various aspects of luck and luckiness may lead to a fuller understanding of psi. The present study did not find evidence to support the hypothesis that lucky people perform better than unlucky people on tests of psi ability. However, continued research in this area could potentially cast light on how psi is conceptualized in people's minds, and may even make a significant contribution to the search for a reliable indicator of successful psi performance.

1 It should be noted that Stanford (1977) has argued that the statistical analyses used by Ratte (1960) and Ratte and Greene (1960) were inappropriate.

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APPENDIX

LUCKINESS QUESTIONNAIRE

People consider themselves lucky or unlucky for a wide variety of reasons. At this stage in our research, we are interested in whether people consider themselves lucky or unlucky when it comes to seemingly chance events.

Please read each of the descriptions that follow, and, for each one, rate how well it describes you using the scale below, by writing the number that best represents your response in the space provided:

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Doesn't describe Describes me me at all very well 1 2 3 4 5 6 7
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Also, for each one rate how confident you are of your rating of how well it describes you using the scale below:

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Not at all Extremely confident confident 1 2 3 4 5 6 7
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A. Lucky people are people for whom seemingly chance events tend to work out in their favor. For example, they seem to win more than their fair share of raffles and lotteries. Dice seem to roll in their favor and roulette wheels often choose their numbers. Other times they might seem lucky in everyday life. For example, they always seem to find a parking space when they need one, or they accidentally meet people that can help them in some way.

1. How well does this describe you? _____

2. How confident are you of your answer to question 1? _____

B. Unlucky people are the opposite: seemingly chance events tend to work out against them. For example, they never seem to win anything on games of chance. Sometimes they seem unlucky in everyday life. For example, they can never find a parking space when they need one, or they tend to be involved in accidents that are not their fault.

3. How well does this describe you? _____

4. How confident are you of your answer to question 3? _____