

<http://php.indiana.edu/~nelson1/SOTLGenres.html>

HOW COULD I DO SCHOLARSHIP OF TEACHING & LEARNING?

Selected Examples of Several of the Different Genres of SOTL

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These examples illustrate several of the genres (A-M) of Scholarship of Teaching and Learning (SOTL), as I currently understand them. The genres overlap and could be combined or subdivided variously. The particular examples illustrate the importance of SOTL for improving learning and teaching and learning. (Most from my bibliography, *How To Find Out More About College Teaching And Its Scholarship: A Not Too Brief, Very Selective Hyperlinked List* (periodic revisions posted at the AAHE's Carnegie Academy Campus Program website, <http://aahe.ital.utexas.edu/>, search for Nelson under resources; also available at <http://php.indiana.edu/~nelson1/TCHNGBKS.html>).

Two opening points: 1. Learning and teaching are complex activities where approximate, suggestive knowledge can be very helpful, and, indeed, may often be the only kind that is practical or possible (D. A. Schön. 1995.

Knowing-in-action: The new scholarship requires a new epistemology. Change 27:27-34). 2. Much important expertise on teaching resides in the day to day practices of good faculty. Typically, this knowledge remains private and is totally lost when its possessor retires. A key task in this field is systematically making much more of this expertise public.

GROUP 1: REPORTS ON PARTICULAR CLASSES

A. It worked!

Important pieces of our expert knowledge as experienced practitioners can be preserved by writing up examples approaches to content or pedagogy that work especially well in our own classes. In this genre, the teacher's own impressions of the effectiveness frequently serve as sufficient assessment. The trend now is to try to document the effectiveness a bit more formally using classroom assessment techniques (CATs) and classroom research (see citations in "B" and at the end of this bibliography). Numerous examples can be found in many of the disciplinary journals listed on the web site for Indiana University's SOTLProgram(<http://www.indiana.edu/~deanfac/sotl/>).

B. Before & After: Qualitative Assessments Of Changes In Practice.

The many examples of this genre in Angelo and Cross include a calculus class (pp. 69-72) in which the professor wanted to help students improve their problem solving skills. This example illustrates the process of refining the pedagogical questions and the successive modifications that are often necessary to make new pedagogical approaches work successfully. In this case, the new pedagogy improved student success sufficiently that no student made an F, despite the

maintenance of high academic standards. (T. A. Angelo & K.P. Cross. 1993. Classroom Assessment Techniques. 2nd Edit. Jossey-Bass. For a quick introduction to "CATs" see: <http://www.psu.edu/celt/CATs.html>)

C. Before & After: Quantitative Assessments Of Changes In Practice.

R. E. Fullilove & P. U. Treisman. 1990. Mathematics Achievement Among African American Undergraduates at the University of California, Berkeley: An Evaluation of the Mathematics Workshop Program. *Journal of Negro Education* 59: 463-478. The impetus was finding that about 60% of the African Americans who took calculus were unsuccessful (D/F/W). Initial work used extensive interviews and observations of students to establish differences in study approaches that distinguished the more successful groups of students. These group-study approaches were then incorporated into the requirements for the workshop program, which dropped the D/F/W rate to 4%. For additional discussion of the initial study and of faculty preconceptions that had to be overcome, see also: [P.] U. Treisman. 1992. "Studying Students Studying Calculus: A Look at the Lives of Minority Mathematics Students in College." *College Mathematics Journal* 23: 362-372.

GROUP 2: REFLECTIONS ON SEVERAL OR MANY YEARS OF TEACHING EXPERIENCE, IMPLICITLY OR EXPLICITLY INFORMED BY OTHER SCHOLARSHIP ON TEACHING

D. Essays Developing Good Ideas

L. S. Shulman. 1993. Teaching as community property: Putting an end to pedagogical solitude. *Change* 25: 6-7. Good articulation of a central rationale for SOTL.

E. Summaries Of Expert Knowledge Gained By Self-Reflection And Experimentation In Ones Own Teaching.

P. Frederick. 1981 The Dreaded Discussion: Ten Ways To Start. *Improving College & University Teaching* 29:109-114.

P. J. Frederick. 1986. The Lively Lecture--Eight Variations. *College Teaching* 34:43-50

Many course portfolios posted on the web will fit here too. Path breaking examples are by Randy Bass (<http://www.georgetown.edu/bassr/portfolio/amlit/>) and W.W. Cutler, III. (<http://www.chnm.gmu.edu/aha>)

F. Integration Of Larger Frameworks With Classroom & Curriculum Practice

B. P.Coppola, S.N. Ege, & R.G. Lawton. 1997. The University of Michigan Undergraduate Chemistry Curriculum. 2. Instructional Strategies and Assessment. *Journal of Chemical Education* 74: 84-94. Not just a report of UM changes, but an integration with related work.

J. D. Herron. 1975. Piaget for Chemists: Explaining What "Good" Students Cannot Understand. *Journal Chemical Education* 52:146-150. One factor that

explains why bright, hard-working students can do poorly and how we can help them. Easily applicable in all quantitative fields.

R. J. Kloss. 1994. A nudge is best: Helping students through the Perry scheme of intellectual development. *College Teaching* 42:151-158. Another factor that explains why bright, hard-working students can do poorly and how we can help them. Easily applicable across the curriculum.

M. D. Svinicki & N. M. Dixon. 1987. The Kolb Model Modified for Classroom Activities. *College Teaching* 35:141-146. Addressing heterogeneous learning styles using learning-cycles.

GROUP 3: LARGER CONTEXTS: COMPARISONS OF COURSES & COMPARISONS OF STUDENT CHANGE ACROSS TIME

G. Qualitative Studies Designed To Explore A Key Issue. [3 Very Important Studies]

Wm. G. Perry, Jr. [1970] 1998. *Forms of Intellectual and Ethical Development in the College Years, A Scheme*. New introduction by Lee Knefelkamp. Jossey-Bass. The impetus here was the observation that students could flunk out of Harvard despite working quite hard at learning the course material. The longitudinal design used extensive interviews with students at the end of each of their four undergraduate years. Patterns of intellectual development were inferred and checked for inter-judge reliability. A very influential study. (A comparison of Perry with subsequent studies: B. Hofer & P. Pintrich. 1997. The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of Educational Research* 67: 88-140.)

M. Rose. 1989. *Lives On The Boundary: A Moving Account of the Struggles and Achievements of America's Underclass*. Penguin. How traditional pedagogy unintentionally and unnecessarily discriminates against less-privileged students from and on how to make teaching more equitable.

M. Shaughnessy. 1977. *Errors and Expectations*. Oxford University Press. Students' "errors" as windows into their thinking.

H. Quantitative Comparisons Of Different Courses Or Sections

M. D. Sundberg & M. L. Dini. 1993. Science majors vs nonmajors: Is there a difference? *Journal of College Science Teaching*. Mar/Apr 1993:299-304. Question: Does covering more teach more?. Both courses taught with traditional pedagogy and by multiple instructors, but with different intensities of 'coverage.' Learning assessed with the ACT exam for AP Biology (which was already used as the exemption exam for both courses. Despite much higher rates of drop for the majors course: "The most surprising, in fact shocking, result of our study was that the majors completing their course did not perform significantly better than the corresponding cohort of nonmajors."

I. Comparisons Of A Wide Array Of Different Courses Using A Common Assessment Instrument.

R. R. Hake. 1998. Interactive-engagement vs traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics* 66: 64-74. (<http://carini.physics.indiana.edu/SDI/welcome.html#z44>). Uses qualitative multiple choice pre- and post-tests of the understanding of Newtonian physics, developed and validated by D. Hestenes, to compare increases in understanding achieved by a wide range of pedagogies in introductory physics courses at institutions ranging from high-schools to Harvard. Found that "interactive engagement" approximately doubles the amount of physics learned. An especially important model for emulation in other disciplines.

GROUP 4: FORMAL RESEARCH

J. Experimental Analyses

C. M. Steele. 1997. A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist* 52:613-629. [For further discussion see also: C. M. Steele. 1999. "Thin Ice: 'Stereotype Threat' and Black College Students." *Atlantic Monthly* Aug.1999: 44-54. <http://www.theatlantic.com/issues/99aug/9908stereotype.htm>]

GROUP 5: SUMMARIES AND ANALYSES OF SETS OF PRIOR STUDIES

K. Annotated Bibliographies.

R. N. Johnson, D. M. Enerson & K. M. Plank. 1996. *Diversity: A Selected and Annotated Bibliography*. Center for Excellence in Learning and Teaching. Pennsylvania State University. http://www.psu.edu/celt/diversity_bib.html

L. Brief, Annotated Summaries Of Key Findings In The Research Literature.

T. A. Angelo. 1997. The campus as learning community: Seven promising shifts and seven powerful levers. *AAHE Bulletin* 49:3-6.

R. B. Barr & J. Tagg. 1995. From teaching to learning: A new paradigm for undergraduate education. *Change* 27:13-25.

M. Formal (Quantitative) Meta-Analyses

L. Springer, M.E. Stanne & S.S. Donovan. 1997. Effects Of Small-Group Learning On Undergraduates In Science, Mathematics, Engineering And Technology, A Meta-Analysis. National Institute for Science Education, University of Wisconsin. 608/263-4214 [average effect size "would move a student from the 50th percentile to the 70th..."]

SOME BASIC REFERENCES FOR DOING SOTL IN THE CLASSROOM

T. Angelo. Ed. 1998. Classroom Assessment and Research: An Update on Uses, Approaches, and Research Findings. Jossey-Bass

K.P. Cross & M. Steadman. 1996. Classroom Research: Implementing the Scholarship of Teaching. Jossey-Bass.

C.E. Glassick, M.T. Huber & G.I. Maeroff. 1997. Scholarship Assessed: Evaluation of the Professoriate. Jossey-Bass.

P. Hutchings & C. Bjork. 1999. An Annotated Bibliography of the Scholarship of Teaching and Learning in Higher Education. Carnegie Foundation. (To find follow site links: Carnegie Academy; Higher Education; bibliography at <http://www.carnegiefoundation.org/OurWork/OurWork.htm>)

B.E.F. Walvoord & V.J. Anderson. 1998. Effective Grading: A Tool For Learning And Assessment. Jossey-Bass.

National Science Foundation. 1997. User-Friendly Handbook for Mixed Method Evaluations. NSF97 153. Updated 5/2000. Available as free PDF file at: http://www.ehr.nsf.gov/EHR/REC/pubs/NSF97_153/pdf/mm_eval.pdf

Nelson, C.E. (2003 or 2004). Doing it: Examples of several of the different genres of the scholarship of teaching and learning. *Journal of Excellence in College Teaching*, 14 (2/3), 85-94.