

10th GESIS Summer School in Survey Methodology

[2nd Virtual GESIS Summer School]

28 July – 20 August 2021

Syllabus for Short Course D: A (short) course on (short) scale development

Lecturers: Dr. Clemens Lechner, Dr. Matthias Bluemke, Dr. Isabelle Schmidt

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Date: 18–20 August 2021

Time: 09:00–12:00 + 13:00–15:00

Time zone: CEST/CEDT, course starts on Wednesday at 09:30 am

Venue: Online via Zoom

About the lecturers:

Dr. Clemens Lechner is the head of the "Scale Development and Documentation" team at GESIS - Leibniz Institute for the Social Sciences (since 2018). His team specializes in measurement and statistical modelling and conducts applied research in the realm of personality and cognitive ability. Dr. Lechner holds a PhD in Psychology from the University of Jena, Germany.

Dr. Matthias Bluemke is a senior researcher in the team "Scale Development and Documentation" team at GESIS - Leibniz Institute for the Social Sciences (since 2016). He is a consultant in measurement and statistical modelling. Dr. Bluemke holds a PhD in Psychology and a Master in Biostatistics from Heidelberg University.

Dr. Isabelle Schmidt is a senior researcher in the team "Scale Development and Documentation" team at GESIS - Leibniz Institute for the Social Sciences. There she is responsible for the Collection of Items and Scales (ZIS). Dr. Schmidt holds a PhD in Psychology from the University of Trier.

Short Course Description:

In this three-day course, you will learn how to develop measurement instruments (items, scales) for survey research. It equips you with the knowledge and practical skills to perform all major stages of instrument development:

- (1) defining the phenomenon or concept to be measured
- (2) generating an initial item pool
- (2) selecting appropriate items
- (3) validating and evaluating the scale
- (4) documenting and disseminating the scale

Keywords:

Measurement, Scale, Items, Validity, Reliability, Questionnaire

Course Prerequisites:

- Basic knowledge of survey research
- Basic knowledge of quantitative methods (correlation, regression, factor analysis, cluster analysis)
- R, SPSS / PSPP, or Stata for data analysis (your choice)
- Ideally, a concrete research concern for which a scale needs to be developed ("bring your research")

Target Group:

Researchers in social sciences that aim to acquire basic skills that are needed to evaluate, develop or adapt adequate measures for studying phenomena that are not directly observable.

Course and Learning Objectives:

The course will equip you with the basic skills that you need to develop adequate survey measures for your research in all phases of the development process. You will learn about key objectives, best practices and challenges during each phase.

Organizational Structure of the Course:

The course is three-day course. Each day comprises about 4-5 hours of instruction and practical exercises. Individual consultation hours are offered on day 3 ("bring your research").

Software and Hardware Requirements:

You should have access to at least one of the following software packages to work on your own project and/or perform individual exercises: R, SPSS / PSPP, or Stata.

Long Course Description:

Adequate measurement is a prerequisite for any successful science. Survey-based research in the social and behavioural sciences is no exception. Especially when studying phenomena that are not directly observable – such as attitudes, values, motivation, personality, skills or satisfaction – it is important that the measurement instruments (items, scales, questionnaires, tests) be valid, objective, reliable, and free of bias. For scholars whose research involves concepts or phenomena for which no validated measurement exists and who, consequently, have to develop their own measures, this can present a formidable challenge.

Fortunately, there is an established set of tools that can help ensure the quality of newly developed survey instruments. In this course, you will learn how to develop appropriate measurement instruments tailored to your research question. The focus is on short scales (e.g., 1 to 20 items) that are most apt for survey research.

The course deals primarily with the practical aspects of scale development and questionnaire design. However, it also covers relevant methodological and theoretical basics (e.g., the "psychometric" quality criteria of validity, reliability, objectivity, and others).

We will go through all phases of the development process and address the key objectives, best practices and challenges during each phase:

- (1) defining the phenomenon or concept to be measured
- (2) generating an initial item pool
- (3) selecting appropriate items
- (4) validating and evaluating the scale
- (5) documenting and disseminating the scale

The course will equip you with the basic skills that you need to develop adequate measures for your research. It can also be valuable to researchers who do not develop their own measures but are interested in evaluating or adapting (shortening) existing ones.

Note. We will not be able to cover fundamental statistical concepts and methods (e.g., correlation/regression analysis, exploratory factor analysis, confirmatory factor analysis) in much detail. At least a basic understanding of these fundamentals is a course prerequisite.

Day-to-day Schedule and Literature:

Day	Topic(s)
1	09:00 – 12:00 Defining phenomenon/concept/psychological construct to be measured 13:00 – 15:00 Generating items [15:00 – 17:00 Individual exercises]
	<u>Compulsory reading (have to be read before the session): nothing</u> <u>Suggested reading (suggested, yet do not have to be read before the session): nothing</u>
2	09:00 – 12:00 Selecting appropriate items 13:00 – 15:00 Validating and evaluating the scale [15:00 – 17:00 Individual exercises]
	<u>Compulsory reading: nothing</u> <u>Suggested reading:</u> Danner, D. (2016). <i>Reliability – The precision of a measurement</i> . GESIS Survey Guidelines. Mannheim, Germany: GESIS – Leibniz Institute for the Social Sciences. doi: 10.15465/gesis-sg_en_011
3	09:00 – 10:30 Documenting and disseminating the scale 10:30 – 12:00 Individual consultation 13:00 – 15:00 Individual consultation
	<u>Compulsory reading: nothing</u> <u>Suggested reading:</u> <u>Schmidt, I. & Lechner, C. (2020). Documenting measurement instruments for the social and behavioral sciences. GESIS Survey Guidelines. Mannheim: GESIS – Leibniz institute for the Social Sciences. http://dx.doi.org/10.15465/gesis-sg_en_033.</u>

Preparatory Reading:

- Clark, L. A., & Watson, D. (2019). Constructing validity: New developments in creating objective measuring instruments. *Psychological Assessment*, 31(12), 1412–1427. <https://doi.org/10.1037/pas0000626>
- Wright, T. A., Quick, J. C., Hannah, S. T., and Blake Hargrove, M. (2017) Best practice recommendations for scale construction in organizational research: The development and initial validation of the Character Strength Inventory (CSI). *J. Organiz. Behav.*, 38: 615– 628. <https://doi.org/10.1002/job.2180>
- Downing, S. M. (2006). Twelve steps for effective test development. In Downing, S. M. and Haladyna, T. M. (eds). *Handbook of Test Development*, pp 3–25. Mahwah, NJ: Lawrence Erlbaum Associates, Copyright 2006, with permission of Lawrence Erlbaum Associates (Taylor & Francis Group, LLC).
- All GESIS Survey Guidelines on measurement instruments.

Additional Recommended Literature:

- Cortina, J. M., Sheng, Z., Keener, S. K., Keeler, K. R., Grubb, L. K., Schmitt, N., ... & Banks, G. C. (2020). From alpha to omega and beyond! A look at the past, present, and (possible) future of psychometric soundness in the *Journal of Applied Psychology*. *Journal of Applied Psychology*, 105(12), 1351. <https://doi.org/10.1037/apl0000815>
- DeVellis, R. F. (2017). *Scale Development: Theory and Applications* (4th ed.). Sage.
- Fuchs, C., & Diamantopoulos, A. (2009). Using single-item measures for construct measurement in management research: Conceptual issues and application guidelines. *Die Betriebswirtschaft*, 69(2), 195-210. Retrieved from https://temme.wiwi.uni-wuppertal.de/fileadmin/_migrated/content_uploads/fuchs_diamantopoulos_2009.pdf
- Rammstedt, B. & Beierlein, C. (2014). Can't we make it any shorter? The limits of personality assessment and ways to overcome them. *Journal of Individual Differences*, 35(4), 212-220. doi:10.1027/1614-0001/a000141. Retrieved from https://www.ssoar.info/ssoar/bitstream/handle/document/47053/ssoar-jid-2014-4-rammstedt_et_al-Cant_we_make_it_any.pdf?sequence=1
- McDonald, R. P. (1999). *Test theory: A unified treatment*. Mahwah, NJ: Erlbaum.