The Hebrew University of Jerusalem

Syllabus

Myths Controversies and consensus in the Learning Sciences - 37979

Last update 01-08-2021

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Education

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: NA

Coordinator Email: asterhan@huji.ac.il

Coordinator Office Hours: by email appointment

Teaching Staff:
Prof Christa Asterhan

Course/Module description:
In this course, we explore a selected number of heavily debated topics in the learning sciences. We explore the extent to which these are supported by scientific evidence or whether they are merely based on common misconceptions, urban myths or misunderstandings.

Course/Module aims:
- to explore in depth a number of selected controversial and heavily debated issues in the Learning Sciences
- to map the different sides represented in the debate on a particular issue and to uncover the underlying assumptions, (folk) theory, and perspectives behind their claims
- to evaluate the scientific evidence that has accumulated on the topic, and to construct a reasoned, scientifically based verdict on the topic

Learning outcomes - On successful completion of this module, students should be able to:
TBD

Attendance requirements(%):
80

Teaching arrangement and method of instruction: frontal teaching, weekly reading and submission of short reading reports, and discussion of reading materials

Course/Module Content:
see reading list

Required Reading:
weekly reading of one article from the extended list below

Additional Reading Material:
כללי:
De Bruyckere, P., Kirschner, P., Hulshof, C. D. (2015). Urban myths about learning

and education. Amsterdam: Elsevier.
De Bruyckere, P., Kirschner, P. A., & Hulshof, C. (2020). More Urban Myths about Learning and Education: Challenging Eduquacks, Extraordinary Claims, and Alternative Facts. New York, NY: Routledge.
Daniel Willingham, D. T. (2009). Why don't children like school? San Fransisco, CA: Jossey-Bass.
Schwartz, D. L., Tsang, J. M., & Blair, K. P. (2016). The ABCs of how we learn: 26 scientifically proven approaches, how they work and when to use them. New York, NY: Norton & Company
Kirschner, P. A., & van Merriënboer, J. J. (2013). Do learners really know best? Urban legends in education. Educational psychologist, 48(3), 169-183.

כיתות הטרוגניות וסגנונות למידה
Daniel Willingham, D. T. (2009). Why don't children like school? Ch 7: How should I adjust my teaching for different types of learners?

מטפורות של למידה, לומדים והוראה
Olson, D. R., & Bruner, J. S. (1996). Folk psychology and folk pedagogy. In D. R. Olson & N. Torrance (Eds.), The handbook of education and human development (pp. 9-27). Cambridge, MA: Blackwell.

למידה מתוכנתת והחיפוש לאחר חוקי למידה
McKeachie, W. J. (1974). The rise and fall of the laws of learning. Educational Researcher, 3, 7-11.
Skinner, BF (1958). Teaching machines. Science, 128, 969-977.
Programmed learning: http://www.skeptically.org/skinner/id1.html

להקל או להקשות על לומדים?
Cognitive load theory and worked-out examples
Paas, F., Renkl, A. & Schweller, J. (2003). Cognitive Load Theory and Instructional Design: Recent Developments. Educational psychologist, 38(1), 1–4
Van Gog, T., Kester, L., & Paas, F. (2011). Effects of worked examples, example-problem, and problem-example pairs on novices' learning. Contemporary Educational Psychology, 36(3), 212-218.
Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. Educational psychologist, 41(2), 75-86.
Schwartz, D. L., Tsang, J. M., & Blair, K. P. (2016). The ABCs of how we learn: 26 scientifically proven approaches, how they work and when to use them. W is for Worked Examples (pp. 293-304)
Ambiguity effects and invention
Zaromb, F. M., Karpicke, J. D., & Roediger III, H. L. (2010). Comprehension as a basis for metacognitive judgments: Effects of effort after meaning on recall and metacognition. Journal of experimental psychology: learning, memory, and cognition, 36(2), 552.

Kapur, M. (2016). Examining productive failure, productive success, unproductive failure, and unproductive success in learning. Educational Psychologist, 51(2), 289-299.

deep learning, מטעויות וללמוד טרנספר
Kapur, M. (2014). Productive failure in learning math. Cognitive Science, 38(5), 1008-1022.
Daniel Willingham, D. T. (2009). Why don't children like school? Ch. 4. Why is it so hard for students to understand abstract ideas?
Schwartz, D. L., Tsang, J. M., & Blair, K. P. (2016). The ABCs of how we learn: 26 scientifically proven approaches, how they work and when to use them. C is for Contrasting cases (pp. 26-38).
Durkin, K. & Rittle-Johnson, B. (2012). The effectiveness of using incorrect examples to support learning about decimal magnitude. Learning and Instruction, 22, 206-214.
Asterhan, C. S. C., & Resnick, M. (in press). Refutation texts and argumentation for conceptual change: A winning or a redundant combination?

עידן הידע ורכישת ידע
Daniel Willingham, D. T. (2009). Why don't children like school? Ch 2: How can I teach students the skills they need when standardized test require only facts?
De Bruyckere, P., Kirschner, P., Hulshof, C. D. (2015). Urban myths about learning and education. Amsterdam: Elsevier. Ch2, Myth # 4 (p.44-47)
לוי, ג'. מיומנויות המאה ה– 21 מבט אל בית–הספר של העתיד. למדע, מרכז מורים ארצי למדע וטכנולוגיה, המרכז לחינוך מדעי וטכנולוגי, אוניברסיטת תל–אביב. גיליון 31. https://www.matar.tau.ac.il/?page_id&eq;7626
Online lecture: The centrality of knowledge in a 21st century education – Conrad Hughes. https://www.conrad-hughes.com/presentations/
De Bruyckere, P., Kirschner, P., Hulshof, C. D. (2015). Urban myths about learning and education. Myth 4.4: The internet makes us dumber
Study techniques
Rohrer, D & Pashler, H. (2010). Recent Research on Human Learning Challenges Conventional Instructional Strategies. Educational Researcher, 39, 406 – 412.
Miyatsu, T., Nguyen, K., & McDaniel, M. A. (2018). Five popular study strategies: Their pitfalls and optimal implementations. Perspectives on Psychological Science, 13(3), 390-407.
(Perceptions of) knowing in the knowledge era
Fisher, M., Goddu, M. K., & Keil, F. C. (2015). Searching for explanations: How the Internet inflates estimates of internal knowledge. Journal of experimental psychology: General, 144(3), 674.
Ward, A. F. (2013). Supernormal: How the Internet is changing our memories and our minds. Psychological Inquiry, 24(4), 341-348.

כשידע מקדים מפריע: להחליף, לתקן או לדכא תפישות שגויות
Schwartz, D. L., Tsang, J. M., & Blair, K. P. (2016). The ABCs of how we learn: 26 scientifically proven approaches, how they work and when to use them. U is for

Undoing (pp. 260-274)
Potvin, P. (2013). Proposition for improving the classical models of conceptual change based on neuro-educational evidence: conceptual prevalence. Neuroeducation, 1(2), 16-43.
Asterhan, C. S. C., & Dotan, A. (2018). Feedback that corrects and contrasts students' erroneous solutions with expert ones improves expository instruction for conceptual change. Instructional Science, 46, 337-355.
Sinatra, G.M., Kienhues, D., & Hofer, B.K. (2014) Addressing Challenges to Public Understanding of Science: Epistemic Cognition, Motivated Reasoning, and Conceptual Change, Educational Psychologist, 49:2, 123-138

מסך או נייר? – קריאה, סיכום ומצגות

Reading:
Jabr, F. (April 11, 2013) The Reading Brain in the Digital Age: The Science of Paper versus Screens. Scientific American. https://www.scientificamerican.com/article/reading-paper-screens/
Delgado, P., Vargas, C., Ackerman, R., & Salmerón, L. (2018). Don't throw away your printed books: A meta-analysis on the effects of reading media on reading comprehension. Educational Research Review.
“Skim reading is the new normal” (The Guardian) https://www.theguardian.com/commentisfree/2018/aug/25/skim-reading-new-normal-maryanne-wolf
Reaction to “Skim reading is the new normal” (Psychology Today) https://www.psychologytoday.com/intl/blog/how-writing-works/201901/is-skim-reading-the-new-normal
Note-taking during class:
Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. Psychological science, 25(6), 1159-1168.
Access to PowerPoint slides
Kim, H. (2018). Impact of slide-based lectures on undergraduate students’ learning: Mixed effects of accessibility to slides, differences in note-taking, and memory term. Computers & Education, 123, 13-25.
Worthington, D. L., & Levasseur, D. G. (2015). To provide or not to provide course PowerPoint slides? The impact of instructor-provided slides upon student attendance and performance. Computers & Education, 85, 14-22.

פלאפונים, הסחות, multi-tasking וקוגניציה

Wilmer, H. H., Sherman, L. E., & Chein, J. M. (2017). Smartphones and cognition: A review of research exploring the links between mobile technology habits and cognitive functioning. Frontiers in psychology, 8, 605.
Duckworth, A. L., Taxer, J. L., Eskreis-Winkler, L., Galla, B. M., & Gross, J. J. (2019). Self-control and academic achievement. Annual review of psychology, 70, 373-399.
De Bruyckere, P., Kirschner, P., Hulshof, C. D. (2015). Urban myths about learning and education. Myth 3.1: We are good multi-taskers

השתתפות בפרקטיקות אותנטיות ולפתח מומחיות

Daniel Willingham, D. T. (2009). Why don’t children like school? Ch. 6: What’s the secret of getting students to think like real scientists, mathematicians and historians
Schwartz, D. L., Tsang, J. M., & Blair, K. P. (2016). The ABCs of how we learn: 26 scientifically proven approaches, how they work and when to use them. D is for Deliberate practice (pp 39-51)

סוגיות נוספות:
- הפרדת בנות ובנים משפר הישגים?
- לשיעורי בית אין בכלל אפקט על הישגים ולמידה?
- כוח המהפכה של MOOCs?
- למידה חברתית – רגשית: real or Hype?

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 60 %
Assignments 40 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
weekly meetings at the assigned class hour. Weekly reading of one paper and submission of guided questions about the reading.