COGNITIVE DEVELOPMENT AND LANGUAGE (LS 750)

Time: Wednesdays, 4:00-7:00 p.m.
Date: Fall Semester, 2007
Place: SED 208

Instructors: Laura Lakusta (llakusta@wjh.harvard.edu)
Peggy Li (pegs@wjh.harvard.edu)
Office Hours: By appointment.
Office: SED 216 (but check with the instructors first)

COURSE CONTENT

This course will investigate the relationship between cognitive development and language development in children. It will look at several theories of this relationship, including those associated with Piaget, Vygotsky, Chomsky, Whorf, information processing psychologists, and theory-formation proponents. It will illustrate the application of these theories in two different areas of development (word learning, spatial navigation), including data from different types of learners. Finally, students will use concepts from the course to evaluate the relevance of the course material for their own research and teaching areas.

COURSE OBJECTIVES

1. Become familiar with the central ideas of several theorists concerning aspects of language development and cognitive development.
2. Develop an understanding of relevant issues and theoretical positions in the study of the relationship between language development and cognitive development.
3. Develop an understanding of the relevance of methodology in assessing the results of research.
4. Develop an understanding of the importance of conducting research on the relationship between language development and cognitive development with different types of learners, different languages, and different cultures.
5. Develop an understanding of how theories of language and cognitive development impact teaching and administrative practices in education.
6. Practice skills in critical assessment of research articles in light of theories.
7. Practice skills in giving oral presentations, leading discussions, and writing papers in an academic style.

REQUIRED TEXTS

1. Siegler, R. & Alibali, M. (2005). *Children's thinking* (4th edition). Upper Saddle, NJ: Prentice Hall.
2. Vygotsky, L. (1986). *Thought and language*. Cambridge, MA: MIT Press.
3. Selection of individual articles.

The books are available at the BU Bookstore, and 1 copy is on reserve in the SED Library. The articles are available in the LS750 course binders, 2 copies on 2-hour reserve in the SED Library.

RECOMMENDED TEXTS

1. Gopnik, A. & Meltzoff, A. (1997). *Words, thoughts and theories*. Cambridge, MA: MIT Press. [This book contains class readings for Week 9]
2. Bowerman, M. & Levinson, S. (Eds.). (2001). *Language acquisition and conceptual development*. Cambridge: Cambridge University Press. [This book contains 3 of the class readings, as well as many other articles on language and cognitive development that may be of interest.]
3. Ginsburg, H.P. & Opper, S. (1988). *Piaget's theory of intellectual development*. Englewood Cliffs, NJ: Prentice Hall. [This book is an excellent in-depth overview of Piaget's theory.]

COURSE REQUIREMENTS

1. Active involvement in class (15% of class grade)
   a. Participate in a group presenting quotes and summaries from theory readings during weeks 4-9.
   b. Lead a discussion about the readings (with your group) during one class in weeks 4-9.
   c. Actively participate in class discussion about the readings and related subjects.

2. Initial position paper (10% of class grade)
   Write a 6-page double-spaced typed paper summarizing your position at the start of the course on the relationship between cognitive development and language development. Papers longer than 6 pages (excluding bibliography) will be returned without a grade. Grading will be based on clarity of writing and argumentation, not on an evaluation of the content of the opinions presented. Further details will be handed out in class. The paper is due in class on September 19.

3. Reflections on BUCLD / SLD session (10%)
   Attend one session of 3-4 presentations at the Boston University Conference on Language Development (November 2-4) or the Society for Language Development (November 1). Write a 4-5-page double-spaced summary of what the papers in the session were about, what you learned from them, what you didn't understand, and any ideas you had about things to explore further. The summary is due November 7.

4. Discussion leader for data papers (15%)
   Lead a discussion on one or two of the data-based readings during weeks 10-13. Write a two-page double-spaced summary and analysis of the reading, with particular focus on the positioning of the reading with respect to the theoretical perspectives covered in class and the other readings on that topic. Since all students will have completed the readings, the text should be comprised of a brief summary and a more detailed analysis. Present this synopsis at the start of your discussion period, and stimulate discussion with 5 or more prepared questions that focus on central issues or problems in the reading, and on issues relating the readings to the theories.

5. Final paper (40% of class grade)
   Write a 12- to 15-page double-spaced typed review of the literature on the relationship between language and cognitive development in one clearly defined area. Papers should cover information from a minimum of 20 articles, book chapters, etc. in such a way that the state of research in the chosen area is presented as a coherent whole, and assessed in light of relevant aspects of course material. Grading will be based on accurate representation of the literature, evidence of analyzing the literature rather than merely describing it, and clarity of presentation. Due dates are as follows: proposal October 10, outline October 31, penultimate draft November 28, and final draft December 10. Final drafts of papers longer than 15 pages (excluding bibliography) will be returned without a grade. Further details including a list of possible topics will be distributed in class.

6. Presentation on final paper (10% of class grade)
   Give a short presentation on your final paper on December 12. Each student will have about 15 minutes for presentation and 10 minutes for discussion. Students interested in similar areas will present to each other in small groups. Grading will be based on clarity of presentation as evidenced by a one-page abstract (about 450 words). Further details will be distributed in class.

NB: Late assignments will not be accepted except in special circumstances when previous arrangements have been made with the instructor.

WEEKLY SCHEDULE

PART 1: INTRODUCTION

WEEK 1 (SEPTEMBER 5)
In Class: Overview of major themes
Reading: 1. Siegler, R. & Alibali, M. (2005). An introduction to children's thinking. *Children's thinking* (pp. 1-25). Upper Saddle, NJ: Prentice Hall.

WEEK 2 (SEPTEMBER 12)
In class: Overview of language development and cognitive development
Reading: 1. Siegler, R. & Alibali, M. (2005). Conceptual development. *Children's thinking* (pp.268-304). Upper Saddle, NJ: Prentice Hall.
2. Siegler, R. & Alibali, M. (2005). Memory development. *Children's thinking* (pp.226-267). Upper Saddle, NJ: Prentice Hall. [read only pp. 232-253]
3. Siegler, R. & Alibali, M. (2005). Language development. *Children's thinking* (pp.183-225). Upper Saddle, NJ: Prentice Hall.

WEEK 3 (SEPTEMBER 19)
In class: Discussion on introductory material
Introduction to Piaget
Reading: None
Hand in: Initial position paper

PART 2: THEORIES

WEEK 4 (SEPTEMBER 26)
In class: Quotes and discussion on Piaget
Introduction to Vygotsky
Reading: 1. Siegler, R. & Alibali, M. (2005). Piaget's theory of development. *Children's thinking* (pp.26-64). Upper Saddle, NJ: Prentice Hall.
2. Piaget, J. (1970). Piaget's theory. In P.H. Mussen (Ed.), *Handbook of child psychology* (4th edition, pp. 103-128). New York: Wiley.
** Ginsburg, H.P. & Opper, S. (1988). *Piaget's theory of intellectual development*. Englewood Cliffs, NJ: Prentice Hall. [especially pp. 26-91, 113-156, 208-256]

WEEK 5 (OCTOBER 3)
In class: Quotes and discussion on Vygotsky
Introduction to Chomsky
Reading: 1. Siegler, R. & Alibali, M. (2005). Sociocultural theories of development. *Children's thinking* (pp.107-140). Upper Saddle, NJ: Prentice Hall.
2. Vygotsky, L. (1986). The problem and the approach. *Thought and language* (pp. 1-11). Cambridge, MA: MIT Press.
3. Vygotsky, L. (1986). Piaget's theory of the child's speech and thought. *Thought and language* (pp. 12-57). Cambridge, MA: MIT Press.
4. Vygotsky, L. (1986). The genetic roots of thought and speech. *Thought and language* (pp. 68-95). Cambridge, MA: MIT Press.
5. Vygotsky, L. (1986). The development of scientific concepts in childhood: The design of a working hypothesis. *Thought and language* (pp. 146-209). Cambridge, MA: MIT Press.
6. Vygotsky, L. (1986). Thought and word. *Thought and language* (pp. 210-256). Cambridge, MA: MIT Press.

WEEK 6 (OCTOBER 10)

In class: Quotes and discussion on Chomsky
Introduction to Information Processing

Reading:
1. Chomsky, N. (1986). Preface. In *Knowledge of language: Its nature, origin, and use* (pp. xxv-xxix). New York: Praeger.
2. Chomsky, N. (1986). Knowledge as a focus of inquiry. In *Knowledge of language: Its nature, origin, and use* (pp. 1-14). New York: Praeger.
3. Crain, S. (1993). Language acquisition in the absence of experience. In P. Bloom (Ed.), *Language acquisition: Core readings* (pp. 364-409). Cambridge, MA: MIT Press. [focus on pp. 364-384 and 396-397]
4. Hornstein, N. & Lightfoot, D. (1981). Introduction. In N. Hornstein & D. Lightfoot (Eds.), *Explanations in linguistics: The logical problem of language acquisition* (pp. 9-31). London: Longman.

Hand in: Literature review proposal

WEEK 7 (OCTOBER 17)

In class: Quotes and discussion on Information Processing
Introduction to Linguistic Relativity

Reading:
1. Siegler, R. & Alibali, M. (2005). Information-processing theories of development. *Children's thinking* (pp. 65-106). Upper Saddle River, NJ: Prentice Hall. [focus on pp. 65-75, 92-97, 104-106]
2. Redington, M. & Chater, N. (1998). Connectionist and statistical approaches to language acquisition: A distributional perspective. *Language and Cognitive Processes 13*: 129-191. [read only pp. 129-145 and 151-157]
3. Elman, J., Bates, E., Johnson, M., Karmiloff-Smith, A., Parisi, D. & Plunkett, K. (1996). Rethinking innateness. *Rethinking innateness: A connectionist perspective on development* (pp. 357-391; skim pp. 23-35 for definition of innateness). Cambridge, MA: MIT Press.

WEEK 8 (OCTOBER 24)

In class: Quotes and discussion on Linguistic Relativity
Introduction to Theory Theory

Reading:
1. Lucy, J. (1997). Linguistic relativity. *Annual Review of Anthropology* 26: 291-312.
2. Whorf, B.L. (1956). The relation of habitual thought and behaviour to language. *Language, thought and reality* (pp. 134-159). Cambridge, MA: MIT Press.
3. Whorf, B.L. (1956). Science and linguistics. *Language, thought and reality* (pp. 207-219). Cambridge, MA: MIT Press.
4. Levinson, S. (2003). Language and mind: Let's get the issues straight! In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 25-46). Cambridge: MIT Press.

WEEK 9 (OCTOBER 31)

In class: Quotes and discussion on Theory Theory
Introduction to Word Learning

Reading:
1. Gopnik, A. & Meltzoff, A. (1997). The theory theory. *Words, thoughts and theories* (pp. 11-72). Cambridge, MA: MIT Press.
2. Hollich, G., Golinkoff, R. & Hirsh-Pasek, K. (2000). What does it take to learn a word? *Breaking the language barrier: An emergentist coalition model for the origins of word learning* (pp. 1-16). Oxford: Oxford University Press.

** Karmiloff, K. & Karmiloff-Smith, A. (2001). Learning about the meaning of words. *Pathways to language: From fetus to adolescent* (pp. 56-85). Cambridge, MA: Harvard University Press.

Hand in: Annotated outline of literature review

PART 3: DATA – WORD LEARNING

WEEK 10 (NOVEMBER 7)

In class: Article discussions

Reading:
1. Bloom, P. (2000). Conceptual and intentional foundations of word learning. In M. Bowerman & S. Levinson (Eds.), *Language acquisition and conceptual development* (pp. 159-181). Cambridge: Cambridge University Press. [reflects cognitive constructivism]
2. Tomasello, M. (2000). Perceiving intentions and learning words in the second year of life. In M. Bowerman & S. Levinson (Eds.), *Language acquisition and conceptual development* (pp. 132-158). Cambridge: Cambridge University Press. [reflects social constructivism]
3. Markman, E. (1991). The whole-object, taxonomic, and mutual exclusivity assumptions as initial constraints on word meanings. In S.A. Gelman & J.P. Byrnes (Eds.), *Perspectives on language and thought* (pp. 72-106). Cambridge: Cambridge University Press. [reflects innateness]
4. Smith, L. (1999). Children's noun learning: How general learning processes make specialized learning mechanisms. In B. MacWhinney (Ed.), *The emergence of language* (pp. 277-303). Mahwah, NJ: Lawrence Erlbaum Associates. [reflects information processing]

Hand in: Reflections on BUCLD session

WEEK 11 (NOVEMBER 14)

In class: Article discussions
Introduction to Spatial Navigation

Reading:
1. Bowerman, M. & Choi, S. (2000). Shaping meanings for language: Universal and language specific in the acquisition of spatial semantic categories. In M. Bowerman & S. Levinson (Eds.), *Language acquisition and conceptual development* (pp. 475-511). Cambridge: Cambridge University Press. [reflects linguistic relativity]
2. Gelman, S. & Coley, J. (1991). Language and categorization: The acquisition of natural kind terms. In In S.A. Gelman & J.P. Byrnes (Eds.), *Perspectives on language and thought* (pp. 146-196). [reflects theory theory]

NOVEMBER 21 – NO CLASS – THANKSGIVING HOLIDAY

PART 4: DATA – GEOMETRY AND LANGUAGE IN SPATIAL REORIENTATION

WEEK 12 (NOVEMBER 28)

In class: Article discussions
(Meeting place at Harvard University, Laboratory for Developmental Studies – Vanserg Hall; Address: 25 Francis Ave.)

Reading:
1. Hermer, L., & Spelke, E. (1996). Modularity and development: the case of spatial reorientation. *Cognition*, 61, 195-232.
2. Hermer-Vazquez, L., Spelke, E., & Katsnelson, A. S.(1999). Sources of flexibility in human cognition: Dual-task studies of space and language. *Cognitive Psychology*, 39, 3-36.
3. Hermer-Vazquez, L., Moffet, A., & Munkholm, P. (2001). Language, space, and the development of cognitive flexibility in humans: the case of two spatial memory tasks. *Cognition*, 79, 263-299.
4. Lee, S., Shusterman, A., & Spelke, E. (2006). Reorientation and landmark-guided search by young children: Evidence for two systems. *Psychological Science*, 17, 577-582.

Hand in: Penultimate draft of literature review (optional)

WEEK 13 (DECEMBER 5)

In class: Article discussions
Conclusion

Reading:
1. Learmonth, A.E., Nadel, L., & Newcombe, N. S. (2002). Children's use of landmarks: Implications for modularity theory. *Psychological Science*, 13, 337-341.
2. Ratcliff, K. R., & Newcombe, N. S. (2007). Is language necessary for human spatial reorientation? Reconsidering evidence from dual task paradigms. *Cognitive Psychology*.
3. Huttenlocher, J., Lourenco, S. F. (in press). Coding location in enclosed spaces: Is geometry the principle? *Developmental Science*.

PART 5: CONCLUSION

(DECEMBER 10)

Hand in: Final paper due by 10:00 a.m. (early papers appreciated!)

WEEK 14 (DECEMBER 12): CLASS PRESENTATIONS

** Recommended readings