Book Series

Current Perspectives on Cognition, Learning and Instruction

Series Editors
Daniel H. Robinson, University of Texas; Matthew T. McCrudden, Pennsylvania State University

This series is directed at the interface between theoretical advances in cognition and instruction and the application of those theories to educational practice.

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- Misinformation and Fake News in Education
- Teachers’ Personal Epistemologies
- Use of Visual Displays in Research and Testing
- Learning Through Visual Displays
- Technology-Based Assessments for 21st Century Skills
- Assessment of Higher Order Thinking Skills
- Recent Innovations in Educational Technology that Facilitate Student Learning
- Transfer of Learning from a Modern Multidisciplinary Perspective
- The Cognitive Revolution on Educational Psychology
- Mathematical Cognition

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Today, like no other time in our history, the threat of misinformation and disinformation is at an all-time high. This is also true in the field of Education. Misinformation refers to false information shared by a source who intends to inform, but is unaware that the information is false, such as when an educator who recommends the use of a learning strategy that is not actually beneficial. Disinformation is false information shared by a source who has the intent to deceive and is aware that the information is false, such as when a politician claim that high-stakes testing will fix K-12 education when in fact there is no evidence to support this practice. This book provides recent examples of how misinformation and disinformation manifest in the field of education and remedies.

Section One, Susceptibility to Misinformation, focuses on factors that influence the endorsement and persistence of misinformation. This section will include chapters on: the appeal and persistence of “zombie concepts” in education; learner and message factors that underlie the adoption of misinformation in the context of the newly proposed Likelihood of Adoption Model; cognitive and motivational factors that contribute to misinformation revision failure; cognitive biases and bias transfer in criminal justice training; the influence of conspiratorial and political ideation on the use of misinformation; and, how educational culture and policy has historically given rise to quackery in education.

Section Two, Practices in the Service of Reducing Misinformation in Education, focuses on practices aimed at reducing the impact of misinformation, and includes chapters on: misinformation in the education of children with ASD and its influence on educational and intervention practices; the promise of using dynamical systems and computational linguistics to model the spread of misinformation; systematic attempts to reduce misinformation in psychology and education both in and out of the classroom; and the potential perils of constructivism in the classroom, as well as the teaching of critical thinking. Each section has a discussion chapter that explicates emerging themes and lessons learned and fruitful avenues for future research.

The focus of this book is to explore teachers’ evolving personal epistemologies, or the beliefs we hold about the origin and development of knowledge in the context of teaching. The chapters focus on a range of conceptual frameworks about how university and field-based experiences influence the connections between teachers’ personal epistemologies and teaching practice. In an earlier volume we investigated preservice and inservice teachers’ beliefs and teaching practices (Brownlee, Schraw and Berthelsen, 2011). While we addressed the nature of teachers’ personal epistemologies, learning and teaching practices, and approaches for changing beliefs throughout teacher education programs, the volume did not address conceptual frameworks for the development of teacher’s personal epistemologies. To address this gap, the book is focused on teacher educators, teachers and teacher education programmers in universities with an overall aim of highlighting how we might support preservice teachers’ involvement in learning that is challenging and inservice teachers’ engagement in professional experiences that promote changes in teaching practice. We argue that teachers need to be encouraged to question their beliefs and develop increasingly sophisticated beliefs about their knowledge and their students’ knowledge that facilitate learning and intellectual growth.


Use of Visual Displays in Research and Testing Coding, Interpreting, and Reporting Data Matthew T. McCrudden, Victoria University of Wellington; Gregory Schraw, University of Nevada - Las Vegas; Chad Buckendahl, Alpine Testing


Visual displays play a crucial role in knowledge generation and communication. The purpose of the volume is to provide researchers with a framework that helps them use visual displays to organize and interpret data; and to communicate their findings in a comprehensible way within different research (e.g., quantitative, mixed methods) and testing traditions that
improves the presentation and understanding of findings. Further, this book includes contributions from leading scholars in testing and quantitative, qualitative, and mixed methods research, and results reporting. The volume’s focal question is: What are the best principles and practices for the use of visual displays in the research and testing process, which broadly includes the analysis, organization, interpretation, and communication of data?

The volume is organized into four sections. Section I provides a rationale for this volume; namely, that including visual displays in research and testing can enhance comprehension and processing efficiency. Section II includes addresses theoretical frameworks and universal design principles for visual displays. Section III examines the use of visual displays in qualitative, quantitative, and mixed methods research. Section IV focuses on using visual displays to report testing and assessment data.


Learning Through Visual Displays

Gregory Schraw, University of Nevada - Las Vegas; Matthew T. McCrudden, Victoria University of Wellington; Daniel Robinson, Colorado State University


The purpose of the volume is to explore the theory, development and use of visual displays and graphic organizers to improve instruction, learning and research. We anticipate five sections that address (1) frameworks for understanding different types of displays, (2) research-tested guidelines for constructing displays, (3) empirically-based instructional applications, (4) using displays to promote research and theory development, and (5) using displays to report test and research data to improve consumer understanding. Authors represent a variety of perspectives and areas of expertise, including instructional psychology, information technology, and research methodologies.

The volume is divided into four sections. Section I provides a conceptual overview of previous research, as well as the contents of the current volume. Section 2 includes theoretical perspectives on the design and instructional uses of visual displays from major theorists in the field. These chapters discuss ways that visual displays enhance general cognition and information processing. Section 3 provides eight chapters that address the use of visual displays to enhance student learning. These chapters provide examples of how to organize content and use visual displays in a variety of ways in the real and virtual classroom. Section 4 includes three chapters that discuss ways that visual displays may enhance the research process, but especially improved data display.

Creative problem solving, collaboration, and technology fluency are core skills requisite of any nation’s workforce that strives to be competitive in the 21st Century. Teaching these types of skills is an economic imperative, and assessment is a fundamental component of any pedagogical program. Yet, measurement of these skills is complex due to the interacting factors associated with higher order thinking and multifaceted communication. Advances in assessment theory, educational psychology, and technology create an opportunity to innovate new methods of measuring students’ 21st Century Skills with validity, reliability, and scalability.

In this book, leading scholars from multiple disciplines present their latest research on how to best measure complex knowledge, skills, and abilities using technology-based assessments. All authors discuss theoretical and practical implications from their research and outline their visions for the future of technology-based assessments.

**CONTENTS:**
- Foreword, Arthur Graesser.

**Assessment of Higher Order Thinking Skills**

Gregory Schraw, University of Nevada - Las Vegas; Daniel H. Robinson, University of Texas


This volume examines the assessment of higher order thinking skills from the perspectives of applied cognitive psychology.
and measurement theory. The volume considers a variety of higher order thinking skills, including problem solving, critical thinking, argumentation, decision making, creativity, metacognition, and self-regulation.

Fourteen chapters by experts in learning and measurement comprise four sections which address conceptual approaches to understanding higher order thinking skills, cognitively oriented assessment models, thinking in the content domains, and practical assessment issues. The volume discusses models of thinking skills, as well as applied issues related to the construction, validation, administration and scoring of performance-based, selected-response, and constructed-response assessments.

The goal of the volume is to promote a better theoretical understanding of higher order thinking in order to facilitate instruction and assessment of those skills among students in all K-12 content domains, as well as professional licensure and certification settings.


Recent Innovations in Educational Technology that Facilitate Student Learning
Daniel H. Robinson, University of Texas; Gregory Schraw, University of Nevada - Las Vegas

The field of educational technology is exploding in terms of innovations being developed daily. Most of these innovations hold fascinating promise but enjoy almost no empirical support. There are educational researchers who have both developed innovations and tested their potential empirically. This book will capture the latest and most promising innovations from the leading educational technologists in the world, including animations, simulations, visualizations, navigation, manipulatives, pedagogical agents, and assessment. This book is appropriate for university courses in educational technology for those wishing to showcase the latest innovations that are accompanied by empirical support.

Transfer of Learning from a Modern Multidisciplinary Perspective

Jose P. Mestre, University of Massachusetts, Amherst


The chapters contained in the book present a new and exciting set of conceptual tools that will not only allow us to think about transfer in more productive ways, but will also enable the development of educational and measurement tools that will greatly facilitate our ability to educate the children in our schools. This volume is eclectic in bringing together researchers from psychology and science education (especially physics)—who would not normally present their ideas under the same forum—to share their views and perspectives on transfer. What we believe has emerged is a fresh look at transfer issues from a multidisciplinary perspective.


The Cognitive Revolution on Educational Psychology

James M. Royer, University of Massachusetts


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