

Overview of Methods

The purposes of study 1 and study 2 align and compliment each other. The information found and normed from study 1 was used to inform the expirments in study 2. Both studies looked at many factors, such as age, gender, employment status, weather on days of expirments etc. However, the main pieces of data we will utilize in this presentation are outlined to the right!

Study Methods

Study 1

In this study, participants were recruited via Amazon Mechanical Turk (MTurk) using CloudResearch and Prolific platforms.

Participants were presented with a variety of reactivation cues, in the form of videos, designed to trigger episodic memory responses. Participants were tasked with providing self-reported measures on three key dimensions: arousal (emotional activation caused by the cue), valence (whether the cue evoked positive or negative emotions), and familiarity (how recognizable the cue was).

Measures were collected through an online survey format, where participants recorded their responses after viewing or interacting with the cues.

Surprise, as inferred from these measures, was used as a proxy for prediction error—the mismatch between participants' expectations and the actual content of the cues. This approach allowed researchers to quantify and standardize reactivation cues based on their prediction error levels.

Study 2

Study 2 built on the results from Study 1 by applying the standardized reactivation cues in a memory reconsolidation experiment.

Participants, recruited from undergraduate populations and the local community in Dallas, engaged in a structured, three-day experimental paradigm. On each day, participants were presented with reactivation cues to trigger memory recall. Their task was to attempt reconsolidation by recalling and updating episodic memories.

During the experiment, the researchers recorded participants' responses, focusing on many key measures such as confidence (how certain they were in their answers) and correctness (accuracy of recall). Researchers used these and other factors to quantify the mean error of each of the cues used. This design allowed the researchers to test how varying levels of prediction error, identified through surprise in Study 1, influenced memory reconsolidation processes over multiple sessions.