

CEP907: Psychological Research on Teaching

Spring 2007

Tuesday 4:10-7:00
210B Berkey Hall

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by appointment

CEP907 is intended for doctoral students in education, particularly those with interests in psychological approaches to the study of teachers and teaching. Some of the articles included in the course focus on the psychology of *teachers*, describing teachers' beliefs, knowledge, and cognitive processes, sometimes also examining connections to pupil learning. Other articles address links between activities of *teaching* and pupil learning. Those teaching activities include both occasions in which teachers interact with pupils (e.g., through lecture or discussion) and occasions in which teachers create instructional settings (peer groups or a web site) intended to promote learning.

Much of the research is framed, explicitly or implicitly, by one or more psychological learning theories. In keeping with general trends in psychology, the work has shifted from a grounding in behaviorial learning theories to a grounding in cognitive or socio-cognitive theories over the past few decades. Behavioral theories continue to support some areas of research, however, especially in the teaching of special populations.

The course will be conducted as a seminar. Students are expected to complete assigned readings before coming class. Some focal questions will be distributed prior to class. Students should also take notes about ideas or passages in the text that they believe would be productive focal points for seminar discussion. (Please make notes on the particular pages and passages deserving discussion.) Discussions will address the theoretical framework(s) guiding research, the particular questions studies address, the methods used to seek answers to those questions, the chains of reasoning from evidence to conclusions, and the ideas for practice, policy, and further research that studies suggest.

Toward the end of the course, class time will be devoted to student presentations and discussion.

By the end of the course, students should be familiar with several major areas of psychological research on teaching, including the questions addressed, methods used, results obtained, and continuing points of contention. Students will also have pursued some area of work in depth, so that they could engage in discussions of such work in professional settings or design new studies that they might carry out.

Readings

All required readings will be available on the course Angel site, either as pdf files or as links to articles through the MSU library. A tentative list of readings for the first few weeks is provided below in this syllabus. Selection of additional or substitute readings will be based in part the course of class discussions.

Course assignments

1. Critical response to class readings

Four times during the first 12 course sessions, students will prepare a 750-1000 word critical response to the readings. By “critical response,” I mean that a short essay that goes beyond simple summary of the readings to address some substantive issue linked to the readings. Students might, for example, discuss the chain of argument linking evidence to conclusions. Or students might compare the results obtained by different studies, some of which might not be among the articles read for that week. The task resembles that of responding to a paper at a conference, both addressing strengths and weaknesses in the work and helping the audience (in this case, other seminar participants) connect the paper to other scholarship.

Students should come to class prepared to present the gist of their critical responses to the seminar group.

2. Written project

Students are required to prepare one written project of 5,000 to 7,000 words. The project may either take the form of either a review article or a research proposal. The style of the paper should conform to the APA publication manual.

Students choosing to write a review article should pick a focal topic within the general area of psychological research on teaching. The review article should:

- make an argument for the focal topic’s importance, practically or theoretically
- describe the process used to identify the literature included in the review
- provide a summary (in text or table) of each article included in the review
- include an analytic discussion that includes some of the student’s own thinking, rather than simply listing the results of the individual articles

Students choosing to write a research proposal should select questions and methods represented in the area of psychological research on teaching. The proposal should:

- make an argument for the practical or theoretical importance of the proposed study
- show how proposed study is related to prior empirical research and theory
- state the specific research questions to be addressed
- describe the methods to used, with a rationale for the particulars of design
- propose a plausible timeline for completion of the study, including time for analysis and writing

To allow to opportunities for instructor feedback, students should turn in two interim products:

- 100 word abstract, describing the area for review or study, due at Class 4 (January 30)
- 250 word progress report, giving more detail about the area for review or research questions/methods, due at Class 8 (February 27)

3. Project presentation and response

Paper presentation. During the last three weeks of the seminar, each student will make a 15-20 minute presentation of his course project, be it literature review or research proposal. Following the response (by another student), the author will comment on points raised in that response, either defending the project against criticisms raised or explaining how it could be modified to address the criticisms. The author should also respond to comments and criticisms made by other seminar members. The presenter must provide the respondent with a written text or detailed set of talking points at least one week prior to the presentation.

Presentation of response. Each student will serve as a respondent to a student seminar presentation. Respondents may either write out their response (and read it to the seminar) or speak from an outline. A copy of the text or outline should be given to the instructor immediately following the presentation.

Evaluation

Course grades will be based on the written assignments, the presentation of the project in class, and the response to another student's presentation. These components will each be assigned a grade on the MSU 4-point scale. The final grade will be an average of those components, weighted as follows:

| | |
|---------------------------------|-----|
| Critical responses to readings: | 40% |
| Written project: | 40% |
| Project presentation: | 10% |
| Response to presentation | 10% |

Tentative List of Topics and Readings

Class 1

January 9

Introduction to the course

Frameworks for studying teachers and teaching

Class 2

January 16

Teacher characteristics

Wehling, L. J., & Charters, W. W. (1969). Dimensions of teacher beliefs about the teaching process. *American Educational Research Journal*, 6(1), 7-30.

Ryans, D. G., & Wandt, E. (1952). Investigations of personal and social characteristics of teachers. *Journal of Teacher Education*, 3(9), 228-231.

Process-product research on teacher effectiveness

Stallings, J., Almy, M., Resnick, L. B., & Leinhardt, G. (1975). Implementation and child effects of teaching practices in Follow Through classrooms. *Monographs of the Society for Research in Child Development*, 40(7/8), 1-133.

Gall, M. D., Ward, B. A., Berliner, D. C., Cahen, L. S., Winne, P. H., Elashoff, J. D., et al. (1978). Effects of questioning techniques and recitation on student learning. *American Educational Research Journal*, 15(2), 175-199.

Class 3

January 23

Part 1: Training teachers to behave

Ebmeier, H., & Good, T. L. (1979). The effects of instructing teachers about good teaching on the mathematics achievement of fourth grade students *Elementary School Journal*, 16(1), 1-16.

Copeland, W. D. (1977). Some factors related to student teacher classroom performance following microteaching training. *American Educational Research Journal*, 14(2), 147-157.

Additional suggested readings:

Anderson, L. M., Evertson, C. M., & Brophy, J. E. (1979). An experimental study of effective teaching in first-grade reading groups. *Elementary School Journal*, 79, 193-223.

Woolfolk, R. L., & Woolfolk, A. E. (1974). Effects of teacher verbal and nonverbal behaviors on student perceptions and attitudes. *American Educational Research Journal*, 11(3), 297-303.

Part 2: Students as mediators between teaching and learning

Doyle, W. (1977). Paradigms for research on teacher effectiveness. *Review of Research in Education*, 5, 163-198.

Winne, P. H., & Marx, R. W. (1982). Students' and teachers' views of thinking processes for classroom learning. *Elementary School Journal*, 82(5), 492-518.

Additional suggested readings:

Anderson, L. M., Brubaker, N. L., Alleman-Brooks, J., & Duffy, G. G. (1985). A qualitative study of seatwork in first-grade classrooms. *Elementary School Journal*, 86(2), 123-140.

Peterson, P. L., & Swing, S. R. (1982). Beyond time on task: Students' reports of their thought processes during classroom instruction. *Elementary School Journal*, 82(5), 481-491.

Class 4

January 30

**** Course project abstract due ****

Contemporary studies of subject matter teaching

Mayer, R. E. (2004). Teaching of subject matter. *Annual Review of Psychology*, 55, 715-744.

Klahr, D., & Nigem, M. (2004). The equivalence of learning paths in early science instruction. *Psychological Science*, 15(10), 661-667.

Klibanoff, R. S., Levine, S. C., Huttenlocher, J., Vasilyeva, M., & Hedges, L. V. (2006). Preschool children's mathematical knowledge: The effect of teacher "math talk". *Developmental Psychology*, 42(1), 59-69.

Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., et al. (2004). Increasing reading comprehension and engagement through concept-oriented reading Instruction. *Journal of Educational Psychology*, 96(3), 403-423.

Class 5
February 6

Studies of teacher thinking

Shavelson, R. J. (1983). Review of research on teachers' pedagogical judgments, plans, and decisions. *Elementary School Journal*, 83(4), 392-413.

Peterson, P. L., Marx, R. W., & Clark, C. M. (1978). Teacher planning, teacher behavior, and student achievement. *American Educational Research Journal*, 15(3), 417-432.

Allen, R. M., & Casbergue, R. (1997). Evolution of novice through expert teachers' recall: Implications for effective reflection on practice. *Teaching and Teacher Education*, 13(7), 741-755.

Leinhardt, G., & Greeno, J. G. (1986). The cognitive skill of teaching. *Journal of Educational Psychology*, 78(2), 75-95.

Class 6
February 13

Teacher knowledge and belief

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.

Hill, H. C., Rowan, B., & Ball, D. L. (2005). Effects of teachers' mathematical knowledge for teaching on student achievement. *American Educational Research Journal*, 42(2), 371-406.

Alvidrez, J., & Weinstein, R. S. (1999). Early teacher perceptions and later student achievement. *Journal of Educational Psychology*, 91(4), 731-746.

Guskey, T. R. (1984). The influence of change in instructional effectiveness upon the affective characteristics of teachers. *American Educational Research Journal*, 21(2), 245-259.

Optional:

Brophy, J. E. (1983). Research on the self-fulfilling prophecy and teacher expectations. *Journal of Educational Psychology, 75*(6), 631-661.

Pajares, F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*(3), 307-332.

Stein, M. K. (1990). Subject-matter knowledge and elementary instruction: A case from functions and graphing. *American Educational Research Journal, 27*(4), 639-663.

Class 7

February 21

Contemporary classroom observation

Perry, M. (2000). Explanations of mathematical concepts in Japanese, Chinese, and U.S. first-and fifth-grade classrooms. *Cognition and Instruction, 18*(2), 181-207.

Hogan, K., Nastasi, B. K., & Pressley, M. (1999). Discourse patterns and collaborative scientific reasoning in peer and teacher-guided discussions. *Cognition and Instruction, 17*(4), 379-432.

Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76*(5), 949 – 967.

Class 8

February 28

Course project progress report due

Socio-cognitive studies

Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology, 49*, 345-375.

Leinhardt, G., & Steele, M. (2005). Seeing the complexity of standing to the side: instructional dialogues. *Cognition and Instruction, 23*(1), 87–163.

Saxe, G. B., Gearhart, M., & Seltzer, M. (1999). Relations between classroom practices and student learning in the domain of fractions. *Cognition and Instruction*, 17(1), 1-24.

Hardy, I., Jonen, A., Möller, K., & Stern, E. (2006). Effects of instructional support within constructivist learning environments for elementary school students' understanding of "floating and sinking". *Journal of Educational Psychology*, 98(2), 306-326.

Optional:

Engle, R. A. (2006). Framing interactions to foster generative learning: A situative explanation of transfer in a community of learners classroom. *The Journal of the Learning Sciences*, 15(4), 451-498.

March 6 -- **Spring Break – No class**

Class 9
March 13

Teacher development and learning

Putnam, R. T., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, 29(1), 4-15.

Wang, J., & Paine, L. W. (2003). Learning to teach with mandated curriculum and public examination of teaching as contexts. *Teaching and Teacher Education*, 19(1), 75-94.

When teaching becomes learning. (Sherin, M.G.). *Cognition and Instruction*, 20(2), 119-150.

Fuller, F. F. (1969). Concerns of teachers: A developmental conceptualization. *American Educational Research Journal*, 6(2), 207-226.

Class 10
March 20

On-line teaching

Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., et al. (2006). Teaching courses online: A review of the research. *Review of Educational Research, 76*(1), 93-135.

Scheines, R., Leinhardt, G., Smith, J., & Cho, K. (2005). Replacing lecture with web-based course materials. *Journal of Educational Computing Research, 32*(1), 1-26.

Moreno, R., & Mayer, R. E. (2005). Role of guidance, reflection, and interactivity in an agent-based multimedia game. *Journal of Educational Psychology, 97*(1), 117-128.

McCrory, R., Putnam, R. T., & Jensen, A. (in press). Interaction in online courses for teacher education: Subject matter and pedagogy. *Journal of Technology and Teacher Education*.

Class 11
March 27

Teaching in Higher Education

Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. *American Journal of Physics, 69*(9), 970-977.

Kennedy, G. E., & Cutts, Q. I. (2005). The association between students' use of an electronic voting system and their learning outcomes. *Journal of Computer Assisted Learning, 21*(260-68).

Marsh, H. W., Overall, J. U., & Kesler, S. P. (1979). Class size, students' evaluations, and instructional effectiveness. *American Educational Research Journal, 16*(1), 57-70.

McDermott, L. C. (2001). Oersted Medal Lecture 2001: "Physics Education Research—The Key to Student Learning". *American Journal of Physics, 69*(11), 1127-1137.

Shannon, D. M., Twale, D. J., & Moore, M. S. (1998). TA teaching effectiveness: The impact of training and teaching experience. *Journal of Higher Education, 69*(4), 440-466.

Optional:

Wilson, C. D., Anderson, C. W., Heidemann, M., Merrill, J. E., Merritt, B. W., Richmond, G., et al. (2006). Assessing students' ability to trace matter in dynamic systems in cell biology. *CBE—Life Sciences Education*, 5, 323-331.

Class 12
April 3

Paradigms old and new

Gage, N. L. (1989). The paradigm wars and their aftermath: A "historical" sketch of research on teaching since 1989. *Teachers College Record*, 91(2), 135-150.

Brophy, J. (2006). Graham Nuthall and social constructivist teaching: Research-based cautions and qualifications. *Teaching and Teacher Education*, 22, 529-537.

Jitendra, A. K., Griffin, C. C., Haria, P., Leh, J., Adams, A., & Kaduvettoor, A. (2007). A comparison of single and multiple strategy instruction on third-grade students' mathematical problem solving. *Journal of Educational Psychology*, 99(1), 115-127.

Wolters, C. A., & Daugherty, S. G. (2007). Goal structures and teachers' sense of efficacy: Their relation and association to teaching experience and academic level. *Journal of Educational Psychology*, 99(1), 181-193.

AERA; No class

April 10

Class 13
April 17

Student presentations

Class 14
April 25

Student presentations

Class 15

May 3 (During Scheduled Final Exam period 5:45-7:45 p.m.)

Student presentations