EDUC 5390: Cognitive Psychology for International Education
June 2014

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Class meets 6:00-8:00 pm. Monday through Thursday

Introduction

The body of research that is commonly referred to as cognitive psychology consists of mainly 20th century experiments on how memory works and how information is processed. With the advent of neuroimaging, attention has switched to cognitive neuroscience. Many neuroscientific studies have validated earlier cognitive psychology findings, so this body of research is quite robust.

For historical and practical reasons, educators have made little use of this research. One reason is perceived distance from educational issues; the role of psychologists often stops at the explication of constructs, and other disciplines are expected to explore utility. Another reason concerns education levels. The clearest applications pertain to early grades or beginning concepts, and the US has sophisticated students, who quickly surpass the areas for which cognitive psychology adds the greatest value. In lower-income countries, however, performance is chronically low. This body of learning research constitutes a powerful tool for explaining failures and predicting successes of various interventions (See Abadzi, 2006, 2013).

The course will offer students the foundations of memory. It will illustrate pertinent concepts through videoclips from classrooms all over the world. Students will also be asked to explore the neuroscientific studies that clarify certain cognitive phenomena such as state-dependent learning, encoding specificity, and working memory capacity.

We all acquire knowledge more easily when it is delivered according to the ways we process information. Learning experiments have been conducted since the 1870s, and the resultant body of research is called cognitive psychology. Important topics include memory functions, variables that facilitate information encoding and retrieval, the formation of knowledge networks, prerequisites for abstract thinking. Implications are particularly relevant for low-income countries and beginning levels of education. This course will present the essentials of cognitive psychology, link them to neuroscience whenever possible, and explore uses for improving teaching practices and education policies worldwide. Many videoclips will be used from classrooms around the world.

Student Learning Outcomes:

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.
- Critically evaluate the accuracy of reports about education programs in various countries.

Textbooks and Readings

Reisberg, D. (2012). Cognition: Exploring the Science of the Mind (Fifth Edition)

Mayer, Richard (2011) Applying the Science of Learning.

Articles and reports from various international agencies

Attendance

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

Assignments

Research Paper- Students will write one p*aper* (1500 words) taking one cognitive psychology concept and linking the original research with subsequent neurocognitive research (for example distributive learning, encoding specificity, working memory from the 1950s to the present).

- This paper is graded with a rubric.

Educational document critiques- Students will take an evaluation document or literature review and critique its statements, implicit assumptions, omissions, conclusions using learning research.

- Students will give presentations on their papers

Course Grading

The course grade will be determined as follows:

- 30%- Research Paper
- 30% - Educational Document Critique
- 40% - Final Exam

Course Schedule

Week 1:

Relevant Reisberg and Mayer chapters

Rationale for using learning research for policy advice to various governments.
Cognitive neuroscience basics, how neurons create memory
Brain areas associated with various learning tasks
Attention and executive control
Types of memory and consolidation implications
Implications for various student populations

Week 2

Relevant Reisberg and Mayer chapters

Information processing theory
Memory functions and their relevance for basic skills
Chunking and automaticity research
Perceptual learning – uses in reading
Skills and procedural memory
Implications for various student populations

Week 3

Relevant Reisberg and Mayer chapters

Cognitive networks and the construction of knowledge
Metacognition, problem solving, critical thinking
Decision processes and heuristics
Emotional learning, incentives
Implications for various student populations

Week 4

Relevant Reisberg and Mayer chapters

Cognitive neuroscience of literacy
Cognitive neuroscience of numeracy
Teachers' cognition and training options
Instructional time use and curricular implications
Implications for various student populations

Week 5

Relevant Reisberg and Mayer chapters

Using learning research for policy formulation

Value of translational research: benefits and limitations
Critically reading education policy papers and other documents using learning research
Final examination