

Fall 2022 Cognition and Memory
15:295:502 Sections 01 (index 13503) and 90 (index 13504)
16:185:604 Sections 01 (index 19732) and 90 (index 19737)



Course Instructor: Professor Angela O'Donnell	Email address: angela.odonnell@gse.rutgers.edu
Phone #: 848-932-0830	Office Location: Room 324, Graduate School of Education, 10 Seminary Place
Fax #: 732-932-6829	Prerequisites: None
Mode of Instruction: <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Seminar <input type="checkbox"/> Hybrid <input checked="" type="checkbox"/> Remote <input type="checkbox"/> Other	Permission required: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If you need a permission # for some reason, contact Dr. O'Donnell
Office Hours: by appointment	Websites: www.canvas.rutgers.edu
Required Texts: Anderson, J. R. (2020). <i>Cognitive psychology and its implications (9th ed)</i> . New York: Worth Publishers.	
Other Readings: Will be assigned as the semester progresses and will be available on Canvas.	

Overview

The course introduces cognition and memory. Cognitive psychology has evolved to become a dominant influence on a variety of other areas of psychology such as social and developmental psychology. Topics covered in this course include the basic processes of attention and perception and brain functioning, the types and structures of memory, judgment and decision-making, and reasoning, among others. Applications to classroom practice are made when appropriate. .

Goals

The learning goals for this course are shown as they align with the overall learning goals of the LCD master's degree program in the table below. In addition, the table shows how each goal will be assessed.

LCD master's program goals	Course Goals	Assessment of Course Goals
1. Attain mastery of psychological constructs and theories relevant to learning, cognition, and development.	You will be able to define basic concepts related to memory and cognition and give examples of these concepts.	In weekly discussions and homework assignments, you will be able to explain, comment and reflect critically on the readings. You will
2. Appropriately apply these psychological constructs and theories to educational setting and related applied contexts.	You will be able to recognize the operation of these constructs in practical examples drawn from real life	On the midterm, you will communicate mastery of core concepts
3. Achieve skill in the critical evaluation of empirical evidence related to the psychology of education	You will be able to respond critically to the readings in the course or raise questions related to the readings.	In weekly discussions and homework assignments you will be able to explain, comment and reflect critically on the readings
4. Attain competence in written communication on topics with educational psychology.	You will develop skills of writing a literature review on a topic of interest	In a class paper, you will write a review of research on a topic of interest to you.
5. Develop an understanding of the importance of social justice in educational setting and the contributions of diverse backgrounds and perspectives (educational, cultural, personal, social, and economic).	You will critically evaluate the research you encounter for the degree to which it reflects different perspectives.	In your discussion posts and homework assignments, you will reflect on how the research you read might contribute to increased awareness of issues of social justice.
6. Capitalize on opportunities for continuous professional learning and development including reflective self-inquiry.	You will demonstrate the ability to engage in reflective self-inquiry.	In your discussion posts and homework assignments, you will engage in reflective self-inquiry.

How You Earn Your Grade

The evaluation of your performance in this course is based on a points system. It is possible for you to earn a total of one hundred points (100) for this course. This system allows you to monitor your progress as the semester progresses. Details of requirements are provided on succeeding pages. The following is a list of the number of points you will need in order to earn the associated grade.

<i>To Earn</i>	<i>You Need</i>	<i>To Earn</i>	<i>You Need</i>
A	90 points	C+	77 points
B+	87 points	C	70 points
B	80 points	F	less than 60 points

<i>Required Activities</i>	<i>Due Date</i>	<i>Points Available</i>
Discussion/Participation	ongoing	40
Homework Assignment # 1	September 27	7
Homework Assignment # 2	October 11	7
Homework Assignment # 3	November 1	7
Homework Assignment # 4	November 16	7
Homework Assignment # 5	December 6	7
Paper	December 20	25

Features of an Online Course

An online course differs from a traditional face-to-face course in a number of ways. In particular, for this class:

1. There is a strong emphasis on student-directed learning. The instructor role is as overall facilitator and coordinator.
2. You will be able to work at your convenience. You will need to engage with the course on multiple days during a week. This is quite different from a traditional course in which it is perfectly fine to prepare the day before class, go to class, and then not think about the course for the other five days of the week. We focus on asynchronous rather than synchronous. This means that you are not required to be online at specific times.
3. Students do more of the integrative work than in a face-to-face class. This is likely to support long-term memory development.
4. You will be working in small groups so it is very important to do your part and not delay and frustrate your peers by neglecting the scheduled times to contribute which is described later in this syllabus.

Policies

Academic Integrity: I expect that you will comply with standards of academic integrity (that is, you will not even think about cheating) in this course. If you need assistance in understanding an assignment or course content, please seek assistance from other appropriate resources or me. Assignments, however, should be your own work, except in cases where I have required a group product. The consequence for violating policies of academic integrity and other elements of the student code of conduct are serious and can have a tremendous negative impact on your academic progress and future career. You should not turn in the same work in two separate classes without the specific written approval of the faculty members involved. Leaving work until the last minute can increase the temptation to plagiarize work from journals or “borrow” friends’ work. You can avoid problems by getting your work done early. Exams are also your own work. The Office of Student Conduct supervises issues related to violations of academic

integrity (see (<http://academicintegrity.rutgers.edu/>)). Please familiarize yourself with the university policy on academic integrity (<http://academicintegrity.rutgers.edu/integrity.shtml>).

COURSE REQUIREMENTS

Paper (25%)

What? This will consist of a thorough literature review on a topic chosen by you. The paper is worth 25% of your grade. The topic of your paper should be relevant to the content of the course. The paper should be written using APA style, which is the style of the American Psychological Association. If you do not already have a copy of the APA Style Manual (seventh edition), you can get access to one at the reference section of the library or online at https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.htm. The final paper should be between 20 and 25 pages long, excluding references. For the purpose of the literature review, a convergence approach is probably the best approach to adopt, that is, you should start with general ideas and converge on specific issues which you feel have been ignored in the current literature, or are interesting and worth pursuing. The final paper is due on December 18th. Resources related to writing can be found in a Module called “Writing Resources” on Canvas.

When? The paper is due on December 20th, 2022

Resources: There is a separate module on Canvas related to Writing Resources. It includes 3 sample papers and how I graded them using the rubric at the end of this syllabus.

Discussion/Participation (40% of the grade)

You will participate in (10) online discussions in response to prompts that I will post. Each discussion/contribution is worth 4 points.

Purpose. The goal of the discussions is to apply the concepts from the chapters and engage in a meaningful discussion with peers.

Example: How can you use notions of cognitive apprenticeship in your context (higher education, education leader, teacher, administrator, counselor etc) and what difficulties might you encounter? How can you ensure equitable participation in interaction and equal outcomes?

Example response that is more complete

Students with low socioeconomic status often live in households where their parents spend most of the time working. Cognitive apprenticeship in an English classroom takes shape primarily in reading and writing workshop. Because analytical reading and writing are such invisible processes, it is crucial that teachers make their thinking visible to students (Collins, Brown & Holum, 1991). One of the ways that I go about making my thinking visible is through step-by-step modeling of critical reading. I will project a passage on the board and read through it, participating in an active think-aloud that charts the thought processes I take as a reader. I will pause to ask a question, note a change in a character, examine the connotation and denotation of words etc. I find that students gravitate towards the sentence starters I use in my think-alouds and emulate the format of my thought process in order to scaffold into their own thinking. Cognitive apprenticeship relies on a presented model, which allows students structure for skill building (Collins, Brown & Holum, 1991). Without a model, students find themselves working toward an unknown goal or product.

To an extent, cognitive apprenticeship attempts to mitigate the gap between comprehension and transfer. Students will often say, "I understand how you came up with that, but I still don't know how to do it." This can be frustrating on part of both the learner and the teacher. In writing conferences, I aim to help students identify areas for improvement in their writing by identifying focus correction areas in my sample and then asking them to see if they can spot something in their first paragraph that may benefit from a similar revision. Too often, students understand why the identified error is problematic, agree that the revision has made it better, can explain how and why, but still cannot identify the focus correction area in their own writing. Cognitive apprenticeship works well for teaching many components of writing. I use it to teach composing an argument, identifying support and developing insightful analysis. Interestingly, it works well for composing an argument and for finding relevant data, but there seems to be a disconnect when it comes to teaching analysis. Perhaps, this is because of the increasing complexity of the task at hand. It seems that cognitive apprenticeship only works when all participants are on one cognitive "wavelength."

One thing that separates cognitive apprenticeship from traditional apprenticeship is that in traditional apprenticeship tasks come up as they would in the real world and do not require a great deal of transfer (Collins, Brown & Holum, 1991). This can be particularly challenging because there are risks that the learner must take in cognitive apprenticeship. At some point, the learner must make his/her decisions based on models that are similar but not identical to the task at hand. They will almost always have to apply and transfer the learned concept, so the output will certainly look different from the model and sometimes that "different" feels wrong for the learner so the learner does not allow for the production of an output. One example of this is when students are in the process of arriving at an analytical thought, but they dismiss it. I had a student who would work through all the steps of analysis and right as she was about to arrive at an insightful interpretation, she would say, "uhmm, I don't know. I'm not sure." Because I was able to witness the thought process she had taken to get there, it became clear to me that she lacked the confidence to make that inferential leap. This insecurity to verbalize her thoughts reveals the importance of using cognitive apprenticeship to coach students through that process. What I started to do in my model was emulate that uncertainty and have other students coach me out of the I-don't-know-stage. They often used questioning and discussion techniques to help me articulate my idea and reassure me that my analysis was valid because it was deduced from my evidence.

Example response that is less complete and is in response to the previous comment

Sometimes students just need to be provided framework or template to work with and then they run with it. Any task can seem daunting if you are unsure where to start, especially for students trying to tackle new material, so I love how you walk them through the Think-Aloud activity prior to having them complete a similar one on their own. I would imagine this form of modeling would be extremely beneficial to your students, as well as appreciated, especially in terms of writing since it can be a difficult skill to master.

I also wanted to touch upon the notion you mentioned of "one cognitive "wavelength," which I believe this is definitely important. However, within Athletic Training, there isn't always a specific way in which you have to complete a task/solve a problem, nor is there always one correct answer. This unfortunately/awesomely allows for a lot of variability. For example, imagine that two athletes walk into the athletic training room and a student and I go ahead and each end up taping our respective athlete's ankles. The finished product will (hopefully!) look remarkably the same, however they may have chosen to lay the pieces of tape individually and do all of the c-strips at once then the stirrups, while I prefer to tape continuously and weave the c-strips & stirrups between one another. There

technically is no one way to do it as long as the tape job achieves its true purpose – to prevent ankle injury. In this case, if a student were to explain their methodology of taping the ankle to me, it wouldn't necessarily mirror that of my own, however in the end they still achieved the set goal. This type of construct makes me feel as if perhaps while some areas of expertise the student and teacher/master have to be on the same cognitive wavelength in order to ensure effectiveness (such as writing), in others, it seems as if there needs to be the appreciation that there may be more than one way to solve the problem (more than one cognitive wavelength) and more than one right answer.

Schedule of Contributions to Discussions

1. Each week begins on Wednesday.
2. Before Sunday, complete the readings for the week.
3. By Monday night, post your initial response to the question posed.
4. By Wednesday night, post your **two** responses to members of your group.

*Note: Do not let your group members down by failing to post on time. It makes it difficult for them to complete their part of the task.

ONLINE DISCUSSION SCORING RUBRIC

Each response will be scored with one half point for each cell of the matrix that is shaded below and 1 additional points for going beyond the minimum for a total of 4 points.

	Evident (Yes/No)	Timely (Yes/No)	Course Goals Met (1-6)
Reading and Inquiry : Clear evidence that module content was understood			
Justification/Support for Response: Response was supported by appropriate evidence from text, research, anecdotal or other evidence.			
Contribution to the Group Discussion Response was relevant, thoughtful, respectful, and drew others into the discussion.			

Homework Assignments (35%)

You will complete 5 brief homework assignments throughout the semester. These will require a 2-3 page response to a particular prompt.

Tentative Schedule of Classes and Textbook Reading Assignments
(Other Readings are Embedded in the Course Modules on Canvas)

<i>Week</i>	<i>Topic</i>	<i>Reading</i>
Sept 7-13	Introduction/Science of Cognition/Methods of Research	<i>Introductions</i> Chapter 1
Sept 14-20	Perception	Chapter 2 <i>Discussion # 1: Perception</i>
Sept 21-27	Attention and Performance	Chapter 3 Homework # 1 <i>Discussion # 2: Attention and Performance</i>
Sept 28- Oct 4	Mental Imagery	Chapter 4 <i>Discussion # 3: Imagery</i>
Oct 5-11	Representations of Knowledge	Chapter 5 Homework # 2 <i>Discussion # 4: Representations of Knowledge</i>
Oct 12-18	Human Memory: Encoding and storage	Chapter 6 <i>Discussion # 5: Metacognition</i>
Oct 19-25	Human Memory: Retention and retrieval	Chapter 7 <i>Discussion # 6: Types of Long Term Memory</i>
Oct 26- Nov 2	Problem solving	Chapter 8 Homework # 3
Nov 3-9	Expertise	Chapter 9 <i>Discussion # 7: Expertise</i>
Nov 10-16	Reasoning	Chapter 10 Homework # 4 <i>Discussion # 8: Reasoning</i>
Nov 17-22	Decision making	Chapter 11 <i>Discussion # 9: Decision-Making</i>
Nov 23	THANKSGIVING	
Nov 30- Dec 6	Language Structure	Chapter 12 Homework # 5
Dec 7-13	Language Comprehension	Chapter 13 <i>Discussion # 10: Language Comprehension</i>
Dec 14-20	Individual differences in cognition	Chapter 14 ; Papers Due

Rubric for Grading Paper

Learning Goal	Subgoal	0	1	2	3	4
Attain mastery of psychological constructs and theories relevant to learning, cognition and development.	Inclusion of an appropriate scope of theories, principles, and concepts that are the central focus of the paper	Very few of the theories, principles, and/or concepts that are central to the topic of the paper are included.	A few of the theories, principles, and/or concepts that are central to the topic of the paper are included.	Some of the theories, principles, and/or concepts that are central to the topic of the paper are included.	Many of the theories, principles, and/or concepts that are central to the topic of the paper are included. For the most part, these are interrelated appropriately.	Most or all of the theories, principles, and/or concepts that are central to the topic of the paper are included, and they are integrated into an appropriate framework.
	Accurate use and explanation of theories, principles, and concepts	Most theories, principles, and/or concepts are inaccurately used or explained, and/or explained very briefly and inadequately.	There are a number of theories, principles, and/or concepts that are inaccurately used or explained, and/or explained very briefly and inadequately.	There is a mix of accurate and inaccurate/incomplete use and explanations of theories, principles, and/or concepts.	Most theories, principles, and/or concepts are accurately used and explained; there are a few inaccurately used or explained theories, principles, and/or concepts.	All or nearly all theories, principles, and/or concepts are accurately used and explained.
	Setting topic in broader context	There is no attempt to show the reader where the topic fits in a broader context of theory and practice.	There are limited efforts to show the reader where the topic fits in a broader context of theory and practice.	The paper shows some of the broader theoretical and practical context related to the topic.	The paper elaborates on the broader theoretical and practical contexts related to the topic.	The paper fully explains how the topic of the paper is connected to broader theoretical and practical contexts.
	Consideration of controversies	Relevant controversies are not mentioned.	Relevant controversies are mentioned but not much discussed.	Relevant controversies are discussed, but quite superficially and with little evidence.	Relevant controversies are discussed with some evidence, but not thoroughly or with some errors.	Relevant controversies are discussed appropriately and accurately with ample evidence.

Learning Goal	Subgoal	0	1	2	3	4
Use of evidence	Number of citations to evidence	No citations to evidence	Few citations to evidence.	Quite a number of citations to evidence, but some missing areas.	Many citations to evidence, but not in all critical places.	Thorough citing of evidence.
	Discussions of evidence	No discussions of evidence. There are either no citations, or no discussions of any studies cited.	A few slight references to evidence (the slightest details about a study—such as the population). SPECIAL CASE: Papers that are largely annotated bibliographies are also scored in this category.	Some discussions of evidence, but not in great detail.	Elaborated discussions of some key studies, but more elaboration of some more studies is still needed.	Evidence is cited throughout, with an appropriate number of studies described in elaborated detail, an appropriate number described in less detail, and an appropriate number in little or no detail (just cited).
Appropriately apply these psychological constructs and theories to educational settings and related applied contexts.	---	The student describes no applications of ideas to any practice setting.	There is some application of ideas to practice, but only a few, and/or not in ample detail.	The student applies some constructs to a practical setting in some but not ample detail.	The student applies either more than some constructs to a practical setting, or applies them in somewhat limited detail.	The student appropriately applies multiple constructs to a practical setting in enough detail to demonstrate full understanding.

Achieve skill in the critical evaluation of empirical evidence related to the psychology of education. (Include statistical issues?)	Presence of critique	There is no critique of any study mentioned.	A few evaluative words (“good study,” “problematic study”) are used.	One to a few studies are critiqued very briefly.	Some studies are critiqued more extensively.	There is regular evaluative critique of studies discussed.
	Critique quality	There is no critique of any study mentioned.	There are several inaccurate critiques and few or no accurate critiques.	Across the discussions of studies, one or two methodological features are discussed accurately (e.g., sampling, sample size, comparisons, and measurement).	Across the discussions of studies, three or four methodological features are discussed accurately (e.g., sampling, sample size, comparisons, and measurement).	Across the discussions of studies, five or more methodological features are discussed accurately (e.g., sampling, sample size, comparisons, and measurement).
Attain competence in oral and written communication on topics within educational psychology	Clarity	Terms not defined, ideas not explained but explained only abstractly	Few core terms are defined, and few ideas are amply exemplified and explicated.	Some core terms are defined, and some ideas are amply exemplified and explicated.	Most core terms are defined, and most ideas are amply exemplified and explicated.	All core terms are defined, and ideas are amply exemplified and explicated.
	Organization	The overall organization and flow are very hard to follow.	There are a few signals to structure; parts of the structure are not coherent.	There are some signals to structure, and the structure. A few parts of the structure are not coherent.		The organization is well signaled, and the entire manuscript flows very well.
	Mechanics	Mechanical errors and hard-to-comprehend sentences are pervasive.	Many mechanical errors; many sentences hard to comprehend.	Some mechanical errors; some sentences are hard to comprehend.	Few mechanical errors; few sentences are hard to comprehend.	Very few or no mechanical errors; few sentences are hard to comprehend.