

**Micro-psychokinetic influence on a quantum-based coin tossing
experiment -**

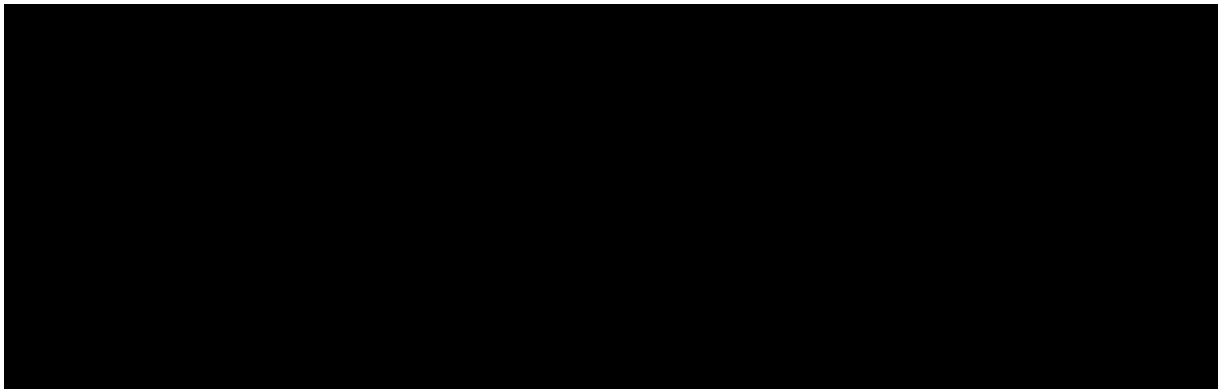
Discussion section

Seminar paper "Empirical work II" Ludwig

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Seminar paper for the seminar "Empirical Work II"

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Discussion

The main aim of this study was to clarify whether there is an influence of the subject's observation and whether the probability of the tipped coin side appearing differs significantly from the random probability. A particular focus here was on the intrinsic motivation to win and its effects on the implicit control over the appearance of the tipped coin side. The mental influence was to be measured analogously to the research of Markus A. Maier and Moritz C. Dechamps using the results of the quantum generator.

Unfortunately, the results of our study did not provide sufficient evidence to support the H1 hypothesis. The deviation from the random probability was only 0.5 and is therefore not significant enough. Nevertheless, secondary analyses revealed further effects with regard to strategy change, the sequence effects of strategy change, the questionnaire and gender.

Those test subjects who decided to change their strategy, i.e. from heads to tails or vice versa, were able to achieve more hits on average than those who decided not to change. It can be concluded from this that the H1 hypothesis is fulfilled for switchers, as they were more successful than the test group without a change in their strategy.

Also worth mentioning here are the results for the sequence effects of the strategy change: regardless of whether the change was from red to blue or from blue to red, these groups achieved a higher hit probability than those who stuck with the same strategy in both rounds.

Furthermore, questions 2,3,5,7 correlated positively with the hits and questions 6,8,9 negatively. While the former correlated with questions relating to screen fixation and the

While the latter questions are more related to the behavioral disposition towards winning in general and the subsequent assessment of the experiment. From this it can be concluded that the number of hits is reciprocally related to gaze fixation, the assessment of influence, the feeling of winning/losing and the frequency of winning. This was also to be expected, as after each trial of 100 runs the test participant was informed about winning or losing the coin toss and the test participant was therefore able to clearly assess his own performance during the game. No reference to the number of hits can be made to the questions regarding winning in general, self-assessment as a lucky child and how exciting the experiment was. It is therefore completely irrelevant for the outcome of the coin experiment whether you see yourself as a lucky child or as particularly ambitious to win.

There was also a slight difference between the genders, with the men scoring more hits overall in the second round than the female test participants. Nevertheless, the effect was only minimal and the result should not be over-interpreted.

The question of whether the test participant was a smoker/non-smoker or student/non-student was irrelevant to the study results and accordingly no further correlation could be established.

The study did not include any exclusion criteria with regard to age and the average age was 26.45 years. This means that there is no guarantee of cross-age coverage, as the trial participants were mainly young adults. It would be interesting to see whether there could be a difference in terms of hit rate and age groups, as younger people tend to act more impulsively and take more risks, which is also reflected, for example, in

more frequent change of strategy. However, it would also have to be investigated whether age and strategy change could be related to each other. This is merely an assumption that could be followed up on. Only one older participant (51) took part in our study, so it was not possible to determine a possible correlation.

It should also be noted that the sample size in this experiment was only set at 40 people and therefore has a lower power than the experiment by Maier and Dechamps, who were able to manage a sample size of 11,281 people. This experiment should serve to transfer the study analogously with regard to intrinsic profit motivation instead of optimistic attitudes and to check whether parallels can be drawn between the two experiments in terms of the results. It would therefore be of considerable value to extend the coin toss experiment to a larger sample size in order to provide a better basis for comparison.

The experiment was also conducted by 4 experimenters, all of whom tested at different times, locations, lighting and environmental conditions. Furthermore, due to the small sample size, mainly subjects from the personal environment were tested, which meant that due to the personal proximity and the inability to establish distance, the experiments may have been conducted without too much seriousness. On the whole, this can lead to a distortion of the results because there were no uniform test conditions.

Since the coin toss experiment was coupled with another study, 80 percent of the participants had to be smokers only, resulting in the results mainly reflecting smokers in terms of their motivation to win. In order to provide further results, the experiment should be replicated regardless of smoking consumption. Because the

Restriction to smokers led to a limitation of the trial participant pool in this study.

Other problems with the study could include the Hawthorne effect, where subjects show a change in behavior simply by being aware of their participation in the experiment. The test subjects could feel under pressure and thus not engage in the study in depth, as the internal pressure hinders the mental influence and thus the implicit control over the appearance of the tipped coin side is distorted. In addition, the inclusion of physiological measurement methods such as "electrodermal activity" could be considered, in which skin conductance is recorded before, during and after the experiment. This could be used to check whether the perceived pressure is external to the individual test subjects through the mere awareness of their participation in the experiment. And if so, how high the increase in skin conductivity was in order to exclude the test participants from the evaluation of the study above a certain level.

In retrospect, one could come to the conclusion that the intrinsic motivation to win alone was not sufficient to achieve a higher hit rate in this experiment. In order to make the experiment more realistic, the participants could be given a monetary reward for winning, as is common in conventional gambling establishments. The money takes on a reward function and increases the incentive to win the game. It also takes on the function of overcoming negative feelings and the accumulation of positive emotional states, which could strengthen the individual's mental influence to win the game. A follow-up study to investigate the coin toss experiment with monetary expenditure would be conceivable in order to gain further insights in this field and to be able to further specify the findings that have already been researched.

In conclusion, this study makes it clear that those players in the coin toss experiments who changed strategy had a higher success rate, thus confirming H1 in this case. Strategy changers thus proved to have a concrete mental influence on the hit rate. This is an important factor that needs to be investigated more closely in future with regard to the above-mentioned suggestions for improvement.

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