

Part One: Guided Listening

Problem 1.1

What was it that prompted Brian Nosek to undertake the project described in the podcast?

When Brian Nosek read the paper published by the famous psychologist, he noticed that the current constructs for something to be scientifically significant allowed for the absurd conclusion that ESP is true. Knowing the absurdity of this claim, Nosek realized that the construct by which the paper was able to validate this claim had an inherent flaw, and needed to be fixed.

Problem 1.2

What did the project designed by Brian Nosek consist of?

The project designed by Nosek consisted of volunteer researchers who, combined, repeated 100 studies to see if they could reproduce positive results. Whether the result of the repeated study matched the result of the previous one was kept in a spreadsheet.

Problem 1.3.

What is the (at least one) reason that scientists do not habitually repeat studies?

One reason scientists do not habitually repeat studies is because they rely on publishing new findings to get tenure and other research positions. Confirming the results of old studies does not lend itself to succeeding in one's research career.

Problem 1.4.

How many experiments did the volunteer scientists "do over"?

The volunteer scientists redid 100 experiments.

Problem 1.5.

What was the source of the chosen experiments? Were they obscure within the field?

The source of the chosen experiments were three of the top psychology journals, so they were not obscure within the field.

Problem 1.6.

What is the “afternoon-treat hypothesis”?

The after-noon treat hypothesis was the hypothesis that a sugar boost, e.g. a drink of sugary lemonade, makes people engage in more effortful decision making.

Problem 1.7.

Did the project originator Brian Nosek keep constant track of how many of the experiments were successfully replicated? Or did he wait until the entire experiment experiment was completed?

The project originator Nosek waited until the entire experiment was completed to check whether the experiments were successfully replicated.

Problem 1.8.

How many original conclusions were confirmed?

Only 39 out of the original 100 conclusions were confirmed.

Problem 1.9.

Is the conclusion that the scientists are faking their data?

Nosek does not believe that scientists are faking their data. Rather, he believes that a lot of what is happening is statistical flukes.

Problem 1.10.

What experiment did the journalist conduct the morning of taping the podcast? What were the results?

The journalist flipped a coin 10 times in the morning and kept track of how many times he got heads. The journalist got heads 9 times.

Problem 1.11.

What is the file-drawer effect? What is its consequence in the field of psychology?

The file-drawer is the effect that negative results for an experiment are likely to be put in a file-drawer because journals are more likely to publish a positive result. Thus, although there are usually more negative results, only the small percentage of positive results get published. In the field of psychology, 97% of publications are positive results

Problem 1.12.

Does the file-drawer effect completely explain the 39/100 ratio?

Nosek believes that the file-drawer did not completely describe the 39/100 ratio because he thought that there must have been some error in the way that data was sampled in the experiment design.

Problem 1.13.

Which example of a common mistake does Dr. Lindsey describe?

The common mistake that Dr. Lindsey describes is researchers trick themselves into adding more samples to their experiment to increase their chances of getting a positive result, and stop when the data proves them right. In reality this process only increases the chance that the researcher will find a fluke as opposed to a scientific breakthrough. The reason behind this is because there is an inner conflict of interest that publishing interesting results could lead to advancement in one's career.

Problem 1.14.

Which other disciplines are now trying to do the experiment experiment?

The fields of economy, ecology, cancer biology, etc. are trying to do the experiment experiment.

Problem 1.15.

What remedy does Brian Nosek propose?

Nosek proposes a system where researchers are obligated to predetermine how one is going to conduct an experiment, how they're going to analyze data, and what they are going to learn before a project. In this system, researchers are obligated to publish their results to a central agency no matter what. In this way personal interest does not kick in when sampling data, and the file-drawer effect is avoided because negative samples are published as well.

Problem 1.16.

Is this idea already being implemented in a certain research field? Has this changed the frequency of positive results?

Drug and medicine research made this mandatory. Before the registry was created, more than half of the published studies of heart disease had positive results. After the registry was created that number dropped down to 8%.

Problem 1.17.

Should we lose faith in scientific results?

We should not lose faith in scientific results because a systemized approach to publishing scientific discovery can suppress the impact of flukes in the research world.