

# MEASUREMENT THEORY & SCALE DEVELOPMENT

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## Course Objectives

The purpose of this intensive course is to provide an introduction to measurement theory and alternative approaches for developing and assessing multi-item scales. The emphasis is on the steps associated with the development and validation of sound measures for use in empirical studies. Its target audience includes doctoral students and academic researchers involved in quantitative research. **Important:** *the course assumes prior knowledge of data analysis and basic multivariate statistics. It also assumes that participants are familiar with basic principles of structural equation modeling (SEM), particularly confirmatory factor analysis (CFA).*

## Scope & Approach

The course seeks to familiarize participants with the various stages associated with the construction of sound measures for use in empirical research, highlighting key decisions and potential problems at each stage. Following an introduction of the key concerns of measurement theory, the conceptual underpinnings of alternative measurement perspectives – namely reflective and formative measurement – are discussed. These set the background for considering operational procedures for developing reflective scales and formative indices and for offering detailed guidelines for measure validation. To enable participants experience measure development “in action”, the various issues are illustrated with concrete examples drawn from the literature.

The course will take the form of interactive workshop sessions, placing particular emphasis on student participation. Participants are strongly encouraged to read widely on the subject before, during, and after the course (see Readings below).

## Readings

*Readings marked with an asterisk “\*” should (ideally) be read prior to the course; the remainder are more technical/advanced and best tackled after attending the course. Readings denoted (A) involve applications/illustrations of measurement development procedures in substantive research situations and can be consulted at any time.*

(A) Balabanis, G. and Diamantopoulos, A. 2016. Consumer xenocentrism as determinant of foreign product preference: A system justification perspective. *Journal of International Marketing*, 24(3): 58-77.

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- Bollen, K. A. and Diamantopoulos, A. 2017. In defense of causa-formative indicators: a minority report. *Psychological Methods*, 22(3): 581-596.
- \*Bollen, K. A. and Lennox, R. 1991. Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 110: 305-314.
- Cenfetelli, R. T. and Bassellier, G. 2009. Interpretation of formative measurement in information systems research. *MIS Quarterly*, 33(4): 689-707.
- \*Churchill, G. A. 1979. A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16: 64-73.
- Danes, J. E. and Mann, K. O. 1984. Unidimensional measurement and structural equation models with latent variables. *Journal of Business Research*, 12(3): 337-352.
- Diamantopoulos, A. 2006. The error term in formative measurement models: Interpretation and modeling implications. *Journal of Modelling in Management*, 1(1): 7-17.
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- Diamantopoulos, A. 2013. MIMIC models and formative measurement: some thoughts on Lee, Cadogan & Chamberlain. *Academy of Marketing Science Review*, 3(1): 30-37.
- Diamantopoulos, A. and Papadopoulos, N. 2010. Assessing the cross-national invariance of formative measures: guidelines for international business researchers. *Journal of International Business Studies*, 41(2): 360-370.
- Diamantopoulos, A. and Riefler, P. 2011. Using formative measurement in international marketing models: A cautionary tale using consumer animosity as an example. *Advances in International Marketing*, 22: 11-30.
- Diamantopoulos, A. and Siguaw, J. A. 2006. Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management*, 17(4): 263-282.
- Diamantopoulos, A. and Temme, D. 2013. MIMIC Models, Formative indicators and the joys of research. *Academy of Marketing Science Review*, 3(3):160-170.

\*Diamantopoulos, A. and Winklhofer, H. 2001. Index construction with formative indicators: An alternative to scale development. *Journal of Marketing Research*, 37: 269-277.

Diamantopoulos, A.; Riefler, P. and Roth, K. P. 2008. Advancing formative measurement models. *Journal of Business Research*, 61(12): 1203-1218.

Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P. and Kaiser, S. 2012. Guidelines for choosing between multi-item and single-item scales for construct measurement: a predictive validity perspective. *Journal of the Academy of Marketing Science*, 40(3), pp. 434-449.

(A)Foedermayr, E.; Diamantopoulos, A. and Sichtmann, C. 2009. Export segmentation effectiveness: Index construction and link to export performance. *Journal of Strategic Marketing*, 17(1): 55-73.

Fuchs, C. and Diamantopoulos, A. 2009. Using single-item measures for construct measurement in management research. *Die Betriebswirtschaft*, 69(2): 195-210.

Gerbing, D. W. and Anderson, J. C. 1988. An updated paradigm for scale development incorporating unidimensionality in its assessment. *Journal of Marketing Research*, 25: 186-192.

(A)Halkias, G. and Diamantopoulos, A.: 2020. Universal dimensions of Individuals' perception: Revisiting the operationalization of warmth and competence with a mixed method approach. *International Journal of Research in Marketing*, 37(4): 714-736.

Jarvis, C. B.; MacKenzie, S. B. and Podsakoff, P. M. 2003. A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, 30: 199-218.

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\*Netemeyer, R. G., Bearden, W. O. and Sharma, S. 2003. *Scaling Procedures*, Sage Publications.

Noar, S. M. 2003. The role of structural equation modeling in scale development. *Structural Equation Modeling*, 10(4): 622-647.

(A)Oberecker, E. and Diamantopoulos, A. 2011. Consumers' emotional bonds with foreign countries: Does consumer affinity affect behavioral intentions? *Journal of International Marketing*, 19(2): 45-72.

Petter, S., Straub, D. and Rai, A. 2007. Specifying formative constructs in information systems research. *MIS Quarterly*, 31(4): 623-656.

Ping, R. A. Jr. 2004. On assuring valid measures for theoretical models using survey data. *Journal of Business Research*, 57(2): 125-141.

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(A)Schoefer, K. and Diamantopoulos, A. 2008. Measuring experienced emotions during service recovery encounters: Construction and assessment of the ESRE scale. *Service Business*, 2: 65-81.

Sarstedt, M., Diamantopoulos, A., Salzberger, T. and Baumgartner, P. 2016. Selecting single items to measure doubly concrete constructs: A cautionary tale”, *Journal of Business Research*, 69(8): 3159-3167.

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Temme, D., Diamantopoulos, A. and Pfgfeidel, V. 2014. Specifying formatively-measured constructs in endogenous positions in structural equation models: caveats and guidelines for researchers. *International Journal of Research in Marketing*, 31(2): 309-316.

## Instructor



**Adamantios Diamantopoulos** Ph.D., D.Litt. is Professorial Research Fellow at the Department of Marketing and International Business, University of Vienna, Austria. He is also Visiting Professor at the University of Ljubljana, Slovenia and Senior Fellow at the Dr. Theo and Friedl Schoeller Research Center for Business & Society, Nuremberg, Germany. During 2004-2023 he was Chaired Professor of International Marketing at the University of Vienna. Previous academic appointments include full-time professorships at the University of Wales and Loughborough University in the UK, as well as visiting professorships in France, Germany, Greece, Sweden, Spain, UK, and USA. During the academic year 2012/13, he was the “*Joseph A. Schumpeter Fellow*” at Harvard University, USA.

His main research interests are in international marketing and research methodology, and he is the author of over 200 publications in these areas with over 55,000 citations (h-index: 94; *Google Scholar*, January 2024). His work has appeared, among others, in the *Journal of Marketing Research*, *Journal of International Business Studies*, *Journal of the Academy of Marketing Science*, *International Journal of Research in Marketing*, *Journal of Service Research*, *Journal of International Marketing*, *Journal of Retailing*, *MIS Quarterly*, *Organizational Research Methods*, *Psychological Methods*, *Information Systems Research*, *British Journal of Management*, and *Journal of Business Research*.

In addition to his work in international marketing, he is an acknowledged expert in structural equation modeling (SEM) and measurement theory/scale development. His SEM textbook *Introducing LISREL: A Guide for the Uninitiated* (with J. A. Siguaw) has been cited more than 3,900 times. He has taught introductory and advanced SEM and measurement courses at 20+ university institutions in 16 countries.

He is ranked #8 worldwide in terms of citations among a total of 13,180 scholars in the Marketing discipline (*Elsevier BV - Stanford University study*; Ioannidis, 2023). He is also ranked #1 in Austria and #94 worldwide in the 2022 *Ranking of Top 1000 Scientists* in the field of Business and Management (*Research.com*, 2022). Furthermore, he ranks #4 worldwide based on publications in the top six international business journals during 1995-2015 (Leonidou et al., 2018) and is the most prolific

contributor to *Journal of International Marketing* both in terms of published articles and in terms of citations (Donthu et al., 2021).

He has been the recipient of several Best Paper Awards, including four *Hans B. Thorelli Award* for articles published in *Journal of International Marketing* that have made the most significant and long-term contribution to international marketing theory or practice. He is an elected Fellow of the *British Academy of Management*, the *European Marketing Academy* and the *Academy of International Business*. In 2019 he was awarded the *JIBS Silver Medal* and in 2021 he received the *Significant Contributions to Global Marketing Award* by the *American Marketing Association*.