George Mason University
College of Education and Human Development
Educational Psychology

EDEP 550.001– Theories of Learning and Cognition
3 Credits, Fall 2018
Wednesday 4:30-7:10pm, Innovation Hall 133 – Fairfax Campus

Faculty
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Pre-requisites/Co-requisites
None.

University Catalog Course Description
Explores theoretical perspectives on learning and cognition, and relation of these theories to construction of learning environments, student motivation, classroom management, assessment, and technology to support teaching and learning.

Course Overview
Each week, this course explores different theoretical perspectives in psychology on learning for instruction. Students will be reading an overview of the history, orientation and aspects of each theory and discussing key components in class. Students will demonstrate their understanding of these learning theories by reading case studies and analyzing them for appropriate and complete application in the learning context. Further, students will demonstrate the synthesis of their knowledge by applying these learning theories to classroom events, not limited to an actual classroom situation, written guides (such as instruction manuals), instructional videos, or other presentational formats and learning opportunities.

Course Delivery Method
This course is structured around readings, reflections on readings, class projects, technology activities, and writing assignments. This course will be taught using lectures, discussions, and small and large group activities. The Blackboard site for the class can be accessed at: https://mymasonportal.gmu.edu.

For those in the Educational Psychology master's program, the student Handbook is being revised and will be available in the Fall.

Learner Outcomes or Objectives

This course is designed to enable students to do the following:

- Demonstrate an understanding of principles and theories of learning and cognition related to biological, behavioral, cognitive, social learning, and information processing models of learning and memory.
- Develop an increased awareness of the ways in which theories of learning and cognition can be applied to instruction.
- Become familiar with aspects of contemporary issues in education related to the science of learning.
- Understand the relationship between a range of technologies and learning, critical thinking, and problem-solving processes.
- Develop an appreciation for and understanding of the variance of developmental and learning needs of culturally diverse and exceptional learners.
- Demonstrate an understanding of how theoretical approaches to learning and cognition relate to classroom management, instruction, and assessment.
- Design instruction that is consistent with the developmental and learning needs of today's students.
- Develop and reinforce critical thinking, oral presentation, technological, and writing skills.

Professional Standards (American Psychological Association**)**

Upon completion of this course, students will have met the following professional standards:

Principle 1: The Nature of Learning Process
Principle 2: Goals of the Learning Process
Principle 3: Construction of Knowledge
Principle 4: Strategic Thinking
Principle 5: Thinking about Thinking
Principle 6: Context of Learning
Principle 7: Motivational and Emotional Influences on Learning
Principle 8: Intrinsic Motivation to Learn
Principle 9: Effects of Motivation on Effort
Principle 11: Social Influences on Learning
Principle 13: Learning and Diversity

For more information please see:

American Psychological Association (2015). *Top 20 Principles from Psychology for PreK-12 Teaching and Learning.* (http://www.apa.org/ed/schools/cpse/top-twenty-principles.pdf)

American Psychological Association (1997). *Learner-Centered Psychological Principles: Guidelines for the Teaching of Educational Psychology in Teacher Education Programs.* (http://www.apa.org)

Alignment with Program Standards:
The EDEP 550 (Learning and Cognition) midterm assessment addresses
        Program Standard 1: *Knowledge of Cognition, Motivation, and Development* and
        Program Standard 2: *Application of Cognition, Motivation, and Development Knowledge*.
Candidates demonstrate their understanding of the key principles, generalizations and content knowledge involved in domains of cognition, motivation, and development and apply this knowledge to critically analyze and evaluate the case studies presented in the midterm. These program standards also strongly connect to the CEHD Core Value 4, Research-based practice and Program Disposition IV: Commitment to APA Learner-Centered Principles and the 20 Top Principles from Psychology for PreK-12 Teaching and Learning.

The Mid-Point Case Analysis is a written analysis of the cases and thus also addresses
        Program Standard 6: *Communication and Dissemination of Educational Research* in that students must demonstrate appropriate writing skills and use of the Publication Manual of the American Psychological Association (APA).

Required Texts
Driscoll, M. P. (2005). *Psychology of learning for instruction* (3rd ed.). Boston: Allyn & Bacon.

Required Video
Video of a mathematics lesson; TIMSS 1995.
http://www.timssvideo.com/us87-from-timss-1995-video-study#tabs-2
[See Blackboard or the video website for the transcript.]

Recommended Texts
American Psychological Association. (2009). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.
Brown, P. C., Roediger III, H. L., & McDaniel, M. A. (2014). *Make it stick: The science of successful learning.* Cambridge: Harvard University Press.
Strunk, W., & White, E. B. (2009). *The Elements of Style* (5th ed.). Boston: Allyn and Bacon. p. xiii. ISBN 978-0-205-31342-6.
APA Style guide summary: https://owl.english.purdue.edu/owl/resource/560/01

Supporting readings:

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Cambridge: Harvard University Press.

A list of additional readings will be provided on Blackboard (https://mymasonportal.gmu.edu).

Additional Sources:

In preparation for class meetings, you may find these resources useful:

- *American Psychological Association* (e.g., http://www.apa.org/education/k12/curricular-materials.aspx; http://www.apa.org/education/undergrad/diversity.aspx)
- *International Society of the Learning Sciences* (webinars for different takes on some of the topics we will discuss in class): http://isls-naples.psy.lmu.de/intro/all-webinars/index.html
- *GMU Library Info Guides for Education:* http://infoguides.gmu.edu/sb.php?subject_id=27294
- *PsycNet*: http://psycnet.apa.org/index.cfm?fa=search.defaultSearchForm
- *National Resource Council:* http://sites.nationalacademies.org/DBASSE/index.htm
- *What Works Clearinghouse* (reviews of studies with judgments of quality): http://ies.ed.gov/ncee/wwc/ReviewedStudies.aspx
- *NSF Award Abstracts* (nice source of research activity that's in process but not yet published): http://www.nsf.gov/awardsearch/

Other resources:
- https://stearnscenter.gmu.edu/teaching/student-support-resources-on-campus
- http://www.timssvideo.com/us87-from-timss-1995-video-study#tabs-2
- STEM videos on learning
- http://stemforall2018.videohall.com/presentations
- http://stemforall2018.videohall.com/presentations/1141
- http://stemforall2017.videohall.com/
- http://stemforall2016.videohall.com/presentations#/winners/id=winners
- http://resourcecenters2015.videohall.com/presentations#/winners/id=winners
- *American Psychological Association:* http://www.apa.org/ed/schools/cpse/
- *International Society of the Learning Sciences* (webinars for different takes on some of the topics we will discuss in class): http://isls-naples.psy.lmu.de/intro/all-webinars/index.html
- *GMU Library Info Guides for Education:* http://infoguides.gmu.edu/sb.php?subject_id=27294
- *PsycNet*: http://psycnet.apa.org/index.cfm?fa=search.defaultSearchForm
- *National Resource Council:* http://sites.nationalacademies.org/DBASSE/index.htm
- *What Works Clearinghouse* (reviews of studies with judgments of quality): http://ies.ed.gov/ncee/wwc/ReviewedStudies.aspx
- *NSF Award Abstracts* (nice source of research activity that's in process but not yet published): http://www.nsf.gov/awardsearch/

Open Educational Resources (OER) Repositories
1. Galileo Open Learning Materials - http://oer.galileo.usng.edu/
   a. Galileo is a repository of open learning materials submitted from across 29 institutions of higher education and is administered by the University of Georgia. Materials available include assessment tools, homework, lecture slides, courses, open textbooks, photographs/images, and video.
2. MERLOT - https://www.merlot.org/
   a. MERLOT is a program of the California State University and allows users to search the MERLOT reviewed collection of over 40,000 materials categorized into 20 material types, such as assignments, case studies, open textbooks, quizzes, and tutorials.

3. MERLOT - Psychology Portal - https://www.merlot.org/merlot/Psychology.htm
    a. The Psychology Portal takes you directly to the psychology collection housed in MERLOT. The psychology collection is managed by a board that oversees the peer review process for every object submitted for inclusion in the collection. Search results can be filtered to locate only materials with a CC license.

4. OER Commons - http://www.oercommons.org
    a. OER Commons is considered an *open repository* because it allows anyone to contribute to the catalog of OER. OER Commons provides access to search, browse, and evaluate resources within the OER Commons collections. The collection includes full university courses, mini-lessons and simulations, adaptations of existing open work, and open textbooks. Unless otherwise noted, all content on the OER Commons site is licensed under CC BY-NC-SA 4.0.
5. OpenStax CNX - https://openstax.org/
    a. The OpenStax CNX Library (formerly known as Connexions) includes a collection of learning objects (called pages), which are organized into textbook-style books from a variety of different disciplines.

OpenCourseWare

JHSPH Open - http://ocw.jhsph.edu (public health).

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy).

Assignments and/or Examinations (SEE END OF SYLLABUS FOR RUBRICS)

A. Attendance and participation (10%)
Because of the importance of lecture and classroom discussions to students' total learning experience, each student is expected to come to class on time and participate in class discussions and activities. Additionally, assigned readings are to be completed before class. Attendance, punctuality, preparation, and active contribution to small and large group activities are essential. These elements of behavior reflect the professional attitude implied in the course goals and will account for 10% of the course grade. In the event a student misses a class, the professor should be notified, preferably in advance, and the student is responsible for any assignments and materials passed out or discussed that day.

B. Journal reflections on articles (30%)
Five times over the course of the semester, you will be asked to reflect on an article of your choice in a public forum on Blackboard. This will allow you to move deeper into some of the topics of the course by reflecting on resources beyond the class text. You may choose from the suggested articles posted on Blackboard, but you may also bring articles to me for approval. Three journal entries will be formally graded at the end of the semester— two the student selects, one the professor randomly selects (graded 10% each = 30%). The evaluation criteria will be depth of thinking, attention to detail, and creativity. You will be expected to bring up ideas generated through the journaling

process in class discussions. You are encouraged to look at others' journals to extend your own thinking, or to help clarify difficult concepts. *If you do use an idea from another student's journal, please cite it.*

C. Group project (15%)

Early in the semester, students will introduce themselves and describe their interests. They will form working groups of 3-4 based on similarities in interest and professional goals. Each group will develop a project that will consist of an analysis of an instructional event from the perspectives of several learning theories. There are two products for this assignment: a group paper and a group presentation (below). The instructional event may be of several different types:
  • an actual classroom situation,
  • written guides (such as instruction manuals),
  • instructional videos,
  • or other presentational formats and learning opportunities
We will discuss the project after we have covered a good portion of the materials for the course.

Your group paper (8-12 pages double spaced) should include the following elements:
  • *Statement of purpose*: A clear and complete explanation of why you chose the task you did and what your main arguments are.
  • *Presentation of instructional event*: A complete and detailed description of the event you are analyzing.
  • *Application of specific theories from class*: An analysis of the instructional event through at least three theoretical lenses, with (a) suggestions for improvement and (b) ways the instructional methods could be extended to other contexts.

D. Oral presentation of group project (5%)
Each group will be asked to use audio-visual aids like power point slides to:
  a) describe the instructional event you analyzed,
  b) critique the event's incorporation of theories,
  c) suggest ways the event could be used in other contexts (such as a non-profit organization), and
  d) discuss the process of collaboration

E. Two case analyses (40% total--20% each)
You will complete two case analysis writing assignments in which you will analyze the mathematics video (http://www.timssvideo.com/us87-from-timss-1995-video-study#tabs-2) and apply or discuss the concepts from class. The first case study analysis will cover material read or discussed through October 10 and will be due October 17. This is also called the mid-point case analysis. The second one will cover material from the second half of the course and will be due December 12. Each paper should be approximately 10 pages. More details will be given during class.

EDEP 550 Midpoint Case Analysis
The EDEP 550 (Learning and Cognition) midpoint case analysis is a mid-semester take-home that requires analysis of case studies, which satisfies the performance-based assessment for students in the Educational Psychology master's program. The assignment requires candidates: (1) to sample from and use all content covered from the class and out-of-class group work and independent study, and (2) to synthesize their thinking and knowledge to apply to the multifaceted details of each case in a relevant fashion. **This is a Performance-Based Assessment. Students must upload their analyses of the case studies to TK20 via Blackboard in the Assessment Section in a timely fashion.**

Other Expectations
It is expected that each student will:
1. Read all assigned materials for the course
2. Attend each class session
3. Participate in classroom activities that reflect critical reading of materials
4. Critique and/or discuss assigned articles
5. Avoid social media activity (e.g., Facebook, Instagram, Twitter) without express permission of the instructor.
6. Not record peer discussions in this class unless approved in advance by the instructor (as in the case necessitated by a learning disability). If you have any questions, please ask the instructor.

Format for written work:
- 1-inch margins on all sides, double-spaced, 12-point Times New Roman font.
- Include the following information: title, name, date, professor, course number.
- Fully proofread for spelling, grammar, and clarity errors and citation and references in APA format.

Late Assignments
Late assignments will be marked down by half a letter grade for each day the assignment is late. If there are questions or concerns about a particular situation, please contact me via email in advance of the deadline

Grading
Your final grade for this class will be based on the following:

A+ = 98 – 100%
A = 93 – 97%   A- = 90 – 92.99%
B+ = 88 – 89.99%   B = 83 – 87.99%
B- = 80 – 82.99%   C = 70 – 79.99%
F < 70%

Professional Dispositions
See https://cehd.gmu.edu/students/polices-procedures/

Class Schedule*

*This is a tentative course schedule and may change. The most current schedule will be available on the Blackboard site.		
Date	Class Topics/ Activities	Readings/Assignments Due
Week 1 Aug 29	Introduction and Overview	https://link.springer.com/article/10.1007/s11251-018-9463-3 "Supporting communities of learners in the elementary classroom: the common knowledge learning environment"
Week 2 Sept 5	Introduction to theories of learning and instruction Library orientation	Driscoll, Ch. 1 **Assignment:** Case study: video of mathematics lesson; TIMSS 1995 http://www.timssvideo.com/us87-from-timss-1995-video-study#tabs-2
Week 3 Sept 12	Behaviorism	Driscoll, Ch. 2
Week 4 Sept 19	Gagne's theory of instruction	Driscoll, Ch. 10 First article review **due on Blackboard** http://www.instructionaldesign.org/theories/conditions-learning/
Week 5 Sept 26	Cognitive information processing	Driscoll, Ch. 3
Week 6 Oct 3	Situated learning	Driscoll, Ch. 5 Second article review **due on Blackboard**
Week 7 Oct 10	Schema theory and meaningful learning	Driscoll, Ch. 4
Week 8 Oct 17	Motivation and self-regulation	Driscoll, Ch. 9 First case study analysis of the mathematics lesson video (also called Mid-point analysis) due **on Blackboard**
Week 9 Oct 24	Cognitive and knowledge development	Driscoll, Ch. 6 Third article review **due on Blackboard** Group member names and topic **due in class**
Week 10 Oct 31	Interactional theories of cognitive development	Driscoll, Ch. 7 Fourth article review **due on Blackboard**

Week 11 Nov 7	Biological bases of learning and development	Driscoll, Ch. 8 Group project outline **due in class** http://isls-naples.psy.lmu.de/intro/all-webinars/varma_video/index.html
Week 12 Nov 14	Constructivism	Driscoll, Ch. 11 Fifth article review **due on Blackboard**
Week 13 Nov 21	*Thanksgiving break*	
Week 14 Nov 28	Wrap-up and overview	Driscoll, Ch. 12 Group project **due in class**
Week 15 Dec 5	Group project presentations	
Exam Week December 12		Second case study **due on Blackboard by Dec. 12** Upload 2 best journal entries **on Blackboard by Dec. 12**

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

Core Values Commitment

The College of Education and Human Development 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/.

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 https://ds.gmu.edu/).

Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Campus Resources

- Support for submission of assignments to Tk20 should be directed to tk20help@gmu.edu or https://cehd.gmu.edu/aero/tk20. Questions or concerns regarding use of Blackboard should be directed to http://coursessupport.gmu.edu/.

- For information on student support resources on campus, see https://ctfe.gmu.edu/teaching/student-support-resources-on-campus

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

Attendance and Participation Rubric

Student participation is imperative to student learning and a successful class. The following rubric outlines how student participation scores will be determined in this course. All students are expected to demonstrate specific characteristics and actions throughout the semester. The quality and quantity of these actions will determine the points assigned for participation.

Students are expected to:

a. Be punctual, present and attentive, and well prepared for class.
b. Participate fully in class activities and assignments—take an active part in small and large group discussions (without dominating conversations) and pay attention to class lectures.
c. Make insightful comments, which are informed by required readings, and demonstrate reflection on those readings. Specifically, students should come to class with questions, comments, and thoughts on the current readings.
d. Treat class activities, group discussions, and class discussions as important components of the course, showing respect for fellow classmates and the course material.
e. Avoid using electronic devices for personal communication or other non-class-oriented purposes during class time.

Each of these criteria will be assessed on a 5-point scale:

5 = Student *consistently* demonstrated the criterion throughout the semester.
4 = Student *frequently* demonstrated the criterion throughout the semester.
3 = Student *intermittently* demonstrated the criterion throughout the semester.
2 = Student *rarely* demonstrated the criterion throughout the semester.
1 = Student *did not* demonstrate the criterion throughout the semester.

Journal Articles Reflections Rubric

	Unsatisfactory	Needs Improvement	Satisfactory
Engagement with Chosen Article/Source Writer refers to specific concepts and arguments in the article	Writer does not refer to specific arguments or concepts in the article. Writer never quotes or paraphrases the article.	Writer refers to specific arguments and concepts in the article, but sometimes veers from the topic. Writer quotes or paraphrases the article at least once.	Writer refers to specific arguments and concepts in the article throughout the piece. Writer quotes or paraphrases the article 2-3 times.
Connections to Teaching and Learning Writer connects the article's conclusions with some aspect of teaching and learning	Writer does not connect the article's conclusions to teaching and learning.	Writer connects the article's conclusions broadly to teaching and learning without specific examples.	Writer clearly connects the article's conclusions with specific aspects of teaching and learning.
Timeliness The writer hands in journal reflections on time.	Only 3 or fewer journal reflections are handed in on time. The writer does not complete all reflections.	At least 4 of the journal reflections are handed in on time. The writer completes all 5 reflections.	All 5 journal reflections are handed in on time. The writer completes all 5 reflections.

Rubric for Group Project

	Unsatisfactory	Needs Improvement	Satisfactory
Statement of purpose	Incomplete and unclear explanation of rationale for the task and main arguments	Clear explanation of rationale for the task and main arguments but some minor details were missing	Clear and complete explanation of rationale for the task and main arguments
Presentation of instructional event	Incomplete description of the event	General description of the event was presented but enough detail to understand the event	Complete and detailed description of the event was presented
Application of theories from class	Zero or one theoretical lens were clear and completely described	2 theoretical lenses were clear and completely described	3 theoretical lenses were clear and completely described

Suggestions for improvement	No suggestions communicated	Suggestions were communicated, but not based in the theory	Suggestions were communicated and connected to the appropriate theory
Extension of instructional methods to other contexts	Other contexts not communicated	Suggestions for extensions were communicated, but not based in the theory	Suggestions for extensions were communicated and connected to the appropriate theory

Rubric for Oral Presentation

	Unsatisfactory	Needs Improvement	Satisfactory
Description of instructional event	Incomplete description of the event	General description of the event was presented but enough detail to understand the event	Complete and detailed description of the event was presented
Critique of the event's incorporation of theories	Critique of the event's incorporation of theories not presented	Critique of the event's incorporation of theories presented without sufficient detail to understand the connections of the event to theories	Critique of the event's incorporation of theories presented with sufficient detail to understand the connections of the event to theories
Extension of instructional methods to other contexts	Other contexts not communicated	Suggestions for extensions were communicated, but not based in the theory	Suggestions for extensions were communicated and connected to the appropriate theory
Discussion of the process of collaboration	Process of collaboration not discussed	Process of collaboration discussed generally; did not mention each member's role and contribution	Process of collaboration discussed in detail; each member's role and contribution was presented

Rubric for Case Analyses (Mid-Point is a Performance-Based Assessment)

	1 **Does Not Meet Standards**	2 **Approaching Standards**	3 **Meets Standards**	4 **Exceeds Standards**
Demonstrates clear knowledge of key concepts related to cases presented in the assignment	For the majority of concepts, inaccurately and unclearly explains them	In most cases, accurately describes key concepts but may be unclear or inaccurate at times	Accurately describes all or almost all key concepts in his or her own words	Describes key concepts deeply and relates them accurately to key principles
Demonstrates ability to apply key concepts in real-life situations	Shows extremely limited grasp of key concepts and their relation to cases	Is inaccurate or unclear about some of the key concepts	Accurately and clearly explains how all key concepts relate to particular cases	Provides in-depth applications of all key concepts and their relationships to particular cases
Analyzes case study scenarios using appropriate concepts, principles, or theories	Shows little or no analysis of key concepts, principles, or theories	Explanations are sometimes superficial or inaccurate	Accurately and clearly relates key concepts, principles, or theories to particular cases	Goes well beyond clear analyses and provides in-depth explanations
Writes clearly and effectively	Writing is fraught with typos or errors in grammar, punctuation, spelling and word usage that make the writing too unclear	Writing is sometimes unclear and may contain typos or errors in grammar, punctuation, spelling and word usage	Writing is clear and focused with minimal minor typos or errors in grammar, punctuation, spelling and word usage	Writing is clear with no typos or errors in grammar, punctuation, spelling and word usage