Inferences during Reading

Inferencing is defined as "the act of deriving logical conclusions from premises known or assumed to be true," and it is one of the most important processes necessary for successful comprehension during reading. This volume features contributions by distinguished researchers in cognitive psychology, educational psychology, and neuroscience on topics central to our understanding of the inferential process during reading. The chapters cover aspects of inferencing that range from the fundamental bottom-up processes that form the basis for an inference to occur, to the more strategic processes that transpire when a reader is engaged in literary understanding of a text. Basic activation mechanisms, word-level inferencing, methodological considerations, inference validation, causal inferencing, emotion, development of inferences processes as a skill, embodiment, contributions from neuroscience, and applications to naturalistic text are all covered as well as expository text and online learning materials, and literary immersion.

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Preface

Research in the area of reading comprehension has made enormous progress during the last thirty or more years. There are numerous books, research articles, and journals devoted solely to work done on increasing our understanding of the comprehension process. Because reading comprehension is so complex, even today, there are no models of the complete process; instead, models are designed to address various subcomponents of the complete comprehension process. Perhaps one of the most important processes necessary for successful comprehension during reading is that of inferencing. Over the last twenty-five years, research on inference generation during reading has advanced to the point that it has become a relatively "mature" area. We know a great deal about this critical comprehension process. In fact, across disciplines (e.g., education, psychology) and perspectives, there has been a good deal of convergence in terms of theoretical accounts and understanding of both the reader and text characteristics that promote the types of inferential processes that facilitate comprehension. Despite this high level of convergence, there is no centralized resource that captures it. Our goal was to bring together a set of chapters that capture this convergence while also providing a unified resource for interested readers who want to learn about the current state of the field's understanding of the inference process. The present book contains chapters by many distinguished researchers on topics central to our understanding of the inferential process during reading. These chapters cover aspects of inferencing that range from the fundamental bottom-up processes that form the basis for an inference to occur to the more strategic processes that occur when a reader is engaged in literary understanding of a text. Within this range, a wide variety of topics are covered that include basic activation mechanisms, word-level inferencing, methodological considerations, inference validation, causal inferencing, emotion, development of inference processes as a skill, embodiment, contributions from neuroscience, as well as applications to naturalistic, expository text, online learning materials, and literary immersion. We have used this progression from lower-level

to higher-level processing as the organizing framework for the sequence of chapters in the volume.

The topics in this volume are grounded in research that comes from a wide variety of perspectives, including basic cognitive psychology, applied educational psychology, and neuroscience. This interdisciplinary coverage is apparent throughout the volume; many chapters touched on different levels or topics in inferencing; and many topics were covered by chapters from a variety of different perspectives. Within this interdisciplinary mingle two fundamental principles emerged. First, there are some basic cognitive mechanisms (i.e., passive memory activation) that drive inference generation, regardless of whether the inference occurs at a very basic word level or at a higher level of literary interpretation. Second, when inferences are encoded, the exact nature of what is encoded affects ultimate comprehension, memory, and learning. This is true regardless of whether the inference occurs during reading of narrative text, expository text, or during the encoding of multimedia materials for academic purposes.

Challenges and directions for future work also emerge from this volume. It is clear that a better understanding of the active, strategic processes involved in the production of inferences is needed, such as those that include literary interpretation, or integrating content across several texts. Much of the research and theory presented in these chapters stopped short of providing any serious model of inference production that can explain and/or predict active, strategic processes on the part of the reader. It is clear that the next major step – and likely the most difficult step – in our understanding of the inference process will occur with the development of testable models of active inference production. Such a model would surely deepen our understanding of the inference process, as well as define where current models of inferencing succeed in explaining research findings, and, more important, where they fail.

We are indebted to the contributors to this volume for their efforts in writing chapters that captured the current state of research into inference processing. Each chapter contributes to this understanding in ways that are unique to each author's line of work, but also overlapping with other authors to the extent that the field has indeed begun to converge on a high level of understanding of the inference process. The chapters are ordered – roughly – in terms of the issues addressed, beginning with those that address the more bottom-up aspects of the inference process to those that address the interaction of both bottom-up and top-down processes, and finally to those chapters that raise the most interesting and still least understood aspects of inferencing during reading.

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