

BIOGRAPHICAL VITA

September 2005

Dr. Joseph S. Schmuckler
Professor Chemistry/Science Education

Dr. Joseph S. Schmuckler, a professor of Chemistry and Science Education in the Graduate School of Temple University, Philadelphia, PA., was formerly a chemistry teacher at Haverford Township Senior High School, Havertown, Pennsylvania for fifteen years 1953-1968. He has had extensive industrial experience. He worked ten years part time in industry at Sun Oil Company and at the Sadtler Research Laboratory, Philadelphia. He was an instructor in Science Education at the University of Pennsylvania, 1964-1967. He joined the Temple faculty in June, 1968. He received his Bachelor of Science degree in 1952, his Master of Science degree in 1954, at the U of Penna, in association with the Wistar Institute in cancer research. He earned his Doctorate of Chemistry/Science Education in 1968 from the University of Pennsylvania under the mentorship of Dr. Frederick Gruber, Professor of Philosophy and Chemistry Nobel Laureate, Dr Alan MacDiarmid.

Awards

Dr. Schmuckler was one of the first high school chemistry teachers given full membership in the American Chemical Society. Dr. Schmuckler received the service award from the Society's Philadelphia section in 1967 and 1993. He was selected the "*Outstanding Chemistry Teacher*" by the Philadelphia Chamber of Commerce in 1963 and received a *citation* for his contributions to education from the state's Department of Public Instruction in 1964. He received the Award of "*Outstanding Science Teacher in the State of Pennsylvania*" in 1963 and 1967. In May 1968, he was awarded the "*Benjamin Rush award, the Manufacturing Chemists Association Medal, and Chemical Industry Council Award*" for his work in Chemical Education. In 1969 Dr. Schmuckler, was named the 2nd annual recipient of the American Chemical Society's *National, "James Bryant Conant Award"* in High School Chemistry Teaching.

In June of 1968 he came to Temple University. As a Professor of Chemistry and Science Education at Temple University, in 1976 he received the "*Christian Lindbach Award*" as Distinguished Teacher of Temple University. Dr. Schmuckler received Philadelphia's "*George Washington Carver Award*" in March 1986 for his work *with minorities in Science Education*. In May 1988 he was given the *Distinguished Alumnus Award by the University of Pennsylvania's "The Helen C. Bailey Alumni Award of Distinction."* In May, 1989, Dr. Schmuckler received Temple University's highest award for teaching, Temple's "*Great Teacher Award,*" of \$10,000.

Grants and Funding

Over the years, Dr. Schmuckler and his former colleagues, Dr. Frank X Sutman and Dr. Matthew Bruce have brought in to Temple University over 35 million dollars in grants and related funding for their Science Education Program.

Currently working with the College of Science and Technology, NSF Grant (TU SMART) Awarded to Dr. Susan Varnum PI, And Joseph Ducette, C Ed, on STEM, Science Math, Engineering and Technology grant
Consulting with Dr. Lynne Schofield and Dr. Frank Sullivan on the plausibility of a proposal involving Literacy and Science Instruction

National

Authorships and Writing Team Member

In the 1960's and 70's he was an original participant and contributor to this Nation's science educational response to Russia's Sputnik, the *Chemical Education Materials Study* ("CHEM Study") Program for High School Chemistry under Nobel Laureate, Glenn T. Seaborg. He was one of the co-authors to the Silver Burdett Company program in Chemistry, 1965 with noted Science Historian, Bernard Jaffe and Nuclear Chemist, Gregory Choppin. In the 1980's and 90's he was a writing Team Leader for the National ACS-NSF Chemistry Program "CHEM COM," *Chemistry in the Community*. His recent laboratory and writing work has been with the Chemical Heritage Foundation and is related to the history of chemistry and the involvement of women and minorities in chemistry, *Chemical Achievers. 2001*_In January 2004 and again in December 2004, Dr. Schmuckler was an academic consultant to the Video Taping of two International Public Television Series. (see publications and related academic work,) below

International

Dr. Schmuckler has lectured about his work in chemical education in several European countries, including England, France, Germany Czechoslovakia, Russia and Sweden. His foreign academic work at present is with China and did include Korea. Since 1980 Dr. Schmuckler has been directing a Faculty-Graduate Student exchange program between Temple University and Academic Institutions in the People's Republic of China. In 1988 he was awarded an Honorary Professorship in Chemical Education by the Government of China to the Tianjin Normal University and also to the Shanghai Teachers University. With respect to his work in China, in June 1985, Dr. Schmuckler, with two of his Doctoral Students and two of his Chinese Colleagues published a comprehensive *Research and Reference Textbook* for Chemistry Teachers of China. It is the first such cooperative publication for Chemistry Teachers of China and it was the first such cooperative publication in Chemical Education between the USA and China. It is in extensive use in China. In 1990, he was a major contributor of a text on *Science Technology and Society*, STS, references for China's science educational system with Professor Liang Yinghao as editor and published by the *Beijing Curriculum Development Institute*. In 1996 two more books were published in which Dr. Schmuckler was a major contributor, one is a book of experiments based on household chemicals of China and the other is a text on comparison of international educational systems. Both texts were edited by his colleague, Professor Wei Zeguang, Tianjin Normal University.

Over the years, with his colleague, Professor Wei Ziguang, he has lectured in chemical education and co-led chemical education conferences at the Tianjin Normal University and at many colleges and universities throughout the provinces of China. In June 1996, he co-led a 2 week conference on chemical education at the Beijing Normal University, China's leading Teachers University. The conference involved professors of chemistry from many provinces of China.

Research

His research interests and publications span both pure chemistry and chemical education as they apply to laboratory work in the classrooms of the schools. In Chemical Education, his research has included *“Effective and Efficient Use of the Laboratory Experience in Beginning Chemistry Through the use of a “Levels of Inquiry/Discovery Matrix,”* This matrix was developed from a series of nine dissertation studies done by his doctoral students over a period of ten years. This tool has proven to be an effective tool in lesson planning by teachers. As a teaching/planning guide it allows teachers to make decisions for using a hierarchy of levels for the use of the inquiry/discovery method of teaching, recognizing that total inquiry/discovery teaching is not universally applicable to all teaching-learning situations and if improperly used can lead to boredom on the part of students. The use of the *Inquiry/Discovery Matrix* has been widely accepted and is now utilized by science teachers as an aid in planning and assessing science lessons stressing the appropriate use of the inquiry approach involving ‘hands-on’ experiences for students. A Manuscript based on the research is in the hands of Jossey Bass, Publishers, San Francisco, April 2004.

His current research is based on his work with Dr. David Majerich, a colleague and former graduate student. It is a detailed Case Study and compendium on the *Effective and Efficient use of Lecture--Demonstrations* by science teachers, K-14 in the lecture hall and or school science classrooms. The compendium includes references dating back to the late 1800’s up to the year 2003. Their intensive study has a strong theoretical base and spanned more than three years of research both in the lecture hall and classroom.

The study, “Developing Understandings of Chemistry in a Large-Enrollment Science Lecture Demonstration Based Course for Non-Majors,” was done in Temple’s Chemistry Department

From their research findings has come a proven method, that if applied by chemistry (science) teachers using demonstrations for teaching chemical (science) phenomena at any school level, will enhance student’s understandings of the topics being taught. The study will continue with Dr. Donald Titus teaching the course and monitored by Dr. Schmuckler as part of the continuing research.

The method has proven to be very beneficial both in ‘normal’ teachings situations and in situations where laboratory time and or space is limited. With one of his current Doctoral students, Ms April Bross, the study will be done at the High School level during the Fall and Spring semesters 2005-2006.

Along with another of his Doctoral students, they are studying a problem involving the creation of an “On Line Computer Based Learning Community” There are plans of amalgamating the Matrix Study, the Demonstration Study and the new ‘on line’ computer

based study” into a combined effort as a thrust for the Science Education ‘department’ of Temple University.

Dr. Schmuckler has had extensive experience since the 1950’s in Museum Education having served as Science Exhibit Consultant for the Franklin Institute, The Academy of Natural Science, The Wagner Free Institute of Science, The Philadelphia Zoological Garden, and the Please Touch Museum for Children, all in Philadelphia.

Selected publications and related Academic work

Schmuckler, J. S. and Frank X. Sutman, Presenters to the 2005 Gordon Research Conference (By invitation only), “The Levels of Student Inquiry/Discovery Instructional Matrix.” Connecticut College, New London Connecticut June 26th to July 1st 2005
Majerich, David, Schmuckler, J. Developing Understandings of Chemistry in a Large-Enrollment Science Lecture Demonstration Based Course for Non-Majors, Submitted to The Journal of Research in Science Teaching, March 2005.

As noted above, the study is to be continued at the High School Chemistry Class level, Fall 2005 and Spring 2006.

Sutman, F.X. Jos. Schmuckler, et al, Science Quest: A Guide for Promoting and Enhancing Student Inquiry and discovery Learning. Jossey-Bass Publications Wiley Publications, San Francisco. Being revised for publication.

Liang Ling, Joseph S. Schmuckler, "Dilution Concentration, Flootation. *Science Scope Journal, NSTA, April 2004, p 38-40*

*Member of writing team Available in <http://www.chemicalheritage.org>. *Pharmaceutical Achievers* and *Faces in the Molecular Sciences*. Chemical Heritage Foundation, Philadelphia PA, (2001)

*Hilosky, Alexandra, F.X. Sutman, J Schmuckler. Is Laboratory-Based Instruction in Beginning College-Level Chemistry Worth the Effort and Expense? *Journal of Chemical Education*, (1998) 75,1 pp 100-103.

*Sutman, F.X., Schmuckler, J.S., Hilosky, A. The Laboratory Experience, *Chemistry in Industry*, 6 March 1995, p 183

*Wei Ziguang, J.S. Schmuckler (Contributor) *Practical Chemistry Experiments* (1995) Tianjin Municipal University Publishing.

*Co-writing of materials for the Chemical Heritage Foundation for their publication including CD ROMS for teachers with activities, K-12 involving the use of history in teaching science in the classroom. 1996

*Academic Consultant for the Video Taping for the NOVA Documentary on the work of Dr. Percy Julian, noted African American Chemist The taping was done in Dr. Schmuckler’s Labs. Temple University, Feb. 2004

* Schmuckler, Joseph S., David Majerich, Research Based Recommendation for the use of Science Lecture Demonstrations for the teaching of Chemistry (qua Science) Promoting Student’s Learning and Understandings of Science Topics. *Proceedings of The International Conference on Education, Hawaii, Jan 2-6, 2004*

* Academic Consultant for the Video Taping for the DISCOVERY CHANNEL TV series on the 100 most important science discoveries. Mr. Bill Nye “The Science Guy,” known for

his science presentations to young people, was the Narrator The taping of this series was also done in Dr. Schmuckler's laboratories, Temple University, December 2004-Jan 2005

Recent Citations that I am aware of.

* Level of Inquiry/Discovery Instructional Matrix. College Board: M The Ap vertical Teams Guide, 2004

* Improving Science Inquiry with Elementary Students with Diverse Backgrounds. OhKee Lee et al. the authors, Journal of Research in Science Teaching. Vol42, #3, Mar 2005, p 344. The group used our Matrix but did not attribute it.

* The use of Inquiry in the teaching of History of Science in the Classroom. Chemical Heritage Foundation Publication. Vol 23, No.3, Fall 2005, p 29.

Addendum:

Note: The Chemical Heritage Foundation houses the largest collection of research and archival volumes and documentation for reference and research.

* My library collection of volumes of chemistry, History of Chemistry and chemical education was requested and donated to the Chemical Heritage Foundation's international collection .

* My entire correspondence and research papers have been requested and are being prepared to be included into the Research Archives of Chemical Heritage Foundation.