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Predictable stimulus onsets improve memory

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Abstract: Exploring and remembering are fundamental to many human activities. Characterizing influences on recognition memory can help clarify the workings of memory systems and facilitate design of effective learning environments. Studies of self-directed learning show that a key determinant of self-directed benefits is in choosing when to see the next stimulus, but these results do not establish whether it is the act of choosing or the knowledge of stimulus arrival times that primarily matters. We disentangle these factors by asking whether predictable stimulus timing that is not under participant control still leads to a memory benefit. Participants saw pictures of objects one at a time with either a constant or unpredictable inter-stimulus interval (ISI) and showed better memory with constant timing across a range of ISIs. These results speak to interactions between attention and memory, the efficiency of study protocols, and the factors influencing effective self-directed learning.