PHIL4790: Seminar in Cognitive Science
Topics are variable
Topic: Culture and Cognition

DESCRIPTION

There is a growing movement in the cognitive and social scientists towards developing an integrated understanding of humans as cognitive, social, cultural, tool-using agents. This movement comprises research in cognitive psychology, computing, philosophy, neuroscience, anthropology, and sociology. Much of this research is interdisciplinary in nature, and studies various aspects of human behavior in complex social and material environments, especially technological. A central claim of proponents of an "environmental" perspective on human cognition and behavior is that such an integrated view is necessary for understanding what it means to be a human acting in the world which has a range of implications including for designing technologies for human use – from games to assistive technologies – and for designing intelligent systems to mimic, study, or interact with humans. In this course we will consider the nature and status of the claim by examining the research of several environmental perspectives.

REQUIREMENTS

The assigned readings are to be completed before the first class meeting each week. The course will be run in student presentation and class discussion format. Students will be required to write weekly problem statements, make joints presentations, and write two essays. Grades will be determined as follows:

Presentations: 30%
Problem statements: 20%
Papers: 50%

Due dates for assignments are firm deadlines. There is no room in the schedule to fall behind in either reading or writing assignments. Institute regulations do not allow the grade of incomplete to be given except in cases of extreme emergency. Students are expected to adhere to the Student Honor Code, a copy of which can be found on-line at: www.honor.gatech.edu/honorcode.html.

Problem Formulations: Learning to formulate problems is an important skill and necessary for critical thinking in every area. Although some people can do this easily, for most it's a skill that develops over time and writing is a necessary component. Each week you will formulate a 1-2 paragraph (250-300 words (max), typed, double-spaced, 12-point font) problem statement with respect to the reading for that week. These are due on the Tuesday meeting every week except for the week you make a presentation. They will not be accepted after the class meeting at which they are due. They are to be handed in, not sent to me via email. They will be graded as follows: good formulation: 2, inadequate formulation: 1, not handed in: 0. Problem formulations are due on Tuesdays, by which time all the material for the week should have been read. Please bring a copy to class on Thursday since part of the discussion on Thursdays will include sharing

and discussing your problem statements. A document on "writing problem formulations' and problem formulation examples are on T-square in the "problem formulation" folder. **Please read before coming to class.**

Presentations: In keeping with the cognitive science research on learning that establishes that students learn more effectively when engaged with meaningful problems, the course will be run in discussion format based on student formulated problems with me and the TA helping to facilitate. Presentations will be made in groups of students weekly. Please do not simply summarize the readings. The objective is to help the class discuss both what the author has presented as problems and has argued and what problems or issues arise from it based on the class members' knowledge and interests. Presentations should have two parts: 1. Specify and address what you take to be the main problems of the author(s) and their proposed solutions and 2. Provide a set of problems formulated by your group for discussion. Try to think of the readings as a whole, and attempt a problem formulation that encompasses them, as well as what you see as the problem of the individual authors. Please provide a handout (with your names written on it) to me and the class with the author problem formulations and a list of the problems for discussion.

All students are expected to participate in discussion and not be surfing, emailing, checking out facebook, etc., during class, which is distracting and impolite to those leading the discussion. Please only use your computer if you are taking notes related to the discussion. All students in the class should bring a hard copy of the reading to class to refer to during discussion.

Essays:
First paper: Take one of the problems you have formulated up to that point in class and discuss it with respect to what you take as the readings relevant to it.

Second paper: Either write an essay as above based on material covered since the first essay or formulate and discuss some problem related to designing or to your own research on which you bring the class material to bear.
Essays may be handed in any time, but not later than the specified deadline. The first essay is due 2/25. The second essay is due 4/29 - The text of the papers should be between 1500 and 2000 words in length, typed, double-spaced, 12 point font, page numbers, stapled, and word count included with your name. Please do not exceed the word limit by more than 100 words. Provide a bibliography and citations (not included in word count) for all quotations and sources used. Do not use extensive quotations.

Essay Evaluation includes:
- Problem posed and articulate
- Sound argumentation
- Evidence, either cited or from experience or both
- Progress made towards resolving problem

REQUIRED BOOKS

Books are located in the **Engineer's Bookstore**.

Jean Lave - *Cognition in Practice*, Cambridge University Press
Bradd Shore - *Culture in Mind: Cognition, Culture, and the Problem of Meaning*, Oxford University Press
Michael Tomasello - *The Cultural Origins of Human Cognition*, Harvard University Press
L. S. Vygotsky - *Mind in Society: The Development of Higher Psychological Processes*, Harvard University Press

SCHEDULE

Selections for the week are listed in the optimal order for reading. Read the entire assignment for the week before the first class meeting.

Week 1: 1/12-1/14 Introduction

Reading: (T-Square) Oliver Sacks before 1/14 class

no problem formulation due

BACKGROUND

Week 2: 1/19-1-21 (t-square)

Behaviorism: J. B. Watson; Skinner

"First wave" cognitive science: Miller et al.; Newell (selection)

DEVELOPMENT, LEARNING, & BRAIN

Week 3: 1/26 - 1/28 Vygotsky: Chapters 1-6

Week 4: 2/2 - 2/4 Tomasello: Chapters 1-3

Week 5: 2/9 - 2/11 Tomasello: Chapters 4, 6, 7

Week 6: 2/16 - 2/18 (T-square) Donald, Rizzolatti TICS2004, Rizzolatti PLOS2005, Sperber

Week 7: 2/23 Writing day - NO CLASS MEETING - Individual meetings with TA as scheduled

2/25 general discussion; **FIRST PAPER DUE**

CULTURAL MODELS

Week 8: 3/2 - 3/4 (T-square) Lakoff & Johnson

Week 9: 3/9 - 3/11 Shore: Chapters 2, 3, 5 (optional: SynBio - great example of modularity schema)

Week 10: 3/16 - 3/18 Shore, Chapters 11, 13, 14

Week 11: 3/23 - 3/25 SPRING BREAK

COGNITION & CULTURE IN PRACTICE

Week 12: 3/30 - 4/01 Lave: Introduction, Part I

Week 13: 4/6 - 4/8 Lave: Part II

Week 14: 4/13 - 4/15 (T-square) Hutchins Chapter 9; Hutchins Navigation; Hollan

Week 15: 4/20 - 4/22 (T-square) Murray; Dautanhan

Week 16: 4/27: Writing day - NO CLASS MEETING - TA appointments available

4/29: general discussion; **SECOND PAPER DUE**

Bibliography of articles/selections:

K. Dautenhahn. Socially intelligent robots: Dimensions of human - robot interaction. *Social Intelligence: From Brain to Culture*, N. Emery et al., Oxford University Press, NY. 2001

M. Donald. Imitation and mimesis. In S. Hurley and N. Chater, editors, *Perspectives on Imitation: From Neuroscience to Social Science*, volume 2, chapter 14, pages 283–300. MIT Press, Cambridge, MA, 2005.

V. Gallese, C. Keysers, and G. Rizzolatti. A unifying view of the basis of social cognition. *Trends in Cognitive Sciences*, 8(9):396–403, September 2008.

J. Hollan, E. Hutchins, and D. Kirsh. Distributed cognition: toward a new foundation for human-computer interaction research. *ACM Trans. Computer-Human Interaction*, 7(2):174–196, 2000.

E. Hutchins. Learning to navigate. In S. Chaiklin and J. Lave, editors, *Understanding Practice: Perspectives on Activity and Context*, chapter 2, pages 35–63. Cambridge University Press, 1993.

E. Hutchins. Chapter 9, *Cognition in the Wild*. MIT Press, Cambridge, MA, September 1996.

M. Iacoboni, I. Molnar-Szakacs, V. Gallese, G. Buccino, J. C. Mazziotta, and G. Rizzolatti. Grasping the intentions of others with one's own mirror neuron system. *PLoS Biology*, 3(3), 2005.

G. Lakoff and M. Johnson. Chapters 3-6, *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*. Basic Books, December 1998.

G. A. Miller, E. Galanter, K. Pribram, Chapters 1, 2, 4, *Plans and the Structure of Behavior*, Holt, Reinhart, & Winston, NY. 1960

J. H. Murray. Toward a cultural theory of gaming: Digital games and the co-evolution of media, mind, and culture. *Popular Communication*, 4(3):185–202, August 2006.

A. Newell. Physical symbol systems. *Cognitive Science*, 4:135–183, 1980.(selection)

O. Sacks. To see or not see. *An Anthropologist on Mars*, Alfred Knopf, NY, 1995

B. F. Skinner. Chapter 9, *Beyond Freedom and Dignity* (1971), reprinted Hackett Publishing Company, Cambridge, MA, 2002

J. B. Watson. Psychology as the behaviorist views it, *Psychological Review*, 20:158-177, 1913