

Douglas Spencer, Ph.D.

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Expertise – planning, evaluating and fundraising for education.

Fifteen years of experience evaluating Science, Technology, Engineering, and Mathematics (STEM) education. Primary clients – Cornell University and the National Science Foundation (NSF).

Ten years of experience in education fundraising, grant writing and foundation relations.

Currently working at Stanford University to create metrics to evaluate e-Learning usability.

Technical training in tropical agriculture, horticulture and botany.

Accomplishments

- **Designed and led program evaluation** for more than 30 STEM education reform initiatives sponsored by foundations and tier one research universities.
- **Advised on fundraising** and foundation relations for 12 colleges in the State University of New York.
- **Facilitated collaboration** and synergy for STEM research, teaching and outreach.

Education

Stanford University – Stanford Center for Professional Development. Data Analytics and Web Usability.

Cornell University – Ph.D. 1995. Education Policy and Planning. Adult and Continuing Education.

Cornell University – MS 1993. Education. International Agriculture and Rural Development.

University of South Florida – BIS 1990. Tropical Environmental Studies.

Experience

PRESIDENT, EDU, INC. (EDUINC.ORG), ITHACA, NY 1995 - PRESENT

- Led evaluation of over \$100 million of foundation-funded STEM education in emerging technologies.
- Clients include Cornell, Harvard, the National Science Foundation, NASA, US Department of Education, Annenberg Media, and the University of California.
- Lead a team of four employees and 20 consultants.

PRINCIPAL, DONORWEALTH.COM, NAPLES, FL 2000 - PRESENT

- Advisor to university and foundation Boards on major gift fundraising and foundation relations.
- Developed innovative data analytics software using artificial intelligence to identify donors.

DOCTORAL RESEARCHER, CORNELL UNIVERSITY, ITHACA, NY 1989 - 1995

- Specialist in higher education policy and planning, adult education, and education technology.
- Concentration in sustainability. Studied tropical agriculture in Maya communities of Belize.
- Dissertation – international study on planning environmental education at botanic gardens.
- Five-year practicum in horticulture and botany.

EDUCATION SPECIALIST, CHARTER MEDICAL, FORT MYERS, FL 1986 - 1989

- Developed education and training programs for health care professionals.

Selected Evaluation Projects

I specialize in program evaluation — designing quantitative and qualitative research and evaluation studies to assess STEM education initiatives. I am particularly interested in education in emerging technologies and use of e-Learning.

GRADUATE AND UNDERGRADUATE

- *FlexEBio IGERT* (Integrative Graduate Education and Research Traineeship) — Lead evaluation of a NSF-sponsored interdisciplinary graduate program training scientists and engineers in flexible bioelectronics. PI – Dr. Chris Ober, Cornell University. \$2,900,000. (2007-2012). Award #0654112.
- *STC IREP* — Facilitated an International Research Experience Program funding travel for students at NSF Science and Technology Centers (STC). Cornell University. \$850,000. (2006-2008).
- *STC URG* — Evaluated nine projects to increase diversity and underrepresented groups (URG) at NSF Science and Technology Centers. PI – Dr. Marco Molinaro. UC Davis. \$1,100,000. (2005-2006).

K-12

- *GIT Ahead* — Evaluated curriculum development and teacher training in geospatial technology. PI – Dr. James MaKinster. Hobart and William Smith Colleges. \$899,000. (2006-2009). Award #0602751.
- *Annenberg Media* — Assisted five-year evaluation of national program using educational media to improve K-12 math and science education. Annenberg Media and Inverness Research Associates. (2000-2003).

E-LEARNING AND NEW MEDIA

- *National Science Digital Library SMILE Pathway* — Facilitated National Advisory Board developing Internet collection of informal science resources. PI – Dr. Darrell Porcello. UC Berkeley. (2008). Award #0735007.
- *Nanotechnology: The Convergence* — Led usability evaluation for powerofsmall.org. The website promotes public discussion of ethics of nanotechnology in support of a Public Broadcasting Service (PBS) television series. PI – Cynthia Needham. \$1,854,025. (2005-2008). Award #0452371.
- *Mars and Stars* — Led evaluation of a NASA project developing space-themed educational computer games programmed by the Space Science Institute (SSI) of Boulder, Colorado. (2005-2006).

INFORMAL SCIENCE EDUCATION

- *Too Small to See* — Led evaluation of an interactive museum exhibition promoting public understanding of nanotechnology that opened at Disney's EPCOT® in November 2006. PI – Dr. Carl Batt. Cornell University. \$2,100,000. (2004-2008). Award #0426378.
- *It's a NanoWorld* — Evaluated a nanotechnology exhibition for kids and families at Disney's EPCOT® introducing young children and their families to nanotechnology. Researched children's and teachers' understanding of sub-visible size, scale and biology. Sponsor — Nanobiotechnology Center, Cornell University.

LEARNING AT WORK

- *Corporate College* — Led development and evaluation of highly-technical training in production of engineered monofilaments for paraprofessionals. Albany International Corporation. (1999-2008).

Teaching Experience

I designed and taught the following courses and seminars:

Cornell University. Education 497 — Special Topics in Education: Planning Informal Science Education through Museums.

Cornell University. Biological Science 646 — Families of Flowering Tropical Plants: Heliconiaceae. A seminar held at Wilson Botanical Garden in Costa Rica.

State University of New York, College at Cortland, School of Education. Education 631 — Curriculum Analysis in American Education. Adjunct Graduate Faculty.

Harvard and Cornell Universities. Introduction to Tropical Studies — a series of field courses in Costa Rica and Hawai'i.

State University of New York. Fundraising for Education. A professional development series.

Honors and Awards

US Academic Competitiveness Council — Advisor to US government interagency council on evaluation of federally-funded STEM education.

National Science Foundation — Served on advisory panel planning evaluation for a 50-million dollar portfolio of projects funded by the Nanoscale Science and Engineering Education program.

Cornell University — E. Laurence Palmer Award for Excellence in Environmental Education.

North American Association of Environmental Educators — Fellowship to study tropical environmental education in Mexico.

Selected Publications and Reports

Spencer, D., Conner, F., & Graham-Spencer, J. (2008). International Research Experience Program. International Research Opportunities for students at NSF Science and Technology Centers. A report to the Director — National Science Foundation Office of Integrative Activities. Edu, Inc. Ithaca, NY.

Waldron, A., & Spencer, D. (2008). Too Small to See — Public education in nanotechnology. *Journal of Nanotechnology Education*. In review.

Spencer, D., Phillips, T., Angelotti, V., & Murphy, S. (2007). Too Small to See – Summative Evaluation Report for a Science Museum Exhibition on Nanotechnology. Edu, Inc. Ithaca, NY.

Waldron, A., Spencer, D., & Batt, C. (2006). The current state of public understanding of nanotechnology. *Journal of Nanoparticle Research*, Vol. 8, 3-4, August 2006.

Batt, C., Waldron, A., Shepard, K., & Spencer, D. (2004). Too small to see—Educating the next generation in nanoscale science and engineering. In Hormes, Kumar, and Leuschner (Eds.), *Nanofabrication for biomedical applications*. Weinheim, Germany: Wiley-VCH Verlag GmbH.

Spencer, D. (2003). In-touch Science: Hands-on science for youth—Analysis of national program sustainability and evaluation of web-based program dissemination. Edu, Inc. Ithaca, NY. A report to the National Science Foundation. Award #9705400.

Spencer, D. (2002). Private-sector biotechnology—Opportunities for collaboration. Edu, Inc. Ithaca, NY. A report to the Boyce Thompson Institute at Cornell University.

Spencer, D., Angelotti, V., & Graham, L. (2001). Children, Science and Small—Conversations with early elementary children and teachers exploring readiness to learn nano-scale science and nanotechnology. Edu, Inc. Ithaca, NY. A report commissioned by the Nanobiotechnology Center at Cornell University.

Spencer, D., et al. (1999). Corporate and foundation support for technology integration and faculty development. Edu, Inc. Ithaca, NY. A report for the State University of New York.

Keywords: STEM; Science, Technology Engineering, and Mathematics; Education; Training; Adult Education; Distance Learning; e-Learning; Education Technology; Science and Engineering; S&E; Interdisciplinary; Teaching; Curriculum; Evaluation; Formative Evaluation; Summative Evaluation; Grant Writing; Fundraising; Facilitation; Collaboration; Synergy; Leadership.