CI 499: Attention, Learning and Technology

Spring 2016

Dr. Emma Mercier   Class: Thursday 4-6.50pm
College of Education   Office hours: Tuesday 1.30-3.30
Room: 396
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Purpose
As the range and presence of technology increases in our world, more and more experiences are either mediated or interrupted by these technologies. Concerns about the effect of interruptions are coupled with enthusiasm for the potential of technology to radically alter the learning environment. In this class, we'll look at the research on the relationship between attention and learning, recent work on the effects of multi-tasking and the influence that using technology in classrooms has on students' engagement and attention. We'll also look at arguments about how the changes in technology influences the speed (and depth) of thought, attention disorders and the use of technology and consider how the management of attention is a key tool for learners to develop.

Assignments and Grading

Attendance and Participation: 10%
Class sessions will require discussion of the articles and be a number of collaborative activities to take part in during and between classes, as such, attendance and participation are essential to everyone having successful learning experiences during the course.

Weekly reflection blog: 10%
Each week, you should respond to the reflection prompt on the blog before Wednesday night. You are also encouraged to read and comment on other people's posts before coming to class.

Wearable assignment presentation: 15%
You will choose 3 devices to test (for at least 2 days each). Devices are for activity tracking and/or notification. Present in class in week 7.

Data collection assignments: 25%
There will be four data collection assignments throughout the semester. Each of these will take one to two hours to complete. A protocol will be provided for each assignment. The data will be discussed in class, and contributed to a joint folder for the final projects.

Final Project: 40%
Using one of the data-sets we collect during class, you will ask a research question and write a research paper. Guidance and support will be provided. You can work in groups for the project and presentation; individual papers are required.

Due dates:

Proposal (1 page): April 1ˢᵗ
Presentation: April 30ᵗʰ (5%)
Paper submission: May 5ᵗʰ (35%)

Undergrad: Paper should be 10-15 pages
Graduate: Paper should be 15-25 pages and draw on literature outside of the course topics.

Statement of academic Integrity: The Code of Policies and Regulations Applying to All Students will be applied in all instances of academic misconduct committed by students. This applies to all exams, presentations, assignments and materials distributed or used in this course. You can review these policies at the following web site: http://admin.illinois.edu/policy/code/article1_part4_1-401.html

Accommodations: Your success as a student is of utmost importance to me. If you have a disability or any other special circumstance that may have some impact on your work in this class, and for which you may require special accommodations, please contact me within the first two weeks in the semester so that accommodations can be made in a timely manner.

Syllabus outline:

	Date	Topic	Reading & activity Due
1	Jan 21ˢᵗ	Introduction	
2	Jan 28ᵗʰ	Two contrasting views of technology, learning & attention	**Read:** Davidson (2011) Ch 2 Turkle (2011) Ch 9 **Watch:** http://gawker.com/short-film-about-smartphone-overuse-is-smart-poignant-1189811144 **Activity**: Turn off devices/connectivity for 1 hour while working; Respond to blog prompt – reflect on your own use of technology
3	Feb 4ᵗʰ	What is attention	Anderson (2000) Ch 3 **Activity**: Turn off devices during a class! Respond to blog prompt.
4	Feb 11ᵗʰ	Neuropsychology of attention	**Read:** Draganski et al., 2004 http://www.newyorker.com/tech/elements/anatomy-attention (or Baldauf & Desimone, 2014)
Interview assignment: Using protcol developed in class, interview 2 people about their use of			

		technology in learning settings.		

5	Feb 18th	Multi-tasking	Ophir, Nass, & Wagner, 2009; Molloy et al (2015) OR Minear, Brasher, McCurdy, Lewis, & Younggren, 2013;. **Activity**: Complete MMI
6	Feb 25th	Mindfulness	Dariotis et al., 2015 Ager et al, 2015 http://www.theatlantic.com/education/archive/2015/11/mantras-before-math-class/412618/ **Activity**: Come to class with 5 questions for a survey about technology use.
Survey Assignment: Find 5 people to complete the survey we design in class
7	March 3rd	Wearable presentations	WEARABLE PRESENTATIONS (no readings)
Observation Assignment: Choose from one of a list of lecture classes. Using protocol to obseve students using technology during the lecutre. Submit protocol by March 17th.
8	March 10th	Technology, attention and the classroom (1)	Fried, 2008; Gaudreau, Miranda, & Gareau, 2013; Aguilar-Roca, Williams, & O'Dowd, 2012; Mueller & Oppenheimer, 2014
9	March 17th	Technology, attention and the classroom (2)	Andersson, Hatakka, Grönlund, & Wiklund, 2013; Beland & Murphy, 2015 Duncan, Hoekstra, & Wilcox, 2012; Williams, Berg, & Gerber, 2011;
SPRING BREAK **Observation Assignment:** Observe use of digital technologies during a social event (as participant or non-participant observer). Use protocol and submit before March 31st
10	March 31st	Technology, attention and the classroom (3)	Davidson (2000) Ch 3 Levy, 2007
11	April 7th		AERA – no class Watch: https://www.youtube.com/watch?v=ReRcHdeUG9Y
12	April 14th	Developmental and Attention Disorders	Barkley, 1997 Steiner et al, 2011 Raggi & Chronis, 2006;
13	April 21st	Developmental and Attention disorders and technology	Hourcade, Bullock-Rest, & Hansen, 2011; Venkatesh, Greenhill, Phung, & Adams, 2011 Weiss & Harris, 2001
14	April	Final Class	Final Project Presentations

	28th		

Reading list

Books

Davidson, C.N. (2011) Now You See It: How the brain science of attention will transform the way we live, work and learn. Viking.

Anderson, J.R. (2000) Cogntivie Psychology and its Implications. Worth Publishers.

Steiner, H. (Ed.) (2011) Handbook of Developmental Psychiatry. World Scientific.

Turkle, S. (2011) Alone Together: Why we expect more from technology and less from each other. Basic Books.

Articles

Ager, K., Albrecht, N. J., & Cohen, P. M. (2015). Mindfulness in Schools Research Project: Exploring Students' Perspectives of Mindfulness. *Psychology*, *6*(June), 896–914.

Aguilar-Roca, N. M., Williams, A. E., & O'Dowd, D. K. (2012). The impact of laptop-free zones on student performance and attitudes in large lectures. *Computers & Education*, *59*(4), 1300–1308. doi:10.1016/j.compedu.2012.05.002

Andersson, A., Hatakka, M., Grönlund, Å., & Wiklund, M. (2013). Reclaiming the students – coping with social media in 1:1 schools. *Learning, Media and Technology*, (December 2013), 1–16. doi:10.1080/17439884.2012.756518

Barkley, R. a. (1997). Behavioral inhibition, sustained attention, and executive functions: constructing a unifying theory of ADHD. *Psychological Bulletin*, *121*(1), 65–94. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9000892

Crossgrove, K., & Curran, K. (2008). Using clickers in nonmajors-and majors-level biology courses: student opinion, learning, and long-term retention of course material. *CBE-Life Sciences Education*, *7*, 146–154. doi:10.1187/cbe.07

Dariotis, J. K., Mirabal-Beltran, R., Cluxton-Keller, F., Gould, L. F., Greenberg, M. T., & Mendelson, T. (2015). A Qualitative Evaluation of Student Learning and Skills Use in a School-Based Mindfulness and Yoga Program. *Mindfulness*. doi:10.1007/s12671-015-0463-y

Draganski, B., Gaser, C., Busch, V., Schuierer, G., Bogdahn, U., & May, A. (2004). Changes in grey matter induced by training Newly honed juggling skills show up as a transient feature on a brain-imaging scan . *Nature*, *427*, 311–312. doi:10.1038/427311a

Duncan, D., Hoekstra, A., & Wilcox, B. (2012). Digital Devices, Distraction, and Student Performance: Does In-Class Cell Phone Use Reduce Learning? *Astronomy Education Review*, 1–4. Retrieved from http://link.aip.org/link/?AERSCZ/11/010108/1

Fried, C. B. (2008). In-class laptop use and its effects on student learning. *Computers & Education*, *50*(3), 906–914. doi:10.1016/j.compedu.2006.09.006

Gaudreau, P., Miranda, D., & Gareau, A. (2013). Canadian University Students in Wireless Classrooms: What do They Do on Their Laptops and Does it Really Matter? *Computers & Education*, *70*, 245–255. doi:10.1016/j.compedu.2013.08.019

Hembrooke, H., & Gay, G. (2003). The laptop and the lecture: The effects of multitasking in learning environments. *Journal of Computing in Higher Education*, *15*(1), 46–64. doi:10.1007/BF02940852

Hourcade, J. P., Bullock-Rest, N. E., & Hansen, T. E. (2011). Multitouch tablet applications and activities to enhance the social skills of children with autism spectrum disorders. *Personal and Ubiquitous Computing*, *16*(2), 157–168. doi:10.1007/s00779-011-0383-3

Junco, R., & Cotten, S. R. (2012). No A 4 U: The relationship between multitasking and academic performance. *Computers & Education*, *59*(2), 505–514. doi:10.1016/j.compedu.2011.12.023

Land, R. (2011). Speed and the unsettling of knowledge in the digital university. In R. Land & S. Bayne (Eds.), *Digital Difference* (Vol. 50). Sense Publishers. Retrieved from http://link.springer.com/chapter/10.1007/978-94-6091-580-2_5

Levy, D. M. (2007). No time to think: Reflections on information technology and contemplative scholarship. *Ethics and Information Technology*, *9*(4), 237–249. doi:10.1007/s10676-007-9142-6

Minear, M., Brasher, F., McCurdy, M., Lewis, J., & Younggren, A. (2013). Working memory, fluid intelligence, and impulsiveness in heavy media multitaskers. *Psychonomic Bulletin & Review*. doi:10.3758/s13423-013-0456-6

Mueller, P. a, & Oppenheimer, D. M. (2014). The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking. *Psychological Science*, *25*, 1159–1168. doi:10.1177/0956797614524581

Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences of the United States of America*, *106*(37), 15583–7. doi:10.1073/pnas.0903620106

Raggi, V. L., & Chronis, A. M. (2006). Interventions to address the academic impairment of children and adolescents with ADHD. *Clinical Child and Family Psychology Review*, *9*(2), 85–111. doi:10.1007/s10567-006-0006-0

Richardson, J. M. (2013). Powerful devices: how teens' smartphones disrupt power in the theatre, classroom and beyond. *Learning, Media and Technology*, *0*(0), 1–18. doi:10.1080/17439884.2013.867867

Stoet, G., O'Connor, D. ., Conner, M., & Laws, K. R. (2013). Are women better than men at multi-tasking? *BMC Psychology*, *2*(Experiment 2). Retrieved from http://www.biomedcentral.com/2050-7283/1/18/

Venkatesh, S., Greenhill, S., Phung, D., & Adams, B. (2011). Cognitive intervention in autism using multimedia stimulus. *Proceedings of the 19th ACM International Conference on Multimedia - MM '11*, 769. doi:10.1145/2072298.2072448

Weiss, M. J., & Harris, S. L. (2001). Teaching Social Skills to People with Autism. *Behavior Modification*, *25*(5), 785–802. doi:10.1177/0145445501255007

Williams, J., Berg, H., & Gerber, H. (2011). "I get distracted by their being distracted": The etiquete of in-class texting. *Eastern Educational …*, *40*(1), 48–56. Retrieved from http://castle.eiu.edu/edjournal/Spring_2011/Distracted_by_their_distracted.pdf

Wotring, R., Alpers, R. R., & Jarrell, K. (2011). Laptops in the classroom- Let's take charge. *Teaching and Learning in Nursing*, *6*(1), 31–32. doi:10.1016/j.teln.2010.11.002