EDSP 872: Theory and Empirical Design in Special Education Research
Fall 2010

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301.405.2337

Class Meets: Tuesday, 4:15 - 7:00; Special Education Conference Room, Rm. 1304

Office Hours: by appointment

Required Text:

Supplemental resources:


Readings from EDSP 860 on Design Quality Indicators

Prerequisites: EDMS 645 & 646, or permission of instructor.

Course Description and Outcomes:
This course focuses on the characteristics of disciplined inquiry related to the education of children and youth with disabilities. The course focuses in depth on the design of empirical
research and will guide students through the research process from the identification of researchable problems, development of research hypotheses, specification of research questions and the design of a study. Through this course, students will develop the skills to critically evaluate empirical research through an understanding of sampling, research designs, selection of variables and measures, designing procedures, possible analytic strategies, and interpretation of results. There will be two major outcomes of the course. The first will be a draft/outline of a comprehensive review of the literature related to a specific research problem that includes a methodological review and synthesis of the empirical research. The second outcome will be a proposed research plan that will address the research problem. The overall intent is to provide a platform for the development of a candidacy paper and the dissertation.

**Competencies:**

The student will demonstrate:

1. an understanding of the purpose of research and the specific issues related to scientific inquiry as it pertains to the education of children and youth with disabilities.

2. knowledge of the role of theory in special education research.

3. knowledge of designs and methodological issues that are used to investigate problems in the education of children and youth with disabilities as well as the implications of their use.

4. an understanding of the ethical issues involved in conducting empirical research pertaining to children and youth with disabilities.

6. the ability to describe and critically evaluate a body of research with respect to theoretical bases, hypotheses, sampling, design, procedures, and analyses.

7. the ability to synthesize, integrate and summarize a critical evaluation of a body of research pertaining to the education of children and youth with disabilities.

8. the ability to effectively communicate research to others in written and spoken form.

9. the ability to develop a well-designed defensible empirical research study that builds upon and expands the current knowledge base in an area related to the education of children and youth with disabilities.

10. the ability to engage in a peer-review process paralleling that used by reviewers for education journals.

**Course Requirements:**

1. Regular class participation is essential. Students are expected to complete assigned readings prior to class and should be prepared to discuss these readings in class.
2. Each student will conduct a **Methodological Review** of the research on a selected topic related to the education of children and youth with disabilities. The topic must be discussed with the student’s advisor and approved in advance by the instructor. The review must contain the following:

   A clear and succinct **statement of a researchable problem**

   **Literature Map** with citations

   **Methodological Review Matrix** *(minimum of 10 studies in peer reviewed journals. At least 7 must be solely empirical or empirically-based meaning that they are based on experiments or observations; 3 may be mixed method studies)*

   Synthesis and critique of the studies reviewed

   All but the statement of research problem will be evaluated separately. A final draft of the review will also be evaluated for its logical development, writing and adherence to APA VI. Each student will be assigned a peer’s first draft paper to review, using a standard journal review format. Peer reviews are to be returned to the instructor with the final version.

3. Each student will prepare a brief (approx. 7-8 page) **Proposed Research Study** that addresses their problem statement and research questions that emerged from their methodological review. Each student will prepare a written proposal that will address their research problem as well as the gaps in the research literature. The proposal should include the following:

   - An introduction to the problem: statement of the problem and rationale for the research; hypotheses and 1-3 research questions.
     - This section should be brief and based upon the literature reviewed for the Methodological critique. The rationale for the research in terms of educational need and/or theoretical relevance should be given as well as what you hope to **demonstrate by the research. This section should be approximately 1-2 pages in length.**

   - Specification of sample/participants

   - Specification of the study design

   - Specification and rationale for selecting the independent variable(s), including reliability and validity of measure(s).

   - Specification and rationale for selecting the dependent variable(s), including reliability and validity of measure(s).

   - Procedures for conducting the study

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• Data analysis: Explanation of how the data will be examined. How the data will be interpreted to test the hypothesis(es) must be made clear.

• Potential threats to internal and external validity

• A list of all references used

All written assignments are to be typed and double spaced. Assignments should follow the style presented in the Publication Manual of the American Psychological Association. Late assignments will be accepted only if approved in advance.

**Grading**

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<th>Points</th>
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<tr>
<td>Participation</td>
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<td>Literature Map</td>
<td>20</td>
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<tr>
<td>Methodological Review</td>
<td>50</td>
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<td>[Methodological Matrix=30]</td>
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<td>[Synthesis and Summary=20]</td>
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<tr>
<td>Peer Review of a Methodological Review</td>
<td>20</td>
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<tr>
<td>Proposed Research Study</td>
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**Final Grades:**

- 130-145 = A
- 115-129 = B
- 100-114 = C

**Accommodations:** If you have a documented disability and wish to discuss academic accommodations, please contact me as soon as possible. For information on accommodations see [www.counseling.umd.edu/DSS](http://www.counseling.umd.edu/DSS)

**Academic Integrity:** The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, visit [www.shc.umd.edu](http://www.shc.umd.edu)

**University Honor Code:** The Student Honor Council proposed and the University Senate
approved an Honor Pledge. The University of Maryland Honor Pledge reads, “I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination.” This pledge statement should be handwritten and signed on the front cover of all assignments and examinations in this course.
Criteria for Grading

Methodological Review Criteria

The review clearly applies the methodological standards and issues discussed in class and in readings. Where appropriate, course readings are cited and explanations for issues and standards are supported by readings. Also, where relevant, specific examples from studies must be provided to illustrate strengths and weaknesses in the body of research.

The analyses of the studies reviewed are thoroughly summarized, integrated and synthesized. A "study by study critique" is not acceptable. The synthesis must clearly and precisely indicate the overall strength and weaknesses of the research base. In addition, the synthesis must clearly articulate the gaps in the current literature that may feasibly be addressed through future research.

The review must be organized using APA headings and APA writing style, grammar, and bias guidelines are followed.

Final Methodological Reviews (second drafts) that receive less than an A may be revised and resubmitted one time. In this case, the final paper grade will be the average of the grade on the second draft and the revised and resubmitted paper.

Methodological Review Grading Rubric:
A grade of A on the review paper indicates the following criteria were strongly met or exceeded.
A grade of B on the review paper indicates the following criteria were adequately met.
A grade of C on the review paper indicates the following criteria were poorly met (this also indicates that the writer is not ready to proceed to proposal).

Proposed Research Study Review Criteria

The rationale for the research is clearly stated and supported by appropriate references. The purpose statement and research questions are clearly stated and linked. The design is appropriate for the questions and purpose; sample/participants and selection criteria are clear and appropriate for design; variables/measures described; procedures clearly outlined; proposed analyses are specified. Limitations and threats to validity are discussed.
# Course Outline

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<tr>
<th>Date</th>
<th>Session</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Aug 31</td>
<td>Course Overview; Conducting Research in the Behavioral Sciences and the role of empirical research; Chapters 1, 2, 3 of the dissertation</td>
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<tr>
<td>2</td>
<td>Sept 7</td>
<td>The Literature Review; Linking problem, theory, and research; Mapping a review of the literature; Introduction to Methodological Review Matrix</td>
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<td><strong>Readings:</strong> Gay, Mills &amp; Airasian; Chapter 2; Sample Literature Reviews</td>
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<td><strong>Assignment:</strong> Presentations of research problem; Discuss questions regarding literature reviews</td>
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<td>3</td>
<td>Sept 14</td>
<td>Conducting a Methodological Review: “The Research Trinity”; Overview of Research Designs</td>
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<td><strong>Readings:</strong> Kline; Chapter 3</td>
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<td><strong>Assignment:</strong> Present 1st draft of literature map to class; identify at least 7 <em>quantitative</em> and up to 3 <em>mixed method (optional)</em> research studies related to your problem and be prepared to fill in the Methodological Review Matrix</td>
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<td>4</td>
<td>Sept 21</td>
<td>Overview of issues in selecting participants and samples; Estimating Causal Effects</td>
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|        |         | **Readings:** Gay, Mills & Airasian; Chapter 4  
Schneider, Carnoy, Kilpatrick, Schmidt & Shavelson, chapters 1 and 2  
Shadish, Cook & Campbell, Chapter 1 |
| 5      | Sept 28 | Internal and External Validity |
|        |         | **Readings:** Shadish, Cook & Campbell, Chapter 2 |
|        |         | **Assignment:** Final Literature Map due |
| 6      | Oct 5   | Internal and External Validity (continued) |
|        |         | **Readings:** Shadish, Cook & Campbell, Chapter 3 |
|        |         | **Assignment:** In class: Methodological Matrix: Critique independent and dependent variables of studies |
| 7      | Oct 12  | Research Designs: Quasi-Experimental Designs |

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Readings: Shadish, Cook & Campbell, Chapters 4, 5, 6 and 7

8 Oct 19 Research Designs: Observational Designs
Readings: Schneider, Carnoy, Kilpatrick, Schmidt & Shavelson, chapter 3

9 Oct 26 Research Designs: Research Designs: Randomized Controlled Experimental Designs
Readings: Shadish, Cook & Campbell, Chapters 8, 9, 10

10 Nov 2 Research Designs: Randomized Controlled Experimental Designs
Readings Shadish, Cook & Campbell, Chapter 10

11 Nov 9 Research Designs: Mixed Methods; Conducting a Peer Review
Assignment: 1st Draft of Methodological Review Due (one for instructor and one for peer)

12 Nov 16 Analyses: Appropriateness of the procedures; effect sizes and confidence intervals; Organizing and synthesizing the Methodological Review Matrix
Readings: Kline, chapters 5 & 6
Assignment: Peer Review Due (2 copies; one for instructor and one for peer)

13 Nov 23 Individual Meetings: Designing a study
Assignment: Final Methodological Review Due

14 Nov 30 Present and discuss Proposed Research Study

15 Dec 7 Present and discuss Proposed Research Study
Assignments: Proposed Research Study Due
Mapping Chapter 2: Review of the Literature
Mapping Your Literature

A literature map is a visual summary that organizes the major themes of your research review. It may be hierarchical, a flow chart or composed of circles. (See one example below.) The purpose of the map is to identify the major sections of the literature pertaining to your research topic and to give you a visual picture of where the literature is “deep” and where there are fewer studies. Mapping should help you “funnel” the information you have been collecting about your research topic and build the case for your proposed study.

The map is the first step toward organizing Chapter 2 of your dissertation. Your methodological critique is the second step. Together these two activities should lead to a concise list of “future research needs” and to how your study will address one or more of these needs.

Within each of the categories you should list the studies. The categories of literature will correspond to important subheadings in Chapter 2. You will then need to synthesize the studies within the category using information from your methodological critique.

The following steps are adapted from Creswell (2003) for constructing a hierarchical map:

- Place the topic of the review in the box at the top of the hierarchy.
- Organize the literature obtained through your search into subtopics. There is no fixed number; however, you should probably not have more than 3-4 subtopics.
- Label each box to describe the nature of the studies and within each box list the references to the major citations (i.e., Smith & James (2001)).
- You should have several levels of subtopics but not all branches of the chart will be equally developed. The literature in some areas is deeper.
- When you have completed your map you should have a good idea of where the literature is very strong and where it is shallow.
- This is the first level of your literature review…now you must examine how credible the literature is!

CRITERIA FOR EVALUATION OF SPECIAL EDUCATION RESEARCH STUDIES

1. Is the research problem well described? Is there an adequate rationale? Are research questions clearly stated and do they follow logically from the literature review and problem statement?

2. What is the design? What controls are/are not evident? What threats exist to internal and external validity?

3. How were participants selected? Were subjects randomly selected and/or randomly assigned? Are subjects thoroughly described?

4. What is/are the independent variable(s)? Are operational definitions adequate? Are measures technically adequate for the research? If a treatment/intervention occurs, is treatment validity established?

5. What is/are the dependent variable(s)? Are operational definitions adequate and is/are the variables valid? Are reliability measures for dependent variables established?

6. Are the procedures thoroughly reported and appropriate? Could this study be easily replicated?

7. What statistical procedures were used? Are they appropriate for the measures and the design?

8. Do results appear to reflect appropriate analysis of data? Are conclusions compatible with results?
Methodological Critique Matrix
(you may use more than one page)

<table>
<thead>
<tr>
<th>Study Authors, Date</th>
<th>Research questions/purpose</th>
<th>Design</th>
<th>Sample/Participants</th>
<th>Ind. Variables</th>
<th>Dep. Variables</th>
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