Interuniversity Graduate School of Psychometrics and Sociometrics

- Leiden University
- University of Amsterdam
- University of Groningen
- Twente University
- Tilburg University
- Utrecht University
- KU Leuven

Annual report 2011

Interuniversity Graduate School of Psychometrics and Sociometrics
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Contents

Introduction

This report presents the activities, achievements and resources of the Interuniversity Graduate School of Psychometrics and Sociometrics (IOPS) for the year 2011.

As usual, IOPS had a Summer conference (June 2011) and a Winter conference (December 2011), which were organized by the Catholic University of Leuven and by Leiden University, respectively. Four specialized courses targeted at IOPS PhD students were organized (in Amsterdam, Utrecht, Leuven and Maastricht).

In 2011, 9 PhD projects were successfully completed with a thesis, 15 new projects were started, 4 projects were continuing beyond the original time limit, and 2 project were left unfinished. On December 31, 2011, 48 PhD projects were still in progress. IOPS was happy to welcome 7 new junior staff members, 1 new senior staff member, while 1 senior staff member left IOPS. The total amount of staff reached 108 by the end of the year 2011.

We are proud to mention that one of our senior staff members from Groningen University, professor Tom Snijders, was endowed with an Honorary Doctorate from Université Paris-Dauphine, France. Tom also has an appointment in the Department of Statistics, University of Oxford, UK, and is a fellow of Nuffield College there.

Of all grants that were awarded in 2011 to one of our staff members, the most noteworthy are the VENI grant for Rens van der Schoot, the ASPASIA grant for Ellen Hamaker, the NWO-PROO grant for Kees van Putten, and several international grants awarded to Eric-Jan Wagenmakers: he obtained two substantial Australian grants, and an ERC Consolidator Grant. The best IOPS PhD student paper was won by Baerbel Maus, who also obtained an NWO Rubicon grant. A prize for the Best Article of 2011 in *Behavior Research Methods* was awarded to Marjan Bakker.

In summary, IOPS continues to be a strong and inspiring platform for psychometricians and other quantitative behavioral scientists, to meet and to learn from each other.

Willem J. Heiser, scientific director, December, 2012

1 Organization

1.1 Board

The IOPS Board consists of seven members delegated by the participating universities. At most three representatives of other research institutes may be appointed as an IOPS board member. Futhermore, the institute director and the dissertation students' representative attend the board meetings.

On 31 December 2011 the IOPS Board consisted of:
- Prof. dr. W.J. Heiser, Chair, Leiden University
- Dr. D. Borsboom, University of Amsterdam
- Prof. dr. R.R. Meijer, University of Groningen
- Prof. dr. H. Kelderman, VU University Amsterdam
- Dr. G.J.A. Fox, Twente University
- Dr. L.A. Van der Ark, Tilburg University
- Prof. dr. H.J.A. Hoijtink, Utrecht University
- Prof. dr. F. Tuerlinckx, KU Leuven
- Dr. A.A. Béguin, CITO (National Institute for Educational Measurement)
- Prof. dr. J.G. Bethlehem, CBS (Statistics Netherlands)

Director
Prof. dr. W.J. Heiser, Leiden University.

PhD representative
Jesper Tijmstra (Utrecht University), who served as asistant PhD student representative for a period of one year (1 January 2010 - 31 december 2010), was appointed as first representative as of 1 January 2011, for a period of one year. Iris Smits (University of Groningen) was appointed assistant PhD student representative as of 1 January 2011 for a period of one year.

Changes in the IOPS Board
There were no changes in the IOPS Board during the year 2011.

Board meetings
The IOPS Board meets four times a year. In 2011 Board meetings were held on 27 January, 29 June, 3 November, and 8 December 2011.

1.2 Office

Since 1 October 2000 the IOPS Graduate School holds office at Leiden University. The secretariat is accommodated at:

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1.3 List of participating institutes

Leiden University

Institute of Psychology

Methodology and Statistics Unit
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Institute of Education

Education and Child Studies
Faculty of Social and Behavioural Sciences
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University of Amsterdam

Psychological Methods

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Developmental Psychology

Department of Psychology
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Secretary Ellen Buijn
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Work and Organizational Psychology

Department of Psychology
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Secretary Joke Vermeulen
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University of Groningen

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Department of Sociology

Faculty of Behavioural and Social Sciences
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Twente University

Department of Educational Measurement and Data Analysis

Faculty of Educational Science and Technology
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Tilburg University

Department of Methodology and Statistics

Tilburg School of Social and Behavioral Sciences
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Utrecht University

Department of Methodology and Statistics

Faculty of Social and Behavioural Sciences
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KU Leuven, Belgium

Department of Psychology

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1.4 List of cooperating institutes

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VU University Amsterdam

Department of Social and Organizational Psychology

Faculty of Psychology and Pedagogics
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Secretary	Dolly Manuputty
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University of Groningen

Department of Education

Faculty of Behavioural and Social Sciences
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Leiden University

Statistical Science for the Life and Behavioral Sciences

Mathematical Institute
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Maastricht University

Department of Methodology and Statistics

Faculty of Health, Medicine and Life Sciences
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Secretary Marga Doyle
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Erasmus University Rotterdam

Department of Econometrics

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Secretary Tineke Kurtz
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Psychology Institute

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Wageningen University

Research Methodology Group

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2 Staff

The members of the staff belong to the participating universities. There are two categories of staff members: junior and senior staff members. Both require acknowledgment in their field according to, among others, international publications. Junior staff members have obtained their PhD less than five years ago, and do not necessarily have (co-)responsibility of dissertation research. Senior staff members do have (co-)responsibility of dissertation research.

Associated staff
In 1994, the establishment of graduate schools and the rearrangement of staff members as a result of this, caused IOPS to introduce a new category of staff for those who - for formal reasons - could not be a regular IOPS staff member. The requirements for associated staff members are identical to those of regular staff members. PhD students of these associated staff members can be admitted to IOPS as an external dissertation student.

2.1 Professorships

In November 2010, Dr Frans Oort (University of Amsterdam) was appointed professor of Methodology of Educational Sciences at the Faculty of Social and Behavioural Sciences.

2.2 Staff meetings

Plenary meetings for all IOPS members (staff and PhD students) are held twice a year during the IOPS conferences. In 2011 two plenary meetings took place, one on 29 June and one on 8 December 2011.

2.3 Staff changes

Junior staff members admitted to IOPS in 2011

- Dr. Milosh **Kankarash,** Tilburg University
- Dr. Rudy **Ligtvoet,** University of Amsterdam (UvA)
- Dr. Joris **Mulder,** Tilburg University
- Dr. Jan **Schepers,** Maastricht University
- Dr. Verena **Schmittmann,** University of Amsterdam (UvA)
- Dr. Sophie **Van der Sluis**, University of Amsterdam (UvA)
- Dr. Annemarie **Zand Scholten,** University of Amsterdam (UvA)

Junior staff members leaving IOPS in 2011

No junior staff members left IOPS in 2011.

Senior staff members admitted to IOPS in 2011

- Dr. Wolf **Vanpaemel,** KU Leuven

Senior staff members leaving IOPS in 2011

- Dr. Yuri **Goegebeur,** KU Leuven

2.4 Number of staff members

On 1 January 2011, the IOPS staff consisted of 101 members:

13	junior staff members
5	associated junior staff members
56	senior staff members
16	associated senior staff members
11	honorary emeritus members

On 31 December 2011, the IOPS staff consisted of 108 members:

19	junior staff members
5	associated junior staff members
56	senior staff members
17	associated senior staff members
11	honorary emeritus members

2.5 List of staff members

Staff members at Leiden University

Institute of Psychology, Methodology and Statistics Unit

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- Dr. Rien **Van der Leeden** (senior)
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- Dr. Kees **Van Putten** (senior)
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- Dr. Matthijs **Warrens** (junior)
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Institute of Education and Child Studies

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- Dr. Joost **Van Ginkel** (junior)
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Mathematical Institute

- Prof. dr. Jacqueline **Meulman** (senior)
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Staff members at University of Amsterdam

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- Prof. dr. Han **Van der Maas** (senior)
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Department of Developmental Psychology

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- Dr. ir. Bernard **Veldkamp** (senior)
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- Prof. dr. Klaas **Sijtsma** (senior)
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- Dr. Fetene **Tekle** (junior)
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2.6 List of associated staff members

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2.7 List of honorary emeritus members

- Prof. dr. Wil **Dijkstra,** email: w.dijkstra@fsw.vu.nl
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- Prof. dr. Robert **Mokken,** email: mokken@science.uva.nl
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- Dr. Norman **Verhelst,** email: norman.verhelst@gmail.com

3 Scientific awards and grants

3.1 Awards and grants honored to IOPS staff members

3.1.1 Scientific awards

In 2011, the following IOPS staff members were honored with a scientific award:

- **Snijders,** Tom A.B., Honorary doctorate, Université Paris-Dauphine (December 16, 2011)

3.1.2 NWO grants

3.1.2.1 NWO Veni, Vidi, Vici grants

The Veni, Vidi, and Vici grants are part of the NWO Innovational Research Incentives Scheme [Vernieuwingsimpuls]. The followoing IOPS researchers were awarded:

- **Borsboom,** Denny (2007), University of Amsterdam
  Grant: Vidi grant
  Project: Causal networks for psychological measurement
  Period: 1 March 2008 - 1 March 2013
  Budget: € 600.000

- **De Rooij,** Mark (2006), Leiden University
  Grant: Vidi grant
  Project: Modelling individual differences in change patterns
  Period: 1 September 2006 - 1 September 2011
  Budget: € 405.600

- **Fox**, Jean-Paul (2007), Twente University
  Grant: Vidi grant
  Project: Bayesian methodology for large-scale comparative research
  Period: 1 December 2007 - 1 December 2012
  Budget: € 600.000

- **Hamaker**, Ellen (2010), Utrecht University
  Grant: Vidi grant
  Project: Time for change: Studying individual differences in dynamics
  Period: 1 May 2011 - 1 May 2016
  Budget: € 800.000

- **Hoijtink**, Herbert (2005), Utrecht University
  Grant: Vici grant
  Project: Learning more from empirical data using prior knowledge
  PhD students: Joris Mulder, Rebecca Kuiper, Carel Peeters, Rens van de Schoot, and Floryt van Wesel
  Period: 2006 - 2011
  Budget: € 1.250.000

- **Moerbeek**, Mirjam (2008), Utrecht University
  Grant: Vidi grant
  Project: Improving statistical power in studies on event occurrence by using an optimal design
  Period: 1 February 2009 - 1 February 2014
  Budget: € 600.000

- **Morey,** Richard (2010), University of Groningen
  Grant: Veni grant
  Project: A modelling-based approach to testing item-based versus resource-based working memory storage
  Period: 1 May 2011 - 1 May 2014
  Budget: € 250.000

- **Raijmakers**, Maartje (2006), University of Amsterdam
  Grant: Vidi grant
  Project: The dynamics of rule learning in infants and preschoolers
  Period: 1 April 2007 - 1 April 2012
  Budget: € 405.600

- **Stegeman**, Alwin (2008), University of Groningen
  Grant: Vidi grant
  Project: Multi-way decompositions : Existence and uniqueness
  Period: 6 February 2009 - 5 February 2014
  Budget: € 600.000

- **Van de Schoot,** Rens (2011)
  Grant: Veni grant
  Project; Integrating background knowledge about traumatic stress experienced after trauma into statistical models assessing individual change over time
  Period: January 2011 – January 2016
  Budget: € 250.000

- **Vermunt**, Jeroen (2010), Tilburg University
  Grant: Vici grant
  Project: Stepwise model-fitting approaches for latent class analysis and related methods
  Period: 23 June 2011-22 June 2016
  Budget: € 1.500.000

- **Wagenmakers**, Eric-Jan (2006), University of Amsterdam
  Grant: Vidi grant
  Project: Modeling the relation between speed and accuracy [Rot maar vlot].
  Period: 1 June 2007 - 1 June 2012
  Budget: € 600.000

- **Wicherts**, Jelte (2007), University of Amsterdam
  Grant: Veni grant
  Project: Measurement distortion in experimental psychology and how factor analysis can help restore construct validity
  Period: 1 June 2007 - 1 June 2012
  Budget: € 208.000

3.1.2.2 NWO Aspasia grants

With the Aspasia grants, NWO stimulates the promotion of female researchers in higher ranking. The following IOPS researchers were awarded:

- **Hamaker**, Ellen (2011), Utrecht University
  Grant: NWO Aspasia grant
  Project: Vidi project: Time for change: Studying individual differences in dynamics
  Period: 2011-2016
  Budget: € 100.000

- **Moerbeek,** Mirjam (2009), Utrecht University
  Period: 1 February 2009 - 1 February 2014
  Budget: € 100.000

- **Raijmakers,** Maartje (2006), University of Amsterdam
  Period: 1 April 2007 - 2012
  Budget: € 100.000

3.1.2.3 NWO Open Competition grants

The Open Competition is subsidy programme for the advancement of innovative and high-quality scientific research in the social and behavioural sciences. The following IOPS researchers received an Open Competition grant by NWO (details of the research projects can be found in Chapter 4):

- **Borsboom,** Denny (2006), University of Amsterdam
  Project: Admissible statistics and latent variable theory
  PhD student: Annemarie Zand Scholten
  Period: 1 June 2006 - 20 September 2011
  Budget: € 176.714

- **De Rooij,** Mark (2010), Leiden University
  Project: Multivariate logistic regression using the ideal point classification model
  PhD student: Haile M. Worku
  Period: 1 October 2010 - 1 October 2014
  Budget: € 209.513

- **Gelissen**, John, & Jeroen **Vermunt** (2005), Tilburg University
  Project: Bias and equivalence in cross-cultural survey research: An analysis of instrument comparability in the SPVA survey
  PhD student: Meike **Morren**
  Period: 1 February 2007 - 1 February 2011
  Budget: € 176.714

- **Moerbeek**, Mirjam (2006), Utrecht University
  Project: Robustness issues for cluster randomized trials.
  PhD student: Elly **Korendijk**
  Period: 1 September 2006 - 1 September 2011
  Budget: € 181.348

- **Moors,** Guy, & Jeroen **Vermunt** (2006), Tilburg University
  Project: Question format and response style behaviour in attitude research
  PhD student: Natalia **Kieruj**
  Period: 1 September 2007 - 1 September 2011
  Budget: € 181.871

- **Sijtsma,** Klaas, Wilco **Emons,** & Marcel **Van Assen** (2007), Tilburg University
  Project: Person-misfit in Item Response Models explained by means of nonparametric and multi-level logistic regression models
  PhD student: Judith **Conijn**
  Period: 2007 - 2012
  Budget: € 181.871

- **Sijtsma,** Klaas, & Wilco **Emons** (2006), Tilburg University
  Project: Minimal requirements of the reliability of tests and questionnaires
  PhD student: Peter **Kruyen**
  Period: 15 November 2008 - 15 November 2012
  Budget: € 181.871

- **Timmerman,** Marieke & Rob **Meijer** (2009), University of Groningen
  Project: Dimensionality assessment of polytomous Items
  PhD student: M.T. **Barendse**
  Period: 1 September 2010 - 1 September 2014
  Budget: € 209.513

- **Van der Ark,** Andries, Marcel **Croon**, & Klaas **Sijtsma** (2008), Tilburg University
  Project: Test construction using marginal models
  PhD student: Irena Mikolajun
  Period: 1 January 2009 - 1 January 2013
  Budget: € 186.995

- **Vermunt,** Jeroen, Andries **Van der Ark**, & Klaas **Sijtsma** (2009), Tilburg University
  Project: Multiple imputation using mixture models
  PhD student: Daniël **Van der Palm**
  Period: 1 September 2009 – 1 September 2013
  Budget: € 207.155

- **Wagenmakers,** Erik-Jan, Birte Forstmann, Sander Nieuwenhuis, & Han **Van der Maas** (2011), University of Amsterdam
  Project: A dynamic and formal account of what people do before and after they make an error
  PhD student: Helen Steingroever
  Period: 1 September 2011 – 1 September 2015
  Budget: € 208.193

- **Wagenmakers,** Eric-Jan & Birte Forstmann (2008), University of Amsterdam
  Project: The anatomical and neurochemical foundations of decision-making under time pressure
  Project leader: Birte **Forstmann**
  PhD student: Jasper Winkel
  Period: 1 April 2009 - 1 April - 2013
  Budget: € 218.000

- **Wagenmakers,** Eric-Jan, Birte Forstmann, Sander Nieuwenhuis, Rafal Bogacz, Scott Brown, John Serences & Han van der Maas. (2010):
  Project: The neural basis of decision-making with multiple choice alternatives
  Postdoc: Martijn Mulder
  Period: 01 June 2010 – 1 June 2013
  Budget: € 231.635

- **Wicherts,** Jelte (2009), University of Amsterdam
  Project: Expectancy effects on the analysis of behavioral research data.
  PhD student: Marjan Bakker
  Period: 1 April 2009 - 1 April 2013
  Budget: € 207.155

3.1.2.4 Other NWO grants

- **Huizenga,** Hilde, Raoul **Grasman,** Ingmar **Visser,** & Ellen **Hamaker** (2011)
  Grant: N.W.O. Added Value for the Social Sciences by ("Meerwaarde")
  Project: A user-friendly website to improve evidence-based clinical practice
  Period: 2012-2013
  Budget: € 40.000

- **Hoijtink,** Herbert and Rens **van de Schoot** (2011)
  Grant: NWO open access publication grant
  Period: 2011
  Budget: € 1.200

- Marija Maric & Denny **Borsboom** (2011)
  Grant: N.W.O. Added Value for the Social Sciences ("Meerwaarde")
  Project: Evaluatie van werkingsmechanismen van behandelingen: De weg naar evidence-based practice
  Period: 1 October 2011 – 1 February 2013
  Budget: € 31.464

- **Van Putten,** Kees (Leiden University) & Anthon Béguin (Cito)
  Grant: NWO-PROO
  Project: Mathematics education in the classroom and students' strategy use and achievement in primary education
  Period: 1 September 2011 – 1 September 2015
  Budget: € 299.850

3.1.3 International grants

- Brown, S., A. Eidels, A. Heathcote, & Eric-Jan **Wagenmakers** (2011).
  Grant: Australian Research Council
  Project: Rapid decisions: From neuroscience to complex cognition
  Period: 2012-2014
  Budget: AUS $ 134,000

- **Gu Xin** and Herbert **Hoijtink** (2011)
  Grant: Chinese Scholarship Council
  Project Bayesian Evaluation of Inequality Constrained Hypotheses.
  Period: 2011-2015.
  Budget: € 65.000

- **Jolani,** Shahab (2010)
  Grant: Statistical Research and Training Center, Tehran, Iran
  Project Investigation of Statistical Properties of proper ways to combine the nonresponse model and the outcome model for drawing imputations.
  Period: July 2010 – June 2012
  Budget: € 36.000

- Karayanidis, F., R. Lenroot, M. Parsons, P. Michie, & Eric-Jan **Wagenmakers** (2011)
  Grant: Australian Research Council
  Project: Cognitive flexibility from adolescence to senescence: Variability associated with cognitive strategy and brain connectivity
  Period: 2012-2014
  Budget: AUS $ 387,000

- **Klugkist,** Irene & Tamas Rudas (2011)
  Grant: International Exchange grant by KNAW and Hungarian Academy of Sciences
  Project: Work visit of prof. Tamas Rudas
  Period: 6-9 June 2011
  Budget: € 500

- **Snijders,** Tom (2008), University of Oxford, United Kingdom
  Grant: Grant by National Institutes of Health (USA). Grant number: 1R01HD052887-01A2
  Principal investigator: John M. Light.
  Project: Adolescent peer social network dynamics and problem behavior
  Sub-project carried out at the University of Oxford and led by Tom Snijders
  Period: 2008 through 2012
  Budget: $ 711.324

- **Snijders, Tom** (2011)
  Grant: European Science Foundation
  Project: ESF: Summer School Network Dynamics (at the University of Groningen), as part of the QMSS-2 program
  Period: August 29-September 6, 2011
  Budget: € 52.210

- **Wagenmakers,** Erik-Jan (2011)
  Grant: Consolidator grant by the European Research Council
  Project: Bayes or Bust: Sensible hypothesis tests for social scientists
  Period: 1 May 2012 – 1 May 2017
  Budget: € 1.500.000

- **Wagenmakers,** Erik-Jan (2011).
  Grant: External advisor
  Project: Engineering and Physical Sciences Research Council project "Decision making in an unstable world" (investigators: Iain Gilchrist, Roland Baddeley, Rafal Bogacz, Simon Farrell, David Leslie, Casimir Ludwig, and John McNamara).
  Period: 2011-2015
  Budget: £ 1.858.354

3.1.4 Grants awarded to KU Leuven

- **Ceulemans,** Eva, Patrick Onghena (KU Leuven), and Marieke **Timmerman,** co-supervisor (University of Groningen) (2009)
  Grant: Grant by The National Fund for Scientific Research - Belgium [Fonds voor Wetenschappelijk Onderzoek - Vlaanderen]
  Project: Componenten- en HICLAS-modellen voor de analyse van structuurverschillen in reëelwaardige en binaire multivariate multiniveau gegevens
  Period: 1 January 2009 - 1 January 2013
  Budget: € 280.000

- Janssen, Rianne, Francis **Tuerlinckx**, Wim Vanden Noortgate, & Bieke De Fraine (2006), KU Leuven
  Grant: Grant by Flemish Department of Education [Vlaams Ministerie van Onderwijs en Vorming]
  Project: Strategische Beleidsondersteuning: Periodic assessment of pupil performance in compulsory education
  Period: 2006 - 2011
  Budget: € 875.412

- **Tuerlinckx**, Francis (2008), KU Leuven
  Grant: Grant by The National Fund for Scientific Research - Belgium [Fonds voor Wetenschappelijk Onderzoek - Vlaanderen]
  Project: Niet-lineaire modellen voor affectdynamiek.
  Period: 2008 - 2012
  Budget: € 280.000

- **Van Mechelen,** Iven (2008), KU Leuven
  Grant: Grant by The National Fund for Scientific Research - Belgium [Fonds voor Wetenschappelijk Onderzoek - Vlaanderen]
  Project: Een koninklijke weg tot een beter begrip van de mechanismen onderliggend aan persoonlijkheidsgerelateerd gedrag
  Period: 008 - 2012
  Budget: € 280.000

- **Van Mechelen,** Iven, Francis **Tuerlinckx,** & Eva **Ceulemans** (2008), KU Leuven
  Grant: GOA
  Project: Formele modellering van de tijdsdynamiek van emoties
  Period: 2008 - 2014
  Budget: € 1.400.000

- **Van Mechelen,** Iven (2011), KU Leuven
  Grant: GSK (contract research) Van Mechelen -GSK Biologicals
  Project: Disentangling the innate and adaptive response to vaccines
  Period: 2011-2015
  Budget: € 200.000

- **Vanpaemel**, Wolf (2011), KU Leuven
  Grant: OT (Onderzoekstoelage) and CREA; Research Council KU Leuven
  Project: The use of the prior predictive in modelling cognition
  Period: 2011-2015
  Budget: € 294.240

- **Research Group Quantitative Psychology** (2006), KU Leuven
  Grant: Grant by Belgian Science Policy [Federaal Wetenschapsbeleid]
  Project: Statistical analysis of association and dependencies in complex data
  Period: 2007 - 2011
  Budget: € 80.000

3.1.5 Other grants

- **Berger,** Martijn, Mirjam **Moerbeek,** & Gerard **Van Breukelen** (2011)
  Grant: Academy Colloquium Grant by Royal Netherlands Academy of Arts and Sciences (KNAW)
  Project; Colloquium *Cost efficient and optimal designs for social and biomedical research*
  Period: 26-29 April, 2011
  Budget: € 23.000

- **Boeije,** Hennie (2011), Utrecht University
  Grant: ZonMw (The Netherlands Organization for Health Research and Development)
  Project: Central Utrecht Elderly Care Project
  Period: September 2009 - September 2012
  Budget: € 2.326.459

- Boersma, P., Maartje **Raijmakers**, & S. Bögels, S. (2009), University of Amsterdam
  Grant: Cognition Program, Cognitive Science Center Amsterdam
  Project: Models and tests of early category formation: interactions between cognitive, emotional, and neural mechanisms
  Period: 2009 - 1 September 2015
  Budget: € 470.000

- Boo, G. de, P. Prins, T.G. Van Manen, & Hilde **Huizenga** (2007), University of Amsterdam
  Grant: ZonMW, Programma "Jeugd: Vroegtijdige signalering & interventies"
  Project: Effectiveness of a stepped-care school-based intervention for children with disruptive behavior disorders [Ontwikkeling en toetsing van een multisysteem interventieprogramma voor kinderen met gedragsproblemen uitgevoerd op school].
  Period: 1 April 2008 - 1 May 2012
  Budget: € 386.041

- **Candel,** Math (2011)
  Grant: ZonMw (The Netherlands Organization for Health Research and Development)
  Project; Sample size calculation for nested cost-effectiveness RCTs (PhD student project)
  Period: April 2012 - April 2016
  Budget: € 115.000

- Groeneveld, C. & Han **Van der Maas** (2010)
  Grant: SURF Foundation Tender: Toetsing en Toetsgestuurd Leren
  Project: Computer Adaptieve Monitoring in het statistiekonderwijs
  Period: 1 March 2011 - 28 March 2013
  Budget: € 348.821

- **Hoijtink,** Herbert & Guenther Maris (CITO) (2011),Utrecht University
  Grant: PhD project Unmixing Rasch Models. Funded by CITO and Dept. of Methodology and Statistics, Utrecht University
  Period: 2011-2015
  Budget: € 87.500 by CITO and € 87.500 by Dept. of Methodology and Statistics, Utrecht University

- **Hoijtink,** Herbert (2011),Utrecht University.
  Grant: Secondment to CITO for research on Diagnostic Testing. Funded by CITO
  Period: 2011-2012
  Budget: Approx. € 35.000

- Klinkenberg, S. & Han **Van der Maas** (2010)
  Grant: SURF Foundation Tender: Toetsing en Toetsgestuurd Leren
  Project: Nieuwe scoreregel voor digitale toetsen
  Period: 1 March 2011 – 28 March 2014
  Budget: € 77.766

- **Klugkist,** Irene and Kristel Janssen, (main applicants); Herbert **Hoijtink**, Carl Moons, (2009), Utrecht University
  Grant: Grant for PhD-project in Focus area Epidemiology, Utrecht University
  Period: September 2009 - August 2013
  Budget: € 210.000

- **Raijmakers, M. E. J**., Han **Van der Maas,** & A. Haarhuis (2011).
  Grant: Research Grant from the Platform Beta Techniek
  Projects: 1) Mental models: Guiding knowledge development in the individual child
  2) Optimizing materials for experimentation
  Period: 2012 - 2015
  Budget: € 417.000

- Ruiter, S.A.J., B.F. Van der Meulen, Marieke **Timmerman,** & W. Ruijssenaars (2009), University of Groningen
  Grant: ZonMw (The Netherlands Organization for Health Research and Development), Programma "Zorg voor Jeugd: Handelingsgerichte diagnostiek voor jonge kinderen met cognitieve en/of functionele beperkingen"
  Period: 2009 - 2013
  Budget: € 449.510

- **Van der Heijden**, Peter & Maarten **Cruyf**f (2011), Utrecht University
  Grant: Ministerie van Justitie en Veiligheid, WODC.
  Project: Ontwikkeling nieuwe methodologie voor omvangschattingen van fluctuerende verborgen populaties
  Period: 2011-2012
  Budget: € 21.000

- **Van der Heijden**, Peter & Maarten **Cruyff** (2011), Utrecht University
  Grant: Ministerie van Binnenlandse Zaken en KR.
  Project: Schatting aantal en kenmerken MOE-landers
  Period: 2011
  Budget: € 23.000

- **Van der Heijden**, Peter & Bart Bakker (CBS) (2011),Utrecht University
  Grant: Statistics Netherlands & Methodology and Statistics, Utrecht University
  Project; Estimation of population size and population characteristics using invomplete registries
  Period: 2011
  Budget: € 87.500 (approx.) by Statistics Netherlands
  € 87.500 by Methodology and Statistics, Utrecht University

- **Van der Heijden**, Peter & Maarten **Cruyff** (2011), Utrecht University
  Grant: Ministerie van Justitie en Veiligheid, WODC. Schatting van de omvang van de illegale populatie.
  Period: 2010-2011
  Budget: € 43.000

- **Van der Maas,** Han (2011)
  Grant: National Initiative Brain & Cognition (NIBC), Postdoc
  Project: Online science learning in primary education
  Period: September 2010 - May 2011
  Budget: € 250.000

- **Veldkamp,** Bernard (2010), Twente University
  Grant: Law School Admission Council
  Project: Data mining for testlet modeling and its applications
  Period: 2010 - 2012
  Budget: € 200.000

- **Veldkamp,** Bernard (2010), Twente University
  Grant: SASS
  Project: Implementation text mining based classification system for PTSD patients
  Period: 2010 - 2011
  Budget: € 70.000

- **Veldkamp,** Bernard (2010), Twente University
  Grant: ECABO
  Project: Quality of performance tests (PhD student project)
  Period: 2010 - 2013
  Budget: € 250.000

- **Viechtbauer,** Wolfgang (2009), Maastricht University
  Grant: ZonMw (The Netherlands Organization for Health Research and Development)
  Principal Investigator: Marijn de Bruin
  Project: Determining the cost-effectiveness of an effective intervention to improve adherence among treatment-experienced HIV-infected patients in the Netherlands
  Period: 2009 - 2012
  Budget: € 428.095

- **Viechtbauer,** Wolfgang (2009), Maastricht University
  Grant: Funded by Pfizer and the Stichting Gezondheidscentra Eindhoven.
  Principal Investigator: Daniel Kotz
  Project: Helping more smokers to quit by COmbining VArenicline with COunselling for smoking cessation: The COVACO randomized controlled trial
  Period: 2009 - 2013
  Budget: € 300.000

- **Wagenmakers,** Erik-Jan & Birte Forstmann (2011)
  Grant: Academy Colloquium Grant by Royal Netherlands Academy of Arts and Sciences (KNAW)
  Project: Colloquium New insights from model-based cognitive neuroscience
  Period: 2012
  Budget: € 23.000

3.2 Awards and grants honored to IOPS PhD students

3.2.1 Scientific awards

In 2011, the following IOPS PhD students were honored with a scientific award:

- **Bakker,** Marjan (2011). Best article of 2011 in *Behavior Research Methods*, for Bakker, M., & Wicherts, J. M. (2011). The (mis)reporting of statistical results in psychology journals. *Behavior Research Methods, 43,* 666-678. ($ 1000).
- **Maus,** Baerbel (2011). IOPS PhD Student Best Paper Award 2010 for the paper: Maus, B., Van Breukelen, G.J.P., Goebel, R., & Berger, M.P.F. (2011). Optimization of blocked designs in fMRI studies. *Psychometrika, 75, 2,* 373-390. Prize was presented in Leuven, Belgium, on June 29, 2011.
- **Verhagen,** Josine (2011). PhD Mobility fund. Travel grant: Enschede (2011, February 9).
- **Verhagen,** Josine (2011). Travel grant. International Meeting of the Psychometric Society: Hong Kong (2011,July 19).

3.2.2 Grants

- **Molenaar,** Dylan (2007), University of Amsterdam
  Grant: NWO Top talent Grant
  Project: Statistical modeling of (cognitive) ability differentiation
  Period: 1 September 2007 - 1 September 2011

- **Maus,** Baerbel (2011)
  Grant: NWO Rubicon grant
  Project; Undo the voodoo: Correction of bias in neuroimaging, at University of Warwick, United Kingdom.
  Period: January 2012 - January 2013
  Budget: € 74.098

4 Students and projects

Applicants for the IOPS dissertation training must have a Master's degree in one of the following disciplines. Behavioral Sciences, Technical Sciences, Mathematics or Econometrics. They are appointed as PhD student, or as an indirectly financed PhD student. PhD students within IOPS are financed by the participating universities or by NWO (Netherlands Foundation of Scientific Research).
The annual report of 2010 reported a total of 44 PhD student projects in progress on 31 December 2010.
In 2011, 9 PhD student projects were concluded, 15 new projects were started, and 2 projects were prematurely ended. On 31 december 2011, 48 projects were still in progress. Four more projects exceeded the project time limits and are therefor no longer mentioned in the 2011 summary of projects.

4.1 Status of projects

Completed projects
From 1 January - 31 December 2011, the following PhD students successfully defended their PhD theses:
1. Tina **Glasner** (VU University Amsterdam)
2. Marian **Hickendorff** (Leiden University)
3. Bellinda **King Kallimanis** (University of Amsterdam / Academic medical Centre)
4. Bärbel **Maus** (Maastricht University)
5. Meike **Morren** (Tilburg University)
6. Daniel **Oberski** (Tilburg University / University Ramon Llul, Barcelona
7. Marike **Polak** (Leiden University)
8. Floryt **Van Wesel** (Utrecht University)
9. Annemarie **Zand Scholten** (University of Amsterdam)

New projects
From 1 January - 31 December 2011, the projects of the following 15 PhD students were accepted in the IOPS Research School:
1. Zsuzsa **Bakk** (Tilburg University)
2. Margot **Bennink** (Tilburg University)
3. Marjolein **Fokkema** (VU University Amsterdam)
4. Marianne **Hubregtse** (Twente University)
5. Shahab **Jolani** (Utrecht University)
6. Joran **Jongerling** (Utrecht University)
7. Thomas **Klausch** (Utrecht University)
8. Renske **Kuijpers** (Tilburg University)

9. Tam Thi Thanh **Lam** (University of Groningen)
10. Marie-Anne **Mittelhäuser** (Tilburg University)
11. Pieter **Oosterwijk** (Tilburg University)
12. Maryam **Safarkhani** (Utrecht University)
13. Ingrid **Vriens** (Tilburg University)
14. Rivka **de Vries** (University of Groningen)
15. Haile Michael **Worku** (Leiden University)

Projects in progress beyond project time limits

The projects of the following PhD students are still in progress, but have exceeded the project time limit:

1. Elly **Korendijk** (Utrecht university)
2. Marthe **Straatemeijer** (University of Amsterdam
3. Janke **Ten Holt** (University at Groningen)
4. Wouter **Weeda** (University of Amsterdam)

The above projects are no longer mentioned in the summary of projects

Projects left unfinished

The following student left the IOPS Graduate School before completing the project:

1. Tamara **Hendrick** (Wageningen University)
2. Ruud **van Keulen** (Tilburg University)

4.2 Summary of projects

4.2.1 Concluded projects

Reconstructing event histories in standardized survey research: Cognitive mechanisms and aided recall techniques (concluded project)

Trainee	Tina **Glasner**
Project facilitated by	VU University Amsterdam
Project financed by	NWO (Netherlands Foundation of Scientific Research)
Period	1 September 2004 - 1 September 2009
Date of defence	29 April 2011
Title of thesis	Reconstructing event histories in standardized survey research: cognitive mechanisms and aided recall techniques
Promotores	Prof. dr. W. Dijkstra, dr. W. Van der Vaart

Summary
Life histories of individuals are often reconstructed using retrospective questions. Since retrospective data frequently suffer from recall error, sociologists and health scientists have employed event history calendars and timelines to enhance data quality. Yet, methodological research on the value of these techniques is scarce and requires more theoretical foundation. The few studies that compare to regular questionnaire procedures show positive effects on data quality. This project aims to obtain more insight in the cognitive mechanisms underlying these techniques in order to further improve them. Pilot experiments and a field experiment will be performed to elaborate techniques and evaluate their effects.

Mathematical proficiency in primary education: Cognitive processes and predictability (concluded project)

PhD student	Marian **Hickendorff**
Affiliation	Psychometrics and Research Methodology, Department of Psychology, Faculty of Social and Behavioral Sciences, Leiden University
Project financed by	Leiden University / Cito Arnhem
Project running from	1 January 2006 - 1 January 2011
Date of defence	25 October 2011
Title of thesis	Explanatory latent variable modeling of mathematical ability in primary school: Crossing the border between psychometrics and psychology
Promotores	Prof. dr. W.J. Heiser, dr. C.M. Van Putten, dr. N.D. Verhelst

Summary

General aim of this project is to systematically describe and analyze mathematical proficiency in primary education. Reform in mathematics education and changes in mathematical achievement give rise to the need for this research. The present study aims at going beyond analysis of pure achievement, in the following way: by applying advanced data analysis techniques which have an opportunity to include predictor variables and by extending the type of data analyzed with information on the cognitive processes involved in solving mathematical problems. So, several advanced data analyses will be conducted in which the effects of predictor variables are included, on data with information on cognitive processes in addition to correct/incorrect scoring to get robust substantive conclusions. The research objectives lie in two domains. Primary objectives are in the domain of mathematics education, where exploratory analyses followed by carefully set up data collections should lead to a deeper understanding of the processes involved in and the predictability of mathematical proficiency. In the domain of psychometrics, three data analysis techniques aimed at exploration of the data will be compared, and the validity of the construct mathematical proficiency. will be explored by focusing on the response processes.

Unbiased measurement of health-related quality-of-life (concluded project)

PhD student	Bellinda **King Kallimanis**
Affiliation	Department of Medical Psychology, University Medical Center Amsterdam (AMC)
Project financed by	Academic Medical Centre, University of Amsterdam
Project running from	12 March 2008 - 12 March 2012
Date of defence	22 November 2011
Title of thesis	Unbiased measurement of health-related quality-of-life
Promotores	Dr. F.J. Oort, prof. dr. M.A.G. Sprangers

Summary

Problem and objective

Health-related quality-of-life (HRQL) is generally measured through self-report. Selfassessment brings about the problem that patients may have different frames of reference when answering HRQL items. As a result, the measurement of HRQL may be biased. That is, observed differences in HRQL scores may reflect something else than true differences in HRQL. Measurement bias may not only be caused by differences in individual and environmental characteristics (e.g., gender, age, education, ethnicity, mother tongue), but also by differences in treatment and other clinical variables (e.g., diagnosis, disease severity). Therefore, even when patients are randomised, treatment effects on HRQL are biased when treated patients have another frame of reference than control patients. In the proposed research, the objectives are to identify predominant sources of bias in the measurement of HRQL, to account for these biases, and to determine the clinical significance of true effects on unbiased HRQL.

Method

Structural equation modelling with latent variables (LVM) provides a way to detect measurement bias, to account for apparent bias, and to measure true (i.e., unbiased) effects on HRQL. In the proposed research, LVM will be used in secondary analyses of existing data sets from randomised and non-randomised trials in clinical and psychosocial medicine. We will examine a range of clinical, individual, and environmental sources of bias in HRQL outcomes. Several suitable data sets are available for secondary analysis. The clinical significance of both measurement bias and true effects in HRQL will be evaluated with a generalisation of the “number needed to treat” and some other effect size indices used in medical and social science research.

Possible results

We will obtain insight into the size of measurement bias and its impact on observed differences, changes and effects in HRQL. With that, we will also obtain insight into the true effects of clinical, individual, and environmental variables on (unbiased) HRQL, and into the clinical significance of these true effects. Knowledge of true effects in HRQL will facilitate treatment decisions and patient care, and thus further evidence-based medicine.

Optimal designs for fMRI experiments (concluded project)

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Project financed by	NWO (Netherlands Foundation of Scientific Research)
Project running from	1 October 2006 - 1 October 2010
Date of defence	20 April 2011
Title of thesis	Optimal experimental designs for functional magnetic resonance imaging
Promotores	Prof. dr. M.P.F. Berger, prof. dr. R. Goebel, prof. dr. L.M.G. Curfs, dr. G.J.P. Van Breukelen

Summary

Cognitive processes can be studied with functional magnetic resonance imaging (fMRI) experiments. Different within subject and between subject designs exist with their own advantages and disadvantages. This research project aims at finding optimal designs for fMRI experiments that have maximal efficiency and maximal power for finding real effects. By means of results from the statistical theory of optimal designs for generalized linear mixed effects models, including both random and fixed parameters together with (auto)correlated errors, the problem of finding optimal designs can be formulated as a nonlinear optimisation problem. The optimal designs will be empirically evaluated with real fMRI data**.**

Bias and equivalence in cross-cultural survey research: An analysis of instrument comparability in the SPVA survey (concluded project)

PhD student	Meike **Morren**
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Project financed by	NWO (Netherlands Foundation of Scientific Research)
Project running from	1 February 2007 - 1 February 2011
Date of defence	1 July 2011
Title of thesis	The survey response: A mixed method study of cross-cultural differences in responding to attitude statements
Supervisors	Prof. dr. J.K. Vermunt, dr. J.P.T.M. Gelissen

Summary

Sociological cross-cultural survey studies often ignore the problem of cross-cultural equivalence, thereby tacitly assuming that concepts and terminology are being equally and equivalently evaluated by members in all respondent groups. This project sets out to invest igate to what extent comparabilit y holds for inst ruments included in the publicly and scientifically important Dutch survey "Sociale Positie en Voorzienin-gengebruik van Allochtonen (SPVA)" . The research uses a mixed-methods research design. The survey is first analyzed with statistical methods for bias detection. Focus groups act as a follow-up that provide information about respondents' underlying thought processes and assists in interpreting the statistical results.

Prediction of the quality of survey questions in cross cultural research (concluded project)

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Project financed by	ESADE, Universidad Ramon Llull, Barcelona, Spain /Tilburg University
Project running from	1 October 2006 - 1 October 2011
Date of defence	28 January 2011
Title of thesis	Measurement error in comparative surveys
Promotores	Prof. dr. J.A.P. Hagenaars (Tilburg University), prof. dr. W.E. Saris, (ESADE, University Ramon Llull, Barcelona, Spain)

Summary

Without correction for measurement error, comparative survey research is not possible. During the last 15 years research was done to develop a scientific approach to predict and improve the quality of survey questions. This led to the development of an application programme, SQP, that predicts the quality of survey questions for 3 languages (Dutch, English and German). Now in the European Social Survey (ESS), 20 multitrait-multimethod experiments have been done in more than 20 languages. This huge database offers a tremendous and incomparable opportunity to further investigate the quality of survey questions and the development of the SQP programme for 20 languages. With this programme measurement errors in survey questions can then be investigated and predicted which is essential for comparative survey research in Europe.

Item analysis of unipolar item response data (project concluded beyond project's time limits)

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Project financed by	Leiden University
Period	1 December 2002 - 10 September 2008
Date of defence	26 May 2011
Title of thesis	Item analysis of single-peaked response data: The psychometric evaluation of bi-polar measurement scales
Promotores	Prof. dr. W.J. Heiser (Leiden University), Dr. M. de Rooij (Leiden University)

Summary

The project aims at contributing to the development of a full-blown item analysis of unipolar (single-peaked) items. Correspondence analysis will be used as a method for the multidimensional representation of item response data, and a coefficient of single-peakedness will be developed that measures the strength of the nonlinear relationship between item responses and personscores (or item scores). This coefficient will also be used to define a measure of reliability. The new methodology will be tested on a number of clinical test data, as well as on simulated data.

Model selection (concluded project)

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Project financed by	NWO (Netherlands Foundation of Scientific Research) Part of Vici project by H.J.A. Hoijtink "Learning more from empirical data using prior knowledge"
Project running from	September 2006 - 1 September 2011
Date of defence	1 July 2011
Title of thesis	Priors and prejudice: Using existing knowledge in social science research
Promotores	Prof. dr. H. Hoijtink, dr. I.G. Klugkist, dr. H.R. Boeije

Summary

This project is part of a bigger research project about the use of prior knowledge, Bayesian statistics. Researchers using prior knowledge either end up with a set of competing models that differ in the inequality constraints used, or with one or more constrained models, a null model and an unconstrained model. In this project several model selection criteria that can be used to select the best model will be developed, studied and evaluated.

Admissable statistics and latent variable theory (concluded project)

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Project financed by	NWO (Netherlands Foundation of Scientific Research)
Project running from	1 April 2005 - 1 September 2010
Date of defence	21 January 2011
Title of thesis	Formele meettheorie bruikbaar in psychologie voor inschatting foute conclusie
Promotores	Prof. dr. H.L.J. van der Maas, dr. D. Borsboom, dr. P. Koele

Summary

Does the appropriateness of statistical analyses depend on the measurement level of the variables on which these analyses are carried out? Measurement theorists are generally of the opinion that this is the case; the measurement level of variables determines the class of appropriate statistics. Several statisticians have, however, claimed that this limitation is unfounded and that it has adverse scientific consequences. The disagreement between these camps is known as the admissible statistics controversy. Although discussants in this controversy disagree on virtually everything, they share a core assumption: namely, that measurement and statistical analyses are separate endeavors. However, in an important class of measurement models, known as latent variable models, measurement and statistical theory are intertwined to such a degree that it is difficult to say where one begins and the other ends. In the present research, the admissible statistics problem is formulated and analyzed in terms of latent variable theory. This yields a quite different view of what the problem actually is; namely, a problem that occurs because statistical analyses assume that variables are errorless measures of the theoretical attributes involved, while measurement models usually view these same variables as imperfect indicators of these attributes. Thus, the admissible statistics problem becomes a question of robustness: Under which conditions is it possible to ignore measurement error and equate observed scores to theoretical attributes? This question is investigated through mathematical analysis and simulation studies. Second, alternative methodes of analysis, that may be used to address measurement and statistical issues at the same time, are evaluated for their potential in solving the admissible statistics problem; specifically, the use of multi group models with mean structures in factorial designs is investigated in this respect.

4.2.2 New projects

Stepwise model-fitting approaches for latent class analysis and related methods
(new project)

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Project running from	15 September 2011 - 15 September 2016
Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

Latent class analysis (LCA) is used by social and behavioral scientists as a statistical method for building typologies, taxonomies, and classifications based on a set of observed characteristics. Examples include atitudinal typologies of citizens based on survey questions measuring their attitudes toward freedom of speech, subtypes of schizophrenia patients derived from recorded mood symptoms, or taxonomies of temporal project networks based on characteristics of these projects and the related organizations.

The project focuses on developing and testing correction methods for the three step latent class analysis. This is an approach to extend the latent class model to include external variables. First the underlying latent construct is estimated based on a set of observed indicator variables, then in the second step individuals are assigned to the latent classes, and in the third step the class assignments from step two are used in further analyses. The project is divided in four main parts:

- Subproject 1 deals with the extension of the existing correction methods developed for correcting the bias introduced in step two of the three step latent class analysis to situations where the external variable is an outcome variable in an ANOVA type model;
- Subproject 2-3 deal with the study of the robustness of the adjustments for model assumption violations, namely: subproject 2 deals with the consequences of direct effects of external variables on indicator variables, and subproject 3 deals with the violation of the distributional assumptions of the external variables;
- Subproject 4 deals with the extension of the correction methods to models, with multiple latent variables, namely latent class factor analysis models.

Micro-macro multilevel analysis for discrete data (new project)

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Project running from	1 October 2010 – 1 October 2014
Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

This project deals with multilevel models for predicting outcomes at the higher level (e.g. team performance) from predictors measured at the lower level (e.g. employee's motivation and skills). This form of "reversed" multilevel analysis, which is rather common in social sciences, is something referred to as micro-macro analysis. Recently, Croon and Van Veldhoven proposed a statistical model for micro-macro multilevel analysis. The aim of this project is to generalize their approach so that it can also be applied when the model of interest contains explanatory and outcome variables which are discrete instead of continuous and normally distributed.

Fast adaptive diagnostic assessment for internet therapy (new project)

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Project financed by	VU University Amsterdam

Summary

A considerable problem in mental health testing is the multitude of questionnaires used for clinical assessment. This has negative effects, such as the unwillingness to participate in internet therapy. In this project we develop a method for short clinical examination, *fast adaptive diagnostic assessment* (FADA), which unites two methods for reducing assessment time. Computerized Adaptive Testing is used to shorten the administration of each questionnaire. Decision trees are used to select a short sequence of questionnaires which is most informative for predicting diagnostic class. In four projects, the hybrid model is gradually refined, to come to an optimal model for FADA.

Competence based assessment in vocational education in The Netherlands (new project)

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Project financed by	Twente University / KCH

Investigation of statistical properties of proper ways to combine the nonresponse model and the outcome model for drawing imputations (new project)

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Project financed by	Utrecht University

Summary

Missing values are undesirable for a correct statistical analysis of data. Therefore, statisticians have always attempted to resolve the problem of missing values. The older and simple strategy is to choose ad-hoc methods (e.g. available case, complete case) which introduces bias in estimation methods and also changes the data features like variability, symmetry and so on. Rubin (1987) introduced an idea which is to replace each missing value more then once in the data set prior to analysis. Now, each complete set is analyzed in the same fashion by a complete-data method. This approach, which is called Multiple Imputation (MI), has become more popular and is considered as the State of the Art in missing data analysis (Schafer and Graham, 2002). MI produces estimates that are consistent, asymptotically normally distributed and asymptotically efficient if used correctly. In addition, MI can be used with virtually any kind of data and software is available to perform the analyses. Moreover, if the observed data contain useful information for predicting missing values, an imputation procedure can make use of this information and maintain high precision. Of course, MI has also drawbacks. It can be difficult to implement and it is easy to do it the wrong way. Most importantly, MI produces different estimates (hopefully, only slightly different) when we use it in the same data set for several times. The reason behind this is that random variation is deliberately introduced in the imputation process. Without a random component, deterministic imputation methods generally produce underestimates of variances for variables with missing data. A recent overview of MI has been published by Enders (2010) and references therein. A broad investigation in medical research has also been done by Kenward and Carpenter (2007).

The most complex step in MI is to specify the imputation model, which is not always an easy task for different missing data mechanisms. It is generally accepted that imputation models should condition on both determinants in the outcome model and the nonresponse model. There are potentially many ways to combine both models, and it is not yet clear how these models should be represented in the imputation model. This research project will develop some new methods that would have desirable statistical properties for dealing with different types of missing data mechanisms.

Four research topics will be distinguished in this research project: (i) imputation models based on a combination of the outcome and the nonresponse models for the ignorable missing data mechanism, (ii) imputation models based on the combination of the outcome and the nonresponse models when the missing data mechanism is NOT ignorable, (iii) compatibility of fully conditional specification approach in imputation models, and (iv) imputation in planned missing data patterns. The following research questions will be addressed in this research project:

- What is the proper way to combine the outcome model and the nonresponse model for drawing imputation when missing data is at random?
- What is the proper way to combine the outcome model and the nonresponse model for drawing imputation when missing data is NOT at random?
- Under what circumstance fully conditional specification approach will be converge?
- Can we impute the missing potential outcome in nonrandomized studies, and estimate the treatment effect by the individual difference between potential outcomes?

The results will be presented in several research papers that will constitute the dissertation. Furthermore, based on the research in this PhD project, recommendations for routinely use of imputation methods will be made and R code will be developed for the new methods that will be created during the research project.

Modelling individual differences in intraindividual change and variability
(new project)

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Project financed by	Utrecht University

Summary

If one realizes how the meaning of the autoregressive and cross-lagged regression parameters changes once the model is combined with the LGC model, a natural next step is to include these parameters as random rather than common effects. Doing so would allow individuals to differ with respect to their inertia, and it would allow the influence of one variable on the other to be different across people. However, there are a number of problems associated with including autoregressive and cross-lagged regression parameters as random effects in the model. The current PhD project is focused on developing a random effects extension of the bivariate ALT model and tackling some important problems associated with this extension. This random effects extension of the bivariate ALT model will provide us with a much richer picture of psychological processes as they unfold over time. Moreover, it will allow us to investigate moderation effects in these longitudinal models. For instance, if we have observed the affect of two spouses (bivariate longitudinal data), we may find that the effect of one spouse on the other, represented by the cross-lagged regression, depends on personality characteristics such as Agreeableness and Neuroticism, but also on relationship quality. This would imply that the influence of one partner on the other is moderated by personality and relationship features.

Nonresponse and response bias in mixed-mode surveys (new project)

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Project running from	1 November 2009 - 1 November 2013
Project financed by	Utrecht University / Statistics Netherlands (CBS)

Summary

Mode bias is a nuisance in surveys using more than one survey mode (mixed-mode surveys) and longitudinal surveys that need to switch modes in the course of their lifetime. Sources of mode bias include mode-specific response propensity distributions of the population (causing mode-specific nonresponse error) and mode-, survey- and item-specific measurement distributions for each population unit (aggregating to mode-specific measurement errors). Mode biases are the aggregated net effects of these errors when comparing estimates from two or more modes. To date, both singular and generalizable knowledge on the size of these errors is scarce, but is keenly needed in order to assess the relative effects of mode-switches in mixed-mode and longitudinal surveys. Developing a common theory of the errors underlying mode bias and how they interact is the first goal of the research. Consequently, we will review and develop methods useful to assess the size of the errors based on empirical data from a parallel multi-mode experiment.

Test construction using marginal models (new project)

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Project running from	1 September 2010 - 1 September 2014
Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

Mokken scale analysis is an important statistical tool for the construction of psychological tests. For parts of the tool no statistical significance tests were available until recently, but Van der Ark, Croon, and Sijtsma (2007) showed that marginal models provided these tests. Marginal models substantially increase the possibilities of Mokken scale analysis but are available only for short tests consisting of dichotomous items. The proposal aims at extending the approach to longer tests and polytomous items, and developing it into user-friendly software tool for test construction.

Multi-way decompositions: Existence and uniqueness (new project)

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Project financed by	University of Groningen
Project running from	1 February 2011 – 1 February 2015
Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

Over the last 10 years the interest in multi-way data representations has increased exponentially. There is growing awareness that if data are not 2-way (e.g., subjects multi-way (e.g., subjects is often desirable. Such representations are given by multi-way generalizations of Principal Component Analysis (PCA) or, equivalently, of the Singular Value Decomposition (SVD), and are called multi-way decompositions or tensor decompositions. This research project concerns the existence (main project) and uniqueness (PhD project) of an important class of multi-way decompositions and is expected to greatly bene t the application of multi-way models.

Application of mixed IRT models and person-fit methods in educational measurement (new project)

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Project running from	1 October 2010 – 1 October 2014
Project financed by	Tilburg University / Cito Arnhem

Summary

Item response theory (IRT) models have specific properties that are useful in educational measurement. These properties support the construction of measurement instruments, linking and equating of measurements, and evaluation of test bias, among other things (Scheerens, Glas, & Thomas, 2007). However, these properties are only useful if the IRT model fits the data and if the proficiency level and item parameters are accurately estimated. Unfortunately, due to various reasons, this condition is not always met. For example, if groups of respondents display "sleeping" behavior (e.g., inaccurately answering the first items in a test due to problems getting started), "plodding" behavior (e.g., spending too much time on the first items and thereby answering the later items incorrect due to too little time left), random response behavior (e.g., answering items randomly) or cheating behavior (e.g., copying answers from other examinees) an IRT model might not fit to specific subgroups of respondents within the total group (Meijer & Sijtsma, 2001; Meijer, 2003).

Several methods were proposed to identify these aberrant response behaviors. For example, person-fit methods assign a value to each individual vector of items scores, and a statistical test is used to decide whether the underlying IRT model or other measurement model fits the item scores. Significant person-fit values identify item-scores that are aberrant relative to the IRT model, and the researcher may decide to remove the aberrant item-score vectors from the data set (Meijer & Sijtsma, 1995). This is expected to improve the fit of the IRT model and the correctness of the parameter estimates. A well-known person-fit statistic is the l_z, statistic (Drasgow, Levine, & Williams, 1985). Research showed that the normal approximation to l_z is invalid, which yields a conservative test, in particular for detecting aberrant responses at the lower and higher end of the level scale and when applied to short scales (Van Krimpen-Stoop & Meijer, 1999). Fortunately, Snijders (2001) and De la Torre and Deng (2008) developed methods for the accuracy of person-fit analysis using l_z.

Alternatively, mixed IRT models assume that the data are a mixture of different data sets from two or more latent populations (Rost, 1997; Von Davier & Yamamoto, 2004), also called latent classes. If this assumption

is correct, a particular IRT model does not hold for the entire population, but different model parameters are valid for different subpopulations. Hence, mixed IRT models may be used to identify classes in our data displaying different types of responsive behavior, and the researcher may decide to remove an entire class from the data set so as to improve IRT model fit and parameter estimates. For example, one can specify the mixed IRT model in such a way that one of the latent classes represent high-stakes response behavior while the other latent class represents low-stakes responsive behavior (Béguin, 2005; Béguin & Maan, 2007).
The goal of this project is to investigate how mixed IRT models and person-fit methods can be used to improve educational measurement procedures. More specifically, research is done into equating and linking procedures in which two high-stakes tests are compared.

Improving global and local reliability estimation in nonparametric item response theory (new project)

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Project running from	September 2011 - 1 September 2015
Project financed by	Tilburg University

Summary

The goals of this project are twofold. First, investigate whether three methods from nonparametric item response theory for test-score reliability estimation are closer to the true reliability than other estimates, including Cronbach's alpha and the greatest lower bound (GLB). Second, to propose a test information function in the context of nonparametric item response theory that expresses reliability as a function of the scale, this recognizing that measurement accuracy can vary across the scale of an attribute.

Some explanation of these goals is the following. Well-known reliability methods such as Cronbach's alpha, the Guttman indices, and the GLB are known to be negatively biased relative to the reliability of the test score. Sijtsma and Molenaar found indications that for tests consisting of dichotonous items Mokken's two reliability methods and their own reliability method were nearly unbiased with respect to reliability, and certainly much closer than Cronbach's alpha and other methods. This project aims at providing more evidence for the small bias or perhaps the absence of bias for these three reliability methods and intends to generalize results to tests consisting of polytomous items.

The other aim of this project is to propose and investigate a test information function that allows for reliability assessment at different locations on the scale. The reliability coefficient is just one number, and is used for computing a standard measurement error and a confidence interval for each tested case, if is however feasible that for different location on a scale reliability of measurement also varies. A test information function would be a welcome addition to nonparametric item response theory, because it would further enhance the applicability of this flexible class of models for scale construction. Ramsay has provided some first attempts, which serve as point of departure in this project.

Heterogeneity in studies with discrete-time survival endpoints: Implications for optimal designs and statistical power analysis (new project)

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Project running from	1 January 2011 - 1 January 2015
Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

The main research question in studies on event occurrence is whether and when subjects experience a particular event, such as the onset of daily smoking or the shift to adulthood. The experience of such an event and its timing can be related to explanatory variables such as gender, socio-economic status, educational level, and, in the case of an experiment, treatment condition. Such a variable's effect should be identifiable with sufficient probability, so the power of a study on event occurrence should be controlled in the design phase.

In studies on event occurrence subjects may be monitored continuously, or be measured at intervals. Interval measurement is often used in the behavioural sciences. The sample sizes that should be used to achieve a desired power level are often large and not always feasible in social science research. It is therefore worthwhile to study to what extent covariates can improve statistical power and reduce sample size. The costs of taking such covariates is also taken into account. We will also study optimal designs where treatment and covariates are used as predictor variables in the statistical model.

Furthermore we study trials where part of the heterogeneity is unobserved. To what extent does ignoring unobserved heterogeneity result in incorrect conclusions with respect to the treatment effect and its significance? How large should sample size be if unobserved heterogeneity is taken into account?

Comparing rating and ranking procedures for the measurement of values in surveys (new project)

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Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

The study of values lies at the heart of the social sciences. Nonetheless, empirical social researchers have been involved in a long-standing discussion about the proper measurement of human value orientations, which revolves around the use of rating or ranking procedures. This project examines the appropriateness of both approaches in much-needed and novel ways, by : 1) directly considering the effects of response bias, 2) gathering and analysing data based on within-subjects survey experiments, which are from a Dutch nationality representative sample, and 3) making use of recent developments in statistical modelling of response styles and of rating and ranking data.

A Bayesian approach to the analysis of individual change (new project)

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Project financed by	University of Groningen

Summary

It is clear that NHST has serious shortcomings in hypothesis testing, and that the Bayesian approach can ameliorate many if not all of the problems inherent to NHST. Because applied researchers in the field of individual change seem to be unaware of the existence or benefits of the Bayesian approach, we consider it to be useful to introduce them to the benefits of Bayesian statistics. Therefore, in the first part of the dissertation we will discuss NHST and the Bayesian approach as outlined above. We will provide examples with emprical and simulated data to show how results from NHST can be misleading and compare them with Bayesian results, in the context of single subject research.

In the second part, we will adapt existing statistics and tests for single-subject data to simple Bayes factor formulae and compare them using emprical and simulated data. Empirical data are available from several projects in which our research group is involved. Examples of statistics and tests already used in single subject studies are the percentage of non-overlapping data (the percentage of observations in a post-intervention phase exceeding the highest point in a pre-intervention phase), Cohen's *d*, permutation tests, and time series analysis. Rouder et al. (2009) already presented a Bayes factor for Cohen's *d* for group studies and provided a Web-based program that performs the calculations. A similar interface for single subject Bayes factors would make computing Bayes factors convenient even for researchers without deep knowledge of Bayesian statistics.

In the third part of the dissertation, we will adapt existing statistics and tests for individual change within group data to Bayes factor formulae. Again, the classical and Bayes factor statistics will be compared using empirical and simulated data. An example is the RCI of Jacobson & Truax (1991) which was already discussed for this type of data, and several variations of this measure have been developed (e.g., Bruggemans, Van de Vijver, & Huysmans, 1997; Chelune, Naugle, Lüders, Sedlak, & Awad, 1993; Hageman & Arrindell, 1999; McSweeny, Naugle, Chelune, & Lüders, 1993; for a comparison of measures, see Maassen, Bossema, & Brand, 2009). If possible, online toolkits will be provided where researchers can

easily calculate the Bayesian variants of their statistics.

In sum, we hope to show researchers in the field of individual change the merits of the Bayesian approach and will provide them with tools to use it. The Bayesian approach will give researchers the odds of their hypotheses, rather than the probabilities of observed and unobserved data.

Multivariate logistic regression using the ideal point classification model
(new project)

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Summary

Multivariate categorical data, with multiple dependent variables and one or more independent variables, are often collected in the social sciences. However, only limited tools are available for the analysis of such data. The methodology that is available makes unverifiable assumptions or requires the independent variables to be categorized, with all negative consequences. In this project new methodology is proposed, based on the ideal point classification model, which requires a minimal set of assumptions and takes the data as it is. Essential tools for the evaluation of effects and for the design of empirical studies will also be proposed.

4.2.3 Running projects

A Bayesian approach for handling response bias and incomplete data

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Summary

The collection of data through surveys on personal and sensitive issues may lead to answer refusals and false responses, making inferences difficult. Respondents often have a tendency to agree rather than disagree (acquiescence) and a tendency to give socially desirable answers (social desirability). The randomized response (RR) technique has been used to diminish the response bias. Attention will be focused on the usefulness of the randomized response technique. Different settings will be explored, large-scale but also small-scale survey data for binary and polytomous response data. Methodological developments will be made to handle different settings and to test different real-data hypotheses.

Besides the problem of misreporting, respondents may not report an answer to one or more questions. Missing data can also occur due to other causes like, interviewer errors (omitted questions, illegible recording of responses, etc.), and inadmissible multiple responses. In fact, it is not unusual for large data sets to have missing data on a few items. The persons cannot be omitted from the analysis based on the fact that they skipped a few questions since it will result in deletion of a substantial part of the data (these participants provide information on the answered items). In a Bayesian approach, the incomplete data problem can be solved by repeatedly solving the complete data problem. In the setting of large-scale comparative survey data, attention is focused on country-specific imputation methods and/or models for the missing data mechanism.

Expectancy effects on the analysis of behavioral research data

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Summary

Behavioral researchers normally try to avoid expectancy effects during data collection, but they perform the statistical analysis of their study themselves. In this project we study whether researchers' expectations can bias their statistical results. We propose that researchers may suffer from confirmation bias which may result in a failure to notice statistical errors that are in line with their hypotheses. Moreover, we hypothesize that researchers may resort to alternative analyses when the planned analysis fails to support their hypothesis. Expectancy effects on statistical outcomes will be studied by means of re-analyses and by employing correlational, experimental, and meta-analytical methods.

The theory and practice of item sampling

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Project financed by	Cito / RCEC

Summary of project

In the seminal work of Lord and Novick, Statistical Theories of Mental Test Scores (1968), the idea of item sampling is put forth. Though Johnson and Lord (1958) already introduced the idea a decade before, it seems that it has not gained much popularity in neither literature nor applications since. One of the explanations for the lack of attention in this area might be the use of generalized symmetric means (gsm) (Lord and Novick, p. 238), which are a highly complicated set of expressions limiting the usability of the whole procedure.

However, responses gathered through randomly selected items hold several desirable properties for which other procedures than the one suggested by Lord and Novick can be employed. Purpose of this proposal is to develop and apply such alternative procedures, and thus to extend item sampling theory.

Person-misfit in item response models explained by means of nonparametric and multilevel logistic regression models

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Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

Performance on psychological tests and personality inventories may be unexpected. This may be due to cheating or test anxiety (achievement testing), or response inconsistency or lack of traitedness (personality). Traditional person-fit measures are primitive in that they only flag unexpected performance but do not provide explanatory information. Two recent approaches provide more explanatory information. One is flexible (i.e., nonparametric) but only suggests an explanation. The other is not as flexible (i.e., parametric) but explicitly uses auxiliary information in a multilevel framework. Both approaches are studied and integrated so as to provide a better understanding of individual test performance.

Causal networks for psychological measurement

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Summary

Current psychometric models conceptualize psychological constructs as latent variables. Latent variables function as the common cause of a number of observable 'indicator' variables; for instance, the latent variable 'depression' is taken to be the common cause of a number of observable depression symptoms, such as fatigue, depressed mood, and lack of sleep. Individual differences on the (aggregated) observable indicators are then used to infer individual differences in the constructs measured. This is the logic of construct validity theory, as it has been practiced in the past decades. For many important psychological attributes, however, it is unlikely that this conceptualization is correct. For instance, the correlation between sleep deprivation and fatigue is more likely to result from a direct effect (i.e., if you do not sleep, you get tired) than from a common cause, as hypothesized in a latent variable model. In such situations, a plausible hypothesis is that constructs like depression refer to causal networks that involve a set of observables, rather than to the common cause of these observables. Indicator variables that are relevant to a construct will, in such cases, be correlated; not, however, because they result from the same underlying cause, but because they are part of the same causal system. Because this is fundamentally inconsistent with existing psychometric theory, to accommodate situations in which constructs form causal networks, a different methodological approach is needed. The present project aims to develop such an approach through three subprojects: a) the development of new psychometric theory based on the assumption that constructs are causal networks, b) the development of a methodological toolbox that allows for the implementation of this theory in empirical research, and c) an application of the theory to diagnostic systems used in clinical psychology.

Linear logistic test models for rule-based item generation

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Project financed by	Twente University

Summary

This project is embedded in a larger project called 'Rule-based Item Generation of Algebra Word Problems Based upon Linear Logistic Test Models for Item Cloning and Optimal Design' that is funded by the Deutsche Forschungsgemeinschaft (German Research Foundation). The project is a collaboration between the Universities of Münster and Twente. In this project, techniques from cognitive analysis, item response theory (IRT), hierarchical modeling, and optimal design theory are combined to develop procedures for automated item generation and test assembly for the testing of basic mathematical competencies in early secondary education, as can be assessed with algebra word problems. It will also be investigated how the models and procedures should be optimized and generalized when they are applied in computerized adaptive testing, testing for diagnosis, and large-scale educational assessments. The final goal is the development of a software program which adaptively generates tailor-made items for algebra word problems based on optimal design, linear-logistic test models, and models for test item cloning. The sub-project presented here focuses on the statistical aspects of the project. Starting point is the classical version of the linear-logistic test model (e.g., Fischer, 1995). This model will be extended through incorporating random effects as well as interaction effects. The hierarchical model for item cloning will be provided with a structure for the item parameters developed in other sub-projects. The parameters of the model will be estimated in a Bayesian framework, by means of Markov Chain Monte Carlo (MCMC) computation. If time allows, estimation in a frequentist framework (by means of Marginal Maximum Likelihood, MML, estimation) can also be considered. The result will be used in the application of optimal design techniques for automated test assembly from pools of item families. The selection criteria will be based on the hyperparameters that describe the item families instead of the usual lower-level parameters of the discrete items. Both information-based and Bayesian criteria for item selection will be studied.

Computerized adaptive text-based testing in psychological and educational measurement

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Project financed by	Stichting Achmea Slachtofferhulp Samenleving

Summary of project

Computerized adaptive testing (CAT, Wainer et al., 1990, van der Linden & Glas, 2002, 2010 (in Press)) has become increasingly popular during the past decade in both educational and psychological measurement. The flexibility of CAT combined with the possibilities of internet-based testing seems profitable for many operational testing programs (Bartram & Hambleton, 2006).

In CAT, the items are adapted to the level of the respondent, that is, the difficulty of the items is adapted to the estimated level of the respondent. If the performance on previous items has been rather weak, an easy item will be presented next, and if the performance on previous items has been rather strong, a more difficult item will be selected for administration. The main advantage of this approach is that the test length can be reduced considerably without loosing measurement precision. Besides, the respondents are administered items at their specific ability level, which implies that they won't get bored by to easy items or frustrated by too difficult ones.

The measurement framework underlying CAT comes from Item Response Theory (IRT). One of the key features of IRT is that both item and person parameters are distinguished in the measurement model. For dichotomously scored items, the probability of a correct or positive response depends on person parameters such as the ability level of the person and on item parameters such as the difficulty-, discrimination- and pseudo-guessing parameter. For a thorough introduction to IRT, one is referred to Hambleton and Swaminathan (1985) or Embretson and Reise (1991).

In this PhD project, the focus is on open answer questions where more complicated automated scoring algorithms have to be developed. Applications are either within the context of psychological or educational measurement. The technology of CAT has been developed for multiple-choice items in the cognitive domain that are dichotomously or polytomously scored. For these items, both the correct and the incorrect answers are precisely defined and automated scoring can be implemented on the fly. For other item types, application of CAT is less straightforward. For example for open-answer questions, automated scoring rules can be much more complicated. Further, CAT is more and more applied outside the traditional cognitive domain. Initially, the present project will focus on the assessment of post traumatic stress disorder (PTSD).

Bias in the measurement of child attributes in educational research: Measurement bias in multilevel data

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Project financed by	University of Amsterdam

Summary

Background

The measurement of child attributes brings about problems because informants (e.g., the children themselves, their parents, their teachers, etc.) may have different frames of reference when answering test or questionnaire items. Such different frames of reference may result in measurement bias, so that observed differences and changes in test scores do not reflect true differences and changes in child attributes. Measurement bias thus complicates all research into child attributes (e.g., evaluation of intervention effects, sex differences, cultural differences, relationships with explanatory variables).

Objectives

We will extend existing structural equation modelling (SEM) procedures for the detection of measurement bias with procedures for bias detection in multilevel data, continuous and discrete.

We will investigate the feasibility of these new procedures, by applying them in secondary analyses of educational data, investigating the impact of measurement bias on the results of testing substantive hypotheses in educational research, and investigating different ways to account for apparent measurement bias.

Method

We will first investigate measurement bias in existing data sets of our department by means of secondary analyses. When we find measurement bias, we will account for this bias, and investigate whether the test results of the original hypotheses are different from the test results that are obtained when measurement bias is accounted for. Dependent on our findings, we may modify the SEM procedures, and further investigate the latent variable modelling procedures with simulated data, e.g., to investigate power, effect size indices, and the impact of measurement bias. This approach will be used with various sets of multilevel data, and various sets of discrete data.

Relevance

We will obtain additional knowledge of:

(1) the psychometric properties of several measurement instruments that are commonly applied in educational research,
(2) the extent of measurement bias in educational research,
(3) the impact of possible measurement bias on substantive conclusions,
(4) the robustness of educational research to possible measurement bias. Moreover, the research project is psychometrically relevant because it extends and further develops procedures for testing measurement bias in multilevel data, continuous and discrete. Methods to detect measurement bias and to account for measurement bias will result in stronger substantive conclusions.

The use of item response theory for scaling in educational surveys

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Project financed by	Twente University

Summary

This project focuses on the application of item response theory (IRT) in the context of large-scale international educational surveys, such as PISA, TIMSS, CIVICS and PEARLS. Although IRT methodology has been widely used in educational applications such as test construction, norming of examinations, detection of item bias, and computerized adaptive testing, large scale education surveys present a number of specific problems. A number of these problems are addressed in the present proposal.

The first problem relates to the detection of cultural bias over countries. Statistical tests to detect item bias are available, but the sheer numbers of students (over 10.000) and countries (between 30 and 70) present feasibility problems related to the power of the tests and the presentation of the tests results, which has to be concise and meaningful. Therefore, test statistics will probably need to be redefined and functions for these statistic need to be defined that give information with respect to the seriousness of model violations in relation to the inferences that need to be made.

The second problem relates to modeling of item bias. One of the possibilities in this respect that will be investigated is modeling item bias by adding country-specific item parameters or item parameters which are random over the countries. A related problem is the definition of test statistics which support the appropriateness the bias model.

The third problem relates to the combination of the results of IRT measurement models with multilevel structural models that relate cognitive outcomes with background variables. Several procedures are available (concurrent and two-step procedures, maximum likelihood, Bayesian procedures and plausible value imputation). A study will be made of the relative merits and disadvantages of these methods. The fourth problem relates to linking surveys, predominantly over cycles within a survey, but possibly also between surveys. The possibility of linking arises because a survey as PISA retained a number of cognitive items and background questions over the cycles (2000, 2003, 2006 and 2009). The possibility of linking over surveys may be supported by such occasions as common items and questions or a common framework. In

the latter case, a dedicated linking design may be called for. The psychometric problems related to these forms of linking, both pertaining to the measurement model and the structural model will be investigated.
The supervisors of this research project are involved in a consortium led by Cito to implement Core B (background questionnaires) of the fourth cycle of the PISA by OECD. The proposed methods will be evaluated using examples of the various PISA cycles. However, the method will also be evaluated using data from the TIMSS project, and using data from national assessments as PPON and NAEP.

Improving statistical power in studies on event occurrence by using an optimal design

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Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

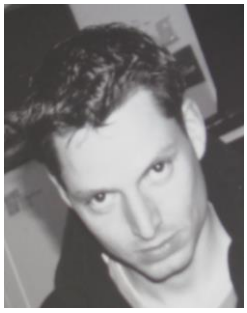
The main research question in studies on event occurrence is whether and when subjects experience a particular event, such as the onset of daily smoking or the shift to adulthood. The experience of such an event and its timing can be related to explanatory variables such as gender, socio-economic status, educational level, and, in the case of an experiment, treatment condition. Such a variable's effect should be identifiable with sufficient probability, so the power of a study on event occurrence should be controlled in the design phase. In studies on event occurrence subjects may be monitored continuously, or be measured at intervals. Interval measurement is often used in the behavioural sciences but sample size formulae for such trials are not readily available. The proposed research aims to remedy this deficiency by providing guidelines for the indices governing the number of subjects, the number of measurements per subject, the placement of the measurement points in time and the duration of the study. Where possible, mathematical formulae that relate sample size and duration to statistical power will be derived analytically.

Otherwise, the effect of these design factors on statistical power will be studied on the basis of simulation studies taking into account realistic conditions such as drop-out rates and the varying costs per treatment condition.

A study that is not carefully designed is a waste of resources. Therefore, ethical review committees and organizations funding scientific research frequently require research proposals to include power calculations. The proposed research will provide guidelines for efficient study-designs for use in event occurrence studies – ensuring that the financial cost and the number of subjects are minimized and sufficient power is guaranteed. From a scientific point of view this proposed research project is fundamental since it will enable future researchers to plan their research more efficiently.

Keywords: statistical power, cost-efficient designs, survival analysis, hypothesis testing.

Testing the mutualism model of general intelligence



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Summary

Van der Maas, Dolan, Grasman, Wicherts, Huizenga & Raijmakers (2006) proposed a new theory of general intelligence based on the idea of mutualistic interactions during development between the cognitive processes underlying intelligence. They showed that such interactions lead to a positive manifold of correlations between scores on cognitive tasks. This theory is an important alternative for the standard *g* theory (Jensen, 1998), which conceptualized *g* as a single latent dimension. The aim of this project is to further investigate the mutualism model. Topics are: model extension, model equivalence, evidence from experimental data, and evidence from longitudinal correlational data.

Question format and response style behaviour in attitude research

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Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

Attitude questions differ in format, e.g. differences in numbering and labelling of response categories. It has been argued that the validity and reliability of attitudes is affected by the choice of question format. At the same time, it is acknowledged that response style behaviour can bias the measurement of attitudes as well as bias the estimates of the effect of covariates. This research project links these two issues by focusing on the impact of question format on the likelihood of response bias, i.e. acquiescence and extreme response style, in attitude research.

Statistical models for reductive theories

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Project financed by	University of Amsterdam

Summary

This project reformulates the reduction problem as measurement problem, by focusing on the question how we should combine physical and psychological indicators in a single measurement structure. In the first subproject, different positions that have been articulated in the philosophy of mind, such as identity theory and supervenience, are translated into different psychometric models. In the second subproject, these models are applied to existing datasets involving a) the relation between IQ and physical properties of the brain (e.g., brain volume), b) the relation between EEG measures of speed of processing and IQ,and c) the relation between anatomical differences in the brain and different kinds of synesthetic experience. In the third subproject, the prospects for a reductive explanation of inter-individual differences on the basis of intra-individual processes is evaluated according to theoretical insights taken from the philosophical literature on reduction.

The influence of strategy use on working memory task performance (new project)

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Project financed by	Tilburg University

Summary

There are some robust effects on WM that are replicated in different studies over the years, like the visual similarity effect and the phonological similarity effect (e.g., Hitch et al., 1989; Poirier et al., 2007). The nature of these effects has been investigated, but research in which group means are compared show inconsistent results. Other researchers have focused more on the methodology and individual differences in WM research (e.g., Logie et al, 1996; Della Sala & Logie, 1997; Engle, 1999). These studies have shown that there are different influences on performance besides the aforementioned effects, like task demands and strategy use. Because this focus seems to lead to useful information about the cognitive processes involved in working memory, there is a need for further refinement of the methodology. The aim of this project is to address this issue. First, we want to investigate the development of WM and test the hypothesis that younger children process information mostly visually, whereas older children process information mostly verbally. Second, we want to further investigate this question by distinguishing the different cognitive processes that underlie the different strategies. Third, we want to explore different measurement tools that enable us to investigate the influence of strategy use and task demands on performance in order to better understand the model of working memory of Baddeley and Hitch and its generalization. Finally, in addressing these aims, we will apply a latent variable approach.

Minimal requirements of the reliability of tests and questionnaires

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Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

A test's reliability often is the basis for advise to test constructors, researchers and test users on which test to use for accurately classifying individuals in diagnostic categories. However, the classical reliability coefficient does not provide information that is adequate for this purpose. This study investigates how individual classification accuracy depends on properties of the test and its items, the population studied, and the decision-making problem. Its output will be tables that give the minimum quality requirements for tests and their constituent items, given a known population distribution and a well-defined classification problem.

Chained equations

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Project financed by	NWO (Netherlands Foundation of Scientific Research) Part of Vici project by H.J.A. Hoijtink "Learning more from empirical data using prior knowledge"

Summary

Theories often have multiple implications that have to be evaluated. Multiple hypotheses addressing different variables are not easily summarized in *one* statistical model, because often it is too complicated to account for the dependencies between the variables. Multiple hypotheses are usually evaluated separately which increases the probability of errors of the first kind and/or reduces the power. See, for example, Toothaker (1993), Benjamini and Hochberg (1995) and Maxwell (2004) for a discussion of these matters. In this project chained equations (van Buuren, Boshuizen, Knook, 1999; Raghunathan, Lepkowski, Van Hoewyk, and Solenberger, 2001; Buuren, Brand, Groothuis-Oudshoorn and Rubin, to appear) will be used to build statistical models for multiple hypotheses addressing the same or different data sets. Chained equations have thus far been used for multiple imputation of missing values. Here they will be used to build *one* statistical model for the evaluation of multiple hypotheses.

Tailoring to the MAX: Using new IC technology to increase data quality and efficiency in panel surveys

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Project financed by	Utrecht University

Summary

Panel studies hold the promise of providing reliable and valid data on change over time. This dissertation project investigates measurement error in panel data with the aim to improve the quality of future data collection and to enhance the scientific knowledge of the question-answer process. The possibilities of dependent interviewing techniques (DI) and the analysis of attrition patterns to improve data quality and survey efficiency will be evaluated. We compare three alternative approaches to dependent interviewing (proactive, reactive and optional) with traditional interviewing to study the effects of the different designs on measurement error. To do so we propose to conduct a 4×2×2 experimental design. Three main effects will be studied:

1) The effects of four different techniques for dependent interviewing on measurement error and stability of traits over time,
2) the effects of anchoring as a result of DI, and
3) the effects of DI on different kind of questions i.e. facts and attitudes.

All interaction effects will be studied as well. Attrition patterns will be studied and used to improve the imputation of missing data and in doing so improve the estimation of substantive variables. Because the methodological problems studied in this project stem from respondent's behaviour this project will be a joint work of the Departments of Methods and Statistics and Psychology of Utrecht University. Five hundred first year students will take part in a longitudinal survey on students' motivation, satisfaction, and grades, related to the development of their academic literacy during their bachelor years.

Simulator-based automatic assessment of driving performance

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Project running from	1 January 2009 - 1 january 2014
Project financed by	Cito Arnhem and RCEC (Twente University)

Summary

The purpose of this PhD project is to design a reliable and valid automatic performance scoring system for a simulator based test for driving.

In order to design a simulator test, apart from optimizing the technical or virtual presentation of the scenario's in the simulator, several statistical and methodological problems have to be tackled. First, because performance in the simulator cannot be automatically scored yet, assessors have to be used to obtain evaluation of pupil driver behaviour. A cognitive model is developed at TNO that learns the relation between ratings of assessors and registered objective performance measures by the simulator. Since the quality of the cognitive model is dependent on the quality of the information provided by assessors, a sound IRT-based measurement model for the assessors' data has to be developed to feed the cognitive model with optimal information.

The output of the cognitive model will be used to select objective measures which are good predictors of the judgements of the assessors. Then a compound IRT model will be designed where one element is the IRT-based measurement model for the assessor judgements and the other an IRT model for assessment based on the selected predictors.

When the test has been designed and the models have been developed and validated, two projects remain. First, a cross-sectional study will be performed to create norm distributions for groups defined as beginning pupil drivers, advanced pupil drivers, license candidates, drivers one year post-licences, and very experienced drivers. Second, the assessors' and simulator assessment scores will be correlated with additional measurements of supposedly related cognitive processes involved in driving, in particular in-car performance assessments, self-evaluation of driving competence and the Cito Drive computer based tests of responsible driving.

Statistical modeling of (cognitive) ability differentiation

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Project running from	1 September 2007 - 1 September 2011
Project financed by	NWO (Netherlands Foundation of Scientific Research), Top Talent Grant

Summary

No suitable procedures are yet available to investigate ability differentiation, although this phenomenon has important implications for the measurement of cognitive abilities. The aim of the present project is to develop, test, and apply suitable models to investigate ability differentiation.

Prediction of disease classes using resting rate state neuroimaging data

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Project running from	1 March 2010 - 1 March 2014
Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

Resting state functional magnetic resonance imaging (RS-fMRI) has become a very popular technique to study functional connectivity in the brain. It appears that the brain is very active even in the absence of explicit input or output behavior. The networks obtained in rest, resemble networks that are typically observed activated during cognitive, sensory or motor tasks and this therefore providing insight into the intrinsic functional architecture of the brain.

Furthermore, functional connectivity measures have improved our understanding of variability of behavior and associated brain activity. In addition, RS-fMRI has provided insight in alterations in brain activity between healthy, dementia, depression, ADHD, autism, schizophrenia, Parkinson's disease, and MS subjects.

Most investigations are limited to studying whether brain signals differ between patient and control groups. These studies provide important new insights about average (group mean) functional brain connectivity changes in diseases. However, to understand to what extent this innovative technique can be applied for (early) diagnostics en treatment predictions, it is of great interest to study whether we can classify a subject based on his/her RS-fMRI scans. Meaning we are able to see whether RS-fMRI scans of a single subject allow us to determine whether a subject has for instance Alzheimer's disease, a depression, etc, or is healthy.

Suppose there are brain scans of n subjects, which are known to come from different disease classes. The question is whether we can distinguish these groups on the basis of the brain scans, and whether we can accurately predict the status of a single subject based on earlier obtained rules. This is a typical classification question, normally solved using discriminant analysis or some form of logistic regression, but in this case the number of variables is very large, i.e. the measurements on each of the voxels at each of the time points (volumes)

This project's aim is to develop techniques for building highly sophisticated classifion rules, which can be used as a multiclass prediction tool for RS-fMRI scans.

Inequality constrainted models for the multivariate normal mean: A Bayesian approach

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Project running from	1 February 2007 -1 September 2011
Project financed by	NWO (Netherlands Foundation of Scientific Research) Part of Vici project by H.J.A. Hoijtink “Learning more from empirical data using prior knowledge”

Summary

Researchers often have competing theories that can be translated into inequality constrained models. Such theoretical models cannot be addressed with standard null-hypothesis testing. In this project inequality constrained Bayesian statistical models for the multivariate normal covariance matrix will be developed. Models for the multivariate normal covariance matrix encompass such techniques as: factor analysis, growth curve models, multilevel models, path-models and errors in variables models. The formulation of these models under inequality constraints should make possible the evaluation of substantive inequality constrained theory. Issues such as formal Bayesian prior formulation, parameter estimation using sampling techniques, model selection and multiple group testing will be addressed. Next to articles, the project will also result in a statistical package which, in addition to the other procedures developed in the VICI project *Learning more from Empirical Data using Prior Knowledge*, will also encapsulate inequality constrained Bayesian statistics for models based on the multivariate normal covariance matrix.

Nonlinear modeling with high volume data sets from systems biology

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Project running from	1 June 2006 - 1 June 2011
Project financed by	Leiden University

Summary

Prediction problems are typically regression problems and supervised classification problems, in which the development of the prediction procedures and their validation go hand-in-hand. Prediction problems are nonlinear when categorical (ordinal or nominal) variables are involved, possibly with numerical variables as well.

Large data sets generally come into two forms: either the number of variables is very large compared to the number of observations (*wide data sets*), or the number of observations is extremely large (*long data sets*). The current proposal will develop, extend and apply methodology to deal with both forms of large data sets, in a direction which is especially applicable to categorical data through the use of nonlinear transformations. This approach is firmly based in the data analytic and algorithmic tradition of the Data Theory Group at the Faculty of Social and Behavioral Sciences at Leiden University.

The incremental value of Item Response Theory to personality assessment

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Project financed by	University of Groningen

Summary

Psychological assessment is one of psychology's major contributions to everyday life. An important part of psychological assessment is personality assessment which is a professional activity of numerous research, clinical, and industrial psychologists.

In personality assessment often self-report inventories or scales are used. Scale construction and revision within the field of personality measurement relies heavily on classical test theory (CTT) and factor analytic methods. Though CTT methods of scale development and scoring have served personality measurement reasonably well over the last 80 years, CTT has serious limitations and shortcomings (see, for instance, Fischer, 1974). These limitations and shortcomings are related to the fact that CTT is a model for the test performance of a randomly drawn respondent from some well-defined population where the influence of the ability level of the respondent and the influence of the difficulty of tests or items on the test score are not separated. In item response theory (IRT, for an overview, see van der Linden & Hambleton, 1997), on the other hand, the influence of respondents and test items are explicitly modeled by different sets of parameters. This model property proved essential for such activities as linking and equating measurements and evaluation of test bias and differential item functioning. Further, it provided the underpinnings for item banking, optimal test construction, and various flexible test administration designs, such as multiple matrix sampling, flexi-level testing, and computerized adaptive testing. Therefore, in the last decades IRT modeling has rapidly become the theoretical basis for educational assessment and assessment of cognitive ability.

In psychology, the development of personality and attitude questionnaires through IRT is almost nonexisting although these models are becoming more popular (e.g., Reise & Waller, 2009; Egberink & Meijer, in press; Meijer, Egberink, Emons, & Sijtsma, 2008). This is unfortunate because the requirements with respect to the objectivity, reliability and validity of psychological assessment are increasing.

In this project, we explore the incremental value of IRT to the assessment of personality and psychopathology.

Higher measurement quality of tests and questionnaires by means of more powerful statistics

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Project running from	1 September 2009 - 1 September 2012
Project financed by	Tilburg University

Summary

Tests or questionnaires are often used to measure personality traits, attitudes, opinions, skills, and abilities. A measurement model transforms the respondents' item scores into a meaningful measurement value. Using a measurement model that does not fit the data may lead to incorrect conclusions with possibly severe consequences: e.g., a wrong diagnosis of a mental patient or an incorrect educational placement. For nonparametric item response theory models - a very general class of measurement models - the available methods to assess fit are insufficient to allow good test construction. In this project better methods are developed that have more power.

Constant latent odds-ratios models for the analysis of discrete psychological data

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Project running from	1 September 2008 -1 September 2013
Project financed by	Utrecht University

Summary

The main objective of this project is developing statistical procedures for Constant Latent Odds-Ratios models (CLORs) for dichotomous item scores. Since under dichotomous CLORs models the total score, i.e., the unweighted sum of the item scores, is a sufficient statistic for the latent variable, sound statistical procedures for estimation and goodness of fit assessment are readily attainable. The development of such procedures will make the CLORs models available for practical use. Furthermore, the characteristic assumption of constant latent odds-ratios will be used to define new models for polytomous item scores

Multiple imputation using mixture models

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Project running from	1 September 2009 - 1 September 2013
Project financed by	NWO (Netherlands Organisation for Scientific Research)

Summary

The main focus of this project is on the use of mixture models for multiple imputation (MI) of missing data, or more specifically, item nonresponse. Vermunt, Van Ginkel, van der Ark, and Sijtsma (2008) explored the use of a simple latent class model (Goodman, 1974), which is a mixture model for categorical response variables, as a tool for MI. Despite of being a very promising approach, various issues remain unresolved when applying mixture models for MI. The purpose of this project is to address four unresolved problems mentioned by Vermunt et al. (2008) in the discussion section of their article:

1. Whereas Vermunt et al. (2008) concentrated on imputation of data sets containing only categorical variables, most data sets contain combinations of categorical and continuous variables. The current project will investigate how imputation by means of mixture models can best be generalized to such mixed data sets.
2. It is not clear at all whether the decision which statistical model explains the data best (also known as model selection) in the context of mixture modeling for generating multiple imputations can be taken in the same way as when applying mixture models to build a substantively meaningful model. More specifically, standard model selection statistics such as information criteria (AIC, BIC) and overall goodness-of-fit tests seem to be less appropriate for deciding whether a model is a good imputation model.
3. An extended comparison between MI with mixture models and other MI approaches is lacking. In order to assess the usefulness of our approach, it is important to investigate in which situations it performs better than possible alternatives, such as MICE and hot deck imputation.
4. As most of the work on MI, the article by Vermunt et al. (2008) dealt with imputation of data sets containing independent observations. However, many studies in the social and behavioural sciences use designs yielding dependent observations, examples of which are studies using multilevel designs

and longitudinal designs. A fourth aim of this project is to develop mixture MI models for dealing with such complex designs.

Besides addressing these four topics, the project should yield software implementations so that the MI methodology becomes available for applied researchers. We aim for making SPSS macro's available as freeware on the Internet.

Methods for making classification decisions

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Project financed by	Cito /RCEC (Twente University)

Summary

Most adaptive tests are constructed in order to estimate the examinees' ability as efficient and accurate as possible. Computerized classification testing has a different goal: classify the examinee as efficient and accurate as possible into mutual exclusive groups. Computerized classification testing will be investigated in this PhD project. Computerized classification tests (CCT) are computerized adaptive tests (CAT) that select items sequentially for each examinee in order to make a classification decision. The test are also denoted in the literature as sequential mastery tests (SMT). Traditionally, CATs have the goal of estimating the respondent's ability as accurate as possible, but CCTs have the goal of classifying respondents into groups. A classification decision is made in which the examinee is assigned into one of two or more mutually exclusive categories along the ability scale (Lin & Spray, 2000) using cutting points to separate the categories (Eggen, 1999).

A computerized classification test is of variable length and examinees ''are classified as masters or non-masters as soon as there is enough evidence to make a decision'' (Finkelman, 2008). The classification procedure must choose between three options: to stop testing and classify an examinee as a master, to stop testing and classify an examinee as a non-master, or to continue testing and select a new item. Several procedures are available for making the decisions but also for the way in which items are selected. Six research topics have been formulated for this project. The six research topics are:

- A multiple objective stochastic curtailed sequential probability ratio test with exposure control
- Multidimensional classification decisions
- Exploring methods for classification decisions
- Making classification decisions on infomation about future items
- Classification decisions using latent class models
- Sequential mastery testing methods for respondents near the cutting point.

Modeling the relation between speed and accuracy

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Project financed by	NWO (Netherlands Foundation of Scientific Research)

Summary

In daily life as well as in the psychological laboratory, people continuously make decisions. These decisions pertain to widely different activities, such as buying new sun-glasses, driving your car to work, or writing grant proposals. All of these decisions, however, fall prey to the same dilemma. This dilemma concerns the meta-decision of when to stop information processing and commit to a decision. This is particularly evident in tasks where one can choose to respond faster at the cost of making more errors. Clearly then, task performance is a function of both response accuracy and response speed. A pervasive problem in cognitive psychology is how to combine speed and accuracy so as to obtain separate indices for task performance and response conservativeness.

Perhaps the only way to make progress is to use a mathematical model that explicitly addresses the tradeoff between speed and accuracy. The current proposal focuses on Ratcliff's diffusion model, which is arguably the most popular model of how people process information. The diffusion model allows one to estimate unobserved psychological processes such as perception, speed of information accumulation, response conservativeness, and response bias.

The proposed projects seek to theoretically extend and empirically test the diffusion model account of the speed-accuracy tradeoff. This account currently leaves open several important questions. The first project shows that the Fuzzy Logical Model of Perception (FLMP) can be unified with the diffusion model in a way that allows the FLMP to simultaneously account for response speed and response accuracy. The second project studies what happens under conditions in which there is almost no value in accurate responding. The third project considers variability in response conservativeness as an explanation for fast errors, and the fourth project concerns the changes in information processing that occur after an error.

Bayesian modeling of heterogeneity for large scale comparative research

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Project running from	1 May 2008 - 1 May 2012
Project financed by	Twente University

Summary

Inferences from large-scale (e.g., cross-national) studies have important implications for theory (e.g., causal relations between constructs, spurious relations, intervening variables) and practice (e.g., insights in policy related issues and malleable factors). The common item response theory models are not directly applicable to analyse large-scale survey data for comparative research. There are several measurement issues connected to comparative research that need to be addressed since ignoring them may lead to inferential errors. The approach is focused on delineating the source (i.e., individual or group differences in latent scores or in the way of responding to the questionnaire) and the direction of the significant differences in cross-national research. From a Bayesian point of view, (1) heterogeneity in the way individuals respond to the questionnaire is modelled. In addition, (2) a structural population model is built for the respondents' latent scores which is focused on heterogeneity. Within this modelling framework, the Bayesian methodology allows the development of tools that can be used to account for errors related to the measurement issues.

Restrictive imputation of incomplete survey data

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Project running from	1 September 2009 - 1 September 2013
Project financed by	Utrecht University and Statistics Netherlands (CBS)

Summary

Imputation is a method to correct for missing data by using various models to estimate missing values whilst adding the estimated data to the original dataset. The completed dataset can then be analyzed by methods for complete data. To estimate the reliability of estimates on imputed data, however, special techniques are needed, because standard methods for complete data do not discriminate between real and imputed data.

Imputations are predictions for the values that could have been encountered, if the missing data would have been observed. Because imputations are, to some extent, used as real observations, these predictions have to be as accurate as possible. In order to obtain accurate estimates, models have to be constructed that optimally represent the properties of the various variables and their internal coherence. In addition to the quality of predictions, plausible imputations also have to meet certain a priori knowledge, such as variable restrictions (e.g. an income must be greater than or equal to zero) or restrictions conform to known population distributions (e.g. the known amount of cars in a country).

Three research topics will be distinguished in this research proposal: imputing variables that have to meet restrictions (§A), imputing semi-continuous variables (§B) and measuring the quality of imputation models and the accuracy and reliability of estimations on imputed data (§C). These research questions can be answered within a PhD position, resulting in a dissertation, as well as new software. Expected results include answering the following general research questions:

- How can imputations under row and column restrictions be executed?
- How can imputations on semi-continuous data best be done?
- How can imputations most effectively and plausibly be evaluated?

Furthermore, based on the research in this PhD-project, recommendations for routinely use of imputation methods at Statistics Netherlands will be made.

Modeling the relation between speed and accuracy

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Project running from	1 September 2008 - 1 September 2012
Project financed by	University of Amsterdam

Summary

One goal of this PhD project is to do Bayesian inference using all kinds of models that are popular in Psychology. Some examples of such models are ALCOVE (Kruschke, 1992) for category learning or the Expectancy-Valence model (Busemeyer and Stout, 2002) for decision making.

Another goal of the project is to implement and study Bayesian hypothesis testing for hierarchical, possibly order-restricted models. In hierarchical modeling, individual-level parameters are drawn from a group distribution. This way of modeling takes both differences and similarities between participants into account.

In general, the aim is trying to make Bayesian methods more easily available to empirically oriented psychologists who would like to take advantage of the Bayesian methodology but lack the time or the technical skills to implement their own software.

4.2.4 Projects prematurely ended

The potential of Item Response Theory to predict social acceptance of new technologies: Bionanotechnology (project prematurely ended)

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Project running from	1 June 2008 - 1 June 2012
Project financed by	Wageningen University (IP/OP)

Summary

A recent technological development of potential benefit to the agri-food sector in particular, and society more generally, is nanobiotechnology. However, for this technology to reach its full, it must first be accepted by society. Public attitudes towards nanobiotechnology are likely to be effective predictors of acceptance of both technology and its applications, are therefore relevant to its strategic development and commercialisation.

However, measuring current attitudes towards nanobiotechnology proves difficult, because existing attitudes tend to be uncrystalised. In addition, existing methodologies are unsuccessful at predicting these attitudes where these circumstances apply. A statistical model that can predict individual attitudes towards different applications of nanobiotechnology is the item response theory (IRT).

An attractive property of IRT is that it is invariant, making the model independent of group responses and test items. Application of IRT will enable attitudinal assessment to occur for different groups of respondents or acrossdifferent bionanotechnology applications.The objective of the research is to improve predictions of social acceptance of emerging technologies and their applications by developing a valid and reliable methodological approach to instrument development. An important research activity relates to the measurement of attitudes towards nanobiotechnology and its applications.

Validity of psychological questionnaires (project prematurely ended)

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Project running from	1 April 2009 - 1 April 2013
Project financed by	Tilburg University

Summary

Medical psychologists construct and use multi-item questionnaires for the measurement of attributes. For example, the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) measures anxiety and depressive symptoms, the DS-14 (Denollet, 2005) measures type-D personality, the World Health Organization Quality-of-Life Scale (the WHOQoL Group, 1998) measures quality of life, and the Fatigue Assessment Scale (Michielsen, De Vries, Van Heck, Van de Vijver, & Sijtsma, 2004) measures fatigue. Such questionnaires are used, for example, to study the role personality characteristics play in somatic disease, and the psychological symptoms (e.g., fatigue), which may result from chronic physical disease, psychiatric disorders, or temporary physical conditions. A crucial issue in questionnaire development and application is whether the questionnaire adequately measures the attribute of interest. This is the issue of construct validity.

Construct validity is considered to be of the utmost importance, but psychologists often use outdated validation procedures. In particular, the approach to construct validity proposed by Cronbach and Meehl (1955) is still the most popular in use nowadays. Cronbach and Meehl (1955) argued that the existence of an attribute's nomological network is a prerequisite for the questionnaire's validation. The validation process entails the empirical testing of the relations in the nomological network. This approach to validation has met with considerable criticism, and the recent publication of both critical and influential papers (e.g., Borsboom, Mellenbergh, & Van Heerden, 2004; Embretson & Gorin, 2001; Kane, 2001; McGrath, 2005; Zumbo, 2007) confirms that the discussion on the theory of validity is at the center of attention in current psychometrics.

The approach by Cronbach and Meehl (1955) has been criticized for one reason in particular (Messick, 1989). A strict interpretation of nomological networks prohibits researchers to validate tests for which the attribute is not sufficiently incorporated into a well-developed nomological network. Unfortunately, this applies to many attributes. For example, in the context of medical psychology the attribute of fatigue lacks a sound theoretical basis (Michielsen et.al., 2004; also, see Barofsky & Legro, 1991).

Because of its shortcomings, Cronbach and Meehl's (1955) validity approach is difficult to implement in psychological research. Alternatively, researchers take refuge to development of questionnaires on the basis of tradition, habit or intuition, and use few theory-driven guidelines (Sijtsma, in press). Fatigue is an excellent example of an attribute, which is poorly supported by sound theory but for which many questionnaires are available and in frequent use, which all claim to measure fatigue or a fatigue related attribute. Examples of questionnaires are the emotional exhaustion subscale from the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986), the Multidimensional Assessment of Fatigue scale (MAF; Piper, Lindsey, Dodd, Ferketich, & Weller, 1989), and the Checklist Individual Strength (CIS-20; Vercoulen, Alberts, & Bleijenberg, 1999).

The lack of sound attribute theory underlying the development of questionnaires affects validation practices in the contemporary research setting. Often construct validity is ascertained by means of highly explorative research strategies. For example, exploratory factor analysis is much used to investigate the structure of the data, and the finding that correlations exist between certain items is presented as evidence that an attribute is measured. Consequently, construct validation is not based on solid theory, but is mainly data-driven.

The process of construct validation proposed by Cronbach and Meehl (1955) is valuable in theory but unsuited for contemporary validity research. Schouwstra (2000, chap. 1) noticed that also novel approaches to validity theory are often difficult to implement in practice. Attempts have been made in cognitive psychology but we know of no attempts in medical psychological research. Hence, the aim of this dissertation project is the development of guidelines for questionnaire validation in medical psychology using modern approaches that overcome the shortcomings of the nomological network approach (Cronbach & Meehl, 1955).

5 Graduate training program

5.1 Courses in the IOPS curriculum

In 2011 four IOPS courses were organized:

- *Advising on research methods*
  Instructors: Don Mellenbergh and herman Adèr (University of Amsterdam)
  Dates: 12, 13, 26, and 27 January 2011 (4 days)
- *Applied Bayesian statistics*
  Instructors: Herbert Hoijtink, Laurence Frank, Irene Klugkist, Ellen Hamaker and Charlotte Rietbergen (Utrecht University)
  Dates: 16-20 May 2011 (5 days)
- *Optimization & numerical methods in statistics: Concepts, models, and applications*
  Instructors: Francis Tuerlinckx and Geert Molenberghs (KU Leuven)
  Dates: 22 and 27 October 2011, and 24-25 November 2011 (4 days)
- *Meta analysis*
  Instructor: Wolfgang Viechtbauer (Maastricht University)
  Dates: 21-23 November 2011 (3 days)

5.2 Conferences

5.2.1 26th IOPS summer conference

The 26th IOPS summer conference was held in Leuven, Belgium on 29-30 June 2011. KU Leuven, co-organiser and host of the conference, welcomed 67 participants.

Invited speakers
Invited presentations were given by:
- Rianne **Janssen,** KU Leuven
  Title: *IRT as a research tool: an example from educational measurement*
- Iven **van Mechelen,** KU Leuven
  Title: *Multiple nested reductions of single data modes as a tool to deal with large data sets*

Other conference presentations

The following 11 IOPS PhD students gave a presentation on the results of their research:

- Matthieu **Brinkhuis,** Cito/University of Amsterdam
  Title: *Measuring change*
- Hanneke **Geerlings,** Twente University
  Title: *Optimal test design with rule-based item generation*
- Marianne **Hubregtse,** Twente University
  Title: *Influences on classification accuracy for performance assessments: A VET example*
- Khurrem **Jehangir,** Twente University
  Title: *Multi-Level IRT in large scale surveys*
- Kees-Jan **Kan,** University of Amsterdam
  Title: *The nature of nurture: The role of gene-environment interplay in the development of intelligence*
- Gabriela **Koppenol-Gonzalez Marin,** Tilburg University
  Title: *Applying latent class regression analysis to investigate verbal and visual processing in children*
- Maarten **Marsman,** Cito/Twente University
  Title: *Plausible values in latent regression*
- Dylan **Molenaar,** University of Amsterdam
  Title: *Testing statistical and substantive hypotheses on the distribution of the observed data within the generalized linear item response model*
- Daniel **Van der Palm,** Tilburg University
  Title: *A comparison of incomplete data methods for categorical data*
- Gerko **Vink,** Utrecht University. *Restrictive imputation of incomplete survey data*
- Ruud **Wetzels,** University of Amsterdam
  Title: *A default Bayesian hypothesis test for ANOVA designs*

Other activities

IOPS Best paper award 2010

During the 26th IOPS summer conference, the IOPS Best Paper Award 2010 was delivered to Bärbel Maus, Maastricht University for her paper: Maus, B., Van Breukelen, G.J.P., Göbel, R., & Berger M.P.F. (2010) Optimization of blocked designs in FMRI. Psychometrika, 75, 2, 373–390.

5.2.2 21st IOPS winter conference

The 21st IOPS winter conference was held on 8 and 9 December 2011 at Leiden. Leiden University, co-organiser and host of the conference, welcomed 48 participants.

Conference presentations

Invited speakers

- **Jacqueline Meulman,** Leiden University
  Title: *Joint prediction of multiple outcome variables by regularized regresssion*
- **Bärbel Maus,** Maastricht Utrecht University (winner of the IOPS Best Paper Award 2010)
  Title: Efficient design of multi-subject blocked fMRI studies: Theory and practice

Other speakers

The following twelve IOPS PhD students gave a presentation on the topic of their research:

- **Rebecca Kuiper,** Utrecht University
  Confirmatory model selection: The GORIC
- **Don van Ravenzwaaij,** University of Amsterdam
  How do we deal with bias in prior information?
- **Renske Kuijpers,** Tilburg University
  Standard Errors and Confidence Intervals for Scalability Coefficients in Mokken Scale analysis Using Marginal Models
- **Iris Smits,** University of Groningen
  Assessing dimensionality through Mokken scale analysis: What happens when questionnaires do not have simple structures?
- **Cor Ninaber,** Leiden University
  Regulized IPC
- **Marjolein Fokkema,** VU University Amsterdam
  Response shifts in mental health interventions: An illustration of longitudinal measurement invariance
- **Joran Jongerling,** Utrecht University
  On the trajectories of the predetermined ALT model: What are we really modelling?
- **Carel Peeters**, Utrecht University
  Inequality-constrained confirmatory factor analysis
- **Janke ten Holt,** University of Groningen
  A comparison between factor analysis and Item Response Theory by means of Monte Carlo simulation
- **Margot Bennink,** Tilburg University
  Predicting discrete macro-level outcome variable with micro-level explanatory variables: A latent class approach
- **Hailemichael Worku,** Leiden University
  Multivariate logistic regression using ideal point classification model
- **Maaike van Groen,** Cito Arnhem / Twente University
  Item selection methods based on multiple objective approaches for classification of respondents into multiple levels

Other activities

Lab meeting

Three presentations were given by Leiden University staff members:

- Mark de Rooij, *IOPS in Leiden*
- Serge Rombouts, *Neuroimaging: (F)MRI*
- Kees van Putten and Marije Fagginger Auer, *Applied psychometrics in Leiden: National assessment of mathematical achievement.*

6 Publications

A quantitative overview and a list of publications by IOPS staff members and PhD students under auspices of IOPS in 2011 is given below.

Quantitative overview of publications in 2011

Dissertations by IOPS PhD students	9
Other dissertations under supervision of IOPS staff members	5
Articles in international English-language journals	253
Contributions to international English-language volumes	23
Book reviews	1
Books and test manuals	5
Articles in other journals	13
Software and test manuals	2
Other publications	16

6.1 Dissertations

6.1.1 Dissertations by IOPS PhD students

Glasner, T. (2011). Reconstructing event histories in standardized survey research: Cognitive mechanisms and aided recall techniques. VU University Amsterdam (-- pp.). Prom./coprom.: prof. dr. W. Dijkstra, dr. W. van der Vaart.

Hickendorff, M. (2011). *Explanatory latent variable modeling of mathematical ability in primary school. Crossing the border between psychometrics and psychology.* Leiden University (283 pp).Oisterwijk: Proefschriftmaken.nl. Prom./coprom.: **prof. dr. W.J. Heiser, dr. C.M. Van Putten**, & **dr. N.D. Verhelst.**

King-Kallimannis, B. (2011). Unbiased measurement of health-related quality-of-life. University of Amsterdam / Amsterdam Medical Center (208 pp). Prom./coprom.: prof. dr. F.J. Oort, prof. dr. M.A.G. Sprangers.

Maus, B. (2011). *Optimal experimental designs for functional magnetic resonance imaging.* Maastricht University (143 pp). Prom./coprom.: **prof. dr. M.P.F. Berger,** prof. dr. R. Goebel.

Morren, M. (2011). The survey response. A mixed method study of cross-cultural differences in responding to attitude statements. Tilburg University (154 pp). Prom./coprom.: **prof. dr. J.K. Vermunt, dr. J.P.T.M. Gelissen.**

Oberski, D. (2011). *Measurement error in comparative surveys*. Prom./coprom.: **prof. dr. J.A.P. Hagenaars, prof. W.E. Saris**, & prof. A. Satorra.

Polak, M.G. (2011, mei 26). *Item analysis of single-peaked response data: The psychometric evaluation of bipolar measurement scales.* Leiden University (167 pag.). Rotterdam: Optima. Prom./coprom.: **prof. dr. W.J. Heiser** & **dr. M.J. De Rooij.**

Van Wesel, F. (2011, juli 01). *Priors & prejudice : Using existing knowledge in social science research.* Utrecht University (193 pp). Prom./coprom.: prof. **dr. H.J.A. Hoijtink, dr. I.G. Klugkist**, & **dr. H.R. Boeije.**

Zand Scholten, A. (2011). *Admissible statistics from a latent variable perspective*. University of Amsterdam (171 pp). Prom./coprom.: **Prof. dr. H.L.J. Van der Maas**; **Dr. D. Borsboom** & Dr. P. Koele.

6.1.2 Other dissertations under supervision of IOPS staff members

Schnabel, S.K. (2011). *Expectile smoothing: new perspectives on asymmetric least squares. An application to life expectancy.* Utrecht University (-- pp). Prom./coprom.: **prof. dr. P.G.M. Van der Heijden** & **dr. ing. P.H.C. Eilers.**

Van Dijke, A. (2011). *Dysfunctional Affect Regulation: In borderline personality disorder and somatoform disorder.* Utrecht University (150 pp). Prom./coprom.: prof. dr. M.J.M. Van Son, prof. dr. O. Van der Hart & **prof. dr. P.G.M. Van der Heijden.**

Van Erp, K.J.P.M. (2011). When worlds collide: the role of conflict, justice and personality for expatriate couples' adjustment. University of Groningen: KLI Dissertations Series (142 pp). Prom./coprom.: prof. dr. K. Van Oudenhoven-van der Zee, prof.dr. E. Giebels, **dr. M.A.J. Van Duijn.**

Voorspoels, W. (2011). *Of platypi and bumblebees: Formal models of graded membership*. KU Leuven (202 pp.). Prom./coprom.: prof. dr. Gert Storms, **dr. Wolf Vanpaemel.**

De Kroon, M. (2011). The Terneuzen Birth Cohort: Early detection and prevention of overweight and cardiometabolic risk. Disseration VUmc, Amsterdam (170 pp). Prom./coprom: Prof. dr. R.A. Hirasing **Prof. dr. S. van Buuren**.

6.2 Articles in international English-language journals

Adriaanse, M.A., Vinkers, C.D.W., De Ridder, D.T.D., **Hox, J.J.,** & De Wit, J.B.F. (2011). Do implementation intentions help to eat a healthy diet? A systematic review of the empirical evidence. *Appetite, 56*, 183-193.

Albers, C.J., Critchley, F., & Gower, J.C. (2011). Applications of quadratic minimisation problems in statistics. *Journal of Multivariate Analysis*, *102,* 714-722.

Albers, C.J., Critchley, F., & Gower, J.C. (2011). Quadratic minimisation problems in statistics. *Journal of Multivariate Analysis*, *102,* 698-713.

Alisic, E., **Boeije, H.R.,** Jongmans, M.J. & Kleber, R.J. (2011). Children's perspectives on dealing with traumatic events. *Journal of Loss and Trauma, 16,6,* 477-496.

Alisic, E., **Boeije, H.R.,** Jongmans, M.J. & Kleber, R.J. (2011). Supporting children after single-incident trauma: Parents' views. *Clinical Pediatrics, 51,* 174-182.

Alisic, E., Jongmans, M.J., **Van Wesel, F.,** & Kleber, R.J. (2011). Building child trauma theory from longitudinal studies? A meta-analysis. *Clinical Psychological Review, 31,* 736-747.

Aussems, M.C.E., **Boomsma, A.,** & **Snijders, T.A.B.** (2011). The use of quasi-experiments in the social sciences: a content analysis. *Quality and Quantity, 45,* 21-42.

Baas, K.D., **Cramer, A.O.J.,** Koeter, M.W. ., Van de Lisdonk, E., Van Weert, H.C., & Schene, A.H. (2011). Measurement invariance with respect to ethnicity of the Patient Health Questionnaire-9 (PHQ-9). *Journal of Affective Disorders, 129,* 229-235.

Bakker, A., **Van der Heijden, P.G.M.,** Van Son, M.J.M., **Van de Schoot, R.** & Van Loey, N.E. (2011). Impact of pediatric burn camps on participants' self esteem and body image: An empirical study. *Burns, 37,8*, 1317-1325.

Bakker, M. & **Wicherts, J.M.** (2011). The (mis)reporting of statistical results in psychology journals. *Behavior Research Methods, 43,* 666-678.

Bennani-Dosse, M., **Kiers, H.A.L.,** & **Ten Berge, J.M.F.** (2011). Anisotropic generalized Procrustes analysis. *Computational Statistics & Data Analysis, 55,* 1961-1968.

Bennani-Dosse, M., **Ten Berge, J.M.F.,** & **Tendeiro, J.N.** (2011). Some new results on orthogonally constrained Candecomp. *Journal of Classification, 28,* 144-155.

Blom, A.G., **De Leeuw, E.D.,** & **Hox, J.J.** (2011). Interviewer effects on nonresponse in the European social survey. *Journal of Official Statsitics, 27, 2,* 359-377.

Boeije, H.R., Van Wesel, F. & Alisic, E. (2011). Making a difference: towards a method for weighing the evidence in a qualitative synthesis. *Journal of Evaluation in Clinical Practice, 17*, 657-663.

Boelen, P.A. **& Klugkist, I.G.** (2011). Cognitive behavioural variables mediate the associations of neuroticism and attachment insecurity with Prolonged Grief Disorder severity. *Anxiety, Stress & Coping, 24*, 291-307.

Borsboom, D., Cramer, A.O.J., Schmittmann, V.D., Epskamp, S., & **Waldorp, L.J.** (2011). The small world of psychopathology. *PLoS One, 6*, 11, e27407. . [open access journal]

Borsboom, D., Epskamp, S., **Kievit, R.A., Cramer, A.O.J.,** & **Schmittmann, V.D.** (2011) Transdiagnostic networks. *Perspectives on psychological science, 6,* 610-614.

Borsboom, D., Wagenmakers, E.-J., & Romeijn, J.-W. (2011). Mechanistic curiosity will not kill the Bayesian cat. [Comment on "Bayesian Fundamentalism or Enlightenment? On the explanatory status and theoretical contributions of Bayesian models of cognition"]. *Behavioral and Brain Sciences, 34,* 192-193.

Bouwmeester, S., Rijen, E.H.M., & **Sijtsma, K.** (2011). Understanding phoneme segmentation performance by analyzing abilities and word properties. *European Journal of Psychological Assessment, 27, 2,* 95-102.

Broeren, S.M.L., Muris, P., **Bouwmeester, S.,** Van der Heijden, K.B. & Abee, A. (2011). The role of repetitive negative thoughts in the vulnerability for emotional problems in non-clinical children. *Journal of Child and Family studies*, 20, 2, 135-148.

Bude, L., Imbos, Tj., Van de Wiel, M.W.J. & **Berger, M.P.F.** (2011). The effect of directive tutor guidance on students' conceptual understanding of statistics in Problem Based Learning. *British Journal of Educational Psychology, 81, 2,* 309-324.

Bullens, J., **Klugkist, I.,** Postma, A. (2011). The role of local and distal landmarks in the development of object location memory. *Developmental Psychology, 47,* 1515–1524.

Ceulemans, E., Timmerman, M.E., & **Kiers, H.A.L.** (2011). The CHull procedure for selecting among multilevel component solutions. *Chemometrics and Intelligent Laboratory Systems, 106*, 12-20.

Christoffels, I.K., Van de Ven, V., **Waldorp, L.J.,** Formisano, E., & Schiller, N. O. (2011). The sensory consequences of speaking: Parametric neural cancellation during speech in auditory cortex. *PLoS One, 6*, 5, e18307. . [open access journal]

Conijn, J.M., Emons, W.H.M., Van Assen, M.A.L.M., & **Sijtsma, K.** (2011). On the usefulness of a multilevel logistic regression approach to person-fit analysis. *Multivariate Behavioral Research, 46,* 365-388.

Cramer, A.O.J., Kendler, K.S., & **Borsboom, D.** (2011). Where are the genes? The implications of a network perspective on gene hunting in psychopathology. [A commentary on Johnson et al.]. *European Journal of Personality, 25,* 270-271.

De Boeck, P., Bakker, M., Zwitser, R., Nivard, M., Hofman, A., **Tuerlinckx, F.,** & Parchev, I. (2011). The estimation of item response models with the lmer function from the lme4 package in R. *Journal of Statistical Software, 39,* 1-28.

De Boeck, P., Cho, S.-J., & Wilson, M. (2011). Explanatory secondary dimension modeling of latent DIF. *Applied Psychological Measurement, 35,* 583-603.

De Bruin, E.I., **Zijlstra, B.J.H.,** Van de Weijer-Bergsma, E., & Bogels, S.M. (2011). The Mindful Attention Awareness Scale for Adolescents (MAAS-A): Psychometric properties in a Dutch sample. *Mindfulness, 3*, 201-211.

De Graaf, H., **Van de Schoot, R.,** Woertman, L., Hawk, S.T., & Meeus, W.H.J. (2011). Family cohesion and romantic and sexual initiation: A three way longitudinal study. *Journal of Youth and Adolescence, 19*, 1-10.

De Kroon, M.L., Renders, C.M., Buskermolen, M.P., Van Wouwe, J.P., **Van Buuren, S.,** & Hirasing, R.A. (2011). The Terneuzen Birth Cohort: Longer exclusive breastfeeding duration is associated with leaner body mass and a healthier diet in young adulthood. *BMC Pediatrics*, 11, 33.

De Kroon, M.L., Renders, C.M., Van Wouwe, J.P., Hirasing, R.A., & **Van Buuren, S.** (2011). Identifying young children without overweight at high risk for adult overweight: The Terneuzen Birth Cohort. *International Journal of Pediatric Obesity*, 6, 2-2, e187-95.

De Ridder, D.T.D., Boer, B. de, **Lugtig, P.J.,** Bakker, A.B. & Van Hooft, E.A.J. (2011). Not doing bad things is not equivalent to doing the right thing: Distinguishing between inhibitory and initiatory self-control. *Personality and Individual Differences, 50, 7,* 1006-1011.

De Rooij, M.J. (2011). Transitional ideal point models for longitudinal multinomial outcomes. *Statistical Modelling, 11*,2, 115-135.

De Roos, C., Greenwald, R., Den Hollander-Gijsman, M., Noorthoorn, E., **Van Buuren, S,** & De Jong, A. (2011). A randomised comparison of Cognitive Behavioral Therapy (CBT) and Eye Movement Desensitisation and Reprocessing (EMDR) in disaster-exposed children. *European Journal of Psychotraumatology*, 2, 5694.

De Vries, S.I., Galindo Garre, F., Engbers, L.H., Hildebrandt, V.H., & **Van Buuren, S.** (2011). Evaluation of neural networks to identify types of activity using accelerometers. *Medicine and Science in Sports and Exercise, 43, 1,* 101-107.

Diao, Q. & **Van der Linden, W.J.** (2011). Automated test assembly using lp_solve version 5.5 in R. *Applied Psychological Measurement, 35*, 398-409.

Dijkstra, M.T.M., Beersma, B., & **Evers, A.V.A.M.** (2011). Reducing conflict-related employee strain: The benefits of an internal locus of control and a problem-solving conflict management strategy. *Work & Stress, 25, 2*, 1-18.

Dirisamer, M., Dapena, I., Ham, L, Van Dijk, K., Oganesyan, O., **Frank, L.E.,** Van der Wees, J. & Melles, G.R.J. (2011). Patterns of corneal endothelialization and corneal clearance after Descemet membrane endothelial keratoplasty for Fuchs endothelial dystrophy. *American Journal of Ophthalmology, 152*, 543-555.

Dirisamer, M., Van Ham, L., Dapena, I., Moutsouris, K., Droutsas, K., Van Dijk, K., **Frank, L.E.,** Oellerich, S. & Melles, G.R.J. (2011). Efficacy of Descemet membrane endothelial keratoplasty (DMEK): Clinical outcome of 200 consecutive cases after a 'learning curve' of 25 cases. *Archives of Ophthalmology, 129, 11*, 1435-1443.

Donkin, C., Brown, S., Heathcote, A., & **Wagenmakers, E.-J.** (2011). Diffusion versus linear ballistic accumulation: Different models but the same conclusions about psychological processes? *Psychonomic Bulletin & Review, 18,* 61-69.

Doosje, S., De Goede, M.P.M., Van Doornen, L.J.P., & **Van de Schoot, R.** (2011). The associations of humorous coping styles, affective states, job demands and job control with the frequency of upper respiratory tract infection. *South African Journal of Industrial Psychology, 37, 2*, Article 1019. [open access journal]

Dros, J., Maarsingh, O.R., Van der Windt, D.A.W.M., **Oort, F.J.,** Ter Riet, G., De Rooij, S.E.J.A., Schellevis, F.G., Van der Horst, H.E., & Van Weert, H.C.P.M. (2011). Profiling dizziness in older primary care patients: An empirical study. *Plos One*, 6, 1, e16481. [open access journal]

Dutilh, G., Krypotos, A.-M., & **Wagenmakers, E.-J.** (2011). Task-related vs. stimulus-specific practice: A diffusion model account. *Experimental Psychology, 58,* 434-442.

Dutilh, G., **Visser, I**., **Wagenmakers, E.-J.,** & **Van der Maas, H.L.J.** (2011). A phase transition model for the speed-accuracy trade-off in response time experiments. *Cognitive Science, 35*, 211-250.

Edward, G.M., **Oort, F.J.,** De Haes, H.C.J.M., Biervliet, J.D., Hollmann, M.W., & Preckel, B. (2011). Information gain in patients using a multimedia website with tailored information on anaesthesia. *British Journal of Anaesthesia, 106, 3,* 319-324.

Egberink, I.J.L., & **Meijer, R.R.** (2011). An IRT analysis of Harter's self-perception profile for children or why strong clinical scales should be distrusted. *Assessment*, *18*, 202-212.

Eggen, T.J.H.M. & Lampe, T.T.M. (2011). Comparison of the reliability of scoring methods of multiple-response items, matching items, and sequencing items. *Cadmo, XIX*, 2, 85-104.

Eggen, T.J.H.M. & **Verhelst, N.D.** (2011). Item calibration in incomplete testing designs. *Psicologica, 32*, 107-132.

Eggen, T.J.H.M. (2011). Computerized classification testing with the Rasch model. *Educational Research and Evaluation, 17*, 361-371.

Facon, B., Magis, D., Nuchadee, M.-L., & **De Boeck, P.** (2011). Do Raven's Colored Matrices function in the same way in typical and clinical populations? Insights from the intellectual disability field. *Intelligence, 39,* 281-291.

Feenstra, H., Ruiter, R.A.C., **Schepers, J.,** Peters, G.J., & Kok, G. (2011). Measuring risky adolescent cycling behavior. *International Journal of Injury Control and Safety Promotion*, *19*, 1-7.

Fett, A.-K.J., **Viechtbauer, W.,** Domínguez, M. G., Penn, D. L., Van Os, J., & Krabbendam, L. (2011). The relationship between neurocognition and social cognition with functional outcomes in schizophrenia: A meta-analysis. *Neuroscience and Biobehavioral Reviews, 35, 3,* 573-588.

Forstmann, B. U., **Wagenmakers, E.-J.,** Eichele, T., Brown, S., & Serences, J.T. (2011). Reciprocal relations between cognitive neuroscience and formal cognitive models: Opposites attract? *Trends in Cognitive Sciences, 15,* 272-279.

Ganis, G., Rosenfeld, J.P., Meixner, J., **Kievit, R.A.,** & Schendan, H. (2011). Lying in the scanner: Covert countermeasures disrupt deception detection by functional Magnetic Resonance Imaging. *Neuroimage, 55,* 312-319.

Geerlings, H., Glas, C.A.W. & **Van der Linden, W.J.** (2011). Modeling rule-based item generation. *Psychometrika, 76*, 337-359.

Geraedts, E.J., Van Dommelen, P., Caliebe, J., Visser, R., Ranke, M.B., **Van Buuren, S.,** Wit, J.M., & Oostdijk, W. (2011). Association between head circumference and body size. *Hormone Research in Paediatrics, 75, 3,* 213-219.

Gower, J.C. & **Albers, C.J. (2011).** Between-group metrics. *Journal of Classification*, *28,* 315-326.

Griffith-Lendering, M.F.H., Huijbregts, S.C.J., **Mooijaart, A.**, Vollebergh, W.A.M., & Swaab-Barneveld, H. (2011). Cannabis use and development of externalizing and internalizing behaviour problems in early adolescence; a TRAILS study. *Drug and Alcohol Dependence*, *116, 1-3,* 11-17.

Groffen, Danielle A.I., Bosma, H., **Tan, F.E.S.,** Van den Akker, M., Kempen, G.I.J.M., & Van Eijk, J.Th.M. (2011). Material vs. psychosocial explanations of old-age educational differences in physical and mental functioning. *The European Journal of Public Health, 6,* 1-7.

Gubbels, J.S., Kremers, S.P., Stafleu, A., De Vries, S.I., Goldbohm, R.A,. Dagnelie, P.C., De Vries, N.K., **Van Buuren, S.,** & Thijs, C. (2011). Association between parenting practices and children's dietary intake, activity behavior and development of body mass index: The KOALA Birth Cohort Study. *International Journal of Behavioral Nutrition and Physical Activity*, 8, 18.

Gubbels, J.S., Kremers, S.P.J., van Kann, D.H.H., Stafleu A., **Candel, M.J.J.M.,** Dagnelie, P.C., Thijs, C., De Vries, N.K. (2011). Interaction between physical environment, social environment and child characteristics in determining physical activity at child-care. *Health Psychology*, 30, 84-90.

Gubbels, J.S., Thijs, C., Stafleu, A., **Van Buuren, S.,** & Kremers, S.P. (2011). Association of breast-feeding and feeding on demand with child weight status up to 4 years. *International Journal of Pediatric Obesity*, 6,2-2, e515-e522.

Halpin, P.F., **Dolan, C.V., Grasman, R.P.P.P.,** & **De Boeck, P.A.L.** (2011). On the relation between the linear factor model and the latent profile model. *Psychometrika, 76, 4,* 564-584.

Ham, L., Dapena, I., Moutsouris, K., Balachandran, Ch., **Frank, L.E.,** Van Dijk, K. & Melles, G.R.J. (2011). Refractive change and stability after Descemet membrane endothelial keratoplasty (DMEK): Corneal dehydration induces hyperopic shift not affecting lens power calculation. *Journal of Cataract and Refractive Surgery, 37*, 1455-1464.

Hartendorp, M.O., Van der Stigchel, S., Wagemans, J., **Klugkist, I.G.**, & Postma, A. (2011). The activation of alternative response candidates: When do doubts kick in? *Acta Psychologica, 139*, 38-45.

Hartman, E.E., **Oort, F.J.,** Aronson, D.C., Sprangers, M.A. (2011). Quality of life and disease-specific functioning of patients with anorectal malformations or Hirschsprung's disease: A review. *Archives of Disease in Childhood, 96, 4,* 398-406.

Hessen, D.J. (2011). Loglinear representations of multivariate Bernoulli Rasch models. *British Journal of Mathematical and Statistical Psychology, 64*, 337-354.

Hobbelen, J.S.M., **Tan, F.E.S.,** Verhey, F.R.J., Koopmans, R.T.C.M., De Bie, R.A. (2011) Prevalence, incidence and risk factors of paratonia in patients with dementia: A one-year follow-up study. *International Psychogeriatrics, 23, 7,* 1-10.

Hoekstra, R.A., Vinkhuyzen, A.A.E., Wheelwright, S., Bartels, M., Boomsma, D.I., Baron-Cohen, S., Posthuma, D., & **Van der Sluis, S.** (2011). The Construction and validation of an abridged version of the Autism-Spectrum Quotient (AQ-short). *Journal of Autism and Developmental Disorders,41, 5,* 589-596.

Huizenga, H.M., **Visser, I.,** & **Dolan, C.V.** (2011). Hypothesis testing in random effects meta-regression. *British Journal of Mathematical and Statistical Psychology, 64, 1*, 1-19.

Hursel, R., **Viechtbauer, W.,** Dullo, A.G., Tremblay, A., Tappy, L. Rumpler, W., & Westerterp-Plantenga, M.S. (2011). The effects of catechins and caffeine on energy expenditure and fat oxidation: A meta-analysis. *Obesity Reviews, 12, 7,* 573-581.

Ingebrigtsen, T., Thomsen, S.F., **Van der Sluis, S.,** Miller, M., Christensen, K., Sigsgaard, T., & Backer, V. (2011). Lung function heritability: A twin study on peak flow, forced expiratory volume in one second and forced vital capacity. *Lung*, *189, 4,* 323-330.

Jahfari, S., **Waldorp, L.J.,** Wildenberg, W.P.M., Scholte, H.S., Ridderinkhof, K.R., & Forstmann, B.U. (2011). Effective inhibition reveals important roles for both the hyperdirect (fronto-subthalamic) and the indirect (fronto-striatal-pallidal) fronto-basal ganglia pathways during response inhibition. *Journal of Neuroscience, 31, 18,* 6891-6899.

Jaidi, Y., Hooft, E .A. J. van, & **Arends, L.R.** (2011). Recruiting highly educated graduates: A study on the relationship between recruitment information sources, the theory of planned behavior, and actual job pursuit. *Human Performance, 24,* 135-157.

Jak, S., Oort, F.J., & **Dolan, C.V.** (2011). A test for cluster bias: Detecting violations of measurement invariance across clusters in multilevel data. *Psychometrika, 77, 1,* 170-192.

Jansen, M. J., **Viechtbauer, W.,** Lenssen, A.F., Hendriks, E.J.M., & De Bie, R.A. (2011). Strength training alone, exercise therapy alone, and exercise therapy with passive manual mobilisation each reduce pain and disability in people with knee osteoarthritis: A systematic review. *Journal of Physiotherapy, 57,* 11-20.

Janssen, M.J., Riksen-Walraven, J.M., Van Dijk, J.P.M., **Huisman, M.**, & Ruijssenaars, W.A.J.J.M. (2011). Fostering harmonious interactions in a boy with congenital deaf-blindness: A single-case study. *Journal of Visual Impairment & Blindness*, *105*, 560-572.

Jongerling, J. & **Hamaker, E.L.** (2011). On the trajectories of the predetermined ALT model: What are we really modeling? *Structural Equation Modeling: A Multidisciplinary Journal, 18, 3,* 370-382.

Kan, K.-J., Kievit, R.A., Dolan, C.V., & **Van der Maas, H.L.J.** (2011). On the interpretation of the CHC factor Gc. *Intelligence, 39, 5,* 292-302.

Keizer, A., Smeets, M.A.M., Dijkerman, H.C., Van den Hout, M., **Klugkist, I.G.,** Van Elburg, & Postma, A. (2011). Tactile body image disturbance in anorexia nervosa. *Psychiatry Research, 190*, 115-120.

Kievit, R.A. & Geurts, H.M. (2011). Autism and perception of awareness in self and others: Two sides of the same coin or dissociated abilities? *Cognitive Neuroscience, 2,* 119-120.

Kievit, R.A. (2011). Bayesians caught smuggling priors into Rotterdam Harbour. *Perspectives on Psychological Science, 6,* 313.

Kievit, R.A., Romeijn, J.W., **Waldorp, L.J., Wicherts, J.M.,** Scholte, H.S., & **Borsboom, D.** (2011). Mind the gap: A psychometric approach to the reduction problem. *Psychological Inquiry, 22,* 67-87.

Kievit, R.A., Romeijn, J.W., **Waldorp, L.J., Wicherts, J.M.,** Scholte, H.S., & **Borsboom, D.** (2011). Modeling mind and matter: Reductionism and psychological measurement in cognitive neuroscience. *Psychological Inquiry, 22,* 139-157.

King-Kallimanis, B.L., Oort, F.J., Nolte, S., Schwartz, C.E., & Sprangers, M.A.G. (2011). Using structural equation modeling to detect response shift in performance and health-related quality of life scores of multiple sclerosis patients. *Quality of Life Research, 20*, 10, 1527-1540.

Klein Entink, R.H., **Fox, G.J.A.** & Van den Hout, A. (2011). A mixture model for the joint analysis of latent developmental trajectories and survival. *Statistics in Medicine, 30,* 2310-2325.

Klinkenberg, S., **Straatemeier, M.,** & **Van der Maas, H.L.J.** (2011). Computer adaptive practice of Maths ability using a new item response model for on the fly ability and difficulty estimation. *Computers & Education, 57, 2,* 1813-1824.

Klugkist, I.G., Van Wesel, F. & Bullens, J. (2011). Do we know what we test and do we test what we want to know? *International Journal of Behavioral Development, 35*, 550-560.

Korendijk, E.J.H., Hox, J., & **Moerbeek, M.** (2011). Robustness of parameter and standard error estimates against ignoring a contextual effect of a subject level covariate in cluster randomized trials. *Behavior Research Methods, 43*, 1003-1013.

Kroonenberg, P.M. & **Ten Berge, J.M.F.** (2011). The equivalence of the Tucker3 and the Parafac models with two components. *Chemometrics and Intelligent Laboratory Systems, 106*, 21-26.

Kuiper, R.M. & **Hoijtink, H.J.A.** (2011). How to handle missing data in regression models using information criteria. *Statistica Neerlandica, 65, 4,* 489-506.

Kuiper, R.M., Hoijtink, H.J.A., & Silvapulle, M. J. (2011). An Akaike-type information criterion for model selection under inequality constraints. *Biometrika, 98*, 495-501.

Leppink, J., Broers, N. J., Imbos, Tj., Van der Vleuten, C. P. M., & **Berger, M.P.F.** (2011). Exploring task- and student-related factors in the method of propositional manipulation (MPM), *Journal of Statistics Education, 19, 1,* 1-23.

Ligtvoet, R. (2011). 2 and 2 Equals 4 ! [Presented at the 76th annual and 17th international meeting of the Psychometric Society]. *Psychometrika, 77, 1,* 170-192.

Ligtvoet, R., Van der Ark, L.A., Bergsma, W.P., & **Sijtsma, K.** (2011). Polytomous latent scales for the investigation of the ordering of items. *Psychometrika, 76,* 200-216.

Lima Passos, V., **Tan, F.E.S.,** & **Berger, M.P.F.** (2011). Cost-efficiency considerations in the choice of a microarray platform for time course experimental designs*. Computational Statistics and Data Analysis, 55*, 1, 944-954.

Lodewyckx, T., Kim, W., **Tuerlinckx, F.,** Kuppens, P., Lee, M.D., & **Wagenmakers, E.-J.** (2011). A tutorial on Bayes factor estimation with the product space method. *Journal of Mathematical Psychology, 55,* 331-347.

Lodewyckx, T., **Tuerlinckx, F.,** Kuppens, P., Allen, N. B., & Sheeber, L. (2011). A hierarchical state space approach to affective dynamics. *Journal of Mathematical Psychology*, *55*, 68-83.

Lomi, A., **Snijders, T.A.B.,** Steglich, C.E.G., & Torló, V.J. (2011). Why are some more peer than others? Evidence from a longitudinal study of social networks and individual academic performance. *Social Science Research, 40,* 1506-1520.

Lorenzo-Seva, U., **Timmerman, M.E.,** & **Kiers, H.A.L.** (2011). The Hull method for selecting the number of common factors. *Multivariate Behavioral Research, 46*, 340-364.

Lospinoso, J.A., Schweinberger, M., **Snijders, T.A.B,** & Ripley, R.M. Assessing and accounting for time heterogeneity in stochastic actor oriented models. *Advances in Data Analysis and Computation, 5,* 147-176.

Lubbers, M.J., **Snijders, T.A.B.,** & Van der Werf, M.P.C. (2011). Dynamics of peer relationships across the first two years of Junior High as a function of gender and changes in classroom composition, *Journal of Research on Adolescence, 21,* 488-504.

Lüftenegger, M., Schober, B., **Van de Schoot, R.,** Wagner, P., Finsterwald, M. & Spiel, C. (2011). Lifelong Learning as a goal: Do autonomy and self-regulation in school result in well prepared pupils? *Learning and Instruction, 22, 1,* 27-36.

Lugtig, P.J., Boeije, H.R., & **Lensvelt-Mulders, G.J.L.M.** (2011). Change? What change? An Exploration of the Use of Mixed-Methods Research to Understand Longitudinal Measurement Variance. *Methodology, 8,4*, 115-123.

Lugtig, P.J., Lensvelt-Mulders, G.J.L.M., Frerichs, R., & Greven, F. (2011). Estimating nonresponse bias and mode effects in a mixed mode survey. *Survey Practice, 53*, *5,* 669-686.

Lust, G., Vandewaetere, M., **Ceulemans, E.,** Elen, J., & Clarebout, G. (2011). Tool-use in a blended undergraduate course: In search of user profiles. *Computers & Education*, *57*, 2135-2144.

Maas, J., Wismeijer, A.A.J., **Van Assen, M.A.L.M.,** & Aquarius, A.E.A.M. (2011). Is it bad to have secrets? Cognitive preoccupation as a toxic element of secrecy. *International Journal of Clinical and Health Psychology*, *12*, *1,* 23-37.

Madhyastha, T.M., **Hamaker, E.L.**, & Gottman, J.M. (2011). Investigating spousal influence using moment-to-moment affect data from marital conflict. *Journal of Family Psychology, 25*, *2,* 292-300.

Magis, D., & **De Boeck, P.** (2011). A multivariate outlier detection approach for multi-group differential item functioning. *Multivariate Behavioral Research, 46,* 733-755.

Makransky, G. & **Glas, C.A.W.** (2011). Unproctored internet test verification: Using adaptive confirmation testing. *Organizational Research Methods, 14*, 608-630.

Massey, E.K., Garnefski, N., Gebhardt, W.A., & **Van der Leeden, M.** (2011). A daily diary study on the independent and interactive effects of headache and self-regulatory factors on daily affect among adolescents. *British Journal of Health Psychology, 16*, 288-299.

Maus, B, Van Breukelen, G.J.P., Goebel, R., **Berger, M.P.F.** (2011). Optimal design of multi-subject blocked fMRI experiments. *NeuroImage, 56,* 1338-1352.

Meeus, W.H.J., **Van de Schoot, R.,** Keijsers, L.G.M.T. & Branje, S.J.T. (2011). Identity statuses as developmental trajectories. A five-wave longitudinal study in early to middle and middle to late adolescents. *Journal of Youth and Adolescence*. [open access]

Meeus, W.H.J., **Van de Schoot, R.,** Klimstra, T. & Branje, S.J.T. (2011). Change and stability of personality types in adolescence: a five-wave longitudinal study in early-to-middle and middle-to-late adolescence. *Developmental Psychology, 47, 4,* 1181-1195.

Meijer, R.R., De Vries, R.M., & Van Bruggen, V. (2011). An evaluation of the brief symptom inventory-18 using item response theory or which items are most strongly related to psychological distress? *Psychological Assessment, 23,* 193-202.

Mercken, L., **Candel, M.,** Van Osch, L., De Vries, H. (2011). No smoke without fire: The impact of future friends on adolescent smoking behavior. *British Journal of Health Psychology, 16,* 170-188.

Minica, C.C., Boomsma, D.I., Van der Sluis, S., & **Dolan, C.V.** (2011). Genetic association in multivariate phenotypic data: Power in five models. *Twin Research and Human Genetics, 13, 6*, 525-543.

Moerbeek, M. (2011). The effects of the number of cohorts, degree of overlap among cohorts and frequency of observation on power in accelerated longitudinal designs. *Methodology, 7, 1*, 11-24.

Molenaar, D., Dolan, C.V., & **Van der Maas, H.** (2011). Modeling ability differentiation in the second-order factor model. *Structural Equation Modeling, 18,* 578-594.

Morey, C.C., Cowan, N., **Morey, R.D.,** & Rouder, J.N. (2011). Flexible attention allocation to visual and auditory working memory tasks: Manipulating reward induces a trade-off. *Attention, Perception, & Psychophysics, 73,* 458-472.

Morey, R.D. (2011). Hierarchical Bayesian models of working memory capacity. *Journal of Mathematical Psychology, 55*, 8-24.

Morey, R.D., & Morey, C.C. (2011). WoMMBAT: A user interface for hierarchical Bayesian estimation of working memory capacity. *Behavior Research Methods*, *43,* 1044-65.

Morey, R.D., & Rouder, J.N. (2011). Bayes factor approaches for testing interval null hypotheses. *Psychological Methods, 16,* 406-419.

Morey, R.D., Rouder, J.N., Pratte, M.S., & Speckman, P. (2011). Using MCMC chain outputs to efficiently estimate Bayes factors. *Journal of Mathematical Psychology, 55,* 368-378.

Nieuwenhuis, S., Forstmann, B.U., & **Wagenmakers, E.-J.** (2011). Erroneous analyses of interactions in neuroscience: A problem of significance. *Nature Neuroscience, 14,* 1105-1107.

Nilsson, H., Rieskamp, J., & **Wagenmakers, E.-J.** (2011). Hierarchical Bayesian parameter estimation for cumulative prospect theory. *Journal of Mathematical Psychology, 55,* 84-93.

Oort, F.J. (2011). Likelihood-based confidence intervals in exploratory factor analysis. *Structural Equation Modeling, 18*, 383-396.

Op den Velde, W.H., Deeg, D.J.H., Hovens, J.E., **Van Duijn, M.A.J.**, Aarts, P.G.H. (2011). War stress and late-life mortality in World War II civilian resistance veterans. *Psychological Reports 108, 2,* 437-448.

Oravecz, Z., & **Tuerlinckx, F.** (2011). The linear mixed model and the hierarchical Ornstein-Uhlenbeck model: Some Equivalences and differences. *British Journal of Mathematical and Statistical Psychology*, *64*, 134-160.

Oravecz, Z., **Tuerlinckx, F.,** & Vandekerckhove, J. (2011). A hierarchical latent stochastic differential equation model for affective dynamics. *Psychological Methods*, *16*, 468-490.

Ortega, S., **Tan, F.E.S., Berger, M.P.F.** (2011). ODMixed: A tool to obtain optimal designs for heterogeneous longitudinal studies with dropout. 62-71. *Computer Methods and Programs in Biomedicine, 101,* 62–71.

Paap, M.C.S., **Meijer, R.R.,** Van Bebber J., Pedersen, G., Karterud, G., Hellem, F., & Haraldsen, I.R. (2011). A study of the dimensionality and measurement precision of the SCL-90-R using Item Response Theory. *International Journal of Methods in Psychiatric Research*, *20*, *39-55*.

Pauksztat, B., **Van Duijn, M.A.J.**, & Wittek, R.P.M. (2011). A 'special attachment': Voice and the relational aspect of loyalty. *International Sociology 26, 4*, 524-546.

Penke, L. **Borsboom, D.,** Johnson, W., **Kievit, R.A.,** Ploeger, A., & **Wicherts, J.M.** (2011). Evolutionary psychology and intelligence research cannot be integrated the way Kanazawa (2010) suggested. *American Psychologist, 66,* 916-917.

Polek, E., Van Oudenhoven, J.P.L.M., & **Ten Berge, J.M.F.** (2011). Evidence for a "Migrant Personality": Attachment styles of Poles in Poland and Polish immigrants in the Netherlands. *Journal of Immigrant & Refugee Studies, 9, 4,* 311-326

Polman, A., O'Connor, K.P., & **Huisman, M**. (2011). Dysfunctional belief-based subgroups and inferential confusion in obsessive-compulsive disorder. *Personality and Individual Differences*, *50*, 153-158.

Raub, W., Buskens, V., & **Van Assen, M.A.L.M**. (2011). Micro-macro links and micro-foundations in sociology. *Journal of Mathematical Sociology, 35,* 1-25.

Rietbergen, C. & **Moerbeek, M.** (2011). The design of cluster randomized crossover trials. *Journal of Educational and Beharioral Statistics, 36, 4,* 474-490.

Rietbergen, C., **Klugkist, I.G.,** Janssen, K.J.M., Moons, K.G.M. & **Hoijtink, H.J.A.** (2011). Incorporation of historical data in the analysis of randomized therapeutic trials. *Contemporary Clinical Trials, 2011, 32,* 848-855.

Rigdon, E.E., Preacher, K.J., Lee, N., Howell, R.D., Franke, G.R., & **Borsboom, D.** (2011). Avoiding measurement dogma: A response to Rossiter. *European Journal of Marketing, 45,* 1589-1600.

Rizzi, T.S., Vasquez, A.A., Rommelse, N., Kuntsi, J., Anney, R., Asherson, P., Buitelaar, J., Banaschewski, T., Ebstein, R., Ruano, D., **Van der Sluis, S.**, et al. (2011). The ATXN1 and TRIM31 genes are related to

intelligence but only in an ADHD background: Evidence from a large collaborative study totaling 4963 subjects. *American Journal of Medical Genetics Part B Neuropsychiatric Genetics, 156B, 2, 145-157.*

Roelofs, J., **Van Breukelen,** G.J.P., Sluiter, J., Frings-Dresen, M.H.W., Goossens, M., Thibault, P., Boersma, K., & Vlaeyen, J.W.S. (2011). Norming of the Tampa Scale for Kinesophobia (TSK) across pain diagnoses and various countries. *Pain, 152,* 1090-1095.

Roorda, D.L., Koomen, H.M.Y., Spilt, J.L., **Oort, F.J.** (2011). The influence of affective teacher-student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research, 81, 4,* 493-529.

Rouder, J.N., & **Morey, R.D.** (2011). A Bayes factor meta-analysis of Bem's ESP claim. *Psychonomic Bulletin & Review, 18*, 682-689.

Rouder, J.N., **Morey, R.D.,** Morey, C.C., & Cowan, N. (2011). How to measure working memory capacity in the change detection paradigm. *Psychonomic Bulletin & Review, 18*, 324-330.

Sander W.J. Ubbink, Van Dijk, P., De Kleine, Emile, Brienesse, P., Chenault, M.N., **Tan, F.E.S.,** & Anteunis, L.J.C. (2011). Frequency shifts with age in click-evoked otoacoustic emissions of preterm infants. *Journal of the Acoustical Society of America, 129, 6, 3788-3796.*

Schepers, J. & **Van Mechelen, I.** (2011). A two-mode clustering method to capture the nature of the dominant interaction pattern in large profile data matrices. *Psychological Methods*, *16*, 361-371.

Schepers, J., Van Mechelen, I., & **Ceulemans, E.** (2011). The real-valued model of hierarchical classes. *Journal of Classification*, *28*, 363-389.

Schönbeck, Y., Talma, H., Van Dommelen, P., Bakker, B., Buitendijk, S.E., Hirasing, R.A. & **Van Buuren, S.** (2011). Increase in prevalence of overweight in dutch children and adolescents: A comparison of nationwide growth studies in 1980, 1997 and 2009. *PLoS ONE*, 6, 11, e27608. . [open access journal]

Schwartz, C.E., Sprangers, M.A.G., **Oort, F.J.,** Ahmed, S., Bode, R., Li, Y., & Vollmer, T. (2011). Response shift in patients with multiple sclerosis: an application of three statistical techniques. *Quality of Life Research, 20, 10,* 1561-1572.

Siemons, L., Ten Klooster, P.M., Taal, E., Kuper, I.H., Van Riel, P.L.C.M., Van de Laar, M.A.F.J., & **Glas, C.A.W.** (2011). Validating the 28-Tender Joint Count using Item Response Theory. *Journal of rheumatology, 38, 12,* 2557-2564.

Sijtsma, K. (2011). Introduction to the measurement of psychological attributes. *Measurement. Journal of the International Measurement Confederation, 44, 7,* 1209-1219.

Sijtsma, K., & **Emons, W.H.M.** (2011). Advice on total-score reliability issues in psychosomatic measurement. *Journal of Psychosomatic Research, 70, 6,* 565-572.

Sijtsma, K., Meijer, R.R., & **Van der Ark, L.A.** (2011). Mokken Scale Analysis as time goes by: An update for scaling practitioners. *Personality and Individual Differences, 50,* 31-37.

Sleddens, E.F.C., Kremers, S.P.J., **Candel, M.J.J.M.,** De Vries, N.N.K., Thijs, C. (2011). Validating the Children's Behavior Questionnaire in Dutch children: psychometric properties and a cross-cultural comparison of factor structures. *Psychological Assessment*, 23, 417-426.

Smeding, H., Speelman, J.D., **Huizenga, H.M.,** Schuurman, P.R., & Schmand, B. (2011). Predictors of cognitive and psychosocial outcome after STN DBS in Parkinson Disease. *Journal of Neurology, Neurosurgery, and Psychiatry, 82, 7,* 754-760.

Smits, I.A.M., Dolan, C.V., Vorst, H.C.M., **Wicherts, J.M.,** & **Timmerman, M.E.** (2011). Cohort differences in big five personality factors over a period of 25 years. *Journal of Personality and Social Psycholology, 100, 6,* 1124-1138.

Snijders, T.A.B. (2011). Statistical models for social networks. *Annual Review of Sociology, 37,* 129-151.

Stefanek, E., Strohmeier, D., **Van de Schoot, R.** & Spiel, C. (2011). Bully-victim behaviour in ethnically diverse classrooms: risk and protective factors on the individual and the class room level. *European Journal of Developmental Psychology,* 5, 1-2, 73-84.

Stegeman, A. (2011). On uniqueness of the canonical tensor decomposition with some form of symmetry. *SIAM Journal on Matrix Analysis and Applications, 32,* 561-583.

Stocks, T., Renders, C.M., Bulk-Bunschoten, A.M., Hirasing, R.A., **Van Buuren, S.,** & Seidell, J.C. (2011). Body size and growth in 0- to 4-year-old children and the relation to body size in primary school age. *Obesity Reviews*, *12, 8,* 637-652.

Stouten, J., **Ceulemans, E., Timmerman, M.E.,** & Van Hiel, A. (2011). Tolerance of justice violations: The effects of need on emotional reactions after violating equality in social dilemmas. *Journal of Applied Social Psychology, 41*, 357-380.

Stringer, S., **Borsboom, D**., & **Wagenmakers, E.-J.** (2011). Bayesian inference for the information gain model. *Behavior Research Methods, 43,* 297-309.

Tan, F.E.S. & Lima Passos, V. (2011). On the A-optimality criteria for finding two-color microarray optimal designs. *Journal of Computational Biology, 18,* 1-7.

Tan, F.E.S. & **Lima Passos, V.** (2011). On the A-optimality criterion for finding wwo-color microarray optimal designs. *Journal of Computational Biology, 18, 6,* 835-41.

Tan, F.E.S. (2011). Conditions for *DA*-maximin marginal designs for generalized linear mixed models to be uniform. *Communications in Statistics - Theory and Methods, 40, 255–266,*

Tekle, F.B., Tan, F.E.S., & **Berger, M.P.F**. (2011). Too many cohorts and repeated measurements is a waste of resources. *Journal of Clinical Epidemiology, 64, 12,* 1383-1390.

Ten Berge, J.M.F. (2011). Simplicity and typical rank results for three-way arrays. *Psychometrika, 76,* 3-12.

Tendeiro, J., Bennani-Dosse, M., & **Ten Berge, J.M.F.** (2011). First and second-order derivatives for CP and Indscal . *Chemometrics and Intelligent Laboratory Systems, 106*, 27-36.

Ter Hoeven, C.L., Zandbelt, L.C., Fransen, S., De Haes, H., **Oort, F.J.,** Geijsen, D., Koning, C., & Smets, E. (2011). Measuring cancer patients' reasons for their information preference: construction of the Considerations Concerning Cancer Information (CCCI) questionnaire. *Psycho-oncolology, 20, 11,* 1228-1235.

Ter Kuile, H., Veldhuis, M., Van Veen, S., & **Wicherts, J.M**. (2011). Bilingual education, metalinguistic awareness, and the understanding of an unknown language. *Bilingualism: Language and Cognition, 14,* 233-242.

Thomsen, S.F., **Van der Sluis, S.**, Ohm, K.K., Skytthe, A., Skadhauge, L.R., & Backer, V. (2011). Increase in the heritability of asthma from 1994 to 2003 among adolescent twins. *Respiratory Medicine, 105, 8,* 1147-1152.

Thoonen, E.E.J., Sleegers, P.J.C., **Oort, F.J.,** Peetsma, T.T.D., Geijsel, F.P. (2011). How to improve teaching practices: The role of teacher motivation, organizational factors, and leadership practices. *Educational Administration Quarterly, 47, 3,* 496-536.

Thoonen, E.E.J., Sleegers, P.J.C., Peetsma, T.T.D., & **Oort, F.J.** (2011). Can teachers motivate students to learn? *Educational Studies, 37, 3,* 345-360.

Thorrez, L., Laudadio, I., Van Deun, K., Quintens, R., Hendrickx, N., Granvik, M., Lemaire, K., Schraenen, A., Van Lommel, L., Lehnert, S., Aguayo-Mazzucato, C., Cheng-Xue, R., Gilon, P., **Van Mechelen, I.,** Bonner-Weir, S., Lemaigre, F., & Schuit, F. (2011). Tissue-specific disallowance of housekeeping genes: The other face of cell differentiation. *Genome Research*, *21*, 95-105.

Tijmstra, J., Hessen, D.J., Van der Heijden, P.G.M., & **Sijtsma, K.** (2011). Invariant ordering of item-total regressions. *Psychometrika, 76, 2,* 217-227.

Timmerman, M.E., & Lorenzo-Seva, U. (2011). Dimensionality assessment of ordered polytomous items with parallel analysis. *Psychological Methods, 16*, 209-220.

Timmers, C.F. & **Veldkamp, B.P.** (2011). Attention paid to feedback provided by a computer-based assessment for learning on information literacy. *Computers & education, 56, 3,* 923-930.

Van Bergen, E., De Jong, P.F., Regtvoort, A., **Oort, F.J.,** Van Otterloo, S., Van der Leij, A. (2011). Dutch children at family risk of dyslexia: Precursors, reading development, and parental effects. *Dyslexia, 17, 1,* 2-18.

Van Bers, B.M.C., **Visser, I**., Van Schijndel, T.J.P., Mandell, D.J., & **Raijmakers, M.E.J.** (2011). The dynamics of development on the dimensional change card sorting task. *Developmental Science, 14,* 960-971.

Van Buuren S. & Groothuis-Oudshoorn K (2011). MICE: Multivariate Imputation by Chained Equations in R. *Journal of Statistical Software, 45, 3,* 1-67.

Van de Schoot, R. & Strohmeier, D. (2011). Testing informative hypotheses in SEM increases power: an illustration contrasting classical hypothesis testing with a parametric bootstrap approach. *International Journal of Behavioral Development, 35*, 180-190.

Van de Schoot, R. & Wong, T. (2011). Do antisocial young adults have a high or a low level of self-concept? *Self and Identity, 11,* 148-169.

Van de Schoot, R., Hoijtink, H., & Romeijn, J.W. (2011). Moving beyond traditional null hypothesis testing: Evaluating expectations directly. *Frontiers in Psychology,* 2: 24.

Van de Schoot, R., Hoijtink, H.J.A., Mulder, J., van Aken, M.A.G., Orobio de Castro, B., Meeus, W. & Romeijn, J.W. (2011). Evaluating expectations about negative emotional states of aggresive boys using bayesian model selection. *Developmental Psychology, 47*, 203-212.

Van de Schoot, R., Hoijtink, H., Romeijn, J-W & Brugman, D. (2011). A prior predictive loss function for the evaluation of inequality constrained hypotheses. *Journal of Mathematical Psychology, 56,* 13-23.

Van de Schoot, R., Mulder, J., **Hoijtink, H.,** Van Aken, M.A.G. , Dubas, J.S., de Castro, B. O., Meeus, W. & Romeijn, J.-W. (2011). An introduction to Bayesian model selection for evaluating informative hypotheses. *European Journal of Developmental Psychology, 8, 6, 713-729.*

Van den Broek, M.A.J., Van Dam, R.M., **Van Breukelen, G.J.P.,** Bemelmans, M.H., Oussoultzoglou, E., Pessaux, P., De Jong, C.H.C., Freemantle, N., Olde Damink, S.W.M. (2011). Development of a composite endpoint for randomized controlled trials in liver surgery. *British Journal of Surgery, 98,* 1138-1145.

Van der Ark, L.A., Van der Palm, D.W., & **Sijtsma, K.** (2011). A latent class approach to estimating test-score reliability. *Applied Psychological Measurement, 35,* 380-392.

Van der Kleij, F.M., Timmers, C.F. & **Eggen, T.J.H.M.** (2011). The effectiveness of methods for providing written feedback through a computer-based assessment for learning: A systematic review. *Cadmo, 19*, 21-39.

Van der Linden, W.J. & Diao, Q. (2011). Automated test-form generation. *Journal of Educational Measurement, 48*, 206-222.

Van der Linden, W.J. (2011). Modeling response times with latent variables: Principles and applications. *Psychological test and assessment modeling, 3, 53,* 334-358.

Van der Linden, W.J. (2011). Setting time limits on tests. *Applied Psychological Measurement, 35*, 183-199.

Van der Linden, W.J. (2011). Test design and speededness. *Journal of Educational Measurement, 48*, 44-60.

Van der Linden, W.J., Jeon, M. & Ferrara, S. (2011). A paradox in the study of the benefits of test-item review. *Journal of Educational Measurement, 48*, 380-398.

Van der Maas, H.L.J., Molenaar, D., Maris, G., Kievit, R.A., & **Borsboom, D.** (2011). Cognitive psychology meets psychometric theory: On the relation between process models for decision making and latent variable models for individual differences. *Psychological Review, 118,* 339-356.

Van der Vaart, W., & **Glasner, T.J.** (2011). Personal Landmarks as Recall Aids in Survey Interviews. *Field Methods, 23, 1,* 37-56.

Van Deun, K., Wilderjans, T. F., van den Berg, R. A., Antoniadis, A., & **Van Mechelen, I.** (2011). A flexible framework for sparse simultaneous component based data integration. *BMC Bioinformatics*, *12*, 448.

Van Dijk, M., **Timmerman, M.E.,** Martel, C., & Ramsay, M. (2011). Towards the development of a Dutch screening instrument for the detection of feeding problems in young children. *Netherlands Journal of Psychology, 66*, 112-119.

Van Dijke, A., Ford, J.D., Van der Hart, O., Van Son, M.J.M., **Van der Heijden, P.G.M.,** & Buhring, M. (2011). Childhood traumatization by primary caretaker and affect dysregulation in patients with borderline personality disorder and somatoform disorder. *European Journal of Psychotraumatology, 2*, 5628-5628.

Van Erp, K.J.P.M, Giebels, E., **Van Duijn, M.A.J.**, & Van Oudenhoven-Van der Zee, K. (2011). Expatriate adjustment: The role of justice and conflict in intimate relationships. *Personal Relationships, 18, 1,* 58-78.

Van Erp, K.J.P.M, Giebels, E., **Van Duijn, M.A.J.**, & Van Oudenhoven-Van der Zee, K. (2011). Let it be: Expatriate couples' adjustment and the upside of avoiding conflicts. *Anxiety, Stress and Coping 24,5,* 539-560.

Van Ginkel, J.R., & **Kiers, H.A.L.** (2011). Constructing bootstrap confidence intervals for principal component loadings in the presence of missing data: a multiple-imputation approach*. British Journal of Mathematical and Statistical Psychology, 64,* 498-515.

Van Harmelen, A.L., Elzinga, B.M., **Kievit, R.A.,** & Spinhoven, P. (2011). Intrusions of autobiographical memories in individuals reporting childhood emotional maltreatment. *European Journal of Psychotraumatology, 2,* 7336.

Van Keulen, H., Mesters, I., Ausems, M., **Van Breukelen, G.J.P.,** Campbell M, Resnicow K, Brug J, DeVries H (2011). Tailored print communication and telephone motivational interviewing are equally succesful in improving multiple lifestyle behaviors in an RCT. *Annals of Behavioral Medicine , 41,* 104-118*.*

Van Maanen, A., Meijer, A.M., Smits, M.G., & **Oort, F.J.** (2011). Melatonin and sleep effects on health, behavior problems and parenting stress. *Sleep and Biological Rhythms, 9,* 165-171.

Van Maanen, A., Meijer, A.M., Smits, M.G., & **Oort, F.J.** (2011). Termination of short term melatonin treatment in children with delayed Dim Light Melatonin Onset: Effects on sleep, health, behavior problems, and parenting stress. *Sleep Medicine, 12, 9*, 875-879.

Van Maanen, L., Brown, S., Eichele, T., **Wagenmakers, E.-J.,** Ho, T., Serences, J., & Forstmann, B.U. (2011). Neural correlates of trial-to-trial fluctuations in response caution. *Journal of Neuroscience, 31,* 17488-17495.

Van Maanen, L., **Grasman, R.P.P.P.,** Forstmann, B.U., & Wagenmakers, E.-J. (2011). Piéron's law in perceptual decision-making. *Frontiers in Decision Neuroscience,* 5: 143.

Van Mechelen, I., & Smilde, A. K. (2011). Comparability problems in the analysis of multiway data. *Chemometrics and Intelligent Laboratory Systems*, *106*, 2-11.

Van Ravenzwaaij, D., Brown, S., & **Wagenmakers, E.-J.** (2011). An integrated perspective on the relation between response speed and intelligence. *Cognition, 119,* 381-393.

Van Ravenzwaaij, D., Dutilh, G., & **Wagenmakers, E.-J.** (2011). Cognitive model decomposition of the BART: Assessment and application. *Journal of Mathematical Psychology, 55,* 94-105.

Van Ravenzwaaij, D., Van der Maas, H.L.J., & **Wagenmakers, E.-J.** (2011). Does the Name-Race Implicit Association Test measure racial prejudice? *Experimental Psychology, 58,* 271-277.

Van Vianen, A.E.M., De Pater, I.E., Bechtoldt, M.N., **& Evers, A.** (2011). The strength and quality of climate perceptions: *Journal of Managerial Psychology, 26*, 77-92.

Van Wesel, F., Hoijtink, H.J.A. & **Klugkist, I.G.** (2011). Choosing priors for inequality constrained normal linear models: methods based on training samples. *Scandinavian journal of statistics, 38*, 666-690.

Van Wietmarschen, H.A., Reijmers, T.H., Van der Kooij, A.J., Wei, H., Schroen, J., **Meulman, J.J.** & Van der Greef, J. (2011). Systems diagnosis questionnaire reveals similarities and differences between patients with rheumatic diseases. *PLoS ONE, 6*. 12, e24846. [open access journal]

Van Zuiden, M., Heijnen, C.J., **Van de Schoot, R.,** Amarouchi, K., Maas, M.C.T., Vermetten, E., Geuze, E. & Kavelaars, A. (2011). Cytokine production by leukocytes of military personell with depressive symptoms after deployment to a combat-zone: a prospective, longitudinal study. *PLoS ONE, 6*, 12, e29142.

Vandekerckhove, J., **Tuerlinckx, F.,** & Lee, M. D. (2011). Hierarchical diffusion models for two-choice response times. *Psychological Methods*, *16*, 44-62.

Vanpaemel, W. (2011). Constructing informative model priors using hierarchical methods. *Journal of Mathematical Psychology*, *55*, 106-117.

Verdonk-Kleinjan, W.M.I., **Candel, M.J.J.M.,** Knibbe, R.A., Willemsen, M.C., de Vries, H. (2011). Effects of a workplace-smoking ban in combination with tax increases on smoking in the Dutch population. *Nicotine & Tobacco Research*, 13, 412-418.

Verduyn, P., **Van Mechelen, I.,** & **Tuerlinckx, F.** (2011). The relation between event processing and the duration of emotional experience. *Emotion*, *11*, 20-28.

Viechbauer, W. (2011). Review of 'Graphics for Statistics and Data Analysis with R' by Kevin J. Keen. *Statistics in Medicine, 30, 2*2, 2765-2766.

Vinkhuyzen, A.A.E., **Van der Sluis, S.**, & Posthuma D. (2011). Life events moderate variation in cognitive ability (g) in adults. *Molecular Psychiatry, 16, 1,* 4-6.

Visser, I. (2011). Seven things to remember about hidden Markov models: A tutorial on Markovian models for time series. *Journal of Mathematical Psychology, 55*, 403-415.

Voorspoels, W., Storms, G**., Vanpaemel, W.** (2011). Representation at different levels in a conceptual hierarchy. *Acta Psychologica, 138, 1,* 11-18.

Voorspoels, W., Vanpaemel, W., Storms, G. (2011). A formal ideal-based account of typicality. *Psychonomic Bulletin & Review, 18,5,* 1006-1014.

Vossen, H, **Van Breukelen, G.J.P.,** Hermens, H., Van Os, J., & Lousberg, R. (2011). More potential in statistical analyses of event-related potentials: A mixed regression approach. *International Journal of Methods in Psychiatric Research, 20,3,* e56-e68.

Vossen, H.G.M., **Van Breukelen, G.J.P.,** Van Os, J., Hermens, H.J., Lousberg, R. (2011). Association between Event-Related Potentials and subjective pain ratings: not as straightforward as often thought. *Journal of Psychophysiology, 25,* 18-25.

Wagenmakers, E.-J., Wetzels, R., Borsboom, D., & **Van der Maas, H.L.J.** (2011). Why psychologists must change the way they analyze their data: The case of psi. *Journal of Personality and Social Psychology, 100,* 426-432.

Waldorp, L.J., Christoffels, I.K., & Van de Ven, (2011). Effective connectivity of fMRI data using ancestral graph theory: Dealing with missing regions. *NeuroImage, 54,* 2695-2705.

Wan, L., Ogrinz, B., Vigo, D., Bersenev, E., **Tuerlinckx, F.,** Van den Bergh, O., & Aubert, A. (2011). Cardiovascular autonomic adaptation to long-term confinement during a 105-day simulated Mars mission. *Aviation, Space and Environmental Medicine*, *82*, 711-716.

Warrens, M.J. (2011). Chance-corrected measures for 2x2 tables that coincide with weighted kappa. *British Journal of Mathematical and Statistical Psychology, 64*, 355-365.

Warrens, M.J. (2011). Cohen's kappa is a weighted average. *Statistical Methodology, 8*,6, 473-484.

Warrens, M.J. (2011). Cohen's linearly weighted kappa is a weighted average of 2x2 kappas. *Psychometrika, 76*,3, 471-486.

Warrens, M.J. (2011). Weighted kappa is higher than Cohen's kappa for tridiagonal agreement tables. *Statistical Methodology, 8*, 268-272.

Weeda, W.D., De Vos, F., **Waldorp, L.J., Grasman, R.P.P.P.,** & **Huizenga, H.M.** (2011). arf3DS4: An Integrated Framework for Localization and Connectivity Analysis of fMRI Data. *Journal of Statistical Software, 44, 14,* 1-33.

Weeda, W.D., Waldorp, L.J., Grasman, R.P.P.P, Van Gaal, S., & **Huizenga, H.M.** (2011). Functional connectivity analysis of fMRI data using parameterized regions-of-interest. *NeuroImage, 54, 1,* 410-416.

Wetzels, R., Matzke, D., Lee, M.D., Rouder, J.N., Iverson, G.J., & **Wagenmakers, E.-J.** (2011). Statistical evidence in experimental psychology: An empirical comparison using 855 t tests. *Perspectives on Psychological Science, 6,* 291-298.

Wiberg, E. & **Van der Linden, W.J.** (2011). Local linear observed-score equating. *Journal of educational measurement, 48*, 229-254.

Wicherts, J.M. (2011). Psychology must learn a lesson from fraud case. *Nature, 480,* 7.

Wicherts, J.M., Bakker, M., & **Molenaar, D.** (2011). Willingness to share research data is related to the strength of the evidence and the quality of reporting of statistical results. *PLoS ONE, 6,* e26828. . [open access journal]

Wilderjans, T. F., **Ceulemans, E., Van Mechelen, I**., & Depril, D. (2011). ADPROCLUS: A graphical user interface for fitting additive profile clustering models to object by variable data matrices. *Behavior Research Methods*, *43*, 56-65.

Wilderjans, T. F., **Ceulemans, E., Van Mechelen, I.,** & van den Berg, R. A. (2011). Simultaneous analysis of coupled data matrices subject to different amounts of noise. *British Journal of Mathematical and Statistical Psychology*, *64*, 277-290.

Woldringh, G.H., Hendriks, J.C., Van Klingeren, J., **Van Buuren, S.,** Kollee, L.A., Zielhuis, G.A., & Kremer, J.A. (2011). Weight of in vitro fertilization and intracytoplasmic sperm injection singletons in early childhood. *Fertility and Sterility, 95,8,* 2775-2777.

Wolters Gregorio, G., Visser-Meily, J.M.A., **Tan, F.E.S.,** Post, M.W.M., Van Heugten, C.M. (2011). Changes in the coping styles of spouses and the influence of these changes on their psychosocial functioning the first year after a patient's stroke. *Journal of Psychosomatic Research, 71, 3,* 188-193.

Wong, T. & **Van de Schoot, R**. (2011). Reporting violent victimization to the police: the role of the sex of the offender. *Journal of Interpersonal Violence*. 27, 7, 1276–1292.

Zand Scholten, A. (2011). The Guttman-Rasch paradox: Why the interval level of measurement unparadoxically goes poof when precision increases. [Presented at the 76th annual and 17th international meeting of the Psychometric Society]. *Psychometrika, 77, 1,* 170-192.

Zand Scholten, A., Maris, G., & **Borsboom, D.** (2011). The emperor's new measurement model. *Measurement, 9,* 32-35.

Zeguers, M.H.T., Snellings, P., Tijms, J., Tamboer, P., **Weeda, W.D.,** Bexkens, A., & **Huizenga, H.M.** (2011). Specifying theories of developmental dyslexia: A diffusion model analysis of word recognition. *Developmental Science, 14, 6,* 1340-1354.

Zhang, B., **Fokkema, M.,** Cuijpers, P., Li, J., Smits, N., & Beekman, A. (2011). Measurement Invariance of the CES-D among the Chinese and Dutch Elderly. *BMC Medical Research Methodology, 11*:74. [open access journal]

Zijlstra, W.P., Van der Ark, L.A., & **Sijtsma, K.** (2011). Outliers in questionnaire data: Can they be detected and should they be removed? Journal of Educational and Behavioral Statistics, 36, 2, 186-212.

Zijlstra, W.P., Van der Ark, L.A., & **Sijtsma, K.** (2011). Robust Mokken scale analysis by means of the forward search algorithm for outlier detection. *Multivariate Behavioral Research, 46,* 58-89.

6.3 Contributions to international English-language volumes

Canini, K., Griffiths, T., **Vanpaemel, W.,** Kalish, M. (2011). Discovering inductive biases in categorization through iterated learning. In : L. Carlson, C. Hoelscher, T. Shipley (Eds). Proceedings of the Annual Conference of the Cognitive Science Society, 33, Boston, MA, USA, 20-23 July 2011 (pp. 1667-1672). Austin, TX: Lawrence Erlbaum Associates. **Conference proceedings (volledige papers**

De Leeuw, E.D. & **Hox, J.J.** (2011). Internet surveys as part of a mixed mode design. In M. Das, P. Ester, & L. Kaczmirek (Eds). *Social and Behavioral Research and the Internet: Advances in Applied Methods and Research Strategies.* New York: Routledge, Taylor & Francis Group, pp. 45-76.

De Vreese, C., **Klausch, T.** (2011) The salience of frames and their effects on the support for CFSP and supranational policy allocation. In K. Oppermann & H. Viehring (Eds). *Issue Salience in International Politics* (pp. 118-136). Milton Park: Routledge.

Hamaker, E.L. & **Klugkist, I.G.** (2011). Bayesian estimation in multilevel modeling. In J.J. Hox & J.K. Roberts (Eds), *Handbook of advanced multilevel analysis* (pp. 137-161). New York: Taylor and Francis.

Hamaker, E.L., Van Hattum, P., Kuiper, R.M., & **Hoijtink, H.J.A.** (2011). Model selection based on information criteria in multilevel modeling. In **J.J.C.M. Hox** & K. Roberts (Eds), *Handbook of advanced multilevel analysis* (pp. 231-255). New York: Taylor and Francis Group.

He, Q., Veldkamp, B.P. & Westerhof, G.J. (2011). Computerized coding system for life narratives to assess students' personality adaption. In M. Pechenizkiy, T. Calders, C. Conati, S. Ventura, C. Romero & J. Stamper (Eds), *Proceedings of the 4th International Conference on Educational Data Mining* (pp. 325-326). Eindhoven.

Heiser, W.J. & **Warrens, M.J.** (2011). Families of Relational Statistics for 2 x 2 Tables. In: Hemanshu Kaul & Henry Martyn Mulder (Eds), *Advances in Interdisciplinary Applied Discrete Mathematics*, *Interdisciplinary Mathematical Sciences,* Vol. 11 (pp. 25-51). Singapore: World Scientific Publishing.

Hox, J. & Boom, J. (2011). Growth curve modeling from a multilevel model perspective. In B. Laursen, T. Little & N. Card (Eds.), *Handbook of Developmental Research Methods* (pp. 432-444). New York, U.S.A.: Guilford Publications.

Huisman, M. & Van Duijn, M.A.J. (2011). A reader's guide to SNA software. In: J. Scott and P.J. Carrington (Eds.), *The SAGE Handbook of Social Network Analysis* (pp. 578-600). London: Sage.

Raijmakers, M.E.J., Van Es, S., & Counihan, M. (2011). Children's strategy use in playing strategic games. In R. Verbrugge & J. Van Eijck, (Eds.), Proceedings of theWorkshop on Reasoning About Other Minds:

Logical and Cognitive Perspectives (RAOM-2011), Groningen, The Netherlands, July 11th, 2011, Vol. 751 of CEUR Workshop Proceedings, p. 137-148. CEUR-WS.org, 2011.

Rippe, R.C.A. & **Eilers, P.H.C.** (2011). Segmented smoothing with an LO penalty. In D. Conesa, A. Forte, A. Lopez-Quilez, F. Munoz (Eds.), *Proceedings of the international workshop on statistical modeling 2011* (pp. 509-514). 26th International Workshop on Statistical Modelling, Valencia, Spain.

Romeijn, J.W., **Van de Schoot, R.** & **Hoijtink, H.** (2011). One size does not fit all: proposal for a prior-adapted BIC. In D. Dieks, W. Gonzales, S. Hartmann, F. Stadler, T. Uebel, & M. Weber (Eds.), *Probabilities, Laws, and Structures*. Berlin: Springer.

Scherpenzeel, A.C. & **Bethlehem, J.G.** (2011), How representative are online panels? Problems of coverage and selection and possible solutions. In: Das, M., Ester, P. & Kaczmirek, L. (Eds.), *Social and Behavioral Research and the Internet*, Routledge, New York-London, pp. 105-132.

Sleegers, P.J.C., Thoonen, E.E.J., Geijsel, F.P. **Oort, F.J.,** Peetsma, T.T.D. (2011). Changing teaching practices: What matters? In: Baráth Tibor & Szabó Mária (Eds). *Does leadership matter? Implications for leadership development and the school as a learning organisation*, HUNSEM, University of Szeged, Nemzeti Tankönyvkiadó, Budapest-Szeged, 2011, pp. 33-56.

Snijders, T.A.B. (2011). Network Dynamics, Chapter 33 (pp. 501-513) in J. Scott & P.J. Carrington (Eds.), The SAGE Handbook of Social Network Analysis. London: Sage.

Stukken, L., Storms, G., **Vanpaemel, W.** (2011). Explaining categorization response times with varying abstraction. In : L. Carlson, C. Hoelscher, T. Shipley (Eds.). Proceedings of the Annual Conference of the Cognitive Science Society, 33, Boston, MA, USA, 20-23 July 2011 (pp. 2842-2847). Austin, TX: Lawrence Erlbaum Associates.

Theune, M., Boer Rookhuiszen, R., Akker, J., & **Geerlings, H.** (2011). Generating varied narrative probability exercises. In J. Tetreault, J. Burstein & C. Leacock (Eds.), *Proceedings of the sixth workshop on innovative use of NLP for building educational applications* (pp. 20-29). Portland, Oregon.

Van Buuren, S. (2011). Multiple imputation of multilevel data. In **J.J. Hox**, & J.K. Roberts (Eds.), *The handbook of advanced multilevel analysis* (pp. 173-196). Milton Park, UK: Routledge.

Van der Linden, W.J. (2011). Local observed-score equating. In von A.A. Davier (Ed.), *Statistical models for equating, scaling, and linking* (pp. 201-223). New York: Springer.

Van Duijn, M.A.J. & **Huisman, M.** (2011). Modeling ties and identifying groups of actors. Statistical models applied to the EIES data. In P.J. Carrington & J. Scott, *The SAGE Handbook of Social Network Analysis Handbook of Social Network Analysis* (pp. 459-483). London: SAGE.

Verkuilen, J., **Kievit, R.A.,** & **Zand Scholten, A.** (2011). Fuzzy sets to represent concepts in psychology and the behavioral sciences. In R. Belohlavek & G.J. Klir (Eds.), *Concepts and fuzzy logic* (pp. 149-176). Cambridge: MIT Press.

Visser, I.. (2011). Methodological solipsism. In Hogan, P.C. (Ed.), *The Cambridge Encyclopedia of Language Sciences*, (p. 497). Cambridge: Cambridge University Press.

Voorspoels, W., Storms, G., **Vanpaemel, W.** (2011). Contrast in natural language concepts: An exemplar-based approach. In : L. Carlson, C. Hoelscher, T. Shipley (Eds.). Proceedings of the Annual Conference of the Cognitive Science Society, 33, Boston, MA, USA, 20-23 July 2011 (pp. 531-536). Austin, TX: Lawrence Erlbaum Associates.

6.4 Book reviews

Wicherts, J.M. (2011). Solving the 432 pieces of the puzzle called measurement invariance. [Review of the book *Statistical approaches to measurement invariance,* by R.E. Millsap]. *PsycCritiques, 56,* 38, 3.

6.5 Books and test manuals

Hoijtink, H.J.A. (2011). *Informative Hypotheses. Theory and Practice for Behavioral and Social Scientists.* Boca Raton: Chapman & Hall/CRC.

Bethlehem, J.G., Cobben, F., & Schouten, B. (2011). *Handbook on nonresponse in household surveys*. Hoboken, NJ : John Wiley & Sons.

Evers, A., Braak, M.S.L., Frima, R.M., & Van Vliet-Mulder, J.C. (2009-2011). *COTAN Documentatie.* Amsterdam: Boom test uitgevers.

Mellenbergh, G.J. (2011). *A conceptual introduction to psychometrics: Development, analysis, and application of psychological and educational tests.* The Hague, the Netherlands: Eleven International Publishing.

Tijmstra, J. & **Boeije, H.R.** (2011). *Wetenschapsfilosofie in de context van de sociale wetenschappen.* Utrecht: Boom/Lemma.

6.6 Articles in other journals

Aarts, S., Van den Akker, M., **Tan F.E.S.,** Verhey, F.R., Metsemakers, J.F., Van Boxtel, M.P. (2011). De invloed van multimorbiditeit op het cognitief functioneren. *Huisarts en Wetenschap, 54, 3,* 128-132.

Damhuis, N., Van Megen, H.J.G.M., **Peeters**, **C.F.W.,** & Vollema, M.G. (2011). De MiniScan als psychiatrische interventie; pilotonderzoek naar de toegevoegde waarde van een gecomputeriseerd classificatiesysteem *Tijdschrift voor Psychiatrie* 53, 3, 175-180

Engelhard, I.M., Van den Hout, M.A., Weerts, J., **Hox, J.**, & Van Doornen, L.J.P. (2011). Un estudio prospectivo de la relación entre el estrés postraumático y síntomas de salud física. *Revista Universalud, 1*, 30-36.

Kievit, R.A. (2011). Parapsychologie: Nullhypothesetoetsing en peer review 2.0. *De Psycholoog, 46,* 10-16.

Lampe, T.T.M., Straetmans, G.J.J.M. & **Eggen, T.J.H.M.** (2011). De rekenvaardigheid van de Nederlandse verpleegkundige. *Onderwijs en Gezondheidszorg, 3*, 3-9.

Schouten, A., Knipscheer, J., **Van de Schoot, R.**, & Woertman, L. (2011). Islamitisch en homoseksueel in Nederland: Een dubbele psychische belasting? *Psychologie & Gezondheid, 39*, 3, 138-144.

Sijtsma, K. (2011). Studietoetsen: Zinvolle inhoud of betrouwbare score? Examens. *Tijdschrift voor de Toetspraktijk, 8,4,* 5-8.

Sijtsma, K., & **Evers, A.V.A.M.** (2011). Validiteit als Tweezijdig Probleem. *De Psycholoog, 46*, 40-46.

Van de Schoot, R. (2011). Rechtstreeks verwachtingen evalueren of de nul hypothese toetsen? *STAtOR*, 22-24.

Van de Schoot. R., Sonneveld, H., & Lockhorst, D. (2011). Het lot van promotieprojecten: Rendement van magw/nwo-subsidies. *De Psycholoog*, 4, 10-18.

Van de Schoot, R., Sonneveld, H. & Lockhorst, D. (2011). Het lot van promotieprojecten: Rendement van maGW/NWO-subsidies. *De Psycholoog, 4*, 10-18.

Wagenmakers, E.-J. (2011). Kleren voor de keizer. [Review of *Informative Hypotheses: How to Move Beyond Classical Null Hypothesis Testing*, by **R. Van de Schoot**.] *De Psycholoog, 46,* 21-22.

Wools, S., Sanders, P.F., **Eggen, T.J.H.M.,** Baartman, L.K.J. & Roelofs, E.C. (2011). Evaluatie van een beoordelingssysteem voor de kwaliteit van competentie-assessments. *Pedagogische Studien, 88*, 23-38.

6.7 Software and test manuals

Epskamp, S., **Cramer, A.O.J., Waldorp, L.J., Schmittmann, V.D.,** & **Borsboom, D.** (2011). qgraph: Network representations of relationhips in data. R package version 0.4.10. Available from http://CRAN.R-project.org/package=qgraph.

Weeda, W.D. (2011). arf3DS4: Activated Region Fitting, fMRI Data Analysis (3D). R package version 2.5-3, URL http://CRAN.R-project.org/package=arf3DS4.

6.8 Other publications

Adèr, H.J., & **Mellenbergh, G.J.** (Eds.) (2011). *Advising on research methods: Selected topics 2011.* Huizen, the Netherlands: Johannes van Kessel Publishing.

Bethlehem, J.G. (2011). Challenges of web wurvey: Survey research methods and applications, *Proceedings of the Second ITACOSM Conference*, Pisa, Italy, pp. 3-6.

De Leeuw, E.D. (2011). De crisis voorbij? Niet als het aan SPSS ligt. [After the crisis?: Affordable Software]. *CLOU, marketing informatie en research*, 51, January 2011, p. 29

De Leeuw, E.D. (2011). Representativiteit versus datakwaliteit. [Representative samples or reliable answers?]. *CLOU, marketing informatie en research*, 53, July 2011, p. 39

De Leeuw, E.D. (2011). Terug bij af? Surveys en schermresoluties. [Starting all over again? Online surveys and respondent's mobile devices]. *CLOU, marketing informatie en research*, 52, May 2011, p. 29

De Leeuw, E.D., Matthijsse, S., & Hox, J. (2011). Uit op plezier en geld; De professionele respondent 2.0. *CLOU, marketing informatie en research*, 55, November 2011, p. 33

Gobbens, R., Luijkx, K.G., Wijnen-Sponselee, M.Th., **Van Assen, M.A.L.M.,** & Schols, J.M.G.A. (2011). Scientific definitions and measurements of frailty. In C. van Campen (Ed.), *Frail older persons in the Netherlands* (pp. 41-50). The Hague: The Netherlands Institute for Social Research.

Gobbens, R., Luijkx, K.G., Wijnen-Sponselee, M.Th., **Van Assen, M.A.L.M.,** & Schols, J.M.G.A. (2011). Wetenschappelijke definities en metingen van kwetsbaarheid. In C. Van Campen (Ed.), *Kwetsbare ouderen* (pp. 39-48). Den Haag: Sociaal en Cultureel Planbureau.

Lugtig, P.J. & Jäckle, A. (2011). In-Interview edit checks: effects on measurement error in non-labour income and estimates of household income and poverty. *ISER Working Paper Series, 2011-23*.

Lugtig, P.J. (2011). Luiaards en trouwe deelnemers. Classificatie van respondenten in een panelstudie. In F. Bronner (Ed.), *Ontwikkelingen in het Marktonderzoek. Jaarboek van Markt Onderzoeksassociatie*. Haarlem: Spaar en Hout.

Oudhof, K., Van der Vliet, R., **Cruyff, M., Van der Heijden, P.G.M.,** Bakker, B., & Carolina, T. (2011). Interne eindrapportage Schatting niet-GBA bevolking, versie 7. Den Haag: CBS.

Sonneveld, H., Hello, E., **van de Schoot, R.** (2011) Promovendimonitor 2011: Promovendi van de Universiteit Utrecht. Hun oordeel over opleiding, begeleiding en onderzoeksfaciliteiten. Centrum voor Onderwijs en Leren / Expertisecentrum Graduate Schools Universiteit Utrecht, Universiteit Utrecht.

Van de Schoot, R. Sonneveld, H., Kroon, A. (2012). Mobiliteitsonderzoek Vernieuwingsimpuls-laureaten. Rapport voor NWO. Nederlands Centrum voor de Promotieopleiding IVLOS, Universiteit Utrecht.

Van der Heijden, P.G.M., **Cruyff, M.,** & Van Gils, G. (2011). Aantallen geregistreerde en niet-geregistreerde burgers uit MOE-landen die in Nederland verblijven. Rapportage schattingen 2008 en 2009. (In opdracht van Ministerie van Binnenlandse Zaken). Utrecht: Universiteit Utrecht, Departement Methoden en Technieken.

Van der Heijden, P.G.M., Cruyff, M., & Van Gils, G. (2011). Schattingen illegaal in Nederland verblijvende vreemdelingen. Den Haag: Ministerie van Justitie, WODC.

Van Hattum, P., Doffer, A., **Hoijtink, H.J.A.** & Bijmolt, T. (2011). Birds of a feather flock together. In A.E. Bronner, P. Dekker, **E. De Leeuw,** L.J. Paas, K. de Ruyter, A. Smidts & J.E. Wieringa (Eds.), *Jaarboek 2011 MarktOnderzoekAssociatie* (pp. 99-112). Haarlem: Spaarenhout.

7 Finances

7.1 Financial statement 2011

Receipts

The participating institutes of Leiden University, University of Amsterdam, University of Groningen, Twente University, Tilburg University, Utrecht University, KU Leuven, Statistics Netherlands (CBS), and Cito Arnhem contributed financially according to the number of their PhD students that participated in IOPS on 1 July 2011. The participation fee for 2011 was € 700 per PhD student. Associated institutes with PhD students in the IOPS Graduate School, participated on the same terms.

The Foundation for the Enhancement of Data Theory donated an amount of € 600 for the winner of the IOPS Best Paper Award.

As of 1 January 2011, the Faculty of Social Sciences of Leiden University no longer attributed the annual amount of € 18.150.

This resulted in a debet balance for the year 2011 of € 12.990,33.

7.2 Summary of receipts and expenditures in 2011

Operating costs 2011					
Receipts	**Euro**	**Totals**	**Expenditures**	**Euro**	**Totals**
Salaries IOPS Office			**Salaries IOPS office**		
FSW, Leiden University: Director (0,1 fte)	15.000,00		Director (0,1 fte)	15.000,00	
Subtotal		**15.000,00**	Secretary: January-July 2011, 0.6 fte	17.723,47	
Contributions participating institutions			**Pay acc. 2011:** Secretary: July-December 2011, 0.44 fte	12.682,25	
Rec. acc. 2011: Leiden Univ. 2010, 2 PhD students	1.400,00		**Subtotal**		**45.405,72**
Rec. acc. 2011: UvA, Psychology, 7 PhD students	4.900,00		**IOPS office**		
Rec. acc. 2011: UvA, Education, 1 PhD student	700,00		Leiden Univ.: housing secretariat (estimated)	3.800,00	
Rec. acc. 2011: UvA, Education/UMC, 1 PhDstudent	700,00		Leiden Univ.: postage costs (estimated)	1.500,00	
Rec. acc. 2011: VU University, 1 PhDstudent	700,00		Leiden Univ.: telephone costs (estimated)	1.500,00	
Rec. acc. 2011: University of Groningen: 4 PhD students	2.800,00		Software licences	21,00	
Rec. acc. 2011: Tilburg University: 8 PhD students	5.600,00		Office supplies	111,59	
Rec. acc. 2011: Twente University: 8 PhD students	5.600,00		Printed matter: other	398,85	
Rec. acc. 2011: Utrecht University: 8 PhD students	5.600,00		Printed matter: Annual Report 2010	93,32	
Subtotal		**28.000,00**	**Pay. acc 2011:** Printed matter: Annual Report 2010	860,00	
IOPS office			Verdel: participation course	592,02	
			Other expenses	-35,94	
Leiden Univ.: housing secretariat (estimated)	3.800,00		**Subtotal**		**8.840,84**
Leiden Univ.: postage costs (estimated)	1.500,00		**Representations costs**		
Leiden Univ.: telephone costs (estimated)	1.500,00		Travel and hotel expenses	489,06	
Subtotal		**6.800,00**	Gifts	223,35	
Sponsorships and awards			Plaque Best Paper Award	22,50	
Foundation for the Enhancement of Data Theory	600,00		Board meetings Jaarbeurs Utrecht 3x	1.819,36	
Subtotal		**600,00**	**Subtotal**		**2.554,27**
Debit balance	**15.240,35**	**15.240,35**	**Sponsorships and awards**		
			IOPS Best paper Award 2010	600,00	
			Course King Kallimannis	450,00	
			Hotel and travel expenses IOPS Best Paper Award winner	138,50	
			Subtotal		**1.188,50**
			Courses		
			Pay. acc 2011: Maastr.Univ., Meta anal., instructor fees	1.200,00	
			Utrecht Univ: Baysian statistics, instructor fees	2.000,00	
			KU Leuven, Numerical techniques, instructor fees	1.600,00	
			UvA: Methodol. advice, instr. fees	-800,00	
			UvA: Methodol. advice, instructor fees, correction	800,00	
			Pay. acc 2011: prepayment (2010) of course fees 2011	2.250,00	
			Subtotal		**7.050,00**
			Conferences		
			Catering costs IOPS conference Leuven	2.221,02	
			Participation fees IOPS conference leuven	-1.620,00	
			Subtotal		**601,02**
Total receipts	**65.640,35**	**65.640,35**	**Total expenditures**	**65.640,35**	**65.640,35**

7.3 Balance sheet 2011

IOPS Own Funds 2011			
Debet	**Euro**	**Credit**	**Euro**
Own Funds 31-12-2011	122.529,46	Own Funds 01-01-2011	137.769,81
		Preliminary Results 2011	15.240,35-
Totaal Debet	**122.529,46**	**Totaal Credit**	**122.529,46**

Resultaat SAP -24.848,10 -/- (corr. NTO 2010) 1400 -/- (corr. VUB 2010) 2.250 + (NTO 2011) 28.000 -/- (NTB 2011) 14.742,25