Psychology 325: Educational Psychology
Winter, 2020

Section 01: MWF 10:00 – 10:50 am, ASH 2302

Instructor: Dr. Michael B. Wolfe
Office: ASH 2229 (in the Psychology main office, which is 2224)
Phone: 331-2989
E-mail: wolfem@gvsu.edu
Office Hours: MWF 11:00 to 12:00 or by appointment.

Required text:

Brown, P. C., Roediger, H. L., & McDaniel, M. A. (2014). *Make it Stick: The Science of Successful Learning*. Cambridge, MA: Harvard University Press.

Journal articles and book chapters that can be obtained through the library's website or Blackboard (you do not need to buy any of these). The References section at the end of the syllabus lists the articles we will read.

Prerequisites:

Psychology 101: Introductory Psychology

Course objectives:

This course is designed to provide an introduction to the psychology of learning and how it applies to education. We will address the methods used in research on learning, and some of the important theories and principles related to learning. In addition, we will discuss how research on learning can be relevant to what teachers do in the classroom.

The following objectives are listed in the Syllabus of Record for the course. This list represents things students should be able to do by the end of the course:

1. Describe how the science of psychology can inform our understanding of teaching and learning.
2. Explain how the use of scientific research methods is relevant to educational psychology and highlight its enormous value in adjudicating conflicting positions in educational matters.
3. Summarize the implications of some current research on psychology on our understanding of how people learn.

4. Illustrate effective teaching and learning strategies that are geared towards maximizing student learning.

Some of the specific topics we will cover include memory, reading processes, strategies for studying and teaching, transfer of knowledge to new situations, teacher and student beliefs, metacognition, and motivation. Throughout the course, there will be a primary focus on using psychological research methods to study how people learn, and how educational practices may be guided by research. Another goal of the course is to make you informed consumers of psychological research so that you can effectively evaluate claims about what sorts of things will help students learn effectively.

One way that might be helpful to think about this class is to consider a common phrase people use to describe teaching. Many people say that "teaching is an art." I think what people mean by this phrase is that teachers should use their intuition, creativity, and experience to inspire and motivate students, and to get students to love learning. All of these are noble goals. But through the course of the semester, I will try to show you that a more effective phrase may be "teaching is both an art and a science." If teachers rely solely on intuition, creativity, and experience to make decisions about what to teach and how to teach it, they will often end up using teaching methods that are inneffective. It is also important to pay attention to the scientific study of learning and teaching. Scientific studies suggest to us that there are more and less effective ways of learning. In addition, lots of studies tell us that our own intuitions about what is effective are often wrong. In many cases, people's intuitions about what is effective for learning are the exact opposite of what is actually effective. You can think of this class as introducing you to the scientific side of the phrase "teaching is both an art and a science."

The class periods will consist of lecture material, class discussions, smaller group discussions, some in class experiments, and occasional videos. You are encouraged to ask questions and discuss issues in class. A single experiment rarely provides a definitive answer to a question about psychological processes. Alternative interpretations and contradictory experimental results can be common. Therefore, critical thinking about the issues we discuss will be a focus in this course.

It will be important in this course to read the relevant book chapter or articles **before** the classes on each topic. If you read before class, you will generally understand the class better. In fact, as part of this course, we will discuss psychological studies that show that, on average, you will understand the lectures better if you read the book before class!

Attendance:

There will be material covered during class that is not in the book or the readings. This material will be included on the exams, so if you do not come to class, you will not

be familiar with all of the material on the exams. In addition, the class periods will help you to better understand the material that is covered in the book and the readings. Finally, the quizzes will be unannounced and on different days of the week. You need to be present for quizzes in order to get credit for them. In short, students who come to class do better in the course.

Examinations:

There will be **three** exams given in this course, two during the semester and one on the day of the final. The final exam will be cumulative. The final will have more questions from the last third of the semester than the first two thirds, but it will cover material from the entire course. Each exam will cover the material that has been presented in the book, readings, lectures, videos, and discussions. All of the exams will include multiple choice and short essay questions. The first two exams will be worth 40 points each, and the final will be worth 60 points. Many of the exam questions will be written to test your understanding of the material more than just your memory for the material. This means that when you study, you should keep track of whether you understand the material. Do not simply memorize lists of definitions.

You are expected to be present for each exam. Make-up exams will **only** be given in the case of an injury or illness, or if there is a death in the family. In each case, you must notify the instructor within 24 hours of the exam, and you must be prepared to provide documentation regarding your situation. Make-up exams will be given as soon as possible after the exam, and may be multiple choice, essay, or oral at the discretion of the instructor.

Quizzes:

In-class quizzes will be given **11** times throughout the course of the semester. Typically, a quiz will be given in each week that we do not have an exam. Quizzes will be on different days in different weeks, and will not be announced in advance. Note that you **must** be in class on the day a quiz is given in order to get credit for it. The quizzes will be what are known in the research literature as "low stakes quizzes". The point of the quizzes will be to help you retain the information we talk about in class. They will also help you to assess your understanding of class information. Quizzes will be short (about ten minutes), and the answers will be posted on Blackboard. Grading will be fairly lenient. As long as you show that you put a good effort into answering the questions, you will receive credit for the quiz for that day. Out of the 11 quizzes, one grade will be dropped. Each quiz will be worth 5 points, for a total of 50 points.

Short assignments (15 points each - one page maximum for each assignment). All short assignments need to be uploaded to the Assignments page in Blakboard by class time on the day they are due.

#1 (**due 1/22**): We will discuss the paper by Hirsh (2002) and some research that is relevant to the points he raises about educational research. Your assignment is to write two "deep questions" about this paper so that we can have a better discussion of it in class. A deep question (compared to a surface question) is one that asks about an important or fundamental aspect of the article. Your questions should be substantive enough that they demonstrate that you read the article carefully and have thought about the implications of it. They can be actual questions about something you did not understand, or they can be comments. Either way, you need to elaborate on your question or comment in enough detail that it is clear to the reader that you read and thought about the paper. You can also think of these questions as ones that you would be willing to read aloud to the class for the purpose of stimulating discussion.

Each question should be one paragraph maximum.

#2 **(due 2/28)** In class this week, we will discuss the role of variability during acquisition on long-term retention and transfer of knowledge to new situations. For this writing assignment, you should describe an example of how variability can be introduced into an educational situation that you are interested in (you cannot use an example directly from class or the readings). In your response, you should include the folllowing information:

1. Describe the knowledge or skill that students should learn through the course of the lesson or training. Briefly describe the context of the task (who is learning this and under what circumstances?)
2. How is variability introduced during the acquisition of the knowledge or skill? Be specific about how this works.
3. What would a lack of variability during acquisition look like? Is this knowledge or skill typically taught with variability or without it?
4. Discuss one experiment from class or the readings that provides guidance about what effect introducing variability will have in your example. Make sure there is a clear connection between the experiment outcomes you discuss and what you propose in your example.

Your answer does not need to include introductory or concluding paragraphs. Just get straight to the knowledge or skill to be taught

#3 (**due 4/13**). In the last week of class you will turn in a brief written assessment of the two papers that are assigned for that week. The writing assignment will also serve as the basis for a class discussion that we will have during part of that week.

For this assignment, you should address a particular issue within the learning styles literature as it relates to the two papers that are assigned for the last week of class (Massa and Mayer, 2006; Zapalska & Dabb, 2002). The *learning styles hypothesis* is a

phrase that refers to the basic claim, often made in the learning styles literature, that students will learn best if they are given information in their preferred modality. Multiple authors (eg. Massa and Mayer, 2006; Pashler, et. al., 2010) have argued that there is a particular pattern of evidence that should be found in order to establish support for the learning styles hypothesis. A study should be able to identify at least two different groups of learners (visual and verbal, for example.) Then students should be assigned to all learn the same content, but the content should be presented in one modality or the other (visually or verbally.) Then all students take the same test over the content. Support for the hypothesis would be found if the visual learners score higher when studying content in the visual modality, and the verbal learners score higher when studying content in the verbal modality. Massa and Mayer (2006) refer to this pattern as an aptitude by treatment interaction, or the ATI hypothesis. Other patterns of results, such as everyone scoring higher with the visual modality, would not provide support for the hypothesis. Experiments that do not present information in multiple modalities and test learning of it would be unable to provide support for this hypothesis because they wouldn't have the right experimental setup.

In this assignment, you should write a brief (one paragraph per article) statement about the extent to which each of the articles provides (or does not provide) evidence that supports the learning styles hypothesis. You do not need to write a summary of the article. Just get straight to the question of whether the article provides or does not provide evidence that would count as supporting the hypothesis, and explain your response.

GVSU course policies:

This course is subject to the GVSU policies listed at http://www.gvsu.edu/coursepolicies

At this website you can find all policies related to such topics as academic integrity, disabilities, inclusion, and discrimination. Please note that you are responsible for knowing and following the policies that are listed here. It it a good idea to read through them to familiarize yourself with them.

Plagiarism:

You must write all assignments in your own words. If you copy phrases or sentences from any source without quoting them, that is plagiarism. If any work you turn in is plagiarized, you will earn a 0 for the assignment, and may fail the course. There is a link posted on Blackboard for a website that has a lot of useful information about plagiarism. I encourage you to look at it or talk to me if you have any questions about plagiarism.

Blackboard:

Partial notes for the week will typically be posted before each week begins, usually on Friday of the week before. These notes will be in a PowerPoint file. It is important to understand that the notes I post will not be the complete notes for the week. In particular, I will not post results or conclusions of experiments that we will be discussing in class (for reasons that I will explain in class.)

Grading:

Your final grade for the course will be a combination of the scores on each of the exams (140 points total), 50 points for the quizzes, and 45 points for the three short assignments. All grades will be represented as percentages. Letter grades will be assigned based on the following scale:

93 – 100%	A
90 – 92%	A-
87 – 89%	B+
83 – 86%	B
80 – 82%	B-
77 – 79%	C+
73 – 76%	C
70 – 72%	C-
67 – 69%	D+
60 – 66%	D
0 – 59%	F

This scale may be adjusted to make grades higher at the discretion of the instructor, but it will not be adjusted to make grades lower.

Tentative Schedule of Topics

Week of	Topic	Chapter
1/6 – 1/10	Introduction and Research Methods	Openstax Psychology textbook, Chapter 2
1/13 – 1/17	Introduction and Research Methods	Openstax Psychology textbook, Chapter 2; MIS Chapter 1
1/20 – 1/24	Interpreting Educational Research / Studying Big Educational Questions **No class Monday 1/20 (MLK Day)** **Short assignment #1 due 1/22**	Hirsch (2002)
1/27 – 1/31	Basic Components of Memory	Openstax Psychology textbook, Chapter 8
2/3 – 2/7	Testing **Exam 1: 2/7**	MIS Chapter 2; Roediger & Karpicke, 2006
2/10 – 2/14	Knowledge Organization and Learning	Kintsch (1994)
2/17 – 2/21	Learning and Prior Knowledge	Wolfe & Mienko, 2007; O'Reilly, Wang, & Sabatini, 2019
2/24 – 2/28	Variability During Acquisition **Short assignment #2 due 2/28**	MIS Chapter 3; Rohrer, Dedrick, & Stershic, 2015
3/2 – 3/6 3/6	Spring break - have fun **5:00 PM. – Drop deadline with grade "W"**	
3/9 – 3/13	Spacing During Acquisition	MIS Chapter 4; Rohrer & Taylor, 2006
3/16 – 3/20	**Exam 2: 3/16** Metacognition	MIS Chapter 5; Thiede & de Bruin, 2018
3/23 – 3/27	Metacognition / Beliefs about Intelligence	MIS Chapter 7
3/30 – 4/3	Misconceptions / Motivation	Sinatra & Broughton (2011)
4/6 – 4/10	Motivation	Motivation chapter in

		Human Learning (on BB)
4/13 – 4/17	Research Methods Revisited **Short assignment #3 due 4/13**	Zapalska & Dabb, 2002; Massa & Mayer, 2006
Finals exam	**Monday 4/20 at 10:00 to 11:50 am.**	

Note: "MIS" refers to Make it Stick: The Science of Successful Learning

References

Hirsch, E. D. J. (2002). Classroom research and cargo cults. *Policy Review, 115*, 51-69.

Kintsch, W. (1994). Text comprehension, memory, and learning. *American Psychologist, 49*, 294-303.

Massa, L. J., & Mayer, R. E. (2006). Testing the ATI hypothesis: Should multimedia instruction accommodate verbalizer-visualizer cognitive style? *Learning and Individual Differences, 16*, 321-335.

Openstax Psychology (textbook): https://cnx.org/contents/Sr8Ev5Og@12.2:6HoLG-TA@12/Introduction

Note: Chapters 2 (research methods) and 8 (memory) can both be accessed through this link.

O'Reilly, T., Wang, Z., & Sabatini, J. (2019). How much knowledge is too little? When a lack of knowledge becomes a barrier to comprehension. *Psychological Science, 30(9)*, 1344-1351. https://doi.org/http://dx.doi.org/10.1177/0956797619862276

Ormrod, J. E. (2016). Cognitive factors in motivation. In *Human Learning, Seventh Edition*. Pearson, Upper Saddle River, NJ.

Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science, 17,* 249-255.

Rohrer, D. Dedrick, R. F., & Stershic, S. (2015). Interleaved practice improves mathematics learning. *Journal of Educational Psychology, 107,* 900-908.

Rohrer, D., & Taylor, K. (2006). The Effects of Overlearning and Distributed Practise on the Retention of Mathematics Knowledge. *Applied Cognitive Psychology, 20(9)*, 1209-1224. https://doi.org/http://dx.doi.org/10.1002/acp.1266

Sinatra, G. M., & Broughton, S. H. (2011). Bridging reading comprehension and conceptual change in science education: The promise of refutation text. *Reading Research Quarterly, 46(4)*, 374-393.

Thiede, K. W., & de Bruin, A. B. H. (2018). Self-regulated learning in reading. *Handbook of Self-regulated Learning and Performance.* (pp. 124-137): Routledge / Taylor and Francis Group, New York, NY.

Wolfe, M. B. W., & Mienko, J. A. (2007). Learning and memory of factual content from narrative and expository text. *British Journal of Educational Psychology, 77*, 541-564.

Zapalska, A. M., & Dabb, H. (2002). Learning styles. *Journal of Teaching in International Business, 13*, 77-97.