TLT 401: Overview of Teaching and Learning

Course Web site: http://coursesite.lehigh.edu

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Format:

This is an online 3 credit graduate course. This course is composed of *asynchronous* learning units and activities. Asynchronous learning units will include readings, videos, reviewing online materials, and working on course-related activities.

Since the content for this course is delivered asynchronously, it is up to you to keep up with the learning activities. **Each learning unit begins on Sunday and ends on Saturday**.

Course Catalog Description

Foundations and key concepts in learning and instructional theory. Cognition and brain-based research with a focus on innovations in teaching and learning.

Course Objectives:

By the end of this course, students should be able to…

- Compare and contrast the major and emerging cognitive learning paradigms/theories from both a learning and instructional perspective;
- Identify instructional innovations emerging from learning and instructional theory and discuss the research currently being done in those areas;
- Construct a meaningful, personal synthesis of learning theory that informs your own understanding of learning and instruction.

Required Textbooks

Bruning, R.H., Schraw, G.J., and Norby, M.M. (2011). Cognitive Psychology and Instruction, Fifth Edition. Boston: Pearson ISBN-10: 0132368978

Optional Textbook:

Publication Manual of the American Psychological Association. Sixth Edition. Washington, DC: American Psychological Association.

Additional required text readings are on CourseSite.

Course Web site, Learning Units, and E-mail:

A Web site for this course exists and contains the course learning units. The URL is:
http://coursesite.lehigh.edu/

Each student is assigned an e-mail address at registration. Students are expected to use e-mail as the main form of communication with the instructor during this semester.

Graded Assignments

Below is a list of assignments that will be graded, along with the points for each. The assignments are explained in detail in the "Assignments" section.

Assignment	Points	Due Date
Learning Tasks	40 (5 each)	Ongoing - Saturdays
Learning Reflections – Forum Posts	70 (5 each)	Ongoing - Saturdays
Cognitive Learning Strategies Paper	50	Oct 5
Cognition and Learning Book Review	50	Oct 25
Research Summary Synthesis Paper	50	Nov 15
Personal Synthesis on Learning and Instruction Paper	75	Dec 6

No late work will be accepted for (1) Learning Tasks and (2) Learning Reflections – Forum Posts Assignments. They are due by Saturday of the current learning unit.

Overdue assignments with specific due dates will be marked down 10 points for each day submitted late.

Accommodations for Students with Disabilities: If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center C212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

Criteria Employed In Assigning Marks

MARK	WHAT IT REFLECTS
A **(90-100%)**	Excellent work that demonstrates a clear understanding of the material under study and a superior ability to utilize that material in the assignment submitted. When options for marks are involved, indicates successful completion of the highest level option.
B **(80-90%)**	A solid piece of work that demonstrates an understanding of the material under study and utilizes that material well in the assignment submitted. Usually either fails to include some pertinent material or utilizes that material less well than would warrant assignment of a mark of A. When options for marks are involved, indicates successful completion of more than the minimal level option.
C **(70-80%)**	Adequate work that demonstrates a basic understanding of most of the material under study and which utilizes that material to some extent in the assignment submitted. Usually contains errors or omissions involving relevant material. When options for grades are involved, indicates successful completion of minimal level option.
D **(60-70%)**	Work that fails to demonstrate understanding of the material under study and fails to utilize relevant material in the assignment submitted. When options for marks are involved, indicates failure to complete successfully the minimal level option.
F **(below 60%)**	Work that is incomplete, inappropriate, completely incorrect, or was submitted late. This mark indicates severe problems that lead to questions about whether the student should be involved in graduate study.

Final Grade Determination

Mark	Points
A	310 - 335
A-	302 - 309
B+	293 - 301
B	276 - 292
B-	268 - 275
C+	260 - 267
C	243 - 259
C-	235 - 242
D+	229 - 234
D	210 - 228
D-	201 – 209
F	0 - 200

WEEKLY SCHEDULE

Learning Units are posted to CourseSite (http://coursesite.lehigh.edu) and organized by learning units.

Week	Learning Unit Topic
#1 Aug 25 – Aug 30	Introduction to course. *Learning Reflection – Forum Post 1 due*
#2 Aug 31 – Sept 6	Why do we have brains? What are brains designed for? *Learning Task Response 1, 2, and 3 due* *Learning Reflection – Forum Post 2 due*
#3 Sept 7 – Sept 13	Perception, Memory, and Encoding - Select book for Book Review Assignment *Learning Task Response 4 due* *Learning Reflection – Forum Post 3 and 4 due*
#4 Sept 14 – Sept 20	Retrieval Processes and Learning Strategies - Select Cognitive Learning Strategies *Learning Task Response 5 due* *Learning Reflection – Forum Post 5 and 6 due*
#5 Sept 21 – Sept 27	Beliefs about Self; Motivation and Learning *Learning Task Response 6 and 7 due* *Learning Reflection – Forum Post 7 due*
#6 Sept 28 – Oct 4	Intelligence and Knowledge; Problem Solving and Critical Thinking; Expert Thinking *Learning Task Response 8 due*
#7 Oct 5 - Oct 11	Learning Contexts for Cognitive Growth *Cognitive Learning Strategy due October 5* *Submit Cognitive Learning Strategy Presentation to Forum 8 by October 8* *Learning Reflection – Forum Post 8 due (presentation feedback)* Cognitive learning strategy presentations posted to forum sharing
#8 Oct 12 - Oct 18	Creativity *Learning Reflection – Forum Post 9 due*
#9 Oct 19 - Oct 25	Learning Technologies *Cognition and Learning Book Review due October 25* *Learning Reflection – Forum Post 10 due*
#10 Oct 26 – Nov 1	Computer-Supportive Collaborative Learning *Learning Reflection – Forum Post 11 due*
#11 Nov 2 – Nov 8	Web-based Learning Environments *Learning Reflection – Forum Post 12 due*
#12 Nov 9 – Nov 15	Game-based Learning Environments *Learning Reflection – Forum Post 13 due* *Research Summary Synthesis Paper due November 15*
#13 Nov 16 – Nov 22	Emerging Innovations in Teaching and Learning *Learning Reflection – Forum Post 14 due*
#14 Nov 23 – Nov 29	Thanksgiving – Project work time
#15 Nov 30 – Dec 6	Future Directions *Personal Synthesis on Learning and Instruction Paper Due Dec 6*

Assignments

Learning Reflection Forum Posts

Learning Reflection Forum Post assignments are topic driven posting and response/discussion assignments based on a particular learning unit's readings and/or learning tasks.

In general, forum participation should serve to enrich the learning experience for everyone. The primary purpose is for you to share thoughts and ideas with your peers. The instructor may not respond to every forum posting, but does read and assess each one.

Learning Reflection Forum Post assignments are assessed based on participation, scholarship, and insight. It is my intent that in the forum, you will read, reflect and when appropriate, comment on your classmates' forum postings. In doing so, it is expected that you will engage in a critical reflection and post a thoughtful and reflective response to the forum topic.

Cognitive Learning Strategies Paper

Cognitive learning strategies are used to help learners understand information or solve problems. In this assignment, you will select a cognitive learning strategy. Your cognitive strategy may be a comprehension strategy, a problem-solving strategy, a writing strategy, a reasoning strategy, or some other cognitive learning strategy.

Write a 2-3 paper that:
1. Describes the instructional strategy.
2. Provides a real-life example of the strategy.
3. Discusses how the use of the cognitive strategy by teachers and students can significantly impact important learning outcomes for students. Be sure to cite relevant research.
4. Includes at least four references using APA Publication Manual 6th edition style.

Cognition and Learning Book Review

Overview

The purpose of this book review is to help you explore more deeply into an area of cognition and learning.

All reviews are to be completed in the format stipulated below and word processed using 12 point, Times New Roman font, double-spaced type. Be sure to address each item listed below.

Your book review should be 4-6 pages in length.

Select a book from the list of notable books on cognition and learning from the next area in CourseSite or visit the original list source: http://mentaledge.us/index.php?cID=153

Include the following in your review:

- Summarize some of the main ideas presented in the book with regards to cognition and learning. Provide a concise summary of the content. This includes a relevant description of the topic as well as its overall perspective, argument, or purpose.
- What kind of theory or theories does the author argue for? How much and what kind of evidence does the author use to support his/her scholarly claims? How valid and truthful does the evidence seem? How much does the book contribute to the knowledge of the field?
- Provide a critical assessment of the content. What are your reactions to the ideas discussed in the book? What strikes you as noteworthy? How has this book enhanced your understanding of cognition and learning?
- What are the implications of this work for learning, instruction, teaching, and/or designing learning environments?
- What are the main strengths and weaknesses of the book?

How to Format and Submit Your Assignment
Your report should be in 12-point Times New Roman font with 1" margins all around. All pages of the entire document should be numbered sequentially. Your report should include a cover page with a title, "**Cognition and Learning Book Review**" and the words "TLT 401" and your name. Label your file: *last name.docx* (for example my file would be called: *bodzin.docx*

Submit your paper using the Cognition and Learning Book Review Assignment Submission area in Coursesite.

This is an annotated list of notable books for cognition and learning, often from cognitive scientists, neuroscientists, or outstanding science writers. List source: http://mentaledge.us/index.php?cID=153

Crick, Francis. (1995) *The Astonishing Hypothesis: the scientific search for the soul.* Nobel-winning microbiologist and neuroscientist Francis Crick was co-discoverer of DNA. In his later years, he explored brain regions and functions, investigating whether there was some kind of "control center" of the brain that directed it's activities. This book is the narrative of that exploration.

Csikszentmihalyi, Mihalyi. (2008) *Flow: the psychology of optimal experience.* Everybody calls him "Mike" (try pronouncing his name). This classic work. originally published closer to 1990, reoriented the field of motivation away from satisfying basic needs and avoiding pain to the power of *intrinsic motivation* captured in the vigorous pursuit of passionate interests. A foundation of the psychology of "lifetime learning" and interest-driven learning.

Damasio, Antonio. (2011) *Self Comes to Mind: Constructing the conscious brain.* This is Damasio's more recent book which focuses on consciousness. Actually, I think you would get more out of Decarte's Error (below).

ibid. (2000). *That feeling of what happens: Body and emotion in the making of consciousness.* A good follow-up to Decarte's Error that focuses on what we experience or feel and how that relates to consciousness. Interesting, but not as useful as *Descarte's Error*.

ibid. (2005) *Decarte's Error: Emotion, reason, and the human brain*. Damasio is a highly-respected neuroscientist who identified the role of emotion in thinking. Contrary to past ideas that emotion tended to interfere with "dispassionate" or objective thinking, he posits that emotion's job is actually to set the priorities of the brain. Without emotion, you can't appropriately direct your thinking.

Dehaene, Stanislas. (2011) *The Number Sense: How the mind creates mathematics (revised & updated).* A classic text for a respected neuroscientist who looks to find the brain-basis for mathematics. This is a must read for anyone interested in the teaching of math or math-rich science or engineering.

ibid. (2010) *Reading in the Brain: The new science of how we read*.

Eagleman, David. (2011) *Incognito: the secret lives of the brain.* Engleman is a talented writer who makes recent neuroscience discoveries accessible to the general reader. He presents each topic as a easily readable story. He isn't a researcher, but he's an easy read and pretty much up-to-date.

Edelman. Gerald. (2001) *A Universe of Consciousness: How matter becomes imagination.* Edelman is top-notch neuroscientist and theorist. His Neuronal Group Theory provides a compelling explanation of how and why each brain is really unique and fundamentally different from others (theory is unproven).

Johnson, Steven. (2004) *Mind Wide Open: Your brain and the neuroscience of everyday life*. Johnson is another talented writer who makes neuroscience discoveries accessible to the general reader. It's a good read, interesting written.

ibid. (2001) *Emergence: the connected lives of ants, brains, cities, and software.* One of the fundamental ideas that Johnson communicates is that complex behavior *emerges* from simple structures and processes. This is a really big idea, and I recommend this book to better understand what emergence is and why it is so fundamentally important to all forms of life, but especially to better understand the human brain and mind.

Kandel, Eric. (2006) *In Search of Memory: the emergence of a new science of mind.* You've heard of DNA's Crick and Watson, Thomas Edison, Isaac Newton, and Galileo. Now meet the Nobel Prize winning scientist who brought discovery after discovery to light about how neurons create memory. Kandel is a giant among scientists, and this book is both his autobiography as well as the best story of how we have come to understand the process of memory.

Kurzweil, Ray. (2012) *How to Create a Mind: the secret of human thought revealed.* Kurzweil has already developed many inventions that bridge the worlds of the brain and technology, and now he is presenting his vision of the ultimate invention, a human-like mind. His ideas would be laughable, except that he has been personally honored by four U.S. presidents for this amazing scientific and engineering contributions. The book below may be better for the general reader. This one focuses mercilessly on the serious task of how we actually may create a brain in the next 15 years.

ibid. (2006) *The Singularity is Near:* **When humans transcend biology**.As Eric Kandel is the top neuroscientist, Ray Kurzweil is the top engineer (called a modern Thomas Edison). Out of all of the authors in this group, his work has the greatest potential to change your life and your ideas of many fundamental issues. If you don't read him for this course, put him at the top of your "must read list."

Nørretranders, Tor. (1991) *The User Illusion: Cutting consciousness down to size.* This an amazing book that will convince you how much your unconscious mind is in charge. It's not the smoothest read (translation from the Danish), but it's a classic.

Pink, Dan. (2011) *Drive: the surprising truth about what motivates us.* This is a quick read by a good writer. He isn't the researcher, but he tells the stories of what the research shows, particularly for the business world. The same lessons apply equally to education. His primary source of inspiration is Csikszentmihalyi.

ibid. (2006) *A Whole New Mind: Why right brainers will rule the future.* We've all heard about left brain and right brain, but Pink takes the discussion in a different direction. He talks about the VALUE of being able to think logically and exactly compared with the VALUE of being able to think holistically, empathetically, and creatively. It has deep implications in employment, economics, happiness, and education.

Pinker, Steven. (2011) *Words and Rules: the ingredients of language.* Steven Pinker (MIT, now Harvard professor) is one of the top brain scientists and linguists in the world. This may be his most accessible (and shortest) book in which he discusses how the brain handles language rules and non-rules. You'd never guess that irregular verbs could be so interesting!

ibid. (2009) *How the Mind Works.* One of Steven Pinker's masterworks. Not a quick read, but deep and thoughtful.

ibid. (2007) *The Language Instinct: How the mind creates language.* Pinker's masterwork. If you're seriously interested in language acquisition, read this book.

Sacks, Oliver. (2008) *Musicophilia: Tales of music and the brain.* Really, anything by Sacks is great to gain insight into how the brain and mind work. If you're interested in music, this will fascinate you. He's not a bad writer, either!

ibid. (2011) *The Mind's Eye* **(vintage reprint)**

Research Summary Synthesis Paper

Select a research topic that interested you that relates to one of our course topics.
Read **three research papers** on that topic from peer reviewed scholarly journals that have been published during the last 15 years. Write a 3-4 page research summary synthesis paper on your selected topic.

Synthesis means putting ideas from different sources together in one essay or presentation.

Your first task is to summarize the three research papers.
Like an abstract in a published research article, the purpose of an article summary is to give the reader a brief overview of the study. In each research article, identify what information is important and condense that information for your reader. Explain it thoroughly but briefly.

For each article, synthesize the following into a cohesive paragraph:
• State the research question and explain why it is interesting.
• Briefly describe the methods (design, participants, materials, procedure, what was manipulated [independent variables], what was measured [dependent variables], and how data were analyzed.
• Describe the results. Were they significant?
• Explain the key implications of the results to the field.

Your second task is to organize some of the information around a theme or a question, make generalizations, and then present information (findings, examples, theories) in a logical way. Remind yourself that a synthesis is not just a summary, a comparison or a review. Rather a synthesis is a result of an *integration* of what you have read and your ability to use this learning to develop and support a key thesis or argument in the field.

Include a reference sections that uses APA 6th edition style guide for your three research articles.

Some topic examples include (this list is by no means exhaustive):

Motivation for learning
Cognitive skill development
Enhancing memory retention
Events and attention
Nature and development of human cognition
Development of spatial processes
Development of language ability
Neural network development
Perception and action
Perception and attention
Emotion and learning
Reasoning
Learning and development
Memory encoding
Self-efficacy and learning
Expert learning
Technology designs for learning
Social learning environments

Learning and cultural practices

Effects of instruction on brain development

How to Format and Submit Your Assignment

Your report should be in 12-point Times New Roman font with 1" margins all around. All pages of the entire document should be numbered sequentially. Your report should include a cover page with a title, "**Research Summary Synthesis Paper** " and the words "TLT 401" and your name. Label your file: *last name.docx* (for example my file would be called: *bodzin.docx*

Submit your paper using the Research Summary Synthesis Paper Assignment Submission area in CourseSite.

Personal Synthesis on Learning and Instruction Paper

Write a 6-8 page paper (double-spaced narrative) with relevant references. Please follow APA style with the understanding that parts of narrative will be in first person as you discuss your views and conclusions. There are no right or wrong choices. Rather, your synthesis will be evaluated on its internal consistency, the appropriateness and relevance of the references, your logic and examples, and the degree to which you demonstrate knowledge from our course.

You have been introduced to a broad overview of theories and practices related to learning and to instruction in this course. One of your main tasks in the course is to synthesize these ideas into a set of stable personal beliefs that will guide you in the practice of teaching or designing instruction. Like a research paper, you will provide references and citations to help define your beliefs. You can define your beliefs both by citing those with whom you agree; you can also discuss those with whom you disagree.

Most learning and teaching takes place in a "messy" environment that may fit any pure theory or ideology. I encourage you to add a situated element to suggest under what conditions you may apply one theory/idea compared to conditions under which you would apply another.

I also encourage you to connect your learning and instruction beliefs to other beliefs that you hold about human nature, children, schools, and the economy. You should include technology in some way in your synthesis but technology should not occupy center stage in your discussion.

Your focus from beginning to end should be on the ideas that will guide you through the kinds of learning and instruction situations you expect to create or deliver. For example, you could focus your examples solely on distance education or solely on special education. Your main ideas should be developed both through logical explanation and through examples that are detailed enough to be meaningful.