



MAP ACADEMY

Methodology, Analytics & Psychometrics



Promises & Pitfalls of Modern Meta-Analysis

Amy L. Dent

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Overview of Presentation



Overview of Presentation

- Importance of Integrating Research
- Defining Meta-Analysis
- Steps of Conducting a Meta-Analysis
- New Approach to Meta-Analysis
- Conclusion



Importance of Integrating Research



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 - self-regulation



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- The most trustworthy theoretical refinements and practical solutions take into account an entire body of empirical evidence.
- As a result, empirically-grounded theoretical and practical progress is more challenging than ever.



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- Integrating research to produce this progress is thus an essential yet increasingly difficult goal.
- *A methodologically rigorous and substantively sound way of doing so is necessary for confidently translating research into policy or practice.*
- Meta-analysis uniquely accomplishes this ultimate goal of applied research.



Defining Meta-Analysis



Defining Meta-Analysis

- A systematic, comprehensive, and objective method of integrating and reconciling the empirical literature on a broad research question through a quantitative synthesis of primary studies or secondary datasets



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- A **systematic**, comprehensive, and objective method of integrating and reconciling the empirical literature on a broad research question through a quantitative synthesis of primary studies or secondary datasets



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- A systematic, **comprehensive**, and objective method of integrating and reconciling the empirical literature on a broad research question through a quantitative synthesis of primary studies or secondary datasets



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- A systematic, comprehensive, and **objective** method of integrating and reconciling the empirical literature on a broad research question through a quantitative synthesis of primary studies or secondary datasets



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- A systematic, comprehensive, and objective method of **integrating** and reconciling the empirical literature on a broad research question through a quantitative synthesis of primary studies or secondary datasets



Defining Meta-Analysis

- A systematic, comprehensive, and objective method of integrating and **reconciling** the empirical literature on a broad research question through a quantitative synthesis of primary studies or secondary datasets



Defining Meta-Analysis

- A systematic, comprehensive, and objective method of integrating and reconciling the **empirical literature** on a broad research question through a quantitative synthesis of primary studies or secondary datasets



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Situating Meta-Analysis Among Research Synthesis Strategies



Situating Meta-Analysis Among Research Synthesis Strategies

1. Qualitative Synthesis

2. Quantitative Synthesis



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integrating research through a
narrative account of its characteristics

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 - relation between constructs
 - effect of an intervention
 - difference between groups



Steps of Conducting a Meta-Analysis: Framing the Research Question



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What is the *overall relation* between self-regulation and academic achievement?



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What is the *overall relation* between self-regulation and academic achievement?

What **theoretical** and methodological factors *moderate* this overall relation?

- **specific construct**
- **grade level**
- **academic subject**



Steps of Conducting a Meta-Analysis: Framing the Research Question

What is the *overall relation* between self-regulation and academic achievement?

What theoretical and **methodological** factors *moderate* this overall relation?

- type of self-regulation measure
- type of achievement measure



Steps of Conducting a Meta-Analysis: Framing the Research Question

What is the *overall relation* between self-regulation and academic achievement?

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Steps of Conducting a Meta-Analysis: Defining the Parameters

What is the *overall relation* between self-regulation and academic achievement?

... becomes ...

What is the overall relation between the *capacities* of self-regulation and academic achievement *across childhood and adolescence*?



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 - relation between constructs = r , b^*
 - effect of an intervention = d
 - difference between groups = d



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 - parameters of the meta-analysis (inclusion)
 - sample size (exclusion)
 - population characteristics (exclusion)



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 - references



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 - keep thorough records



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 - theoretical & methodological moderators
 - effect size information
 - sample & setting characteristics



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 - models of error
 - average weighted effect size
 - heterogeneity analysis



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 - moderator analyses to explain variation
 - shifting unit of analysis



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Thanks!

Dent, A. L. (in prep). Uncovering common ground:
Using meta-analysis to identify and reconcile inconsistencies
in the way constructs are labeled, defined, and measured.



Questions?

adent2@unl.edu



Collaborations?

adent2@unl.edu

