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RENSEP Progress Report for April 2024

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### The SIGIL Experiment: Scientific Investigation of Gazing with Intuition at Light

During Month 12 of this 18-month project I continued to receive SIGIL data from the 50 selected participants. As of this report, the data collection period has ended, and I've received all of the formal data sessions from 47 of the 50 people. I was hoping to receive at least 40 completed sessions, so this response rate is extremely good. It also demonstrates that the multi-step recruitment procedure that I used was effective in finding highly motivated participants.

The preregistered analysis for this study was posted on the OSF website (<https://osf.io/5ngkm>) on March 10, with a minor update posted on March 24. It proposed three hypotheses: one that the mean value of the photon interference metric would increase after a delay of  $4 \pm 1$  seconds, another that the variance of the same metric would also increase after a delay of  $4 \pm 1$  seconds, and a third that the results of the most successful first 5 sessions per person would again show a significant result for the last 5 sessions, indicating a possible "talent" effect.

As of today, I've analyzed the first two preregistered hypotheses. The mean-shift hypothesis is not significant, but the variance-shift *is significant*. This suggests, as I had predicted, that during the 30-second focused concentration periods people tended to mind-wander, causing more variations in the interference signal during those periods than during the withdraw-the-mind or relax periods. I haven't yet analyzed if there is also a talent effect.

I still need to investigate how each individual performed to rule out potential artifacts in the results, because a few people did remarkably well. In fact, they did so well that it makes me hesitate to accept their results without a very careful examination of their data. I already have confidence that none of the raw datafiles were tampered with, and I also see no obvious attempts on anyone's part to interfere with the boxes during the data collection sessions. But I will continue working on these analyses to prepare a preliminary report that I'll send to all participants in a couple of weeks. And then I'll start working on an article that I'll submit to a journal. But so far, I'm delighted that one of the preregistered analyses shows a positive outcome.

In reviewing the design of the interference device I made for this experiment, I can now think of a number of things that would improve it in a future study. That's to be expected. As they say, if we knew beforehand what we were doing, it wouldn't be called research!

