Book Reviews: Cognition, Metacognition, and Reading

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Cognition, Metacognition, and Reading

Metacognition and Reading Comprehension. Ruth Garner. Norwood, NJ: Ablex Publishing, 1987. 176 pp., $29.50.

Die Entwicklung von Gedächtnis- und Metagedächtnisleistungen in Abhangigkeit von bereichsspezifischen Vorkenntnissen (The Impact of Content Knowledge on the Development of Memory and Metamemory). Joachim Körkel. Frankfurt, Germany: Lang-Verlag, 1987. 571 pp., SFr 82,00.

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Because reading traditionally has been considered, at root, a cognitive task, research on reading has usually focused on cognitive processes such as language, memory, and attention, and their impact on reading skills. Since the emergence of metacognitive theory in the late seventies, however, the restricted view of reading as decoding plus comprehension has been replaced by a more sophisticated view that also takes into account readers' awareness and control of their cognitive activities. That is, more recent reviews of the topic (e.g., Baker & Brown, 1984; Forrest-Pressley & Gillies, 1983) have emphasized the role of metacognitive skills in effective reading.

The good news for psychologists and educators interested in problems of text processing is that there are now two books available that give a systematic account of research on the interaction of metacognition and cognition in the field of reading. Of course, the bad news for American readers is that Körkel's monograph is in German. Although my description of what is in Körkel's book and what is not cannot replace a careful reading of Körkel's volume, I am nevertheless optimistic that the comparison of Garner's and Körkel's work will provide some information on commonalities and differences in their approaches.

Garner's book has seven chapters. In the first two, the basic concepts of reading comprehension and metacognition are introduced and defined. Garner relies on an interactive model of reading comprehension; the process is considered to be an interaction of reader expectations with textual information. This model of an active, constructive reader also assumes that the reader relies on various metacognitive resources available in the problem solving situation.

Difficulties with the distinction between cognitive and metacognitive resources and the concept of metacognition are considered next. Garner adopts John Flavell's model of metacognitive components (Flavell, 1985) which differentiates between metacognitive knowledge and metacognitive experiences. In short, metacognitive knowledge can be regarded as relatively stable and verbalizable information about different aspects of cognition, whereas metacognitive experiences are assumed to occur when cognitions fail during study activities. A typical example of metacognitive experiences would be a feeling of confusion in the case of obviously contradictory text information. Garner emphasizes that research on metacognition primarily carried out by developmental psychologists should be separated from the body of research on "executive control" provided by information processing cognitive psychologists. The latter line of research relies heavily on the computer simulation literature, assuming that a critical set of "control processes" regulates the activities of the information processing system. Accordingly, whereas researchers in metacognition emphasize the *knowledge* component, researchers in executive control focus on the amount of *control* that learners show in a specific learning situation.

Although Garner explicitly refers to the conceptual overlap between these two lines of research, she decides to separate executive control (in the sense of strategy use) from such metacognitive components as metacognitive knowledge and metacognitive experiences. This view thus differs from that of most other prominent researchers in the field of text comprehension who subsume knowledge *and* control under the heading of metacognition (cf. Baker & Brown, 1984; Forrest-Pressley & Waller, 1984).

Chapter 3 reviews the literature on individual differences in metacognitive development. As a main result, it can be demonstrated that age-related and achievement-related differences do have the same patterns for various aspects of metacognition and executive control: Young children and poor readers have important knowledge gaps concerning text processing and also are not nearly as adept as older subjects or good readers in engaging in planful monitoring activities.

Chapters 4 and 5 are particularly interesting in that they provide a careful examination of the various problems inherent in the most popular methods used to assess metacognitive knowledge and cognitive monitoring, namely, verbal interviews and the "error detection" paradigm. Garner not only provides a thorough and well-balanced discussion of the methodological problems related to interviews with children and error detection tasks typically used to assess cognitive monitoring in reading, she also offers methodological alternatives (e.g., tutoring tasks) that seem suited to overcome many of the problems typical of the literature reviewed so far. I can only hope that future research activities in the field will strongly rely on the prescriptions and suggestions she has given.

Chapters 6 and 7 deal with possibilities for strategy training. Chapter 6 reviews recent cognitive instructional research in the area of reading comprehension. Examples include text summarization, text reinspection, drawing inferences from text, and monitoring text inconsistencies. Garner concludes that there is cause for optimism in view of the results of strategy training studies. However, a remaining problem common to many such studies is how strategy training programs can be effectively implemented in classrooms. Thus, Garner's final chapter addresses the possibilities. In her view, text reinspection and text summarization are candidate strategies for classroom instruction because they are not uniformly successfully applied and seem to be teachable with good results. She provides six guidelines for the educational practitioner that seem particularly necessary for a successful implementation of a strategy training program.

The focus of Körkel's book is quite different. Its major goal is to explore the roles of memory strategies, content knowledge, and text-related metamemory in predicting text recall in

school children within the framework of an empirical study. To design his study as adequately as possible, Körkel first gives an exhaustive overview of the state-of-the-art in relevant research areas, namely developmental research on text comprehension, text recall, text-specific metacognitions (knowledge *and* control components), and the interrelationship between metacognitive abilities and text recall. Each of these topics receives a separate chapter, and there is considerable overlap with Garner's work. Chapters 5 and 6 provide a comprehensive review of the impact of prior knowledge on text comprehension and its role in predicting text recall.

Chapter 7 to 10 focus on Körkel's empirical study. This study is far too complex to be described in detail here; the account of the study hypotheses (more specifically, groups of hypotheses) alone takes more than 18 pages! In short, Körkel uses a variety of reference variables (e.g., intelligence tests, self-concept questionnaires, rating scales assessing causal attribution), indicators of metacognitive knowledge and cognitive monitoring, and indicators of prior knowledge to predict performance in a text recall task dealing with soccer. The performance measures included recall, supported recall (cloze test), recognition and reconstruction tests. As several inconsistencies and contradictions were embedded in the soccer story, the number of detected errors served as a measure of text comprehension.

Körkel's study also impresses by the number of metacognitive indicators, both declarative (i.e., knowledge-related) and procedural (i.e., control-related). Indicators of procedural knowledge included the accuracy of performance prediction (i.e., prediction of text recall), subjects' feeling-of-knowing-judgments concerning their performance in the cloze test, subjective judgments of text comprehension, and so-called "importance ratings" by subjects of each sentence of the story for subsequent recall. In addition, a comprehensive interview was used to assess children's metacognitive knowledge about text recall and comprehension.

As space does not allow discussion of all the numerous findings, I concentrate here on the results of a causal modeling analysis via LISREL that evaluated the simultaneous impact of intelligence, content knowledge, and metacognitive knowledge on memory performance in the prose recall task. As a main result, it could be shown that intelligence influenced both metacognitive and content knowledge, each of which had a significant impact on memory performance. The impact of content knowledge on memory performance was considerably stronger than the influence of metacognitive knowledge. Consequently, Körkel concluded that metacognitive intervention programs designed to improve children's text comprehension and recall should include components aimed at improving subjects' content knowledge.

The focus on content knowledge is one of the features of Körkel's book that has no correspondence in Garner's volume, but there are other differences as well. While Körkel focuses on text *recall*, Garner is primarily interested in the link between metacognition and text *comprehension*. Baker and Brown (1984) referred to the latter as "reading for meaning," as compared to "reading for remembering." Moreover, one valuable aspect of Garner's book is that it emphasizes the importance of metacognitive research in reading for the design of intervention programs, in particular for training programs that can be implemented in classroom instruction. Hence, Garner's book appears to have considerable importance for educational practice.

In contrast, the issue of educational practice is only peripheral in Körkel's book. Its major goal is to identify theoretically relevant components that allow the prediction of text recall and comprehension for different people and in different situations. The merit of this work is that it not only provides extensive information concerning various predictors of text recall in children but also demonstrates a methodologically sophisticated approach to evaluating the relative contributions of these components (i.e., structural equation modeling).

Moreover, the two books are written for different audiences. Garner's book is clearly structured and recommendable for a broad audience, ranging from researchers interested in problems of text processing to students and educational practitioners. In contrast, Körkel's book seems particularly important for researchers already knowledgeable in the field. The author's exhaustive account of the literature in various domains has both positive and negative aspects. Undoubtedly, the positive aspect is that the enduring reader, who eventually makes it through the more than 500 pages, can be confident that nothing relevant to metacognition and text processing in children, and published before 1986, was missed; the reference list of about 700 items is a gold mine for anyone interested in this field. The volume is extremely valuable for readers who possess enough content knowledge to integrate the numerous findings. However, there probably are not many people who will make it through the whole text, because it is extremely difficult to come to grips with the enormous amount and complexity of information offered.

All in all, my impression is that both books represent excellent scientific work. Nevertheless, there are some points in each volume where I disagree or, at least, cannot follow the argument. With regard to Garner's work, her decision to distinguish metacognition and executive control is questionable. The term executive control is obviously equivalent to "strategic processing" or "strategy use" in Garner's notation (cf. p. 21) and does *not* refer to processes like self-testing, monitoring, or evaluating, as it does in many other approaches (cf. Baker & Brown, 1984). In my view, this is unfortunate because it adds confusion in an area already considered fuzzy by many experts.

A second point concerns Garner's characterization of the relationship between metacognitive knowledge and performance. Whereas Garner believes in "weak to moderate correlations" (p. 26), my own meta-analyses of the available studies lead to a more positive conclusion (Schneider, 1985). Garner's description of the state-of-the-art seems more representative of the first generation of studies into the relationship between metacognition and performance than of the more sophisticated studies conducted within the last few years. In my view, a more optimistic view seems in order.

With regard to Körkel's monograph, my major problem concerns the structural modeling. Given the variety of cognitive, metacognitive, and motivational measures collected in the study, there seemed to be optimal conditions for specifying a comprehensive model that simultaneously considered the interrelationships among the relevant factors (i.e., motivational variables, context knowledge, declarative and procedural knowledge, and memory performance).

Surprisingly, however, indicators of motivation and procedural knowledge were omitted in the causal modeling analyses. It remains unclear why this was done. The problem with Körkel's decision to ignore the influence of procedural knowledge in his model is that —from a theoretical point of view—procedural knowledge in the sense of monitoring or checking seems more closely related to performance parameters than declarative knowledge. As a matter of fact, we do not know much about the *functional* relationship between declarative knowledge and memory performance. Given this obvious mis-specification in Körkel's model, it is open to question if the predominance of the content knowledge factor could be also confirmed in a model that additionally takes the impacts of procedural knowledge and motivational variables into account.

All in all, however, there is no doubt for me that the strengths of both books far outweigh any weaknesses. Both monographs make a convincing case that metacognitive components have considerable impact on text processing and comprehension and that this understanding can be effectively used to bridge the gap between research and practice in the field of reading.

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