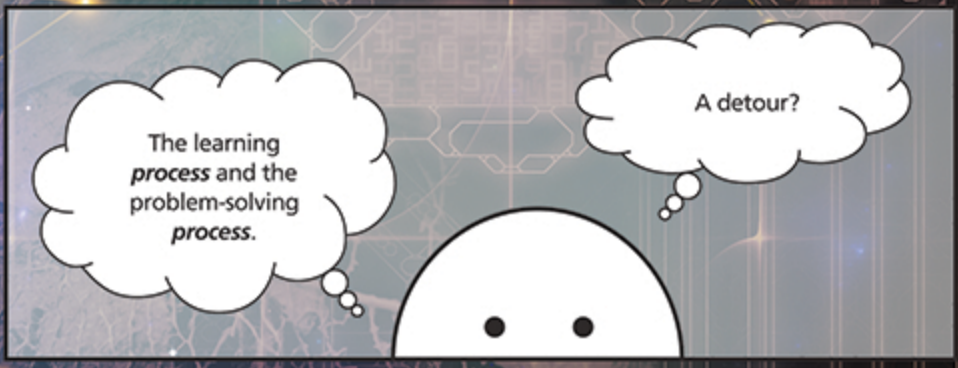
Metacognitive Knowledge

Development, Application, and Improvement



Joke Van Velzen

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This book is dedicated to my family.
Thank you Gerard,
Lindsey, and Marlon.

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Preface

An important goal in contemporary educational psychology research is adolescent students' development of higher-order thinking, which includes, among other things, that these students become competent and independent learners and problem solvers. This goal comes from the notion of education for life that emphasizes that students can direct their learning and problem solving of their own accord. Especially high school students can encounter difficulties in independent learning and problem solving when they make the transition to higher education. To counter this, these students need to possess, among other things, metacognitive knowledge, which they may have insufficiently.

This book offers new insights about late adolescent students' understanding of their metacognitive knowledge regarding learning and problem solving. It offers a description of a research project conducted to obtain a better understanding of the students' abilities and views with respect to what their metacognitive knowledge encompasses and how they attempt to develop, apply, and improve this knowledge regarding learning and the solving of mathematical and first-language problems in a more effective way of their own accord. Specifically, the results of the studies of the research project enable us to understand metacognitive knowledge better, in that it provides explanations about the students' development of this knowledge

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across domains. This book offers further details in terms of providing evidence for theory building regarding metacognitive knowledge.

The reason for writing this book came from my interest and questions concerning students' metacognitive knowledge: I wondered whether they could construct this knowledge of their own accord, merely by advising them to reflect on their experiences, when so much time in school, college, and university needs to be devoted to support them in constructing cognitive knowledge. When, accordingly, I consulted the research literature, it seemed that adolescent students could face difficulties in developing metacognitive knowledge, while we still know too little about how to support students in developing, applying, and improving this knowledge. Before I knew it, I became enthusiastic about this interesting research subject. Next, the research project took place, which consisted of 19 studies and included 1,412 participants.

This book is written for researchers and of course, anyone interested in learning, thinking, and metacognition. It is my hope that especially researchers interested in metacognitive knowledge will find value in this book, as much more research is needed about this knowledge. Additionally, this book can be informative to researchers, students, and teachers interested in education, cognitive psychology, and methodology, in that it covers the following subjects: learning, problem solving, reflection, journal writing, deeply understanding mathematics, deeply understanding the first language, deliberate practice, hypothesis testing, teachers, teacher educators, and mixed methods research.