

EDUC 5390

Helen Abadzi

Cognitive science for better learning outcomes

Bios

Helen Abadzi is a Greek psychologist and polyglot. In 1979-1984, she was a doctoral student at UTA and an evaluator in the Ft. Worth Independent School District. Subsequently she spent 27 years as a senior education specialist at the World Bank in Washington DC. Dr. Abadzi is particularly interested in improving the learning outcomes of low-income countries and lower-income students. For that, she uses state-of-the-art findings from cognitive psychology and neuroscience. She periodically returns to UTA to teach and offer to students her long experience in international education.

Flyer

If you understood your memory better, you could learn faster and optimize study time. If you are a teacher, you could get better results from your students. If you are looking for exciting and real-life applications of thinking processes, then this course is for you.

"Cognitive science for better learning outcomes" will blend cognitive psychology with neuroscience. It will thus offer some little-known perspectives on information processing, with emphasis on development of automaticity and complex skills. Topics will include cognitive biases, critical thinking, creativity, executive functions, and cross-cultural psychology. Students will also learn to evaluate educational opinions offered by academics, articles, or the press. The lectures will be illustrated with engaging videos from many countries.

To optimize learning, the class will meet for two hours every Monday-Thursday 5:30-7:30 pm or another convenient time. It may be possible to join by skype when necessary.

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Description

The course will present memory functions in a simplified and accessible format, aimed at classroom applications and personal study skills. The topics will include declarative and implicit memory, the importance of automaticity, learning curves, attention, emotional learning, cross-cultural issues in information processing. Particular emphasis will be given to memory biases and common fallacies about learning that affect education policies and outcomes worldwide. Videos from many countries will illustrate the learning principles.

Background

The US dept. of education is interested in preparing teachers to teach the weakest students. And almost everywhere in the world, those who are willing to become teachers are the weakest students also. They must be taught what they need for instruction simply and directly. One neglected area is information processing. The graduate students who come for summer sessions ought to learn the memory basics, their implications in educational settings (particularly of low-income students), and how to optimize them with little complexity. They should also know how to improve their students' executive functions.

One very important issue that has come up in multiple cases is cognitive biases and memory fallacies about various educational methods, functions, prerequisites, etc. Students of this course will learn to identify these and critically study their veracity. Also they will learn how to separate their own personal opinions and experiences from actual research.

Finally, students who are teachers may have a limited opportunity to understand how to search the internet for valid research. The course will provide explicit guidance and practice.

Objectives:

By the end of this course, participants should be able to:

- Demonstrate mastery of essential cognitive psychology principles applicable to learning academic material under various circumstances
- Use cognitive research to explain and predict how well students will learn under various circumstances
- Given this body of research, critically evaluate statements made by educators, articles, reports, or the press

Topics

The course will focus on information processing functions that are relevant to instruction at the primary or secondary level: the declarative and implicit memory systems, with much emphasis on development of automaticity and complex skills. Overlap with neuroscience will be discussed, but brain functions will receive limited coverage.

Topics will also include critical thinking, creativity, and executive functions. Cognitive biases are covered in other courses and will be quickly discussed. The course will conclude with cross-cultural psychology issues, including the cognitive commonalities and differences across cultures. Using learning research for policy formulation.

To function as users of scientific research, students must review the basic premises that permit critical evaluation of evidence: Basic experimental processes; hypothesis formation, operational

definitions; effect size; credibility of authors. The benefits and limitations of translational research will be also discussed.

Class Activities

- Lectures, presentation of topics and relevant research, illustrated by videos where possible.
- Students should test each other on the material to promote recall and consolidation
- Students may write ideas about a topic silently and then discuss them; each may post two questions about the topic that cannot be easily answered from it. Students may be responsible for presenting certain chapters.
- One person is responsible for reading and presenting on the chapter. That person presumably should answer the questions.
- Discussions among students on applicability: which experiences bring these concepts to mind? What should they have said and done in various circumstances? What cases can they generate?

One important activity would be to separate opinion from research. Students will be expected to focus on the cognitive concepts taught and use the research in their arguments; note how common sense leads to decisions that may deviate from research-based recommendations.

Assignments

- Homework will consist of studying the powerpoint files and notes to be given by the professor.
- Study of 1-2 articles and book chapters.
- Exercises in literature search

Textbooks and Readings

Benassi, V. A., Overson, C. E., & Hakala, C. M. (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> (Online, no cost)

Ardila, A., & Keating, K. (2007). Cognitive abilities in different cultural contexts. In Uzzell, B., Pontón, M., & Ardila, A. (Eds) International Handbook of Cross-Cultural Neuropsychology. London: Lawrence Erlbaum. (Two chapters)

Attendance

Students are expected to attend every class and to participate actively in discussions. If there is an emergency or unavoidable event, please let me know as soon as possible by e-mail.

Course Grading

There will be a mid-term and a final exam. Each will count for 50%. The exam will be graded with a rubric. One point will be given for every correct statement students will make, given

memory functions taught in the course. From a maximum number of points (to be announced and discussed), 90+% will earn a A, 80-89% will earn a B, 70-79% will earn a C, and below that there will be a D. The professor may change these percentages if student performance or other factors warrant so.

There will be no papers to be written. Students will be expected to spend the time learning essential memory functions and studying their applications in various instances.

Scheduling

The second summer session lasts from July 14-August 17. In order to optimize learning give the memory effects of distributive practice, the class will meet for two hours every Monday-Thursday. To accommodate working people it can meet 5:30-7:30 pm or another convenient time.