GEORGE MASON UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT
INSTRUCTIONAL TECHNOLOGY

EDIT 803
Introduction to Design-Based Research
Spring 2011
Days/Times: Mondays/4:30pm-7:10pm or alternate time
Fairfax Campus

PROFESSOR:

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COURSE DESCRIPTION

1. **Prerequisites –** EDIT 801
2. **Course description from the University Catalog:** Provides an introduction to systematic cycles of design-based research in education. Applicable to all content domains to explore cycles of research within design, development and implementation of educational and training interventions.

NATURE OF COURSE DELIVERY

This course will provide students with an introduction to design-based research. Design-based research is a research approach that systematically investigates teaching, learning and/or training phenomena through multiple cycles of design, development, evaluation and implementation of educational interventions (which may consist of curriculum/training interventions, systemic school programs, informal or formal teaching-learning strategies and materials, technology-based products and systems, etc.). This course will examine the history of this research approach along with related current literature, commentary and research.

STUDENT OUTCOMES

This course is designed to enable students to:

1. understand design-based research as a viable research approach;
2. investigate historical and current literature describing and evidencing design research;
3. identify specific teaching/learning/training phenomena to explore through design research cycles;
4. plan multiple cycles of design research to investigate teaching/learning/training phenomenon; and

5. write a literature review with corresponding research plan for a design research study.

PROFESSIONAL STANDARDS

This course adheres to the following Instructional Technology Program Goals and Standards/Competencies for Programs in Educational Communications and Instructional Technologies established by the Association of Educational Communication and Technologies (AECT) under the National Council for the Accreditation of Teacher Education (NCATE).

Standard – Apply current research and theory to the practice of instructional design

a. Promote, apply and disseminate the results of instructional design theory and research.
b. Read instructional design research, theory and practice literature.
c. Apply concepts, techniques and theory of other disciplines to problems of learning, instruction and instructional design.

REQUIRED TEXTS

1) Plomp, T. and Nieveen, N. (2007) An Introduction to Educational Design Research, the Netherlands: SLO-Netherlands Institute for curriculum development
2) Kelly, A.E., Lesh, R.A. and Baek, J.Y. (2008). Handbook of Design Research Methods in Education: Innovations in Science, Technology, Engineering and Mathematics Learning and Teaching, New York: Routledge.

OPTIONAL TEXTS

1) Visocky O'Grady, J. & K. Visocky O'Grady. (2006) A Designer's Research Manual: Succeed in Design by Knowing Your Clients and What They Really Need. Gloucester, MA: Rockport Publishers.
2) Ralf, M. (2007). Design Research Now: Essays and Selected Projects, Boston: Birkhauser Verlag AG.

REQUIRED READINGS

1) A reading list of related historical and current writings on design research will be disseminated.

COURSE REQUIREMENTS, PERFORMANCE-BASED ASSESSMENT, AND EVALUATION CRITERIA

A. Requirements

1. Writing and presentation of collective design research cycle example (20%) - Each student will write up and present their individual analysis of a segment or focus area of a collective research study that can potentially be considered an individual cycle of design research or the study of design research processes. The research study will include a detailed description of the testing of the intervention (curriculum/training interventions, systemic school programs,

informal or formal teaching-learning strategies and materials, technology-based products and systems, etc.) or observation of a design research team through some type of systematic, applied or empirical research.

Each presentation will be expected to provide:

- A 30-minute presentation of related literature, research questions, methods, analysis, results and conclusions
- A consideration of how this study could be considered or revised into multiple cycles of design research
- A postulated statement of what iterative cycles of design research may have preceeded or followed the study if possible
- A statement of how what was learned in this study example relates to the individual's area of interest in design research

2. Literature review or synthesis (30%) - Each student will identify a teaching, learning or training phenomenon to thoroughly investigate by examining related literature and provide theoretical grounding for their own potential design research study involving initial or iterative development, evaluation or implementation of an intervention (i.e. curriculum, program, course, system or strategy). Each literature review will adhere to the following parameters. :

- Examination of at least 10 current, related research and conceptual journal articles
- 10-15 page synthesis of the journal articles to represent current state of research in this area and identified gap for a design research study
- Adherence to APA citation standards

3. Research Plan (40%) - Each student will write a research plan articulating specific potential phases of an iterative design research program of study related to an identified phenomenon and intervention. This research plan will be written in a manner similar to a grant or dissertation proposal containing the following elements:

- Statement of the problem
- Revision/Addition to existing literature review
- Generated theoretical conjectures and related potential research questions
- Articulated possible program of study including iterative cycles of integrated design and research aligned with specific design research phase(s)
- Alignment of initial learning targets, task analysis, intervention features and research questions
- Justification and rationale related to overall selection of methods, potential research questions for cycle and potential design implications to uncover

4. Jigsaw Feedback on Literature Review and Research Plan (10%) - Each student will read at least two other students' literature reviews and research plans to make suggestions and comments on substance, writing, research plan and implications, etc. This jigsaw feedback circle will require each student to be prepared to select, discuss and make constructive commentary on another's work. In this manner, all will benefit from multiple perspectives on the potential implementation of a design research study which will provide a reviewed plan for future doctoral courses. The jigsaw review will consist of:

- Each small group of three will read at least two other drafts of literature review
- Each student will switch drafts and come together to discuss at each of the three rounds

- Commentary, editing and suggestions will be conducted in one week
- Polished final drafts will be turned in on the due date for Literature Review and at the end of the course for the research plan.

B. **Performance-Based Assessments -** This course includes multiple performance-based assessments: individual presentations, writing a literature review, revising and commenting on at least two other students' literature reviews, writing a research plan, revising and commenting on at least two other students' literature reviews.

C. Criteria for evaluation - Assessment of each performance assessment is guided by the rubric below.

	Exceeds Expectations (E = Exceeds Expectations) A level work	Meets Expectations (M = Meets Expectations) B level work	Below Expectations (B = Below Expectations) C level work
Writing and resentation of design research cycle (20%)	Well-written and presented research study example of a potential cycle of design research with description of the testing of the intervention. Concise overview of research questions literature, research questions, methods, results and conclusions presented. Evidence of consideration how this study could be considered or revised into a cycle of design research. A thorough consideration of how this study relates to the individual's area of interest in design research or what was learned about design research processes in this task.	Written and presented research study example of a potential cycle of design research with adequate description of the testing of the intervention. Overview of research questions literature, research questions, methods, results and conclusions presented. Some evidence of consideration how this study could be considered or revised into a cycle of design research. A statement of how this study relates to the individual's area of interest in design research or what was learned about design research processes in	Poorly written and presented research study with little relevance to example of a potential cycle of design research with limited description of the testing of the intervention. Some overview of research questions literature, research questions, methods, results and conclusions presented. Little evidence of consideration how this study could be considered or revised into a cycle of design research. Limited statement of how this study relates to the individual's area of interest in design research or what was

		this task..	learned about design research processes in this task..
Literature review or synthesis (30%)	Thorough literature review written on an identified teaching, learning or training phenomena of interest. Synthesis of theoretical grounding to inform future design research study planning. Evidence of review of at least 10 selective, current research and conceptual journal articles, 10-15 reviewed, professionally written pages and adherence to APA format.	Adequate literature review written on an identified teaching, learning or training phenomena of interest. Some synthesis of theoretical grounding to inform future design research study planning. Evidence of review of at least 10 current research and conceptual journal articles, 10-15 written pages and adherence to APA format.	Limited literature review written on an identified teaching, learning or training phenomena of interest. Little synthesis of theoretical grounding to inform future design research study planning. Little evidence of review of less than 10 current research and conceptual journal articles, less than 10-15 written pages demonstrating little review/editing and not adequate adherence to APA format.
Research Plan (40%)	A thorough research plan that well-articulates specific phases of iterative design research. Well-conceptualized with logical connection to research questions. Plan includes logical statement of problem (falling from earlier literature review), theoretical conjectures and related research questions, demonstrated iterative cycles of design and research. The plan provides clear evidence of alignment of initial learning targets, task analysis, potential	A research plan that articulates phases of iterative design research. Conceptualized with logical connection to research questions. Plan includes statement of problem (falling from earlier literature review), theoretical conjectures and related research questions, iterative cycles of design and research. The plan provides evidence of	A limited research plan that presents some phases of iterative design research. Conceptualized without logical connection to research questions. Plan does not include one or more of the following: statement of problem (falling from earlier literature review), theoretical conjectures and related research

	intervention features and research questions. Also demonstrated in the plan is a sound justification and rationale related to overall selection of methods, potential research questions for cycle and potential postulated design implications to uncover.	some alignment of initial learning targets, task analysis, potential intervention features and research questions. Also demonstrated in the plan is some justification and rationale related to overall selection of methods, potential research questions for cycle and potential, postulated design implications based on cycles of research.	questions, iterative cycles of design and research. The plan provides little evidence of alignment of initial learning targets, task analysis, potential intervention features and research questions. Little justification and rationale related to overall selection of methods, potential research questions for cycle and potential, as well as postulated design implications based on cycles of research are presented.
Jigsaw Feedback (10%)	Evidence of outstanding commentary/editing on at least two other students' literature reviews and research plans with helpful, constructive suggestions and comments on substance, writing, research plan and implications, etc. Polished drafts are submitted to other students and instructor in a timely manner.	Evidence of commentary/editing on at least two other students' literature reviews and research plans with suggestions and comments on substance, writing, research plan and implications, etc. Polished drafts are submitted to other students and instructor by due dates.	Little or no evidence of commentary/editing on at least two other students' literature reviews and research plans with suggestions and comments on substance, writing, research plan and implications, etc. Drafts are not submitted to other students and instructor by due dates.

D. Grading Scale

Requirements	Percentage
Presentation of design research cycle example	20%
Literature review or synthesis	30%
Research Plan	40%
Jigsaw Feedback	10%

COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT STATEMENT OF EXPECTATIONS:
All students must abide by the following:

Students are expected to exhibit professional behavior and dispositions. See gse.gmu.edu for a listing of these dispositions. Students must follow the guidelines of the University Honor Code.

See http://www.gmu.edu/catalog/apolicies/#TOC_H12 for the full honor code. Students must agree to abide by the university policy for Responsible Use of Computing. See http://mail.gmu.edu and click on Responsible Use of Computing at the bottom of the screen.

Students with disabilities who seek accommodations in a course must be registered with the GMU Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester. See www.gmu.edu/student/drc or call 703-993-2474 to access the DRC.
Mason email Account and IT Listserv

As a GMU student, you will need to acquire a GMU email account. Contact the IT Support Center to activate your account. If you are an IT student, please also subscribe to the IT Listserv which will post job opportunities, program announcements, etc. Directions about how to subscribe can be located on the IT Program Website.

Changes

The instructor reserves the right to adjust the schedule and syllabus based on individual class needs.

PROPOSED CLASS SCHEDULE

WEEK	IN CLASS ACTIVITIES	PREPARATION FOR FOLLOWING CLASS ACTIVITIES
1 Jan 24 (F to F)	Introductions/Revisiting Syllabus Overview	Read Plomp & Nieveen, Chapters 1-2 Read Kelly et al. Introduction Read Bannan-Ritland (2003) Read Example of Design Research Study (provided by Brenda)
2 Jan 31 (F to F)	What is Design Research? Design Research cycle participation	Read Plomp & Nieveen, Chapters 3-4 Write Review Excerpt of DR Example
3 Feb 7 (online)	Some Frameworks of Design Research Begin Literature Review	Read Plomp & Nieveen, Chapters 5-6 Read Example of Design Research Study
4 Feb 14 (online)	Debate on differences/similarities of design research and evaluation Work on Literature Review	Read Kelly, Lesh & Baek, Intro and Chapters 1-3
5 Feb 21 (F to F)	Susan and Sue Presentations Design Research cycle presentations Work on Literature Review	Read Kelly, Lesh & Baek, Chapters 4-7
6 Feb 28 (online)	Design Research – Soup to Nuts Work on Literature Review	Read Kelly, Lesh & Baek, Chapters 8-11
7 Mar 7 (F to F)	Begin thinking about Design Research Plan Work on Literature Review	Read Kelly, Lesh & Baek, Chapters 12-15
8 Mar 14 (online)	*SPRING BREAK Design Research Plan Finalize literature review	Read Kelly, Lesh and Baek, Chapters 16-19

9 Mar 21 (F to F)	Design Research cycle presentations Literature Review DUE	Read Kelly, Lesh and Baek, Chapters 20-24.
10 Mar 28 (online)	Discuss Design Research Plans Read Collegial Papers	Read Kelly, Lesh and Baek, Chapters 25-27
11 April 4 (F to F)	Work on Design Research Plan Design Research Presentations Read Collegial Papers	Read Kelly, Lesh and Baek, Chapters 27-30
12 April 11 (online)	Work on Design Research Plan Feedback on Collegial Papers	Refine Design Research Plan
13 April 18 (F to F)	Work on Design Research Plan Feedback on Collegial Papers Design Research Cycle Presentations	Refine Design Research Plan
14 April 25 (online)	Finalize Design Research Plan	Refine Design Research Plan
15 May 2 (F to F)	Group Feedback on Design Research Plan	Refine Design Research Plan
16 May 9 (online)	**Final Design Research Plan - Due**	**Congratulations!**