INTRODUCTION TO META-ANALYSIS

(KUJA/LUJA/KAJA)

Spring 2018

Teacher: Prof. Dr. Andreas Gegenfurtner

ECTS: 3

Objectives and learning outcomes: In this workshop, participants will get acquainted with what meta-analysis is, how meta-analysis can be used as an analytic tool in research on learning and instruction, and how data for meta-analysis can be collected, analysed, and reported. In part one, we start with discussing reasons for doing meta-analysis and outline similarities and differences to traditional literature reviews; we also focus on different ways on how data for meta-analyses can be selected and coded. In part two, we compare techniques to meta-analyse correlational and experimental data, and we demonstrate how these data can be corrected for study design artifacts, particularly for sampling error, error of measurement, and moderator effects. In part three, the reporting of meta-analytic findings will be discussed with a focus on numerical and visual displays; we also describe what journal reviewers typically look for when evaluating your meta-analytic manuscript. Throughout the workshop, a special emphasis is put on correlational (Pearson's *r*) and experimental data (Cohen's *d*); for time reasons, we will not discuss odds ratios that are used in many medical and clinical research settings.

Contents: The workshops (24 h) will use a variety of methods, including lectures, demonstrations, and a multitude of hands-on activities to scaffold transfer of the course content to the participants' own research projects.

Participants: All doctoral candidates or personnel of the University of Turku interested in using meta-analysis; basic knowledge in statistics and in the software package SPSS is expected. Maximum of 8 doctoral candidates or personnel of the Faculty of Education and 8 doctoral candidates from other faculties.

Language: English.

Completion requirements and evaluation: Active participation in workshops (Fail–Pass).

Further information: This course belongs to the study module DS3 Methodological studies/ TRI3A Methodological studies

Timetable: days to be completed

	Searching and Coding Literature	**Analyzing Meta-Analytic Data**	**Reporting Meta-Analytic Results**
9.00-10.30	Introduction: Developing meta-analytic research questions	Primary meta-analysis 1: Sampling error	Reporting 1: The Method section
10.30-12.00	Literature databases, inclusion and exclusion criteria	Primary meta-analysis 2: Error of measurement	Reporting 2: The Results section
12.00-13.00	LUNCH BREAK Option to dine at Macciavelli, (self-paid)	LUNCH BREAK Option to dine at Macciavelli, (self-paid)	LUNCH BREAK Option to dine at Macciavelli, (self-paid)
13.00-14.30	Coding psychometric properties 1: *r* and *d*	Meta-analytic moderator estimation 1: Subgroup analysis	Using numerical and visual reporting formats in meta-analytic studies
14.30-16.00	Coding psychometric properties 2: Converting effect sizes and reliability	Meta-analytic moderator estimation 2: WLS multiple regression	Robustness of and biases in meta-analyses: What reviewers look for
Place	tbc		