George Mason University
College of Education and Human Development
Learning Technologies Design Research (LTDR) PhD Specialization
EDIT 803.DL1– Introduction to Design-Based Research
3 Credits, Spring 2022

Course Instructor: Dr. Nada Dabbagh
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Prerequisites/Corequisites

EDIT 801 or permission of instructor.

University Catalog Course Description

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.

Course Overview

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.

Course Delivery Method

This course will be facilitated **largely online** via the Blackboard Learning Management System (LMS) housed in the MyMason portal. You will log in to the Blackboard (Bb) course site (mymason.gmu.edu) using your Mason email userid and password. The course site will be available on the first day of class.

The course is scheduled to meet five times in person in Thompson Hall, Room L028 (or synchronously online pending pandemic conditions) on the following Thursdays:

- **Thursday 01/27, 7:20 PM – 10:00 PM**
- **Thursday 02/17, 7:20 PM – 10:00 PM (this date is a change from 02/24)**
- **Thursday 03/24, 7:20 PM – 10:00 PM**
- **Thursday 04/21, 7:20 PM – 10:00 PM**
- **Thursday 05/12, 7:20 PM – 10:00 PM**

Learning Outcomes or Objectives

This course is designed to enable students to do the following:
1. Understand design-based research (DBR) 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.
5. Write a literature review with corresponding research plan for a design research study.

Required Texts

McKenney, S. & Reeves, T. (2019). *Conducting educational design research* (2nd ed.). Routledge.

Plomp, T., & Nieveen, N. (Eds.) (2013). *Educational design research - Part A: An introduction*. Netherlands Institute for Curriculum Development. **(Available on the course website).**

Plomp, T., & Nieveen, N. (Eds.) (2013). *Educational design research - Part B: Illustrative cases.* Netherlands Institute for Curriculum Development. **(Available on the course website).**

Selected required and optional readings will be posted by week on Blackboard.

Technical Requirements:

This class meets in a classroom that is not equipped with individual workstations and all students are required to "bring your own device" (BYOD) to class. This is typically a personal laptop (Mac or Windows) or a tablet running Windows 8.1 or later versions.

Under no circumstances may candidates/students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.

To participate in this course, students will need to satisfy the following technical requirements:

- High-speed Internet access with standard up-to-date browsers. To get a list of Blackboard's supported browsers see: https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#supported-browsers
- To get a list of supported operation systems on different devices see: https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#tested-devices-and-operating-systems
- Students must maintain consistent and reliable access to their GMU email and Blackboard, as these are the official methods of communication for this course.
- Students may be asked to create logins and passwords on supplemental websites and/or to download trial software to their computer or tablet as part of course requirements.
- The following software plug-ins for PCs and Macs, respectively, are available for free download:
  - Adobe Acrobat Reader: https://get.adobe.com/reader/
  - Windows Media Player: https://support.microsoft.com/en-us/help/14209/get-windows-media-player
  - Apple Quick Time Player: www.apple.com/quicktime/download/

Course Expectations

- Course Week: Our course week will begin on **Thursday** and end on **Wednesday**.
- Log-in Frequency: Students must actively check the course Blackboard site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 3 times per week. In addition, students should plan to attend all synchronous meetings listed above. Recordings of synchronous meetings will be available but it is highly recommended that students attend those meetings. The instructor may cancel some of those meetings with due notice and depending on course progress and learning needs.
- Participation: Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.
- Technical Competence: Students are expected to demonstrate competence in the use of all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.
- Technical Issues: Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.
- Workload: Please be aware that this course is not self-paced. Students are expected to meet *specific deadlines* and *due dates* listed in the Class Schedule (timeline) section of this syllabus. It is the student's responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.
- Instructor Support: Students may schedule a one-on-one meeting to discuss course requirements, content or other course- related issues. Those unable to come to a Mason campus can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.
- Netiquette: The course environment is a collaborative space. Experience shows that even an innocent remark typed in the online environment can be misconstrued. Students must always re-read their responses carefully before posting them, so as others do not consider them as personal offenses. *Be positive in your approach with others and diplomatic in selecting your words*. Remember that you are not competing with classmates, but sharing information and learning from others. All faculty are similarly expected to be respectful in all communications.
- Accommodations: Online learners who require effective accommodations to ensure accessibility must be registered with George Mason University Disability Services.

Course Assignments

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Zoom, etc.)

Review and presentation of design research case examples (30%) – Each student will select a DBR (Design Based Research) case study that is relevant to their area/context of research and will provide a review of the case study in the form of a presentation in-class or online. The DBR

case study can be selected from the *Plomp & Nieveen Educational Design Research (EDR) Part B: Illustrative Cases* book (available on the course website), or, from an empirical design research journal, dissertation database, or course resources. The **Design Studies Journal (Interdisciplinary Journal of Design Research)** is highly recommended.

The review will include a description of the context of the study, conceptual framework, nature and type of the design intervention (e.g., curriculum/training interventions, systemic school programs, informal or formal teaching-learning strategies and materials, technology-based products and systems, etc.), methodological approach of the design-based research (i.e. framework, cycles, data collection, etc.), and results, conclusions, and implications.

Each review (**there will be two such reviews)** is expected to provide the following:

- An in-class or online presentation of the DBR case – outlining related literature, research questions, research cycles, methods, analysis, results and conclusions
- A statement of how what was learned in the review of the case relates to the individual's area of interest in design research

More detail, as well as examples, is on the course website.

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
- 5-10 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 (7th edition)

Research Plan (30%) – 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 (see previous assignment)
- 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

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.

Course Performance Evaluation

Requirements	Percentage
Review and Presentation of First and Second Design Research Case Examples	30%
Literature Review or Synthesis	30%
Design Research Plan	30%
Jigsaw Feedback on Literature Review and Design Research Plan	10%

Grading Scale

Your final grade will be based on the following scale:
A = 94-100; A - = 90-93; B+ = 86-89; B = 83-85; B- = 80-82; C = 70-79; F = <70

Grades are based on the successful completion of course requirements and on the scope, quality and creativity of the assignments. To get an A in this course, students should demonstrate critical thinking skills through active synthesis of reading material, integration of prior knowledge and experience, and through problem-solving, argumentation, and reasoning.

Grade distribution is as follows: A = 94 - 100 (exceeds expectations on all requirements); A- = 90 - 93 (meets expectations, very good performance), B+ = 86 - 89 (meets most expectations, good performance), B = 83 - 85 (meets most expectations, satisfactory performance); B- = 80 – 82 (meets some expectations, average performance); C = 70 - 79 (notably below expectations).

CEHD Core Values Commitment

The College of Education and Human Development (CEHD) is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: http://cehd.gmu.edu/values/

Professional Dispositions

Students are expected to exhibit professional behaviors and dispositions at all times. See https://cehd.gmu.edu/students/polices-procedures/

GMU Policies and Resources for Students

Policies

- Students must adhere to the guidelines of the Mason Honor Code (see https://catalog.gmu.edu/policies/honor- code-system/)
- Students must follow the university policy for Responsible Use of Computing (see http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/)
- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account.
- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see http://ds.gmu.edu/).
- Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Campus Resources

- Questions or concerns regarding use of Blackboard should be directed to https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/
- For information on student support resources on campus, see https://ctfe.gmu.edu/teaching/student-support- resources-on-campus

Notice of mandatory reporting of sexual assault, sexual harassment, interpersonal violence, and stalking: As a faculty member, I am designated as a "Non-Confidential Employee," and must report all disclosures of sexual assault, sexual harassment, interpersonal violence, and stalking to Mason's Title IX Coordinator per University Policy 1202. If you wish to speak with someone confidentially, please contact one of Mason's confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-380-1434 or Counseling and Psychological Services (CAPS) at 703-993-2380. You may also seek assistance or support measures from Mason's Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

For additional information on the College of Education and Human Development, please visit our website https://cehd.gmu.edu/students/

Class Schedule

Note: Faculty reserve the right to alter the schedule as necessary, with notification to students.

WEEK	TOPICS/PREPARATION	READINGS/ACTIVITIES
Week 1 Jan 27 **(F2F or Synch)**	Introductions Review Syllabus *Begin thinking about your individual area of focus in Design Research for the lit review*	Read McKenney & Reeves, Chapter 1 Read Plomp & Nieveen, Chapter 1 Read Anderson & Shattuck (2012) *Contribute initial design research ideas/interests to discussion area*
Week 2 Feb 3 (Asynch)	Design Research: A Framework *Review Intro to Design Research (Dr. Bannan narrated PPT)* *Work on literature review* *Select First DBR Illustrative Case*	Read McKenney & Reeves, Chapter 2 Read Plomp & Nieveen, Chapter 2 Read Bannan-Ritland (2003) Read Bannan (2013) GO Inquire *Share your selection of DBR illustrative case online*
Week 3 Feb 10 (Asynch)	Contributions to Theory and Practice: Concepts and Examples *Prepare DBR Case Presentation* *Work on literature review*	Read McKenney & Reeves, Chapter 3 Read Plomp & Nieveen, Chapter 3 Read Collins & Joseph (2004) Example Assignments
Week 4 Feb 17 **(F2F or Synch)**	Methods/Frameworks in DBR *Review Design Research Models (Dr. Bannan narrated PPT)* ***Present DBR Case Reviews in class*** *Work on Literature Review*	Read McKenney & Reeves, Chapter 4 Read Plomp & Nieveen, Chapter 4 Read Christensen & West Chapter Example Assignments **First DBR Case Review DUE**
Week 5 Feb 24 (Asynch)	Analysis/Informed Exploration *Work on Literature Review* ***Present DBR Case Reviews online (if needed)***	Read McKenney & Reeves, Chapter 5 Read Plomp & Nieveen, Chapter 5 *Might have a synchronous session for DBR case reviews if needed*
Week 6 Mar 3 (Asynch)	*Work on Literature Review*	Available Posted Online Readings
Week 7 Mar 10 (Asynch)	Design and Construction *Begin thinking about your Design Research Plans*	Read McKenney & Reeves, Chapter 6 Read Plomp & Nieveen, Chapter 6 *Contribute design research plan ideas/interests to discussion area*

Week 8 Mar 17	**Spring Break**	
Week 9 Mar 24 **(F2F or Synch)**	Evaluation and Reflection *Discuss Design Research Plans*	Read McKenney & Reeves, Chapter 7 Read Plomp & Nieveen, Chapter 7 **Literature Review DUE**
Week 10 Mar 31 (Asynch)	Implementation and Spread *Work on Design Research Plan* *Read Peers Lit Reviews* *Select Second DBR Illustrative Case for Review*	Read McKenney & Reeves, Chapter 8 Available Posted Online Readings *Read Peers Lit Reviews* *Share your selection of DBR illustrative case online*
Week 11 April 7 (Asynch)	Writing Proposals for EDR Design Research: Exploration into Methodologies *Work on Design Research Plan*	Read McKenney & Reeves, Chapter 9 Available Posted Online Readings ***Jigsaw Feedback on Lit Reviews***
Week 12 April 14 (Asynch)	Reporting EDR *Present/Discuss Design Research Plan for initial Feedback*	Read McKenney & Reeves Chapter10 ***Jigsaw Feedback on Lit Reviews Due***
Week 13 April 21 **(F2F or Synch)**	Looking Back and Ahead *Finalize Design Research Plan* ***Present Second DBR Case Reviews in class***	**Second DBR Case Review DUE**
Week 14 April 28 (Asynch)	*Group Feedback on Design Plan* ***Present Second DBR Case Reviews (if needed)***	Finalize/Refine Design Research Plan *Might have a synchronous session for DBR case reviews if needed*
Week 15 May 5 (Asynch)	*Finalize Design Research Plan* Individual Meetings Week ***Jigsaw Feedback on Design Plan***	
Week 16 May 12 **(F2F or Synch)**	**Final Design Research Plan Due** **Present DBR plans in class**	**Congratulations!**

Assignment Rubrics

Criteria	Exceeds Standards	Meets Standards	Does Not Meet Standards
Review and presentation of design research case study **(15 points each case review)**	Well-written and presented research study review of cycle(s) of design research with description of the testing of the intervention. Concise overview of research questions literature, research questions, methods, results and conclusions presented. Excellent 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. *14-15*	Written and presented research study review of cycle(s) 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 this task. *12-13*	Poorly written and presented research study with little relevance to example of cycle(s) 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 learned about design research processes in this task. *11 or below*

Criteria	Exceeds Standards	Meets Standards	Does Not Meet Standards
Literature review or synthesis **(30 points)**	Thorough literature review written on an identified teaching, learning or training phenomena of interest. Comprehensive 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, 5-10 reviewed, professionally written pages and adherence to APA format. *29-30*	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, 5-10 written pages and adherence to APA format. *26-28*	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 5-10 written pages demonstrating little review/editing and not adequate adherence to APA format. *25 or below*

Design Research Plan **(30 points)**	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 intervention features and research questions. *29-30*	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 some alignment of initial learning targets, task analysis, potential intervention features and research questions. *26-28*	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 theoretical conjectures and related research questions, iterative cycles of design and research. The plan provides little evidence of alignment of initial learning targets, task analysis, potential intervention, etc. *25 or below*

Jigsaw Feedback **(10 points)**	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.