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978-0-521-84463-5 - Measuring the Mind: Conceptual Issues in Contemporary Psychometrics

Denny Borsboom

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## Measuring the Mind

Is it possible to measure psychological attributes like intelligence, personality, and attitudes and if so, how does that work? What does the term 'measurement' mean in a psychological context? This fascinating and timely book discusses these questions and investigates the possible answers that can be given in response. Denny Borsboom provides an in-depth treatment of the philosophical foundations of widely used measurement models in psychology. The theoretical status of classical test theory, latent variable theory, and representational measurement theory are critically evaluated, and positioned in terms of the underlying philosophy of science. Special attention is devoted to the central concept of test validity, and future directions to improve the theory and practice of psychological measurement are outlined.

DENNY BORSBOOM is Assistant Professor of Psychological Methods at the University of Amsterdam. He has published in *Synthese*, *Applied Psychological Measurement*, *Psychological Review*, and *Intelligence*.

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*University of Amsterdam*



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## Contents

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<i>Preface</i>	<i>page</i>	<i>vii</i>
<b>1 Introduction</b>		<b>1</b>
1.1 The measured mind		1
1.2 Measurement models		3
1.3 Philosophy of science		5
1.4 Scope and outline of this book		9
<b>2 True scores</b>		<b>11</b>
2.1 Introduction		11
2.2 Three perspectives on true scores		13
2.2.1 The formal stance		14
2.2.2 The empirical stance		21
2.2.3 The ontological stance		30
2.3 Discussion		44
<b>3 Latent variables</b>		<b>49</b>
3.1 Introduction		49
3.2 Three perspectives on latent variables		51
3.2.1 The formal stance		52
3.2.2 The empirical stance		56
3.2.3 The ontological stance		57
3.3 Implications for psychology		77
3.4 Discussion		81
<b>4 Scales</b>		<b>85</b>
4.1 Introduction		85
4.2 Three perspectives on measurement scales		88
4.2.1 The formal stance		89
4.2.2 The empirical stance		95
4.2.3 The ontological stance		100
4.3 Discussion		118
<b>5 Relations between the models</b>		<b>121</b>
5.1 Introduction		121
5.2 Levels of connection		122
5.2.1 Syntax		123
5.2.2 Semantics and ontology		128

Cambridge University Press  
978-0-521-84463-5 - Measuring the Mind: Conceptual Issues in Contemporary  
Psychometrics  
Denny Borsboom  
Frontmatter  
[More information](#)

---

vi	Contents	
	5.3 Discussion	133
	5.3.1 Theoretical status	133
	5.3.2 The interpretation of probability	138
	5.3.3 Validity and the relation of measurement	140
	5.3.4 Theoretical consequences	145
6	The concept of validity	149
	6.1 Introduction	149
	6.2 Ontology versus epistemology	151
	6.3 Reference versus meaning	154
	6.4 Causality versus correlation	159
	6.5 Where to look for validity	162
	6.6 Discussion	167
	<i>References</i>	173
	<i>Index</i>	183

Cambridge University Press

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Frontmatter

[More information](#)

## Preface

---

About five decades ago, the visionary Dutch psychologist A. D. De Groot started building an extraordinary academic group at the University of Amsterdam. It consisted of psychometricians, statisticians, philosophers of science, and psychologists with a general methodological orientation. The idea was to approach methodological problems in psychology from the various angles these different specialists brought to the subject matter. By triangulating their viewpoints, methodological problems were to be clarified, pinpointed, and solved. This idea is in several respects the basis for this book. At an intellectual level, the research reported here is carried out exactly along the lines De Groot envisaged, because it applies insights from psychology, philosophy of science, and psychometrics to the problem of psychological measurement. At a more practical level, I think that, if De Groot had not founded this group, the book now before you would not have existed. For the people in the psychological methods department both sparked my interests in psychometrics and philosophy of science, and provided me with the opportunity to start out on the research that is the basis for this book. Hence, I thank De Groot for his vision, and the people in the psychological methods group for creating such a great intellectual atmosphere.

I unfortunately never had the chance to collaborate directly with De Groot; but he did, in the years he spent at the University of Amsterdam, appoint two people who had a direct and substantial influence on all of the work reported here: Don Mellenbergh and Jaap van Heerden, the supervisors of my PhD research. This book is single-authored because I conceived of it and wrote it. But in terms of the genealogy of the ideas that led to this work, and the general spirit in which the research is carried out, I am greatly indebted to these two remarkable men, both for their contributions to my research and for the atmosphere of intellectual freedom they created. Several chapters in this book are partly based on, or use material from, papers we have published jointly. Specifically, the paragraphs on the platonic true score interpretation in chapter 2 are taken from Borsboom and Mellenbergh (2002), chapter 3 is a slightly adapted version

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Denny Borsboom

Frontmatter

[More information](#)

## viii Preface

of Borsboom, Mellenbergh, and Van Heerden (2003), and chapter 6 is adapted from Borsboom, Mellenbergh, and Van Heerden (2004). Another person who deserves special mention is Peter Molenaar, who was never directly involved with my research but played a highly stimulating role in the background. With his uncanny ability to connect theoretical insights from distinct areas of mathematics, philosophy, and science, he repeatedly probed me to broaden my intellectual horizon; and his insights on the relation between inter-individual and intra-individual variability were among the primary factors that stimulated the theoretical developments in this book. Also, I would like to thank several people who have, in one way or another, significantly influenced the development of my research: Conor Dolan, Harrie Vorst, Ellen Hamaker, Sanneke Schouwstra, Gitta Lubke, Han van der Maas, Maarten Speekenbrink, Joel Michell, Keith Markus, Dan Cervone, Günter Trendler, Ton Smolenaars, Brian Haig, and Ingmar Visser.

My deepest gratitude extends to those closest to me. I thank my parents for their faith in me; Maaïke for being such a wonderful sister; and, above all, Helma for her support and love. This book is dedicated to my son, Kick. I hope that, whatever you will do in this beautiful life, you will do it with passion.