

Selected Examples of Several of the Different Genres of SOTL

Craig E. Nelson - Indiana University, Bloomington

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.

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.

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 program, which dropped the D/F/W rate to 4%.

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

F. Integration Of Larger Frameworks With Classroom & Curriculum Practice

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.

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]

William 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.

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.

GROUP 5: SUMMARIES AND ANALYSES 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.

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.

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.*