DARTMOUTH COLLEGE
EDUCATION 01
Introduction to Education: Learning, Development, and Teaching

Spring Term 2018
Period 10A
Tuesdays & Thursdays, 10:10 AM to 12:00 noon
X-hour: Wednesdays, 3:30 to 4:20 PM
Building/Room TBD

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Office Hours: by appointment

Education must, then, be not only a transmission of culture but also a provider of alternative views of the world and a strengthener of the will to explore them.
Jerome Bruner, 1961, p. 59

"Do you mean ter tell me," he growled at the Dursleys, "that this boy – this boy! – knows nothin' abou' – about ANYTHING?" Harry thought this was going a bit far. He had been to school, after all, and his marks weren't bad. "I know some things," he said. "I can, you know, do math and stuff."
J.K. Rowling, 1997, p. 49

Course Description

Education, development, and learning are inextricably intertwined. In this course, we will explore how pre-Kindergarten through high school education is informed by scientific evidence across multiple domains. Topics to be explored may include the educational system in America; the research-to-practice gap and educational misconceptions; social, emotional, and motivational development in school context; memory, strategies, metacognition, and assessment as related to learning; and learning and teaching in early math, science, and reading.

Course Goals

- To not only become familiar with, but also begin to develop a deeper understanding of, a wide range of concepts related to learning, development, and teaching.
- To begin to apply interdisciplinary, empirical evidence to construct and use your own model of learning, development, and teaching.

Required Reading

- All of the readings for the course will be available through the Canvas site for the course.
- All of the readings listed in the syllabus are required reading for the course.
- All students are expected to read the material indicated in the *Schedule* and *Reading List by Class* below before each class and be prepared to discuss that material in class.
- By design, there are few outside-of-class assignments for this course. I have chosen the readings carefully, and I expect you to spend time reading and thinking about them. Building a knowledge base is foundational to understanding (see Course Goals); the assigned readings will help you to begin to construct such a knowledge base concerning learning, development, and teaching – to which we will add in class through lectures and activities.

General Requirements

- All students are expected to attend class regularly (including x-hours), on time, and each student is responsible for all material presented and discussed in every class. If you must miss a class, it is your responsibility to borrow the notes from another student, acquire any materials that were handed out, and learn if changes have been made to the syllabus.
- I recognize that some students may wish to take part in religious observances that fall during this academic term. Should you have a religious observance that conflicts with your participation in the course, please meet with me early in the term to discuss appropriate accommodations.
- All students are expected to uphold all aspects of the Academic Honor Principle (refer to http://www.dartmouth.edu/~uja/honor). Please make sure that you are familiar with the Honor Principle, and make sure to ask questions if you are uncertain about how it applies in this course. Any violation of the Academic Honor Principle regarding your work in this course will result in a zero on the assignment and referral to Judicial Affairs.

Resources

- I recognize that the academic environment at Dartmouth is challenging, that our terms are intensive, and that classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including: your undergraduate dean (http://www.dartmouth.edu/~upperde/), Counseling and Human Development (http://www.dartmouth.edu/~chd/), and the Student Wellness Center (http://www.dartmouth.edu/~healthed/). I encourage you to use these resources, and come speak with me, to take care of yourself throughout the term.
- Students with disabilities who may need disability-related academic adjustments and services for this course are encouraged to see me privately as early in the term as possible. Students requiring disability-related accommodations must consult the Student Accessibility Services (SAS) office (Carson Hall, Suite 125, 603.646.9900, Student.Accessibility.Services@Dartmouth.edu). Once SAS has authorized services, please share with me the SAS Services and Consent Form so that we can implement appropriate accommodations in the course. As a first step, if you have questions about whether you

qualify to receive academic adjustments and services, contact the SAS office. All inquiries and discussions will remain confidential.
- If you feel that your learning is not as efficient or effective as you would like it to be, come talk with me about approaches to this course, and consider using the resources available at the Academic Skills Center (https://students.dartmouth.edu/academic-skills/about/about-asc/services).

Assignments

1. Activities

On most days, class time will be split between lecture and activity. The goal of the activities is to provide an opportunity to discuss and engage with materials in depth. Along with lecture, activities will provide a foundation on which to begin to construct your own, evidence-based model of learning, development, and teaching.

- Activities will be conducted in small groups, to which you will be assigned pseudorandomly at the beginning of the term; you will remain in the same group throughout the term.
- Activities will be assigned to each group during class.
- Each group will post its activity response to a Canvas discussion before the end of class, so that other groups can benefit from their learning. Each group will also submit its activity response through a Canvas assignment for grading.
- Each present member of a group will receive the same grade for each activity. However, if there is agreement among the majority of a group that a member or members did not contribute meaningfully to the activity and response (or it is my judgment that such is the case), that member may receive a different grade. In general, by choosing not to participate, you affect your own learning; but for group projects, you also compromise others' learning, as your groupmates are robbed of the opportunity to benefit from your insight and perspective in the same way that you have from theirs.
- No late assignments (posts to either a discussion or an assignment) will be accepted.
- Meaningful participation in class activities is an important component of the course. Obviously, you cannot meaningfully participate in group activities if you are not present, so there is no way to "make up" a missed activity. However, if you must miss a class, there is a one-time option to complete an alternate 3-point assignment as a replacement (this cannot be used for "extra credit" or to "make up" other missed points). Please ask me for this assignment at the next class you attend following your absence; it is available only at this time and is due 72 hours after you receive it.

2. Brief Reflections

As described above, the goals of this course are for you to (1) develop a deeper understanding of learning, development, and teaching and (2) begin to apply that knowledge. The brief reflections are designed to support these goals directly. These six assignments are due after the first day of class (i.e., material from the first day of class should not be used in reflections) and before the beginning of class on 29 May (the last day of class), *but only one brief reflection*

may be submitted per week, so plan ahead. Brief reflections are limited to 100 words each; choose your words carefully and write clearly and well. There are two kinds of brief reflections, and you will be handing in three of each throughout the term:

- Aha Moments

  As you begin to become familiar with the key concepts in this course, you will invariably experience aha moments – moments of sudden insight or discovery in which something seems to fall into place, something that has not made sense previously does begin to make sense, you recognize something about yourself that you have not thought about before, or you realize that your beliefs are incompatible with the evidence. Note that this is not just about learning something new, but rather learning something new that really changes your thinking in some way. When you experience an aha moment related to the assigned readings or lecture, write a brief reflection that notes the source and describes how your thinking has changed. Please include a word count (< 100) for each of your three Aha Moment brief reflections.

- Using What You Know

  Much of what we discuss in this course is applicable in everyday life, and connects to your lives as students and learners. When you find yourself using the key concepts in this course in your own life, or thinking concretely about how what you are learning will be useful in the future, write a brief reflection that notes the source of the concept and describes how you are applying or will apply it. Please include a word count (< 100) for each of your three Using What You Know brief reflections.

3. Research Participation

The goal of this assignment is to give you a first-person perspective on research studies. Participating in an education research study will allow you to reflect on where evidence comes from and how it is collected, by experiencing (or imagining) what it is like to provide that evidence. This assignment can be submitted any time before our last class; it is due before the beginning of class on 29 May. However, *I encourage you to complete the assignment well before the end of term,* especially as labs can be booked by the end of term. This assignment has two options (choose only one):

- Option 1: Volunteer to participate in a research study in the Department of Education.

  Details are posted to the Canvas site for the course. Available labs are listed on the site; contact the one you are interested in through the e-mail address provided. After you have completed participation in a study, submit your *Research Participation Reflection* to the Research Participants assignment on Canvas.

- Option 2: Imagine participating in a research study in the Department of Education.

  If you are uninterested in participating in a current research study in the Department of Education or unable to participate (many studies use exclusionary criteria that might make you ineligible), you may write a hypothetical study experience overview. First, find a published article authored by one of the faculty in the Department of Education that involved college student participants (the links to the lab websites on the Canvas site

for the course will be useful). Second, complete the *Hypothetical Research Participation Reflection* posted to the Canvas site for the course. Submit your *Reflection* to the Research Participation assignment on Canvas.

Your work should be your own for this assignment. Do not collaborate with other students, consult research assistants in the labs, or talk with the primary investigators in the labs about your responses.

Lectures

As noted above, on most days, class time will be split between lecture and activity. I will post the PowerPoint slides that I use for each lecture to the Canvas site for the course *after each unit*. I understand that access to the slides supports your learning; I also understand that having the slides during lecture can encourage attention to wander and decrease active engagement. Indeed, I would strongly prefer (and research evidence supports) that you not use your laptop during lecture; how and whether you want to learn is of course your choice, but using a laptop affects not only you, but also the students around you. Given that you will have access to the slides, do not expect to have time to copy every word during class.

Exams

There will be three in-class exams throughout the term, and one final exam during final exam period. Each exam will cover all material (e.g., assigned readings, lecture, discussion, in-class Activities, Activity discussion posts) up to and including the class before the exam is given; each is cumulative. Exams may include multiple choice, fill-in-the-blank, and short answer questions. Multiple choice and fill-in-the-blank questions will require you to recall information; in addition, multiple choice questions may require you to justify your choices. Short answer questions will require you to use and apply information.

Exams must be taken at the scheduled times: There are no "make-up" exams. Please carefully look at your term calendar on day one and make sure that you do not have conflicts with the scheduled exam dates.

Canvas (https://canvas.dartmouth.edu)

Class resources can be found on the Canvas site for the course, including a copy of the syllabus and course reading links. You will post your Activity responses to discussions on Canvas, and submit assignments through the assignments function.

Into the Future

There are many opportunities to work with elementary and secondary school students – to use what you have learned in this course – while you are at Dartmouth. You can find a detailed list on the Department of Education website: http://educ.dartmouth.edu/sites/educ.dartmouth.edu/files/opportunities_to_work_with_children_and_adolescents_0.pdf.

Course Grade

Grades for the course are based on attendance and participation (5 points); your grades on the 11 Activities (3 points each); your grades on the six brief reflections (1 point each); your performance on the four exams (Exam One: 8 points, Exam Two: 10 points, Exam Three: 15 points, Final Exam: 20 points); and your research participation (real or imagined: 3 points). Grading is consistent with the ORC description of scholarship ratings (see http://www.dartmouth.edu/~reg/transcript/grade_descriptions.html).

SCHEDULE[§]

DATE	TOPIC	WHAT TO READ[†]	HAND IN[°]
Week One			
27 March	Introduction	Syllabus, Canvas site, Diamond	
29 March	Overview of US Education	USDoS, Mervis, Mervis	
Week Two			
03 April	Overview of US Education	CSH, Miller, NASSP, Turner	Activity #1
05 April	Evidence-based Education	Davies, Alberts, CfC, Slavin, Boser, Jarrett, Matthews, Chatterjee	
Week Three			
10 April	Teachers & Teaching	Finley, Ellison, Hamre, Tomlinson, Darling-Hammond (2), Wall	Activity #2
12 April	Exam One	[no readings]	
Week Four			
17 April	Social Processes	Blakemore, Stahl, Handwerk, APA, Weissberg	Activity #3
18 April	[Exam One returned]	[no readings]	
19 April	Emotional Processes	Mischel, Duckworth, Lipsett, Blair, Walker	Activity #4
Week Five			
24 April	Motivation	Dweck, CEP, Riley, Hulleman, Engel	Activity #5
26 May	Exam Two	[no readings]	
Week Six			
01 May	Memory	Miller, Orlin, Thorne, Harvard, Paul	Activity #6
02 May	[Exam Two returned]	[no readings]	
03 May	Metacognition	TEAL, Pintrich, Fadel, Halpern, Schmaltz	Activity #7
Week Seven			
08 May	Strategies	Rohrer, Karpicke, Pan, Terada, May, Buckhalt	
10 May	Assessment	Ronan, AERA, AERA, Strauss, Jochim, Darling-Hammond, Weimer, Frey	Activity #8
Week Eight			
15 May	Exam Three	[no readings]	
17 May	Science	AERA, Colburn, Nature, Klahr, Sadler, Schneps, NAP	Activity #9
Week Nine			
22 May	Math	Griffin, Devlin, Willingham, Kimball	Activity #10
23 May	[Exam Three returned]	[no readings]	
24 May	Reading	Hindman, Koralek, Shanahan, Stainthorp	Activity #11
Week Ten			
29 May	Summary & Reflection	Alberts, Stipek, APA/CPSE, Jones, Wong	
Final Exam			
02 June	Saturday, 3:00-6:00 PM		

[§]*the Schedule is subject to change* [†]*see detailed list below* [°]*also: Brief Reflections and Research Participation*

READING LIST BY CLASS

The assigned readings listed below should be completed before each class; lectures and activities assume that you have completed the readings. Clicking on the doi or url provided should directly link to each reading. If a hyperlink brings you to a page filled with nonsense symbols, try clicking on the address in your browser window to highlight it, then pressing the return key. You may need to copy-and-paste some links directly into your browser. If a hyperlink fails, conduct a library or Google search to find the assigned reading.

*Week One*_____

Tuesday 27 March – Introduction to the Course

An overview of the course, a preview of some of our topics and themes, and an opportunity to think about why we care about education. Please familiarize yourself with the syllabus and the Canvas site for the course; many of your likely questions about the course will be addressed by information included in these resources.

Syllabus

Canvas site for the course

Diamond, A. (2007). Interrelated and interdependent. *Developmental Science, 10*(1), 152-158. doi:10.1111/j.1467-7687.2007.00578.x

Thursday 29 March – Overview of the US Education System (Part 1)

An introduction to the school system in America: students, structure, types of schools, and an international comparison; how schools are run: decentralization and local, state, and federal roles; low-income students in US schools: the income-achievement gap and early intervention; and Federal programs: ESEA, NCLB, R2T, ESEA Flexibility waivers, and ESSA.

U.S. Department of State. (2008). *USA education in brief.* Retrieved from http://photos.state.gov/libraries/shanghai/135040/wangrh/education-in-brief-spread-082708.pdf

Mervis, J. (2011a). Past successes shape effort to expand early intervention. *Science, 333,* 952-956. doi:10.1126/science.333.6045.952

Mervis, J. (2011b). Giving children a head start is possible – but it's not easy. *Science, 333,* 956-957. doi:10.1126/science.333.6045.956

*Week Two*_____

Tuesday 03 April – Overview of the US Education System (Part 2)

Continuation of our introduction to the school system in America: students, structure, types of schools, and an international comparison; how schools are run: decentralization and local, state, and federal roles; low-income students in US schools: the income-achievement gap and

early intervention; and Federal programs: ESEA, NCLB, R2T, ESEA Flexibility waivers, and ESSA.
Activity #1: NAEP

Council on School Health. (2013). The crucial role of recess in school. *Pediatrics, 131*, 183-188. doi:10.1542/peds.2012-2993

Miller, T.D., & Hanna, R. (2014). *Four years later, are Race to the Top states on track?* Washington, DC: Center for American Progress. Retrieved from https://www.americanprogress.org/issues/education/reports/2014/03/24/86197/four-years-later-are-race-to-the-top-states-on-track/

National Association of Secondary School Principals. (2016). *Every Student Succeeds Act (ESSA) overview*. Retrieved from https://www.nassp.org/advocacy/essa-toolkit/essa-facts-sheets/every-student-succeeds-act-(essa)-overview?SSO=true

Turner, C., & Kamenetz, A. (2017, 26 June). School vouchers get 2 new report cards [Blog post]. Retrieved from http://www.npr.org/sections/ed/2017/06/26/533192616/school-vouchers-get-a-new-report-card

Thursday 05 April – Evidence-based Education

We will discuss the nature of evidence in education; scientific experiments and how we know what works; the research-to-practice gap; and misconceptions about learning, development, and education.

Davies, P. (1999). What is evidence-based education? *British Journal of Educational Studies, 47*(2), 108-121. doi:10.1111/1467-8527.00106

Alberts, B. (2009). Making a science of education. *Science, 323*, 15. doi:10.1126/science.1169941

Chiefs for Change. (2016, 7 July). Policy brief: ESSA and evidence: why it matters. Retrieved from http://chiefsforchange.org/policy-paper/3096/

Slavin, R. (2017, 6 June). Research and practice: "tear down this wall" [Blog post]. Retrieved from http://www.huffingtonpost.com/entry/research-and-practice-tear-down-this-wall_us_5940daffe4b04c03fa2616c6#

Boser, U. (2017, 4 March). What do people know about excellent teaching and learning? Retrieved from https://cdn.americanprogress.org/content/uploads/2017/03/10122018/TeachingAndLearning-brief.pdf

Jarrett, C. (2017, 20 July). Oh dear, even people with neuroscience training believe an awful lot of brain myths [Blog post]. Retrieved from https://digest.bps.org.uk/2017/07/20/oh-dear-even-people-with-neuroscience-training-believe-an-awful-lot-of-brain-myths/

Matthews, R. (2000). Storks deliver babies ($p = 0.008$). *Teaching Statistics, 22*(2), 36-38. doi:10.1111/1467-9639.00013

Chatterjee, R. (2015). Out of the darkness. *Science, 350*, 372-375. doi:10.1126/science.350.6259.372

*Week Three*_____

Tuesday 10 April – Teachers and Teaching

Teachers play multiple roles, and are responsible for both content and context. Today, we talk about design and delivery of curriculum, active and passive learning environments, the ZPD, transfer, academic language, learning communities, and expectations; we also discuss certification.

Activity #2: Becoming a Public School Teacher

Finley, T. (2014, 2 January). 8 strategies for teaching academic language [Blog post]. Retrieved from https://www.edutopia.org/blog/8-strategies-teaching-academic-language-todd-finley

Ellison, K. (2015, December). Great expectations. *Discover Magazine, 36*(10), 44-49. Retrieved from http://discovermagazine.com/2015/dec/14-great-expectations (alternate title: Being honest about the Pygmalion effect)

Hamre, B.K. (2014). Teachers' daily interactions with children: an essential ingredient in effective early childhood programs. *Child Development Perspectives, 8*(4), 223-230. doi:10.1111/cdep.12090

Tomlinson, C.A. (2012). Watching us work. *Educational Leadership, 69*(7), 92-93. Retrieved from http://search.ebscohost.com.dartmouth.idm.oclc.org/login.aspx?direct=true&AuthType=ip,url,uid&db=a9h&AN=75242237&site=ehost-live&scope=site

Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education, 51*(3), 166-173. doi:10.1177/0022487100051003002

Darling-Hammond, L., & Tucker, M. (2017, October). If you want a world-class education system, then empower our teachers [Blog post]. Retrieved from http://thehill.com/opinion/education/355199-want-a-world-class-education-system-in-america-empower-our-teachers

Wall, C.R.G. (2016). From student to teacher: changes in preservice teacher educational beliefs throughout the learning-to-teach journey. *Teacher Development, 20*(3), 364-379. doi:10.1080/13664530.2016.1149509

Thursday 12 April

Exam One

*Week Four*_____

Tuesday 17 April – Social Processes in Learning and Teaching

Much learning occurs through social experience. We will discuss the development of theory of mind; the social context of learning in the classroom, including peer social status, stereotype threat, and collaborative or cooperative learning; and SEL approaches.

Activity #3: Evaluating SEL Curricula

Blakemore, S.-J. (2010). The developing social brain: implications for education. *Neuron, 65,* 744-747. doi:10.1016/j.neuron.2010.03.004

Stahl, R.J. (1994). The essential elements of cooperative learning in the classroom. ERIC Digest (ED370881, 1994-03-00). Retrieved from http://files.eric.ed.gov/fulltext/ED370881.pdf

Handwerk, B. (2017). Students' brains sync up when they're in an engaging class, neuroscience shows [Blog post]. Retrieved from http://www.smithsonianmag.com/science-nature/how-sitting-through-same-class-gets-your-brains-same-wavelength-180963075/

American Psychological Association. (2006, 15 July). *Stereotype threat widens achievement gap*. Retrieved from http://www.apa.org/research/action/stereotype.aspx

Weissberg, R., Durlak, J.A., Domitrovich, C.E., & Gullotta, T.P. (2016, 15 February). Why social and emotional learning is essential for students [Blog post]. Retrieved from https://www.edutopia.org/blog/why-sel-essential-for-students-weissberg-durlak-domitrovich-gullotta

**Wednesday 18 April – Exam One returned

Thursday 19 April – Emotional and Self-regulation Processes in Learning and Teaching

An introduction to emotions, including academic emotions; the development, measurement, and teaching of emotional self-regulation; and the emotional context of learning, focusing on stress and toxic stress.

Activity #4: Academic Emotions

Mischel, W., Ayduk, O., Berman, M.G., Casey, B.J., Gotlib, I.H., Jonides, J., Kross, E., Teslovich, T., Wilson, N.L., Zayas, V., & Shoda, Y. (2011). 'Willpower' over the life span: decomposing self-regulation. *Social, Cognitive, and Affective Neuroscience, 6*, 252-256. doi:10.1093/scan/nsq081

Duckworth, A.L., & Seligman, M.E.P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science, 16*(12), 939-944. doi:10.1111/j.1467-9280.2005.01641.x

Lipsett, A-B. (2011). Supporting emotional regulation in elementary school: brain-based strategies and classroom interventions to promote self-regulation. *LEARNing Landscapes, 5*(1), 157-175. Retrieved from http://scholar.google.com/scholar_url?url=http://ojs.learnquebec.ca/index.php/learnland/article/download/539/539&hl=en&sa=X&scisig=AAGBfm0NdAgyI5neORdbuuvcQI4VQ58yww&nossl=1&oi=scholarr

Blair, C. (2012). Treating a toxin to learning. *Scientific American Mind*, *23*, 64-67. doi: 10.1038/scientificamericanmind0912-64

Walker, S.O., & King, M.S. (2016, 6 June). 'Toxic stress' in the classroom: how a public health approach could help. Retrieved from https://www.washingtonpost.com/news/education/wp/2016/06/06/toxic-stress-in-the-classroom-how-a-public-health-approach-could-help/?utm_term=.c7e57965c9d7

*Week Five*_____

Tuesday 24 April – Motivational Processes in Learning and Teaching

An introduction to intrinsic and extrinsic motivation; key constructs for supporting motivation; achievement motivation, mindsets, and goals; and curiosity.

Activity #5: Goal Setting

Dweck, C.S. (2007/2008). The secret to raising smart kids. *Scientific American Mind, 18*(6), 36-43. doi:10.1038/scientificamericanmind1207-36

Center on Education Policy. (2012). Student motivation – an overlooked piece of school reform. Washington, DC: CEP. Retrieved from http://files.eric.ed.gov/fulltext/ED532666.pdf

Riley, G. (2016). The role of self-determination theory and cognitive evaluation theory in home education. *Cogent Education, 3*(1163651), 1-7. doi:10.1080/2331186X.2016.1163651

Hulleman, C.S., & Harackiewicz, J.M. (2009). Promoting interest and performance in high school science classes. *Science, 326*, 1410-1412. doi:10.1126/science.1177067

Engel, S. (2013). The case for curiosity. *Educational Leadership, 70*(5), 36-40. Retrieved from http://search.ebscohost.com.dartmouth.idm.oclc.org/login.aspx?direct=true&AuthType=ip,url,uid&db=a9h&AN=85177949&site=ehost-live&scope=site

Thursday 26 April

Exam Two

*Week Six*_____

Tuesday 01 May – Memory Processes in Learning and Teaching

Today, we discuss the components of a model of memory in educational context, including the sensory register, attention, short-term and working memory, and long-term memory; the role of sleep in memory; and multitasking.

Activity #6: Memory in the Classroom

Miller, M.D. (2011). What college teachers should know about memory: a perspective from cognitive psychology. *College Teaching, 59*(3), 117-122. doi:10.1080/87567555.2011.580636

Orlin, B. (2013, 09 September). When memorization gets in the way of learning. Retrieved from https://www.theatlantic.com/education/archive/2013/09/when-memorization-gets-in-the-way-of-learning/279425/

Thorne, G. (2003, 01 January). What are some problems students have with memory? [Blog post]. Retrieved from http://www.cdl.org/articles/what-are-some-problems-students-have-with-memory/

Harvard Medical School & WGBH. (2007). Sleep, learning, and memory. Retrieved from http://healthysleep.med.harvard.edu/healthy/matters/benefits-of-sleep/learning-memory

Paul, A.M. (2013, 3 May). You'll never learn! [Blog post]. Retrieved from http://www.slate.com/articles/health_and_science/science/2013/05/multitasking_while_studying_divided_attention_and_technological_gadgets.html

**Wednesday 02 May – Exam Two returned

Thursday 03 May – Metacognition in Learning and Teaching

An introduction to metacognition and its components; examples of metacognitive development and illusion; teaching metacognitive strategies; and links between metacognition and critical thinking.

Activity #7: The MAI

Teaching Excellence in Adult Literacy. (2010). *TEAL Center fact sheet no. 4: metacognitive processes.* Retrieved from https://lincs.ed.gov/sites/default/files/4_TEAL_Metacognitive.pdf

Pintrich, P.R. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. *Theory Into Practice, 41*(4), 219-225. doi:10.1207/s15430421tip4104_3

Fadel, C., Trilling, B., & Bialik, M. (2016, August). The role of metacognition in learning and achievement [Blog post]. Retrieved from https://ww2.kqed.org/mindshift/2016/08/10/the-role-of-metacognition-in-learning-and-achievement/

Halpern, D.F. (1998). Teaching critical thinking for transfer across domains: dispositions, skills, structure training, and metacognitive monitoring. *American Psychologist, 53*(4), 449-455. doi:10.1037/0003-066X.53.4.449

Schmaltz, R.M., Jansen, E., & Wenckowski, N. (2017). Redefining critical thinking: teaching students to think like scientists. *Frontiers in Psychology, 8*(495), 1-4. doi:10.3389/fpsyg.2017.00459

*Week Seven*_____

Tuesday 08 May – Strategies for Strengthening Learning and Teaching

Consideration of some simple, specific things that students and teachers can do to improve learning and teaching, involving testing, spacing, interleaving, note-taking, sleep, and feedback.

Rohrer, D., & Pashler, H. (2010). Recent research on human learning challenges conventional instructional strategies. *Educational Researcher, 39*(5), 406-412. doi:10.3102/0013189X10374770

Karpicke, J.D. (2016, June). A powerful way to improve learning and memory [Blog post]. Retrieved from http://www.apa.org/science/about/psa/2016/06/learning-memory.aspx

Pan, S.C. (2015, 4 August). The interleaving effect: mixing it up boosts learning [Blog post]. Retrieved from https://www.scientificamerican.com/article/the-interleaving-effect-mixing-it-up-boosts-learning/

Terada, Y. (2017). Why students forget-and what you can do about it [Blog post]. Retrieved from https://www.edutopia.org/article/why-students-forget-and-what-you-can-do-about-it

May, C. (2014, 3 June). A learning secret: don't take notes with a laptop [Blog post]. Retrieved from https://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/

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Thursday 10 May – Assessing Learning and Teaching

A discussion about how assessment is used in education and policy: the purposes of assessment, high-stakes testing and cut scores under NCLB, testing and the CCSS, changes in assessment under ESSA, and formative assessments.

Activity #8: Creating Valid Assessments

Ronan, A. (2015, April). Every teacher's guide to assessment [Blog post]. Retrieved from http://www.edudemic.com/summative-and-formative-assessments/

AERA Council. (2000, July). Position statement on high-stakes testing in pre-K-12 education [Blog post]. Retrieved from http://www.aera.net/About-AERA/AERA-Rules-Policies/Association-Policies/Position-Statement-on-High-Stakes-Testing/mid/16176/dnnprintmode/true?SkinSrc=%5bG%5dSkins%2f_default%2fNo+Skin&ContainerSrc=%5bG%5dContainers%2f_default%2fNo+Container

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Strauss, V. (2014, 29 August). State education board slams Obama administration's testing policies [Blog post]. Retrieved from https://www.washingtonpost.com/news/answer-sheet/wp/2014/08/29/state-education-board-slams-obama-administrations-testing-policies/?utm_term=.ee1a6a0b9299

Jochim, A., & McGuinn, P. (2016, Fall). The politics of the Common Core assessments. *Education Next, 16*(4), 44-52. Retrieved from http://educationnext.org/files/ednext_xvi_4_jochim_mcguinn.pdf

Darling-Hammond, L. (2014). Beyond the bubble test: why we need performance assessments [Blog post]. Retrieved from http://blogs.edweek.org/edweek/education_futures/2014/07/beyond_the_bubble_test_why_we_need_performance_assessments.html?print=1

Weimer, M. (2012). Deep learning vs. surface learning: getting students to understand the difference [Blog post]. Retrieved from https://www.facultyfocus.com/articles/teaching-professor-blog/deep-learning-vs-surface-learning-getting-students-to-understand-the-difference/

Frey, N., Fisher, D., & Johnson, C. (2007, September). Student roles in common formative assessments. *California English*, 18-20. Retrieved from http://www.csun.edu/~krowlands/Content/Academic_Resources/Assessment/Fisher%20

and%20Frey-Student%20Roles%20in%20Common%20Formative%20Assessemtns%20CA%20English%20Sept.%2007.pdf

*Week Eight*_____

Tuesday 15 May

Exam Three

Thursday 17 May – Learning and Teaching Science

A selective introduction to some key concepts in science learning: scientific misconceptions; constructivism, assimilation, accommodation, and conceptual change; inquiry-based or discovery learning and explicit instruction; and the NGSS.
Activity #9: Next Generation Science Standards

AERA. (2007, Summer). Science education that makes sense. *Research Points: Essential Information for Education Policy*, *5*(1), 1-4. Retrieved from http://www.aera.net/Portals/38/docs/Publications/Science%20Education.pdf

Colburn, A. (2000). Constructivism: science education's "grand unifying theory." *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 74*(1), 9-12. doi:10.1080/00098655.2000.11478630

Learning in the wild. (2010, 8 April). [Editorial]. *Nature, 464*, 813-814. doi:10.1038/464813b

Klahr, D., & Li, J. (2005). Cognitive research and elementary science instruction: from the laboratory, to the classroom, and back. *Journal of Science Education and Technology, 14*(2), 217-238. doi:10.1007/s10956-005-4423-5

Sadler, P.M. (Producer), & Schneps, M.H. (Director). (1988). *A private universe* [Motion picture]. United States: Annenberg Media. Retrieved from https://www.learner.org/vod/vod_window.html?pid=9 (20:14)

Schneps, M.H., & Sadler, P.M. (2010). *A Private Universe* online resources. *Science in School, 17*, 1-2. Retrieved from http://www.scienceinschool.org/sites/default/files/teaserPdf/issue17_privateuniverse.pdf

Committee on a Conceptual Framework for New K-12 Science Education Standards, Board on Science Education, Division of Behavioral and Social Sciences and Education, & National Research Council. (2012). *A framework for K-12 science education: practices, crosscutting concepts, and core ideas* (Summary, pp. 1-4). Washington, DC: National Academies Press. Retrieved from https://www.nap.edu/download/13165

*Week Nine*_____

Tuesday 22 May – Learning and Teaching Math

An overview of some key concepts in mathematical development: two systems for processing number; number sense, facts, procedures, and concepts; flexible thinking in math; the "math wars"; and providing examples and analyzing errors.
Activity #10: Common Core State Standards for Mathematics

Griffin, S. (2004). Building number sense with Number Worlds: a mathematics program for young children. *Early Childhood Research Quarterly, 19*(1), 173-180. doi:10.1016/j.ecresq.2004.01.012

Devlin, K. (2017, 1 January). Number sense: the most important mathematical concept in 21st Century K-12 education [Blog post]. Retrieved from http://www.huffingtonpost.com/entry/number-sense-the-most-important-mathematical-concept_us_58695887e4b068764965c2e0

Willingham, D.T. (2009/2010, Winter). Is it true that some people just can't do math? *American Educator*, 14-19, 39. Retrieved from https://www.aft.org/sites/default/files/periodicals/willingham.pdf

Kimball, M., & Smith, N. (2013, 28 October). The myth of "I'm bad at math". Retrieved from https://www.theatlantic.com/education/archive/2013/10/the-myth-of-im-bad-at-math/280914/

**Wednesday 23 May – Exam Three returned

Thursday 24 May – Learning and Teaching Reading

A brief survey of some central ideas and themes in reading development: emergent literacy, language, and print; the contents of the Report of the National Reading Panel; and teachers' knowledge about reading.
Activity #11: Evidence for ESSA

Hindman, A.H., Wasik, B.A., & Snell, E.K. (2016). Closing the 30 million word gap: next steps in designing research to inform practice. *Child Development Perspectives, 10*(2), 134-139. doi:10.1111/cdep.12177

Koralek, D., & Collins, R. (1997, December). How most children learn to read. Retrieved from http://www.readingrockets.org/article/how-most-children-learn-read

Shanahan, T. (2005). *The National Reading Panel report: practical advice for teachers*. Naperville, IL: Learning Point Associates. Retrieved from http://files.eric.ed.gov/fulltext/ED489535.pdf

Stainthorp, R. (2003, March). Use it or lose it. *Literacy Today, 34*, 16-17. Retrieved from http://search.ebscohost.com.dartmouth.idm.oclc.org/login.aspx?direct=true&AuthType=ip,url,uid&db=a9h&AN=12329889&site=ehost-live&scope=site

*Week Ten*_____

Tuesday 29 May – Summary and Reflection

Concluding discussion: constructing a model of learning, development, and teaching; wrap-up and reflection.

Alberts, B. (2011). Getting education right. *Science, 333,* 919. doi:10.1126/science.1212394
Stipek, D. (2011). Education is not a race. *Science, 332,* 1481. doi:10.1126/science.1209339
American Psychological Association, Coalition for Psychology in Schools and Education. (2015). *Top 20 principles from psychology for preK-12 teaching and learning*. Retrieved from http://www.apa.org/ed/schools/cpse/top-twenty-principles.pdf
Jones, S.M., & Kahn, J. (2017-2018, Winter). The evidence base for how learning happens: a consensus on social, emotional, and academic development. *American Educator*, *41*(4), 16-21, 42-43. Retrieved from https://www.aft.org/ae/winter2017-2018/jones_kahn
Wong, A., Green, A., Zhou, L. (2015). Can schools be fixed? Retrieved from https://www.theatlantic.com/education/archive/2015/12/hope-and-despair-k-12-education/421800/

*Final Exams*_____

Final Exam: Saturday 02 June from 3:00 to 6:00 PM