ITLS 6510 Research and Evaluation in Instructional Technology

Spring 2019

ITLS 6510: Becoming an Educated Consumer of Research

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Course Description

As current and future industry and educational professionals, academic research is something that can assist you in doing your job better. You may be asked to implement ideas from research in your classroom or you may need to understand the latest trends in educational technology and adult learning to build better trainings. Academic research can help you do all of those things – if you understand how it works and how to access the information you need. This course is intended to make you an educated consumer of relevant educational research, including an understanding of the basic types of research, how the research process works, and current hot topics in instructional technology and learning sciences research. Emphasis is placed on critical reading, analysis, and synthesis of published research findings.

Course Objectives

- Students will develop a basic understanding of research paradigms, kinds of research, and the research process as relevant to instructional technology and learning sciences.
- Students will develop skills in locating reliable and relevant research to address problems of practice.
- Students will develop their abilities to critically read and analyze academic research.
- Students will develop their abilities to synthesize research findings from multiple scholarly publications and build an argument.
- Students will develop a basic understanding of current hot topics related to research in instructional technology and learning sciences, including design based research, co-design, and research practice partnerships.

Course Format

Delivery of this course is online, through the Canvas learning management system. Each week of the course begins and ends on a **Monday**.

You can expect the following from the instructor:

- Weekly overviews or mini-lectures that will offer you some background on the week's readings.
- A weekly wrap-up of the week's key ideas and themes.
- Quick responses to requests to meet with the instructor by phone, in person, or in a virtual conference room (within 48 hours but more quickly on weekdays).

Because this course is online, you will be doing a fair amount of independent reading and need to be a self-motivated and independent learner. Please be aware that the overviews/mini-lectures and the course readings are complementary. You will not be able to succeed in this class if you only watch lectures or overviews and skip the readings.

Required Course Readings

There is no textbook for this course. Required readings may be found in the Canvas module for each week. Some weeks your "readings" may include watching a video or listening to a Podcast. *Please note that I reserve the right to change the readings up to two weeks before the beginning of a module.*

Course Requirements

I expect you to read the syllabus and ask any questions you may have. I also expect that you will check in regularly with Canvas, making sure to read any posted announcements. Unless otherwise specified, you should work through the learning modules and the components within each module in the order they are listed in Canvas.

Overall online participation (30%)

Purpose: Knowledge is not acquired in a vacuum, but rather through social interaction with your peers and the course instructor. Because I believe this interaction is so important to learning the course content, it is a significant part of your grade and reflects the time you will be spending engaging with the course materials, the instructor, and your peers.

Type of assignment: Individual

Each week, you will be required to participate in **the class discussion board** on Canvas. This may include completing an activity and posting about it, posting comments and questions about the readings, and responding to other students. Our weekly discussion leaders (see below) will assist us with thoughtful questions to guide our conversation. Be thoughtful, ask questions, provide answers, really dig into the texts and ideas! These are *ungraded* but *required*, so that you

feel free to ask questions. Many of these ideas are challenging and it will be a far richer course if we work through them collaboratively. I will provide feedback on your participation at the 4 and 8 week marks.

I ask that your first post of the week be posted by **midnight on Thursday** and that you will respond to at least two of your classmates by **midnight on the following Monday**. This way, we can have a meaningful conversation over time rather than a last-minute Monday night brain dump. After everyone has submitted, I will post a summary of our discussion from the week.

Discussion Leader (10%)

Beginning in Week 2, groups of 2 - 3students will serve as discussion leaders for the week. This will involve developing a series of discussion questions ahead of time and facilitating the online discussion for that week. **Please sign up using [the Google doc linked here](#).**

Your job is to read the readings ahead of time and come up with a couple (2-3) good, thought provoking questions or a more open-ended prompt to get us started. You don't have to address everything, but try to ask questions about things that were confusing to you and/or extend what we're reading a little further. Keep in mind that I want the readings to spark a discussion about whatever I have identified as the overarching topic for that week.

Then, as the week goes on, you'll monitor the forum and keep people thinking. With 2-3 of you, this should be reasonable. Not all of you have to monitor every single day, but as a group you should be consistently monitoring and responding to discussion comments. I, of course, will also chime in with my two cents and help shape the conversation.

Discussion questions should go up by Monday of your assigned week or earlier if you come up with some you like before then. I am happy to look at them anytime between now and then, but I also trust that if you're wondering about something, other people in the class are too. In other words, you don't have to know all the answers.

Critical Analysis of a Research Article (30%)

Purpose: To apply what you have learned about how to critically read and analyze a research article.

Type of assignment: Individual and Group

This assignment has multiple parts. All components of the assignment are required.

- Find a scholarly, peer-reviewed research article you would like to read and analyze. Submit via Canvas for approval by **March 4th**.
- Read the article, complete the provided reading template, and submit via Canvas for feedback (by **March 11th**. To complete this assignment well, you will likely need to read the article multiple times.

- Write a 3-5 page, double-spaced critical analysis of the article you have read and submit for peer review by **March 25th**.
- Complete peer review assignment by **April 1st**.
- Submit final reading template and critical analysis by **April 8th**.

Applying Research to a Problem of Practice (30%)

Purpose: (1) To extend your ability to critically read and analyze academic research by looking across multiple academic journal articles. (2) To apply what you have learned about how to synthesize information. (3) To apply academic research to professional problems of practice.

Type of Assignment: Individual and Group

In this assignment, you will apply research to a problem of practice by finding three peer-reviewed, scholarly research articles (article you used for the midterm + two additional) on a topic of your choosing. You will then synthesize the information found in these articles to illustrate what academic research tells you about a particular problem of practice. For instance, several years ago, a student in the class was a kindergarten teacher in a district that was implementing "fusion learning" (something like blended learning) for her kindergarten students. The student researched blended learning and found evidence that blended learning was understudied at the K-5 level and that all studies suggested that, in fact, "fusion learning" was a really bad idea for kindergarteners. The student then wrote a paper synthesizing the research literature to create an argument around why "fusion learning" was ineffective for kindergarteners. In this class, you have two options for how you present your final synthesis.

1. <u>Research Brief</u> Complete the assignment described above by writing a 10 pg., double-spaced research brief about what the research literature says about the problem of practice you have decided to address. This can look like a traditional school paper, or it could be something you want to present to your boss or policymakers.

2. <u>TED-Style Talk</u> Compete the assignment above by creating a 20-30 minute presentation and accompanying slide deck about what the research literature says about the problem of practice you have decided to address. If you need inspiration, look at Jane McGonigal's TED Talk "Gaming can make a better world." In spite of the TED-talk style, your slides and what you say should make it clear that you've read the research and synthesized the big ideas.

When you are synthesizing information, you are not just comparing and contrasting (though that's a good place to start) articles, you are also building an argument about why we should care about this topic and how it can informs something we are doing as a community of scholars or practitioners (the problem of practice you are addressing). Some guiding questions that may be useful are:

- What is the main idea of each article? How are they similar and/or different from one another?
- What is the research methodology behind each article? What methods were used? Does one study nuance the findings of another by building on a research methodology or using a different one?
- What evidence is presented in each article? Do you trust it? Why?
- What are the key findings of each article? Do the findings make sense in relation to the data that was presented? How do they relate to the other findings?
- What are some limitations of each study? What are some areas for further research? When you look across articles, can you make any claims about what's missing or where the field is headed?
- What do these articles tell you about the problem of practice you are trying to address? Is there consensus or utter chaos in the research literature?

This assignment has multiple parts. All components of the assignment are required unless otherwise noted.

- Find two additional scholarly, peer-reviewed articles to complement the article you analyzed for your midterm assignment. A good way to do this is to look at the bibliography of the article you chose for the midterm. If the author(s) are citing these articles, there's a good chance that they are in scholarly conversation with one another and you'll be able to make connections between them. Submit the articles via Canvas for approval by **April 1st**.
- Read the articles, complete reading templates, and submit via Canvas for feedback (submitting for feedback is optional, but these must be submitted with your final assignment) by **April 15th.**
- Submit draft written synthesis or presentation (see details above) for peer feedback by **April 22nd.**
- Complete peer review assignment by **April 26th**.
- Final assignment (Research Brief/TED-Style Talk), including completed reading templates, due by midnight on **April 29th**.

Please note: **To receive full credit assignments must be completed on time**. If there are circumstances that prevent you from completing an assignment on time, please notify me and I will determine if an extension is appropriate. Assignments in this class, especially the mid-term and final assignments, tend to build on one another, so it is in your best interest to submit them on time.

 Grading Scale

Final Grades calculated as a percentage of total points rounded to the nearest whole number

Your grade will be based on the university grading scale:

A	100-93%,	A-	92-90%	B+	89-87%	B	86-83%,
B-	82-80%	C+	79-77%	C	76-73%	C-	72-70%

D   69-60%   F   59-0%

Course Schedule:

Each module runs Monday to Monday.

Week 1 (1/7): What is academic research? How is different from market research? How is it different from evaluation?

Week 2 (1/14): Why do we care about research? The learning styles debate.

Week 3 (1/21): Kinds of research: Quantitative, qualitative, and mixed methods

Week 4 (1/28): Research Paradigms 1

Week 5 (2/4): Research Paradigms 2

Week 6 (2/11): How Research Happens

Week 7 (2/18): Finding Reliable Information

Week 8 (2/25): How to Read a Journal Article

Week 9 (3/4): Synthesizing Information and Literature Reviews

Spring Break (3/11-3/15)

Week 10 (3/18): Foundations of Design Based Research

Week 11 (3/25): Co-Design and Participatory Design

Week 12 (4/1): Research Practice Partnerships

Week 13 (4/8): Hot Topics (TBD based on student interest)

Week 14 (4/15): Hot Topics (TBD based on student interest)

Week 15 (4/22): Class Wrap-Up and Peer Review of Final Assignments

Week 16 (4/29): Final assignment due by midnight on April 29th

 UNIVERSITY POLICIES & PROCEDURES

Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. Faculty Code Policy #403 (Links to an external site.)Links to an external site. further defines academic freedom and professional responsibilities.

Academic Integrity – "The Honor System"

Each student has the right and duty to pursue his or her academic experience free of dishonesty. The Honor System is designed to establish the higher level of conduct expected and required of all Utah State University students.
The Honor Pledge (Links to an external site.)Links to an external site.: To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge:
"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."
A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- Espouses academic integrity as an underlying and essential principle of the Utah State University community;
- Understands that each act of academic dishonesty devalues every degree that is awarded by this institution; and
- Is a welcomed and valued member of Utah State University.

Academic Dishonesty

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University's Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating**: using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
    - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done "individually;"
    - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
    - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
    - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
    - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;

- o   Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.
- **Falsification**: altering or fabricating any information or citation in an academic exercise or activity.
- **Plagiarism**: representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

Sexual Harassment

Sexual harassment is defined by the Affirmative Action/Equal Employment Opportunity Commission as any "unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature." If you feel you are a victim of sexual harassment, you may talk to or file a complaint with the Affirmative Action/Equal Employment Opportunity Office located in Old Main, Room 161, or call the AA/EEO Office at (435) 797-1266.

Withdrawal Policy and "I" Grade Policy

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

Students with Disabilities

Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435)797-2444. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print, digital, or audio) are available with advance notice.
Contacting the Disability Resource Center (DRC):

- On Campus: Room 101 of the University Inn
- Phone: 435-797-2444
- Website: http://www.usu.edu/drc/(Links to an external site.)Links to an external site.

Disability related resources for current students:

- DRC Student Handbook(Links to an external site.)Links to an external site.

- [Deaf and Hard of Hearing Student Handbook(Links to an external site.)Links to an external site.](#)
- [Disability Related Scholarships(Links to an external site.)Links to an external site.](#)
- [Campus Resources(Links to an external site.)Links to an external site.](#)
- [Documentation Guidelines(Links to an external site.)Links to an external site.](#)
- [Online Resources for Students with Disabilities(Links to an external site.)Links to an external site.](#)

Diversity Statement

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact:

- Student Services: [http://www.usu.edu/studentservices/(Links to an external site.)Links to an external site.](http://www.usu.edu/studentservices/), 435.797.1712, studentservices@usu.edu, TSC 220
- Student Advocates: [http://www.usu.edu/ususa/legal/(Links to an external site.)Links to an external site.](http://www.usu.edu/ususa/legal/), 435.797.2912, TSC 340,
- Access and Diversity: [http://www.usu.edu/accesscenter/(Links to an external site.)Links to an external site.](http://www.usu.edu/accesscenter/), 435.797.1728, access@usu.edu; TSC 315
- Multicultural Programs: [http://www.usu.edu/accesscenter/multiculture/(Links to an external site.)Links to an external site.](http://www.usu.edu/accesscenter/multiculture/), 435-797-1728, TSC 315
- LGBTQA Programs: [http://www.usu.edu/accesscenter/lgbtqa/(Links to an external site.)Links to an external site.](http://www.usu.edu/accesscenter/lgbtqa/), 435-797-GAYS, TSC 314
- Provost's Office Diversity Resources: [http://www.usu.edu/provost/faculty/diversity/(Links to an external site.)Links to an external site.](http://www.usu.edu/provost/faculty/diversity/), (435) 797-8176

You can learn about your student rights by visiting:
The Code of Policies and Procedures for Students at Utah State University: [http://www.usu.edu/studentservices/studentcode/ (Links to an external site.)Links to an external site.](http://www.usu.edu/studentservices/studentcode/)

Grievance Process

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code: [Article VII. Grievances (Links to an external site.)Links to an external site.](#).

Full details for USU Academic Policies and Procedures can be found at:

- [Student Conduct(Links to an external site.)Links to an external site.](#)
- [Student Code(Links to an external site.)Links to an external site.](#)
- Academic Integrity

- [USU Selected Academic Policies and Procedures(Links to an external site.)Links to an external site.](#)
- [USU Academic Policies and Procedures(Links to an external site.)Links to an external site.](#)
- [Academic Freedom and Professional Responsibility Policy(Links to an external site.)Links to an external site.](#)

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    - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
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For additional information go to: [ARTICLE VI. University Regulations Regarding Academic Integrity](#)

Sexual Harassment/Title IX

Utah State University is committed to creating and maintaining an environment free from acts of sexual misconduct and discrimination and to fostering respect and dignity for all members of the USU community. Title IX and [USU Policy 339](#) address sexual harassment in the workplace and academic setting.

The university responds promptly upon learning of any form of possible discrimination or sexual misconduct. Any individual may contact USU's [Affirmative Action/Equal Opportunity (AA/EO) Office](#) for available options and resources or clarification. The university has established a complaint procedure to handle all types of discrimination complaints, including sexual harassment ([USU Policy 305](#)), and has designated the AA/EO Director/Title IX Coordinator as the official responsible for receiving and investigating complaints of sexual harassment.

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- Student Legal Services: https://ususa.usu.edu/student-association/student-advocacy/legal-services, (435) 797-2912, TSC 326,
- Access and Diversity: http://accesscenter.usu.edu, (435) 797-1728, access@usu.edu; TSC 315
- Multicultural Programs: http://accesscenter.usu.edu/multiculture, (435) 797-1728, TSC 315
- LGBTQA Programs: http://accesscenter.usu.edu/lgbtqa, (435) 797-1728, TSC 3145
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Class Schedule

Week	Dates	Topics	Assignments Due
		What is academic research? How is different from market research? How is it different from evaluation?	
		What is research? By Adi Baht	
		https://www.questionpro.com/blog/what-is-research/	
1	1/7-1/14	Brad Rose on Program evaluation vs. social research https://bradroseconsulting.com/program-evaluation-vs-social-research/	1. Introduce yourself! 2. Discussion
		Bruce Prideau slide deck, Bridging the gap between academic research and industry research needs.	
		Mathison, S. (2008). What is the difference between evaluation and research, and why do we care?. In, N.L.	

Smith & P.R. Brandon, *Fundamental issues in evaluation* (pp. 183-196).New York, NY: The Guilford Press.

*Focus on pp. 188-191

Why do we care about research? The learning styles debate.

2	1/14-1/21	May, C. (2018, May 29). The problem with "learning styles." *Scientific American.* *https://www.scientificamerican.com/article/the-problem-with-learning-styles/* Willingham, D.T., Hughes, E.M., & Dobolyi, D.G. (2015). The scientific status of learning styles theories. *Teaching of Psychology, 42*(3), 266-271.	1. Discussion
3	1/21-1/28	*Kinds of research: Quantitative, qualitative, and mixed methods* McGregor, S.L.T. (2018). Overview of research design and methods. In, S.L.T. McGregor, *Understanding and evaluating research* (pp. 207-226).Thousand Oaks, CA: SAGE Publications.	1. Discussion
4	1/28-2/4	*Research Paradigms 1* Kivunga, C. & Kuyini, A.B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education, 6*(5), 26-41. Additional article to be determined.	1. Research Paradigm Collage & Narration Part 1 (submitted as discussion post) 2. Discussion

5	2/4-2/11	*Research Paradigms 2* Mertens, D.M. (2015). An introduction to research. In, D.M. Mertens, *Research and evaluation in education and psychology* (pp. 1-45).	1. Research Paradigm Collage & Narration Part 2 (submitted as discussion post) 2. Discussion
6	2/11-2/18	*How Research Happens* 1. Watch this video on quantitative research processes. 2. Read the abstract, skim chapter 1, and read chapter 3: Procedures and Methods of Warriner. You DO NOT need to read all 300+ pages.	1. Discussion
7	2/18-2/25	*Finding Reliable Information* Module from ILTS librarian, Teagan Eastman	1. Discussion
8	2/25-3/4	*How to Read a Journal Article* How to Read a Journal Article handout Polman, J.L. & Miller, D. (2010). Changing stories: Trajectories of identification among African American youth in a science outreach apprenticeship. *American Educational Research Journal, 47*(4), 879-918. McMillan, J.H. & Wergin, J.F (2010). Quantitative non-experimental designs. In, J.H. McMillan & J.F. Wergin,	1. Complete reading template for Polman & Miller article with a partner and post to Canvas. 2. Discussion 3. Submit article for Critical Analysis

		Understanding and evaluating educational research (4th ed.) (pp. 14-29).	assignment for approval.
		Synthesizing Information and Literature Reviews	1. Discussion
9	3/4-3/11	Boote, D.N. & Beile, P. (2005). Scholars before researchers: The centrality of the dissertation literature review. *Education Researcher, 34*(6), 3-15.	2. Submit completed article template for Critical Analysis assignment for feedback
		Pick one of the literature review articles available on Canvas to skim.	
	3/11-3/15	Spring Break	
		Foundations of Design Based Research	
10	3/18-3/25	Cobb, P., Confrey, J., diSessa, A., Lehrer, R., & Schauble, L. (2003). Design Experiments in Educational Research. *Educational Researcher*, *32*(1). Cambridge, MA: Massachusetts Institute of Technology Press.	1. Discussion
			2. Submit Critical Analysis for Peer Review
		Design-Based Research Collective. (2003). Design-based research: An emerging	
		paradigm for educational inquiry. *Educational Researcher, 32*(1), 5-8.	
11	3/25-4/1	*Co-Design and Participatory Design*	1. Discussion
			2. Complete peer review assignment

Druin, A. (1999). Cooperative inquiry: Developing new technologies for children with children. In, *Proceedings of CHI '99* (pp. 592-599).

Druin, A. & Kolko, J. (2017). [Conversation: Participatory design in research and practice](). In, B. DiSalvo, J. Yip, E. Bognignore, & C. DiSalvo, *Participatory design for learning* (pp. 189-201). New York: Routledge.

Woodward, J., McFadden, Z., Shiver, N., Ben-hayon. A., Yip, J.C., & Anthony, L. (2018). Using co-design to examine how children conceptualize intelligent interfaces. In, *Proceedings of CHI 2018* (pp. 1-14). Montreal, QC, Canada: Association for Computing Machinery.

Research Practice Partnerships

Coburn, C.E. & Penuel, W.R. (2016). Research-practice partnerships in education: Outcomes, dynamics, and open questions. *Educational Researcher, 45*(1), 48-54.

			3. Submit additional two articles for Applying Research assignment
			1. Discussion
12	4/1-4/8	Bevan, B., Gutwill, P., Petrich, M., & Wilkinson, K. (2014). Learning through STEM-rich tinkering: Findings from a jointly negotiated research project taken up in practice. *Science Education, 99*(1), 98-120.	2. Submit final reading template and critical analysis
		Explore Research & Practice Collaboratory Website	1. Discussion
13	4/8-4/15	*Hot Topics (TBD Based on Student Interest)*	2. Submit completed reading

			templates for feedback (optional)
14	4/15-4/22	*Hot Topics (TBD Based on Student Interest)*	1. Discussion 2. Submit draft Applying Research assignment for peer review
15	4/22-4/29	*Class Wrap-Up*	1. Discussion (optional) 2. Complete peer review assignment **by Friday 4/26**
16	4/29	Final Assignment Due by Midnight on April 29th	1. Final Assignment due