SUPPLEMENTARY INTRODUCTION

Little direct evidence currently exists for a competitive interaction between declarative and procedural memories during learning. When declarative learning is impaired (e.g. in cases of amnesia) there is no evidence of enhanced procedural learning, as would be anticipated if these two memory systems were competitively interacting. Instead, impaired declarative learning is associated with impaired procedural learning of complex sequences \(^1\) or has no effect upon procedural learning \(^2\)-\(^5\). Recent studies have shown that procedural and declarative systems operate in parallel during sequence learning; implying that there is little interaction between these memory systems \(^6\)-\(^8\). Instructing participants to seek for a sequence - associated with acquiring declarative knowledge of the sequence faster than would otherwise have been the case – can cause a slight performance improvement \(^9, 10\). This pattern is inconsistent with a competitive interaction between memory systems. Furthermore, the improvements occur only early in learning when there is little or no declarative knowledge of the sequence; making it unlikely that declarative knowledge was responsible for the improvements. Instead, these short-lived improvements are probably attributable to differences in the learning strategy promoted by the instruction to seek for a sequence \(^10\). Providing instructions to participants in other skill learning tasks has little influence upon performance (for example, \(^11-13\)). Overall, the declarative and procedural memory systems appear to operate independently during learning. In contrast, these memory systems may interact following learning. We set out to determine whether such an interaction might explain some features of off-line processing and memory consolidation.

REFERENCES