READINGS AND RESOURCES ABOUT THE SCIENCE OF LEARNING

This list is a selective overview of some useful resources for deepening your understanding of concepts introduced in the Science of Learning MOOC. It is not meant to be comprehensive but simply as an entry point for you into the research about how people learn. Many of the articles cited can be found online as PDFs for your professional use and application.

Learning—General

Books

Ambrose, S.A. and J.A. Bridges. (2010). *How Learning Works: Seven Research-Based Principles for Smart Teaching*. Jossey-Bass.

Brown, P. C., Roediger, H. L. and McDaniel, M. A. (2014). *Make It Stick: The Science of Successful Learning*. Belknap Press.

Carey, B. (2014). *How We Learn: The Surprising Truth About When, Where, and Why It Happens*. Random House.

Doyle, T. and T. Zakrajsck. (2011). *Learner-Centered Teaching: Putting the Research of Learning Into Practice.* Stylus Publishing.

Dumont, H., D. Istance, and F. Benavides, eds. (2010). *The Nature of Learning: Using Research to Inspire Practice.* OECD Publications.

Ericsson, A. and R. Pool. (2016). Peak: *Secrets from the New Science of Expertise*. Houghton Mifflin Harcourt.

Hattie, J. and G.C.R, Yates. (2013). *Visible Learning and the Science of How We Learn*. Routledge.

Lang, J.L. (2016). *Small Teaching: Everyday Lessons from the Science of Learning*. Jossey-Bass.

Ormrod, J. E. (2015). *Human Learning*. Pearson.

Willingham, D. T. (2009). *Why Don't Students Like School?* Jossey-Bass.

Articles

American Psychological Association (2015). *Top 20 Principles from Psychology for PreK–12 Teaching and Learning*. APA Publishing.

Benassi, V. A., Overson, C. E., & Hakala, C. M. (Eds.) (2014). *Applying science of learning in education: Infusing psychological science into the curriculum.* Retrieved from the Society for the Teaching of Psychology web site:
http://teachpsych.org/ebooks/asle2014/index.php

Deans for Impact (2015). *The Science of Learning.* Austin, TX: Deans for Impact. [Link]

Dumont et al (2012) *The Nature of Learning: Using Research to Inspire Practice. Centre for Educational Research and Innovation*, OECD Publications.

Website Blogs

The Learning Scientists: http://www.learningscientists.org/

Daniel Willingham Science and Education Blog:
http://www.danielwillingham.com/daniel-willingham-science-and-education-blog

Learning Deeply Blog:
http://blogs.edweek.org/edweek/learning_deeply/?_ga=1.221559128.1114697907.1480521103

Inspired Instruction--Videos from the Teaching Channel:
http://blogs.edweek.org/teachers/inspired_instruction/?_ga=1.160215549.1114697907.1480521103

Understanding Memory and Learning

Active Learning

Drake, E. and D. Battaglia. (2014). *Teaching and learning in active learning classrooms.* Faculty Center for Innovative Teaching, Central Michigan University. [Link]

Freeman, S. E et al (2014). *Active learning increases student performance in science, engineering, and mathematics.* Proceedings of the National Academy of Sciences, doi: 10.1073/pnas.1319030111

Willingham, D. T. (2008). *What will improve a student's memory?* American Educator, Winter, 17-25, 44.

Attention

Diamond, A.(2013) *Activities and programs that improve children's executive functions.* Current Directions in Psychological Science, 21(5): 335-341.

Diamond, A. (2013) *Executive functions*. Annual Review of Psychology, 64:135–68.

Cognitive Load

Artino, A.R., Jr. (2008). *Cognitive load theory and the role of learner experience: An abbreviated review for educational practitioners*. AACE Journal, 16(4), 425-439.

Misconceptions

Gardner, H. (2011). *The Unschooled Mind: How Children Think and How Schools Should Teach*, 2nd Edition. Basic Books.

Taylor, A.K. and P. Kowalski. (2014). *Student misconceptions: Where do they come from and what can we do?* In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.). *Applying science of learning in education: Infusing psychological science into the curriculum.* Retrieved from the Society for the Teaching of Psychology web site:http://teachpsych.org/ebooks/asle2014/index.php

Prior Knowledge

Ambrose, S. A., & Lovett, M. C. (2014). Prior knowledge is more important than content: Skills and beliefs also impact learning. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.). *Applying science of learning in education: Infusing psychological science into the*

curriculum. Retrieved from the Society for the Teaching of Psychology web site:http://teachpsych.org/ebooks/asle2014/index.php

<u>**Working Memory**</u>

Gathercole, S.E. and T.P Alloway. (2007). *Understanding working memory: A classroom guide.* Harcourt Assessment.

Motivation

Brophy, J. (2008). Developing students' appreciation for what is taught in school, Educational Psychologist, 43(3): 132 — 141.

Stipek, D. (2001). *Motivated Minds: Raising Children to Love Learning.* Holt.

Toshalis, E. and M. Nakkula. (2012). *Motivation, engagement, and student voice.* The Students at the Center Series. Boston, MA: Jobs for the Future.
http://www.studentsatthecenter.org/topics/motivation-engagement-and-student-voice

Willingham, D. T. (2005/2006). *How praise can motivate--or stifle.* American Educator 29(4): 23-27.

Non-Cognitive Factors in Learning

Dweck, C.W., G.M. Walton, and G.L. Cohen. (2014). *Academic tenacity: mindsets and skills that promote long-term learning*. Gates Foundation. [Link]

Farrington C., et al. (2012). *Teaching adolescents to become learners: The role of noncognitive factors in shaping school performance--A critical literature review.* University of Chicago Consortium on Chicago School Research. [Link]

Yeager, D., G.M. Walton, and G.L. Cohen. (2013). *Addressing achievement gaps with psychological interventions.* Phi Delta Kappan, 94(5): 62-65.

Student Learning Strategies

Dunlosky, J. (2013). *Strengthening the Student Toolbox: Study Strategies to Boost Learning*, American Educator, 37(3): 12-21.

Pashler, H. et al (2007). *Organizing instruction and study to improve student learning.* National Center for Education Research, Institute of Education Sciences [Link]

Zimmerman, B. (2002). *Becoming a self-regulated learner: An overview.* Theory into Practice, 41(2) , Spring 2002

Zumbrunn, S. J. Tadlock, and D. Roberts. (2011). *Encouraging self regulated learning in the classroom.* Metropolitan Educational Research Consortium, Virginia Commonwealth University. [Link]

Teaching Strategies

Bjork, R.A. and C.M. Clark. (2104). *When and why introducing difficulties and errors can enhance instruction.* In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.). *Applying science of learning in education: Infusing psychological science into the curriculum.* Retrieved from the Society for the Teaching of Psychology web site:http://teachpsych.org/ebooks/asle2014/index.php

Chappuis, J. (2014) *Seven Strategies of Assessment for Learning. 2nd Edition.* Pearson.

Palincsar, A. S. (1986). *The role of dialogue in providing scaffolded instruction. Educational Psychologist*, *21* (1 & 2), 73-98.

Pashler, H. et al (2007). *Organizing instruction and study to improve student learning.* National Center for Education Research, Institute of Education Sciences [Link]

Rosenshine, B. (2012). *Principles of instruction: Research-based strategies that all teachers should know*. Rosenshine, American Educator , 36(1): 12-19.

Wiggins, G. (2012). *Seven keys to effective feedback*. Educational Leadership, 70(1): 10-16.

Willingham, D.T. (2014). *Strategies that make learning last*. Educational Leadership, 72(2): 10-15.

Wiliam, D. (2013). *Assessment: The bridge between teaching and learning.* Voices from the Middle, 21(2): 15-20. National Council of Teachers of English.

Wiliam, D. and S. Leahy. (2015). *Embedding Formative Assessment: Practical Techniques for K-12 Classrooms*. Learning Sciences International.