

The Memory Persistence Laboratory



The Memory Persistence Laboratory is based in the School of Psychology at the University of Birmingham, UK, under the direction of [Dr Jonathan Lee \(/staff/profiles/psychology/lee-jonathan.aspx\)](/staff/profiles/psychology/lee-jonathan.aspx).

We are interested broadly in the question of how memories are built and maintained in such a way that they are both long-lasting and accurate. We actually investigate these questions in quite simple non-human animal (but also sometimes human) memory settings. Therefore, there is a focus on memories that, while basic and unconscious in nature, have an important impact upon behaviour. These include pavlovian* and instrumental** memories.

There are several reasons why our research is important. First, there is the fundamental importance of understanding memory processes. Second, and perhaps more important from a societal perspective, there is the potential that this greater knowledge of memory processes may lead to progress in the understanding and even treatment of disorders in which abnormally-powerful pavlovian and instrumental memories play an important role. In particular, treatment strategies based upon fundamental memory research have been applied to conditions such as posttraumatic stress disorder (PTSD), phobias and drug addiction. In PTSD and phobias, one aim of treatment is to weaken the memory link either between cues and the event(s) that may have precipitated the condition, or between the cues and the feeling and symptoms of anxiety. In drug addiction, one of the overriding problems for treatment is to prolong abstinence in the face of the potential for relapse induced by drug cues (think about the cravings that smokers used to get in pubs prior to the smoking ban; these were likely induced by exposure to many cues that had been linked to smoking previously in pubs).

*Pavlovian conditioning involves the learning (at a subconscious level) that a cue predicts an outcome. This results in the cue subsequently eliciting behaviours that are relevant to the anticipation of the outcome (e.g. avoiding potential danger).

**Instrumental conditioning involves the learning (at a subconscious level) of an action that produces an outcome. One example is a rat learning to press a lever (see above) if such a response leads to the delivery of a rewarding outcome, such as food or water.

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