

PREFACE

To use memory effectively, we must do much more than shuttle information into and out of storage. Much of our *use* of memory is actually the action of higher-level decision making on the inputs to and the outputs from memory stores. The central premise of this volume is that the many capabilities of memory reflect not the action and interaction of multiple memory systems but rather the myriad of ways in which memory queries can be strategically devised for the task at hand and the degree to which the products of memory can be flexibly acted upon. The chapters here review research that demonstrates how we select strategies for querying memory effectively, how we successfully remember to perform intended actions, how the skillful use of encoding and retrieval strategies can moderate memory deficits and support expertise, and how we accommodate our responses and monitor our output in order to satisfy situational demands while making optimal use of the information that our memory provides us with. This perspective, which emphasizes the control processes that govern memory use, contrasts with many current and traditional views of memory, which appeal to an ever-increasing set of distinct memory systems or separable memory processes.

This view of memory use as skilled performance is uniquely able to accommodate within a single framework the recent growth in a number of sociologically distinct but conceptually unified areas of study, including (but not limited to) metamemory, recognition memory, prospective memory, and individual differences in memory. Much traditional research seeks to explicitly reduce or eliminate the influence of higher-order strategic processes on memory tasks, but the research presented here embraces the interactive nature of memory and higher-level cognition. It is at the union between memory and these other cognitive domains that fascinating and previously unexplored questions arise. How do students decide whether they have mastered materials for an upcoming test, and what actions do

they engage in to efficiently reach that goal? When asked where I live, how do I decide whether to respond with a street address or a city name? What factors influence the likelihood of a selection of a particular party from a criminal lineup in addition to actual memory for the perpetrator? How do I make sure to remember to pick up dinner on the way home? Why do my friends who are expert golfers have better memory for courses they have played, and how they played them, than I do?

These and similar questions about memory *use* are ones that can be addressed only by considering the contexts in which memory is used rather than by trying to disembodify the study of memory from strategic control processes that govern it. Traditional memory research has offered little more than a promissory note toward the resolution of such questions, and this volume represents our attempt to bring together the work of a number of prominent researchers who have made headway on these problems by broadening the scope of what memory researchers are willing to address and consider. One theme that can be detected throughout is an explicit consideration of sources of variability in performance that the typical memory task is designed to eliminate, avoid, or control for. Understanding how factors such as study time and response grain size vary with experimental manipulations or individual differences takes a big step forward in understanding memory *in vivo*, and it is here that the primary action of this volume takes place.

The first chapter in this volume considers the strategies people use in responding to memory queries. Such strategies include choices about whether and how to access memory, and how to translate the retrieved products into overt responses. **Goldsmith** and **Koriat** show how people modulate their answers to questions by withholding (choosing not to respond) and by trading off informativeness with accuracy (choosing an appropriate grain size for their response). The next few chapters address a similar topic in tasks that involve memory *judgment*, rather than the production of a response. In such tasks, subjects typically have to endorse or reject a memory probe as having been experienced in a particular context, and the burden on the subjects is to decide how much evidence is enough. **Rotello** and **Macmillan** review the literature on how, and how well, people place and adjust such criteria, and also consider the successes and failures of the different approaches researchers can take in trying to separate the influences of memory from the influence of response strategies. **Dobbins** and **Han** similarly address what variables influence criteria and also how simple unidimensional criterion-based models of memory judgments fail in important and informative ways.

Einstein and **McDaniel** extend the consideration of strategic processes to the cases of prospective memory—the ability to remember to perform actions in the future. They show that people leverage basic attentional, mnemonic, and metamnemonic processes in order to improve their chances of successfully completing prospective demands that they think are particularly difficult or important.

The chapter by **Benjamin** takes as its central conceit the idea that memory itself is a somewhat fixed and impermeable entity, and provides an overview of the range of memory behavior—from encoding through response—that differs across people and situations because of applications of “memory skill.” **Castel** extends this reasoning to understanding memory use in elderly people. His chapter reviews ways in which elderly people employ strategies that offset the consequences of their declining memory fidelity, and how doing so decreases the magnitude of the deficits they face.

The final section of this volume reviews the role of memory strategies in expertise and individual differences. **Reder**, **Paynter**, **Diana**, **Ngiam**, and **Dickison** argue that expertise in a domain can simultaneously facilitate and obstruct the efficient use of memory, and show how relevant effects can be summarized and understood with the application of a symbolic model. Within the context of a different set of models, **Malmberg** considers individual differences in strategy use on associative recognition, and reviews how lessons from that particular task might be more generally applied to understanding individual differences in strategy use in recognition. In the final chapter, **Ericsson** and **Roring** discuss how expertise develops with practice, and how particular memory skills develop in parallel with such expertise. They also outline a particular methodological approach to studying these experts fruitfully.

At the heart of each of these chapters is an acknowledgment of the very important role that strategies and skill play in memory performance, regardless of whether that performance is on a controlled laboratory test or in a dynamic, real-world context. In each case, people use extramnemonic processes to aid them in reaching mnemonic and intellectual goals. Those extramnemonic processes should not be the exclusive province of those who worry about the ecological validity of their work; the chapters in this volume are a testament to the experimental rigor that can be applied to tasks that nonetheless allow the subject additional degrees of control. Those “nuisance” variables are important aspects of memory performance that have been thoughtfully but quietly spirited away from experimental consideration in much research. This volume shows that a careful consideration of what exactly is lost by controlling for self-controlled

behavior in learning and remembering can provide insight into new problems and new solutions, ones that are outside the scope of traditional memory research.

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