PSYC 637
META-ANALYSIS IN PSYCHOLOGICAL RESEARCH

Team taught by:

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Class meets Tuesdays, 2:30-5:00 P.M.
Sewall Hall 101

Course Overview

Meta-analysis is a popular tool for statistically aggregating effects across related psychological studies. Course topics traverse a wide range of issues, including developing and using a coding sheet, fixed vs. random effect models, analysis moderator effects, correcting for statistical artifacts, dealing with dependent outcomes and outliers, and detecting publication bias.

Meta-analysis has become an incredibly popular tool in a wide variety of research disciplines, including (but certainly not limited to) the social sciences, medicine, education, and business. At its essence, a meta-analysis is both conceptual and quantitative in nature: It is the use of a properly motivated (if not integrative) theoretical framework, and it is the practice of identifying, sifting, combining, comparing, and interpreting effect sizes across a set of studies investigating the same (or similar) psychological phenomena. Meta-analysis is a process that requires good decision making as much or more than statistical skill.

Course Objectives

The objectives of this meta-analysis seminar are several, but the primary one is fairly concrete: to conduct a meta-analysis, from start to finish, in whatever substantive area interests you the most, with at least 20 studies in that area. Of course, meta-analysis as a method is not wedded to any specific program; we will mainly rely on Excel for its simplicity – however you can use SPSS, SAS or any specialized meta-analysis program (Comprehensive Meta-Analysis, MIX), so long as you clearly understand your analyses and results and can explain them in a transparent manner.

Other objectives for the course are more general:

- discussing and reviewing conceptual issues, decision points, applications, and controversies in meta-analysis; we will read some methodological meta-analysis articles and also will examine and critique published meta-analyses
- learning the nuts-and-bolts strategies for collecting, coding, and organizing study information for meta-analysis

- understanding several fundamental meta-analysis methods, and how the substantive nature of the research under study informs the appropriate application of meta-analysis
- exploring how meta-analytic results inform both research and public policy
- developing critical skills in your approach to meta-analysis (i.e., honing your meta-analytic thinking, critiquing, discussing, writing, presenting)

You will find out immediately that there is no 'one way' to conduct a meta-analysis: no single approach in deciding what studies to include or exclude, no single way to weight each effect size in the meta-analysis, no single way to investigate moderator effects, and no single formal statistical model. However, our seminar will explore the range of sensible options, keeping in mind that you might challenge accepted practice for meta-analysis in your area, given what you learn in class. The meta-analysis you conduct in the class will probably be unlike all the others, and that is to be expected.

Prerequisites

The seminar is not solely – or even primarily – concerned with statistical theory underlying meta-analysis, although a solid understanding of the general idea of a sampling distribution will be required to understand the statistical methods to be introduced.

Grading

Grading is based on the following components:

- in-class participation – 20%; there are no 'discussion leaders' in that everyone is expected to contribute in every course; feedback will be given along the way (e.g., if you are contributing too little – or too much); discussion will be based on the readings, your project work, our sermonizing, and the questions and ideas generated in class
- project - 60% (three sections: introduction 20%, method/results 20%, discussion 20%); you will receive feedback on the introduction and methods section of your project, then you'll resubmit a final revision of the project toward the end of class (see Course Outline below)
- presentation – 20%; your paper will be completed before you present, so your presentation will summarize the paper, and hopefully the in-class comments on your presentation will help you in revising the paper further for publication

Essentially, a good grade is assured if (1) you are engaged in the course with your classmates, (2) you complete your readings and assignments diligently and ahead of time, and (3) you seek timely feedback on your project and are responsive to it. #2 is especially important – do not fall behind on your project!

Attendance

Attending class is a minimal requirement (not attending obviously affects your participation grade). If you anticipate not being in class (due to a conference or ongoing illness), please give the courtesy of informing us *in advance*.

Weekly Readings and Project Deadlines

Please log onto OwlSpace for weekly readings and project deadlines.

Final Letter Grades will be distributed as follows:

100 – 98 % = A+	97% – 93% = A	92% – 90% = A-
89 – 87 % = B+	86% – 83% = B	82% – 80% = B-
79 – 77 % = C+	76% – 73% = C	72% – 70% = C-
69 – 67 % = D+	66% – 63% = D	62% – 60% = D-
59 – 0% = F		

Course Schedule

DATE	TOPIC	READINGS
1/12	*Introduction, the Role of Theory in MA*	HRSMA, Ch. 1-2; PMA, Ch. 1
1/19	*Problem Identification and Literature Search*	Cooper, Ch. 2-3; HRSMA, Ch. 5
1/26	*Effect Size Coding*	Becker (2003); Field (2001); PMA, Ch. 3 & App. B
2/2	*The Coding Process*	HRSMA, Ch. 9-10; PMA Ch. 4-5
2/9	*Converting Effect Sizes*	Cumming & Finch (2001); HRSMA, Ch. 12-13
2/16	*Correcting for Statistical Artifacts*	HRSMA, Ch. 17; Raju, Burke, Normand, & Langlois (1991); Raju & Brand (2003); Sackett & Yang (2000)
2/23	*Choice of MA Model*	Brannick (2001); Schmidt et al. (2009); IMA, Ch. 10-14, 16
3/2	***Spring Break – No Class***	
3/9	*Moderating Effects in MA*	Hedges & Pigott (2004); Steel & Kammeyer-Mueller (2002); Steel & Kammeyer-Mueller (2004)
3/16	*Publication Bias and Outliers*	Huffcutt & Arthur (1995); Beal (2002); Begg (1994); McDaniel (2006); Sterne (2000)
3/23	*Continuing Controversies in MA*	Bobko & Stone-Romero (1998); Schmidt et al. (1985); Wanous, Sullivan, & Malinak, 1989
3/30	*Real-World Implications of MA*	Ambady (1992); Brewer (2007); Rind (2001)
4/6	*SIOP*	
4/13	*Individual Presentations*	
4/20	*Work on Final Paper*	

Note: HRSMA = Handbook for Research Synthesis and Meta-Analysis; PMA = Practical Meta-Analysis; IMA = Introduction to Meta-Analysis