

LDT 576 Design-based Research Methods: Applications for Educational Research

Fall 2015 Tuesdays from 1:00 - 4:00 pm 313 Keller

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Course introduction

LDT 576 is designed to familiarize graduate students with the set of research perspectives known as Design-Based Research. Design-Based Research is also called or has forms called: design research, design experimentation, teaching experiments, and design-based implementation research. Design-Based Research is used by educational researchers to advance knowledge about consequential issues impacting human learning through conducting research in actual educational settings (e.g., schools, workplaces, museums, afterschool programs, family settings, higher education, and online immersive environments).

Design-Based Research is often used in Learning Sciences and Educational Technology research—as well as in other educational and psychological domains. DBR is most commonly known for its iterative research study design that simultaneously seeks to improve theory (of design, learning, or interaction) and practice (through improving an educational intervention). Design-Based Research can employ quantitative or qualitative inquiry methods, but most often, Design-Based Research projects use a combination of methods.

LDT 576 Design-Based Research is appropriate for graduate students in the College of Education or related disciplines who (a) are interested in conducting social sciences research with a DBR methodological approach or (b) would like to understand various ways of studying educational interventions in situ. LDT 576 Design-Based Research is **not** a substitute for quantitative or qualitative methodology courses.

Course goal and objectives

After taking this course on Design-Based Research (DBR), you should be able to:

- Define and distinguish the multiple methodological traditions that have inspired and continue to inspire DBR
- Articulate the methodological perspectives used by those conducting forms of DBR
- Describe, defend, and explain DBR as: “adaptive, collaborative, contextual, flexible, goal-oriented, grounded, integrative, interaction, interventionist, iterative, methodologically inclusive, multilevel, pragmatic, progress-focused, theoretical, transformative, and utility-oriented” (McKenney & Reeves, 2013, kindle location 372)
- Assess, critique, and categorize DBR articles and chapters found in the empirical literature
- Synthesize your understandings of DBR through applying DBR methods to a topic area of interest within a written research prospectus

Grading policy

Your grade will be assigned based on your efforts in three areas:

a) Preparation and participation (12 reading responses & in-class contributions)	48
b) 5 empirical DBR articles annotations and 3 methodological chapters annotations	32
c) Final paper due in ANGEL on Tuesday, Dec 15th by 10 am eastern	20
Total	100

The grade of A requires 94 -100 points. A- requires 89 - 93 points. B+ requires 84- 88 points. B requires 79 - 83 points. A grade lower than a B is a failing grade for graduate students.

Late Work: All course work is due on the date specified on the seminar schedule, except in emergency situations. If your work is turned past the deadline without prior approval, your assignment will not receive credit (i.e., it will receive a zero).

Deferred Grades (DF): If a family, work, or personal emergency occurs, and you require additional time to complete 576 course work, you need to make immediate make arrangements before the semester ends for a Deferred Grade, or DF. A DF cannot be given to extend the normal time allowed to complete course requirements; the DF is only granted for extenuating circumstances. Do know that a DF will be automatically turned into an “F” if the work is not submitted on time. Having a DF on your transcript can have implications to your progress through your graduate program; a DF could influence: your student aid, your ability to take candidacy, your ability to take comprehensive examinations, and your ability to graduate: <http://bulletins.psu.edu/graduate/academicprocedures/procedures6>.

A written work completion agreement will be negotiated before a DF is granted. The work completion agreement will indicate new deadlines for course assignments. In most cases, I will require all work to be submitted within six weeks after the semester end.

Course assignments

a) Preparation for and participation in class – 48% of your final grade

As a 500-level graduate seminar, you need to arrive to class ready to engage in a high-level discussion of the articles/chapters in a respectful and informed manner. Because your contribution in class is based on your *respectful and informed participation*, you are graded on both active listening and speaking as well as a written response. Weekly, you will write one response to help you prepare for class. These written responses are paired with your in-class participation for grading purposes. Each written response-participation unit is worth 4 points weekly for twelve weeks of the semesters (Weeks 2-11 and 14-15).

Readings: This course is based on with foundational readings and current empirical research from peer-reviewed journals. The seminar readings are available on ANGEL. You need to come to class having read each assigned chapter or article *critically*. You should be ready to: outline the authors’ main argument, make connection between readings, pose discussion questions to the class, and apply the work in new ways during in-class activities. During our discussions, listen to your colleagues and acknowledge their contributions as you put forth new ideas that expand on, enrich, or disagree with their statements.

Optional books available from the bookseller of your choice or via the library reserve:

- Optional book 1: Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and*

mixed methods approaches (4th edition). Thousand Oak, CA: Sage.

- on reserve at the Commons Services Desk, Pattee; Call number: H62.C6963 2014
- Optional book 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.
 - Education & Behavioral Sciences Library (UP), 501 Paterno – Reference; Call number: QA279.H34 2008

Written responses: You will **write 12 one-page, single-spaced** weekly (12 out of 15 weeks) reading responses on a google.doc. In your weekly response, you will discuss the week's readings to each other, learning theory, educational design, your prior experiences, and/or your research interests.

Each weekly response is due on **Monday before class, at noon** (eastern). Share this document your instructor at **heather.teaching.psu@gmail.com**. Set-up your sharing preferences on the google.doc so that that the instructor can access the revision history of your entries to track the dates of your submission. Weekly, you need to cut and paste your google.doc link in the ANGEL dropbox. Include:

- a) your notes related to theoretical perspectives, methodological considerations, and arguments made,
 - b) a personal critique of the work,
 - c) potential discussion questions for the group, and
 - d) answers to the questions posed in the seminar schedule (if listed).
- NOTE: In week 15, the reading response format is different; you will submit a set of google.slides overviewing your project in a very specific format.

b) Annotated bibliography project: write 200-300 word annotations of 5 DBR empirical papers and 3 DBR methodological chapters

Midway through the semester, you will begin personalizing the course to your interests through the development of a DBR annotated bibliography project, specific to your interests. Write this in an academic style (i.e., APA 6th edition) where you *present, interpret, and analyze 5 empirical articles and 3 chapters related to both DBR and your emerging area of specialty*.

An annotated bibliography is a document where you describe and analyze articles you read on a related topic, one article at a time. Critically read 8 articles/chapters and write up summative annotations (8- 12 sentences or 200 to 300 words per article). Read these articles critically to point out what the work adds as well as limitations of the study.

Text of paper: Start with a short *introduction* that situates the types of research articles you are reviewing, your general guidelines in selecting articles, and outlines the question or set of questions that you explore in each article. Some sample questions to answer in your review: (a) what does this journal have to say about DBR?, (b) how do these studies in my subfield use DBR as an inquiry method applied to my research interests?, (c) what methods are currently used within recent DBR studies?, and (d) what findings have been documented as a result of these DBR studies that I can use to build my work in my topic? (These questions are suggestions only—you should pick questions that blend your interests with DBR.)

Then bulk of the bibliography is the analysis of each the articles. The goal for the 5 annotations of the empirical articles is to deeply understand the authors' theories, methods,

findings, and implications to further research and design. The goal for the 3 methodology chapters is to highlight key implications to the design of future DBR studies.

As you analyze each article, *go beyond reporting*. Include your perspectives on the work. List what frameworks the authors used and why those frameworks were selected. Describe what data they used to develop their findings, but also comment on data quality (numbers, depth, mode, uniqueness). You should summarize their findings and reflect on why project is important to the field (or why it misses the mark). Your total writing should be about 200 to 300 words per article; this word count does *not* include the reference or the author's own abstract.

Formatting: You should number the articles/chapters you read, and present them in alphabetical order by first author's last name. Start each entry in your bibliography with the full APA 6th edition citation of the article you are reviewing.

Include the articles' abstracts: If you are summarizing a journal article, please cut and paste the author's abstract (available online from the journal) and include it with quotation marks in italics; the author's abstract does not count in your 200-300 word count. Anytime you include others' work in your paper, you must cite it with APA style: the authors' abstracts would be treated as a block quotation (i.e., single space, indented).

Format: Double-spaced throughout the text of the paper with the exception of block quotations (in keeping with APA 6th style guides); 1 inch margins (top, bottom, sides) with the running head and page number in the header; Times or Times New Roman 12 pt font.

Voice: You should limit direct quotations; this paper should be written with your voice. You may use the first person (i.e., "I") to indicate your perspective.

Title page: Please turn in your paper with a title page. This should include the paper title, your name and affiliation, the running head, page number.

Abstract page: Include the paper title and a 100-120 word abstract that summarizes your bibliography as the second page of your assignment.

Tips: A key part of developing a useful annotated bibliography is the work you do to develop *reading notes*. Most successful graduate students take notes on the articles they read at a level of detail that limits the times that they have to go back to the original source. The annotations you write for this assignment are not these notes you take; your notes will likely be longer and more detailed. The annotations, on the other hand, are more refined and include your thoughts on the original author's work. When you are taking notes and writing annotations, you must take care to mark in your notes when you are citing the author directly as to not accidentally plagiarize. For example, I put *place quotation marks around all direct quotations* in my notes; you need to develop a system that makes it clear which words are yours and which are not.

c) A proposal of a DBR study applicable to your domain of research.

You will write a methods proposal for DBR study as the final project. Proposal guidelines will be handed out midway through the class based on McKenney and Reeves (2013, pp 183 – 201).

Paper structure: Write an *introduction* that situates your issue and outlines the research question that you could explore in a DBR study. The *proposal section* will be your longest paper section where you advance a DBR study using the course readings, your personalized 5 DBR empirical articles, and specific 3 methodological chapters to justify your study design. Within your proposal, you will discuss the methodological trade-offs of the design you are proposing.

Length requirement: Between 1,500 to 2,000 words of text (approximately a 6-8 page double-spaced paper), the word count *excludes* the title page, abstract, and references.

Format: Double-spaced throughout the text of the paper with the exception of block

quotations (as per APA 6th); 1 inch margins (top, bottom, sides) with the running head and page number in the header; Times or Times New Roman 12 pt font. (Do not add an extra space between paragraphs.) *Limit* block and direct quotations; this should be written with your voice.

Title page and abstract page: The title page should include the paper title, your name and affiliation, the running head, and page number (i.e., APA 6th style). Also, add the word count of the text of your document on the title page (exclude the title page, abstract, and references from your word count). On the abstract page, include your title and a 100-120 word abstract.

Bibliography: Follow the 6th edition of the American Psychological Association (APA) style manual, for all references that you list in your Bibliography. (Again, the references are *not* to be included in the paper page limit or word count). It is expected that you will appropriately reference papers from class as well as *papers that you have read outside of class*.

Instructor's expectations about attendance

Most of our academic work is accomplished through discussions of the materials we read. This type of academic work requires your weekly attendance. If you cannot attend a class, please email Dr. Zimmerman *in advance* of your absence. More than one absence will adversely impact your grade. For a second excused absence, you write a 1-page, single space (with no additional carriage return, 12 point font, 1" margins) reflection paper where you answer the discussion questions posed to the class in the weekly google.drive slides.

Religious observances are not counted as absences, but you must inform the instructor in advance that you will not be present. Official universities activities are excused absences if you inform the instructor in advance and provide appropriate paperwork. Absence due to sickness does not require a doctor's note.

It is the responsibility of the absent student to catch up on any missed material and do any make-up work required by the instructor. If you miss class, *check with your classmates* for updates on activities and class materials—including any changed reading/writing assignments.

Other information

Penn State Library Resources: Learning how to use Penn State's library resources will help you immensely throughout your graduate school career. It will also help you with the annotated bibliography project.

- LDT resources: <https://www.libraries.psu.edu/psul/researchguides/edupsyh/insys.html>
- APA Style: https://www.libraries.psu.edu/psul/researchguides/citationstyles/APA_citation.html
- Online tutorials: <https://www.libraries.psu.edu/psul/tutorials.html>
- Classes: https://www.libraries.psu.edu/psul/lls/classes/research_basics_seminar.html

File Backups: You are responsible for maintaining your digital files for this class. Extensions will not be given for the loss of digital files. You must backup all your class files to your own external hard drive, a DVD or CD, an USB drive, and/or a cloud back-up service.

- The file back-up choice is yours to make, but I do recommend that you use the file backup service Box at Penn State. Box at Penn State is supported by Penn State's ITS.,

and as of August, 2014, all Penn State students, staff, and faculty get 50 GB of free digital storage space on Box: <http://box.psu.edu/general-info/>.

- While you can use Box at Penn State for class files, like all other cloud services, Box is NOT to be used for identifiable human subjects data or other restricted-access files.

Students with disabilities: Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information, visit the Office for Disability Services website at <http://equity.psu.edu/ods/>.

- In order to receive consideration for course accommodations, you must contact ODS and provide documentation (<http://equity.psu.edu/ods/guidelines/documentation-guidelines>). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments.
- Please share this letter with the instructor so that we can discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester. Please share this letter by end of week two.

Academic integrity and academic honesty: This course adheres to University Senate Policy 49-20:

“Academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner, serving as a basic guiding principle for all academic activity. Academic integrity includes a commitment not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.”

Unless explicitly directed otherwise by the instructor, all assignments are expected to be each student's own original work completed individually, without collaboration or consultation. Violations of this code of conduct can result in reduced grades and can be reported to the College or University for further action. If you have questions about academic honesty, resources are available online:

- http://www.ed.psu.edu/edservices/certification/academic_integ.htm
- <http://tlt.its.psu.edu/suggestions/cyberplag/cyberplagstudent.html>

Violations of academic integrity include (but are not limited to): plagiarizing (e.g., using others' words and ideas with proper citation), fabricating data, fabricating citations, unauthorized possession of research data, submitting the work of another person as if it were your own, submitting your own work from another course for credit in this course without prior approval, facilitating or not reporting others' acts of academic dishonesty, or tampering with the work of others.

LDT 576 Design-Based Research (DBR) - 2015 seminar schedule

MEETING	TOPIC	READINGS	ASSIGNMENT THIS WEEK
week 1 Aug. 21	Introduction to DBR	Introduction to Design-Based Research with Bill Penuel https://www.youtube.com/watch?v=Q4OahvUqIfs	Explore ANGEL: set-up email forwarding or create routine for checking ANGEL daily. Sign up for library classes as needed.
week 2 Sept. 1	Foundations of DBR, part 1	McKenney & Reeves, 2013, ch. 1 (pp. 7-30); part of ch. 3 (pp. 76-82 only); Brown, 1992 (pp. 141-178); DBR Collective, 2003 (pp. 5-8).	Reading Response.
week 3 Sept. 8	Foundations of DBR, part 2	Collins, Joseph, & Bielaczyc, 2004 (pp. 15-42); Wang & Hannafin, 2005 (pp. 5-23); Hoadley, 2004	Reading Response: consider the characteristics of DBR presented – what do these authors say DBR has to have, what it could have, and what it should or should not be?
week 4 Sept. 15	Forms and purposes of DBR	Bell, 2004 (pp. 243-253); Penuel, Fishman, Cheng, & Sabelli, 2011 (pp. 331-337); Penuel (pp. 1-6)	Reading Response: after these articles, position your work into one of these forms of DBR/DBIR.
week 5 Sept. 22	DBR studies today	Anderson, & Shattuck, 2012 (16-25); Land & Zimmerman (2015); McKenney & Reeves, 2013, ch. 2 (pp. 31-60)	Reading Response. From these papers, what trends in DBR are you seeing?
week 6 Sept. 29	Theory in DBR, part 1	diSessa & Cobb, 2004 (77-103); Sandavol, 2014 (pp 18 -36).	Reading Response: consider the authors' ideas about theory within DBR —compare these perspectives to your own.
week 7 Oct. 6	Theory in DBR, part 2: applying your interests	Creswell, 2013 ch 5 (pp 51-76); Barab, et al., 2007 (pp. 263-305)	Reading Response. Also, begin work on your annotated bibliography; it is due 11/21.
week 8 Oct. 13	Design in DBR	McKenney & Reeves, 2013, ch. 4 (pp 85-108 skim) and ch 5. (119-132); Smith, 2014 (pp. 71-76)	Reading Response.

MEETING	TOPIC	READINGS	ASSIGNMENT THIS WEEK
week 9 Oct. 20	Setting up DBR partnerships	Engle, 2008 (pp. 216–223); Coburn, Penuel, & Geil, 2013	Reading Response.
week 10 Oct. 27	Outcomes of a DBR study	McKenney & Reeves, 2013, ch. 6 (pp 133-158 skim) and ch 7. (159-180); Kali, 2008 (pp. 423-438)	Reading Response: respond to questions 1, 2 or 3 in the writing exercises on pp. 137 & 152. (i.e., pick qual, quant, or mixed).
week 11 Nov. 3	Designing a DBR study: methods applied to your interests	Creswell, 2013 ch 6 & 7 (pp. 123-153)	Reading Response.
week 12 Nov. 10	Personalizing DBR to your research interests, part 1	3 methodological chapters of your choosing. Prepare to share on 1 important DBR methods paper that you found.	Annotated bibliography, part 1: Identify and discuss 3 new methodological DBR chapters related to your topic. (No reading response due)
week 13 Nov. 17	Personalizing DBR to your research interests, part 2	Continue work on your annotated bibliography. Prepare to share on 1 important DBR empirical study that you found.	Annotated bibliography, part 2: identify and discuss 5 new empirical DBR articles related to your topic in your bibliography. Post to google.doc by 11:59 pm on Friday. (No reading response due)
Nov. 24 th	Thanksgiving Break Week. No class.		Eat pumpkin pie.
week 14 Dec. 1	Developing a DBR research proposal	McKenney & Reeves, 2013, ch. 8 (183 – 201)	Reading Response.
week 15 Dec. 9	Wrap-up	Work on your final papers.	Reading Response – outline project (follow format requirements!) Present a proposal overview.
Dec. 15	Finals week. No class.		Submit a .pdf or .docx file of your paper via ANGEL <i>by Tuesday, December 15 at 10:00 am (eastern).</i>

Bibliography

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