

Eastern Illinois University
Department of Early Childhood, Elementary and Middle Level Education
ELE 5250: Research in Education

Credit hours: 3

Prerequisites: ELE 5100

Instructor: **Brian D Reid, Ph.D**

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Office Hours: **Monday: 6:00 – 7:00 pm**

Tuesday: 9:15 – 10:30 am

Thursday: 9:15 – 10:30 am

Or by appointment

Office Phone: **217-581-5728 (leave message)**

Cell phone: 317-331-7017

Class Meeting: **Monday (7:00 – 9:30 pm)**

Class Location: **Buzzard Hall 1140**

Unit Theme

Educator as Creator of Effective Educational Environments: Integrating Diverse Students, Subject, Strategies, Societies and Technologies.

Graduate Mission Statement

The Department of Early Childhood, Elementary and Middle Level Education seeks to advance scholarly preparation by providing quality teaching and promoting excellence in research/creative activity in order for graduate students to exemplify best teaching practices for children from birth through age fourteen.

The Department is dedicated to the preparation of knowledgeable citizens of the 21st century and seeks to empower individuals to meet the challenges faced by professional educators in a rapidly changing society. Candidates for the Master of Science in Education Degree will be prepared to teach in diverse environments recognizing multiple pathways of learning.

The Department is committed to enhancing the graduate academic experience in order to create educators who can function effectively in a culturally diverse, technologically advanced, and global environment in order to engage learning at all levels.

Outcomes for all Graduate Students at EIU

Graduate students will:

1. possess a depth of content knowledge including effective technology skills and ethical behaviors;
2. engage in critical thinking and problem solving;
3. exhibit effective oral and written communication skills;
4. engage in advanced scholarship through research and/or creative activity;
5. demonstrate an ability to work with diverse clientele, recognizing individual differences; and
6. collaborate and create positive relations within the school, community and profession in which they work.

Course Description

This course provides experiences in defining problems and in using research techniques in writing, interpreting, and evaluating research in elementary education (3-0-3).

Purpose/Rationale of the Course

- This course assists educators in becoming critical consumers and producers of research through its emphasis on reading, analyzing, doing and using research.
- This graduate course fulfills the requirement for students to research, analyze and apply research.

Course Texts

American Psychological Association (2001). *Publication Manual of the American Psychological Association* (5th ed.). Washington, DC: American Psychological Association.

Fraenkel, J. & Wallen, N. (2006). *How to design and evaluate research in education*. Boston: McGraw-Hill.

Supplemental Materials

WebCT

Information Processing Models of Teaching

Information-processing models emphasize ways of enhancing the human being's innate drive to make sense of the world by acquiring and organizing data, sensing problems and generating solutions to them, and developing concepts and language for conveying them. (pp. 25-28)

Joyce, B., Weil, M. & Calhoun, E. (2009). *Models of teaching* (8th ed.). Boston: Pearson.

International Society for Technology in Education Standards (ISTE)

Standards for Students (2007)

<http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETSfor students 2007.htm>

Standards for Teachers (2008)

<http://www.iste.org/Content/Navigation Menu/NETS/ForTeachers/2008Standards/NETS for Teachers 2008.htm>

Outcomes Specific to the Course

- Synthesize and apply knowledge gained from published research in education on curricular, instructional, and legal issues.
- Differentiate between types and various components of educational research and identify primary and secondary sources.
- Complete a literature review on a current issue in education using APA style.
- Critically evaluate various types of education research as to their usefulness for research and best practice in the field.
- Relate research to the world of practice.
- Formulate a clear problem statement and testable hypothesis in a design appropriate to research projects relative to curriculum and instruction.
- Articulate and define one's own philosophical, sociological, and psychological perspectives in light of research.
- Discuss the purposes of educational research and compare and contrast use of descriptive research, experimental, and qualitative research.
- Identify basic types of research methods and basic statistics.
- Define and interpret psychometric statistics including types of test scores, measures of central tendency, indices of variability, standard errors and correlations, etc.
- Define reliability, including methods of establishing content, construct, and empirical validity.

Course Core Requirements /Description/Graduate Standards

Course Requirement	Competencies	Graduate Standards
Literature Review (new program, old program and non-department majors)	Students will complete a relevant literature review given their research topic. The literature review will be organized thematically according to the primary ideas found in the literature.	1a: a depth of content knowledge in the discipline 1b: effective use of technology as appropriate 2a: critical thinking and problem solving 3b: effective written communication skills 4a: an understanding of the role of research in the discipline
Draft of IRB paperwork (new program only – see alternative assignment for old program and non-	Using the outline provided by the IRB, students will draft a complete packet of the necessary paperwork for IRB approval. No actual data may be	1a: a depth of content knowledge in the discipline 1d: an understanding and respect for professional ethics in the discipline 2b: the ability to effectively evaluate situations and

department majors)	collected in this course.	identify an appropriate course of action 3b: effective written communication skills 4a: an understanding of the role of research in the discipline
Educational Autobiography (old program and non-department majors only)	Students will demonstrate the ability to reflect on self and consider the implications for their own practice.	2a: critical thinking and problem solving 3a: effective oral communication skills 3b: effective written communication skills 3c: effective, fair and honest communication considering not only the message, but the audience
Revision of Action Research Proposal (new program only – see alternative assignment for old program and non-department majors)	Students will revise their action research proposal from ELE 5100, integrating additional research information gained from this course. No actual data may be collected in this course.	1a: a depth of content knowledge in the discipline 1c: the ability to apply content knowledge to practice 1d: an understanding and respect for professional ethics in the discipline 1e: a respect for the professional environment through their honesty, integrity and professionalism 2a: critical thinking and problem solving 2b: the ability to effectively evaluate situations and identify an appropriate course of action 3b: effective written communication skills 4a: an understanding of the role of research in the discipline
Research Paper (old program and non-department majors only)	Students will complete a narrowly focused research paper in an area of interest.	1c: the ability to apply content knowledge to practice 2b: the ability to effectively evaluate situations and identify an appropriate course of action 3b: effective written communication skills
Book Talk/Book Report (new program, old program and non-department majors)	Students will self-select an educational text, outline the main topics and present the information to the class.	3a: effective written communication skills 3b: effective written communication skills
Technology Integration (new program, old program and non-department majors)	Students will respond to 3 different e-mail assignments via WebCT.	1b: effective use of technology as appropriate 1c: the ability to apply content knowledge to practice 1e: a respect for the professional environment through their honesty, integrity and professionalism 3b: effective written communication skills 3c: effective, fair and honest communication considering not only the message, but the audience

Course Core Requirements/Assessment Weight/Due Dates

Course (Core) Requirement	Brief Description	Point Values	Due Date
Literature Review (new program, old program and non-department majors)	Students will select 15 relevant research articles (based on their research question) that will be read, analyzed and topically summarized in a literature review format	75 points	
Draft of IRB paperwork (new program only – see alternative assignment for old program and non-department majors)	Students will complete a draft of the IRB paperwork. No data may be collected in this course.	75 points	
Educational Autobiography (old program and non-department majors only)	Students will analyze their personal backgrounds to gain insight into their professional practice.	75 points	
Revision of Action Research	Students will revise the proposal written in ELE		

Proposal (new program only – see alternative assignment for old program and non-department majors)	5100. No actual data may be collected in this course.	50 points	
Research Paper (old program and non-department majors only)	Students will self-select a topic and write a research paper.	50 points	
Book Talk/Book Report (new program, old program and non-department majors)	Students will select an educational text to share with the class.	30 points	
Technology Integration (new program, old program and non-department majors)	Students will utilize WebCT to respond to 3 different e-mail assignments.	30 points (10 points each)	

TOTAL NUMBER OF POINTS POSSIBLE: 260

Grading Scale

95% or above = A 85-95% = B 75-85% = C 65-75% = D Below 65% = F

Weekly Topics

Class Session	Topic
1	Course Introduction
2	The Nature of Educational Research; Review of the Literature
3	The Research Problem; Variables and Hypotheses
4	Validity and Reliability; Internal Validity
5	Descriptive Statistics; Inferential Statistics; Statistics in Perspective
6	Ethics and Research
7	Experimental Research; Single-Subject Research; Correlational Research
8	Causal-Comparative Research; Survey Research
9	Action Research; Preparing Research Proposals and Reports
10	Sampling; Instrumentation
11	Workday for IRB/proposals
12	The Nature of Qualitative Research; Content Analysis
13	Observation and Interviewing
14	Ethnographic Research; Historical Research
15	Conclusion

All information in this syllabus should be considered subject to change based upon professional discretion. If you need course adaptations or accommodations due to a disability, please make an appointment to see the instructor or contact the Director of Disability Services at 217-581-6583.

Students with Disabilities: If you have a documented disability and wish to discuss academic accommodations, please contact the Office of Disability Services at 581-6583.

Bibliography

Unit Conceptual Framework – ReferencesELE 5250: Research in Education

*denotes Unit Conceptual Framework Reference

Allen, L. & Calhoun, E.F. (1998). School wide action research: Findings from six years of study. *Phi Delta Kappan*, 79(9), 706-710.

Bullough, R., V., & Gitlin, A. D. (2001). *Becoming students: Linking knowledge production and practice of teaching* (2nd ed.). New York: Routledge.

Buysse, V., Sparkman, K.L., & Wesley, P.W. (2003). Communities of practice: Connecting what we know with what we do. *Exceptional Children*, 69, 263-277.

Calhoun, E. F. (2002). Action research for school improvement. *Educational Leadership*, 59(6), 18-24.

Clancy, D. (2001). *Studying children and schools. Qualitative research traditions*. Prospect Heights, IL: Waveland Press.

Cole, A. L., & Knowles, J. G. (2000). *Researching teaching: Exploring teacher development Through reflexive inquiry*. Boston: Allyn and Bacon.

*Cronbach, L. (1959). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.

Fullen M. (2002). The change leader. *Educational Leadership*, 59(8), 16-20.

Hobson, D. (2001). Action and reflection: Narrative and journaling in teacher research. In G.E. Burnaford, J. Fischer, & D. Hobson (Eds.), *Teachers doing research:*

The power of action through inquiry (pp. 7-27). Mahwah, NV.: Lawrence Erlbaum Associates.

Kemmis, S., & McTaggart, R. (2000). Participatory action research. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 567-605). Thousand Oaks, CA: Sage.

McNiff, J. (2002). *Action research: Principals and practice* (2nd ed.). London: Routledge Falmer.

Prendergast, M. (2006). *Seven stages in my first action research project*. Retrieved 9/27/2006. http://educ.queensu.ca/projects/action_research/michael.htm

Rossman, G. B., & Rallis S. F. (2003). *Learning in the field: An introduction to qualitativeResearch* (2nd ed.). Thousand Oaks, CA: Sage.

Zeni, J. (Ed.). (2001). *Ethical issues in practitioner research*. New York: Teachers College Press.

Tentative Assignments

1. PARTICIPATION: Each student must bring 2 questions to class that they have generated from reading the text, or other materials. These questions should be asked in class for full credit (2 pts for written questions plus up to two additional points for asking questions in class).
2. LITERATURE REVIEW: Each student will work with one other student to select an instruction model or school reform model to review. The review will be a maximum of two pages and use at least 5 articles from referred research journals.
3. BOOK TALK/BOOK REPORT: Each student will submit a one-page review of a book on a research process, school reform model, or instructional practice that relates to their review of literature and/or their action research project.
4. RESEARCH DESIGNS: Each student will work in a group of 2 to investigate and present on two research designs. For each design provide a one-page summary with:
 - a. Name and definition
 - b. What questions are answered
 - c. Illustration of a study
5. ACTION RESEARCH PROPOSAL: Each student will develop and share their Action Research Project to the class for feedback and revision. The revised proposal will be submitted at the end of the course.
6. RESEARCH PAPER (NON-MAJORS): will complete a research paper based on guidelines that will be provided to those eligible.
7. IRB PROPOSAL: Each student will complete an IRB proposal in based on guidelines provided in class.
8. ASSESSMENT: There will be a mid-term (see attached study guide) which covers the major content of the course and a final exam designed to demonstrate the knowledge and skills to apply that content in an article review.

Grades

Your grade for this course will be based on your participation in class discussions, your score on the exam, your evaluations of research articles, and your research question paper. Assignments will be evaluated on a scale of 0-5 points. Five (5) points will be given for outstanding performance, far above the level of other students. Four (4) points will be earned for a good product that exceeds expectations. Three (3) points will be given for work performed at a level expected for the entire class. Two (2) points will be given for work performed at a level below expectations. Sub-standard work will be returned for revision. Assignments will NOT be accepted after the due date. A student will be given a zero (0) for work not completed by the due date.

The instructor is willing to review work in progress, and assignments that are returned may be revised based on the instructor's comments and resubmitted prior to deadline. Please keep all returned work to verify instructor's spreadsheet data.

There may be changes in course assignments due to the nature of the students, the pace of the class, or unexpected events. These changes may modify the grading scheme, but grades will still be based on the percentage indicated below. Grades are based on the following requirements:

Tentative Assignment Values:

• Participation points (15 @ 4 points each)	60
• Lit review (weight of 10)	50
• Book Talk (weight of 2)	10
• Research Designs (weight of 10)	50
• Action Research Proposal (or research paper)	50
• IRB Proposal (weight of 2)	10
• MidTerm	100
• Final Exam	100

Grading Scale:

A = 95%-100%, B= 85%-94%, C= 75%-84%, D= 65%-74%, F = Below 65%

Tentative Schedule of Class Meeting

Instructional Strategy

An emerging perspective of learning (sometimes referred to as Web 2.0) includes engagement, collaboration, and distribution. The instructor is a facilitator of learning. Students must be actively engaged in their learning, work with others and share what they have learned. That perspective is the foundation of this class. Students will work collaboratively to learn and share what they have learned.

Topic	Assignment(s) for next class Or due that day
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Class 1: August 24, 2009	
Overview of Course	READ: Ch 1,2,3,4,5
Nature of inquiry	
Folklore vs. data-based decision making	DUE: 2 Questions
Mindstyles Indicator	
Write educational biography and submit electronically to instructor	
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Class 2: August 31, 2009	
Introduction to research	READ: 6,7,8,9
Review the literature	
Select groups and group topics	DUE: 2 Questions
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Class 3: September 7	
Levels of measurement	READ: 10,11,12
Variability/Central tendency	
Hypothesis testing	DUE: 2 Questions
Reliability/Validity/SEM	
Norm-referenced vs. criterion referenced	
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Class 4: September 14	
ECS Primer	
About the Primer	
Searching ERIC Tutorial	DUE: 2 Questions
How Do I know What Research Says	
How Do I know if the Research is Trustworthy	
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Class 5: September 21	
ECS Primer	
How Do I know if Research Warrants Policy Change	
Understanding Statistics Tutorial	
Analyzing Research Flow Chart	DUE: 2 Questions

Class 6: September 28
Threats to Internal and External Validity DUE: 2 Questions

Class 7: October 5
Mid-term Exam

Class 8: October 12
IRB Proposals DUE: 2 Questions

Class 9: October 19
Presentations on research designs DUE: Lit review

Class 10: October 26
Presentations on research designs DUE: Book Talk Submitted (WebCT)

Class 11: November 2
Presentations on research designs DUE: 2 Questions

Class 12: November 16
Action research proposals DUE: 2 Questions

November 23: No CLASS

Class 13: November 30
Action Research Proposals DUE: Action Research Proposals
Any revised assignment

Class 14: December 7.....Final exam

12 Factors Jeopardizing Internal and External Validity

Internal Validity (Did in fact the experimental treatments make a difference in this experimental instance?)

1. History, the specific events occurring between the first and second measurement in addition to the experimental variable.
2. Maturation, processes within the respondents operating as a function of the passage of time per se (not specific to the particular events), including growing older, growing hungrier, growing more tired, and the like.
3. Testing, the effects of taking a test upon the scores of a second testing.
4. Instrumentation, in which changes in the calibration of a measuring instrument or changes in the observers or scorers used may produce changes in the obtained measurements.
5. Statistical Regression, operating where groups have been selected on the basis of extreme scores.
6. Selection, biases resulting in differential selection of respondents for the comparison groups.
7. Experimental Mortality, or differential loss of respondents from the comparison groups.
8. Selection-Maturation Interaction, etc., which in certain of the multiple-group quasi-experimental designs, such as Design 10, is confounded with, i.e., might be mistaken for, the effect of the experimental variable.

External Validity (Generalizability: To what populations, settings, treatment variables, and measurement variables can this effect be generalized?)

1. The Reactive or Interactive Effect of Testing, in which a pretest might increase or decrease the respondent's sensitivity or responsiveness to the experimental variable and thus make the results obtained for a pretested population unrepresentative of the effects of the experimental variable for the unpretested universe from which the experimental respondents were selected.
2. Interaction effects of selection biases and the experimental variable.
3. Reactive effects of experimental arrangements, which would preclude generalization about the effect of the experimental variable upon persons being exposed to it in non-experimental settings.
4. Multiple-treatment interference, likely to occur whenever multiple treatments are applied to the same respondents, because the effects of prior treatments are not usually erasable.

FROM: Campbell, D. T., & Stanley, J.C. (1963). Experimental and quasi-experimental designs for research. Boston, MA: Houghton Mifflin Company.

GLOSSARY

Independent variable: a variable that is measured, manipulated, or selected by the researcher to examine its relationship to another variable

Dependent Variable: variable which appears, disappears or varies as the researcher increases, decreases or varies the independent variable.

Sample size: Sample size is determined by inserting the size of the population and the desired confidence interval. A table is attached that provides the necessary sample size for populations of varying sizes.

Chi-square: This measure compares expected frequencies with observed frequencies. This is used to see if there is a difference in expected and observed occurrences.

Correlation is a measure of the relationship between two measures, as one goes up (or down) the other goes up (or down). A HIGH CORRELATION DOES NOT IMPLY CAUSATION.

The t-test is used to see if there is a statistically significant difference between the mean scores of two groups. This test can only be used between two groups on a single mean score. You cannot do multiple comparisons among a number of groups.

Analysis of variance (ANOVA) ANOVA is a measure that uses the variation within a group and among groups to compute a ratio. This test statistic (F) is the ratio of two variance estimates.

Regression is a procedure used to predict one score from another. For example, predicting college grades using SAT or ACT scores, or predicting success in graduate school based on GRE scores.

Internal Reliability also called split half and internal consistency. Generally measured by splitting the test in half and looking at the relationship between the two halves. Generally use Kuder Richardson' KR-20 or Cronbach's coefficient alpha.

Stability reliability also called test-retest reliability or coefficient of stability. Measures the consistency over time. The same instrument is administered to the same people. (correlation)

Alternate forms reliability is used to measure the correlation between two forms of the same test. Different forms of the same test are given to the same people and a correlation computed.

Stability-equivalence is when two forms are administered to the same people two times and the correlation computed.

Interrater reliability is a comparison of the usefulness of an instrument to be used by different people. For example, two people would rate the same Torrance test to examine the consistency of scoring.

Standard error of measurement is a measure of the confidence in an instrument to assess a particular variable. For example, the SEM for WISC-R is roughly 3. This means that there is a 68% probability that the TRUE score falls within 3 points.

Construct validity is the extent to which a test can be shown to measure a hypothetical construct. The most commonly used method for providing evidence is factor analysis.

Content validity is the degree to which the sample of test items represents the total content that the test is designed to measure. A usual method of assessing this is through the use of experts in the field and is not expressed in a number. It is usually a description of the processed used to develop the test items.

Face validity is the idea that an item "SEEMS" to assess an area. For example, a reading test that has the students read would seem to have face validity. This is not a sufficient kind of validity when considering tests. Often used as a smokescreen to disguise that other types of validity have not been examined.