



Lorena (Laurie) Ferguson Ruberg, Ph.D.

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PROFESSIONAL AFFILIATIONS

Wheeling Jesuit University, Wheeling, WV

Center for Educational Technologies (1995 to present)

Associate Director: Project management, project coordination, strategic and planning.

Principal Investigator: NASA Explorer Schools Evaluation project; Mid-Atlantic Region Space Science Broker (MARSSB) program; NASA Innovations in Climate Education.

Senior Instructional Designer: Lead designer for two NASA-funded curriculum development projects: BioBLAST[®], a software-based curriculum supplement for high school biology classes, and the International Space Station Challenge, a web-based curriculum.

Principal and Founder of PLANTS, LLC - a business formed (2013) to provide professional scientific and technical services related to plant growth and food production processes. Professional services include educational workshops, hands-on training, professional development, and information assistance to promote sustainable agriculture practices.

CURRENT FUNDED DESIGN AND EVALUATION PROJECTS

- Manager, NASA*Talk.com*, a Joomla-based content management system (2008-present).
- Principal Investigator, Exploring Global Climate Change Through Problem-Based Learning, a two-year curriculum development project funded by NASA (2010-2012).
- Principal Investigator: Project Research and Evaluation, CDC/NIOSH/OMSHR Contract 254-2008-23745 with Wheeling Jesuit University (Oct 2011- May 2013).
- Evaluator, Mining and Industrial Safety Technology and Training Innovation (MISTTI) project, CDC/NIOSH Cooperative Agreement (Oct 2009 – Sep 2012).
- Evaluator, NASA Earth and Space Online “Missions” for High School Learners with Accompanying Electronic Professional Development, NASA (Jun 2009 – May 2012).

Virginia Polytechnic Institute and State University, Blacksburg (1988-1995):

College of Education, Instructional Systems Development

Research Associate: Research funded by NSF Undergraduate Course and Curriculum Development, “Development and Assessment of a Multimedia Plant Science Laboratory” NSF Curriculum Development Grant #92-2170-06. Dissertation research.

Virginia Cooperative Extension Service Interactive Design and Development Group
Research Associate/Assistant Project Director: Served as team leader for development of Virginia Public Information Stations, a project funded by the U.S. Department of Agriculture and the Kellogg Foundation.

Human Services on Cable Inc., New Orleans (1985-1987)

Project Director: Served as program manager; provided leadership for the design and planning of a distributed human service information system. Implemented activities with support from a volunteer board of directors, community stakeholders, and local cable sponsor. Secured grant support and corporate funding to support program.

EDUCATION

Virginia Polytechnic Institute and State University, College of Education, Blacksburg

Ph.D. degree earned (1994) in Curriculum and Instruction

Dissertation title: Student Participation, Interaction, and Regulation in a Computer-Mediated Communication Environment. Dissertation funded by NSF Curriculum Development Grant #92-2170-06.

University of Iowa, College of Arts and Sciences, Iowa City

M.A. degree earned (1979) in English Literature.

Drexel University, College of Humanities and Social Sciences, Philadelphia

B.S. degree earned (1974) in Psychology and Education.

AWARDS AND RECOGNITIONS

Second place, AERA Division H School Evaluation and Program Development Outstanding Publications Competition on Program Evaluation Studies, 2008.

Senior Instructional Designer/Project Lead for *BioBLAST*[™] multimedia CD-ROM (1995-1999) that received the following awards:

- Copper AXIEM (Absolute Excellence in Electronic Media) Award, 1999.
- Distinguished Achievement Award for Excellence in Educational Publishing—Educational Technology Curricular Software, The Association of Educational Publishers, 1999, one of four finalists.
- CODIE AWARD for School Based Education Product—Best Product 1999, one of five finalists.

REVIEWER FOR:

- Software Information Industry Association CODIE[™] Judge
- Association of Jesuit Colleges and Universities Alpha Sigma Nu Book Awards
- American Educational Research Association
- American Evaluation Association
- NASA Education and NASA Science Mission Directorate E/PO Program
- National Science Foundation
- National Society for the Study of Education

PROFESSIONAL AFFILIATIONS

- American Educational Research Association—1991 to present
- American Evaluation Association—2007 to present
- National Science Teachers Association—1996 to present
- Professional Education Department, Wheeling Jesuit University – Adjunct Faculty 2007 to 2010

PEER-REVIEWED PRESENTATIONS AND PUBLICATIONS

Ruberg, L. F., Morris, K., & Wood, C. A. (in press). Mobile Devices for STEM Learning to Go: Guidelines for Selecting Mobile Devices and Applications to Enhance STEM Learning. In Norma Teresinha Oliveira Reis (Ed.) *Pedagogical Analyzes of Space Sciences Education Practices at NASA and the Brazilian Space Agency*. NOVA Science Publishers

- Ruberg, L. F. (2013). NASA Responds to Climate Changes and Human Health Issues with Hydroponic Solutions. Invited presentations at the 8th ASOCIACIÓN HIDROPÓNICA MEXICANA A.C., 14-16 Mar 2013, Toluca, Mexico.
- Ruberg, L. F. (2013). NASA Studies of Hydroponics for Extreme Environments and to Optimize Plant Production Invited presentations at the 8th ASOCIACIÓN HIDROPÓNICA MEXICANA A.C., 14-16 Mar 2013, Toluca, Mexico.
- Ruberg, L. F., Cummings, M., Piecka, D. C. B., Ruckman, C., & Seward, R. (2011). A logical approach to supporting professional learning communities. *Knowledge Management & E-Learning: An International Journal*, 3 (4), 599-620.
- Ruberg, L., & Piecka, D. (2011). Evaluating Mining Safety and Health Training, Technology Transfer, and Communications. American Evaluation Association annual meeting, November 2-5, Anaheim, CA.
- Ruberg, L. F., Piecka, D. B., Calinger, M. (2011, March). Adding Value to Instruction with Strategic Use of Online Collaboratives. National Science Teachers Association Research Dissemination Conference on Emerging Technologies. San Francisco, CA
- Piecka, D. C. B., Ruberg, L., & Ruckman, C. (2011) Self-discovery learning opportunities in NASATalk. In A. Hai-Jew (Ed.), *Constructing self-discovery learning spaces online: Scaffolding and decision making technologies*. Hershey, PA: IGI Global.
- Ruberg, L., Shia, J., Lightfritz, C., & Morgan, A. (2010). *Process evaluation of an immersion-learning experience for grades K-4 youth*. American Evaluation Association annual meeting, Nov. 8-13, San Antonio, TX.
- Ruberg, L., Calinger, M., & Howard, B. (2009). Evaluating educational technologies: Historical milestones. In L.A. Tomei (Ed.), *Designing instruction for the traditional, adult, and distance learner: A new engine for technology-based teaching*. Hershey, PA: IGI Global.
- Reese, D. D., Wood, C.A., Ruberg, L.F (2010). *MoonWorld*, 41st Lunar & Planetary Science Conference in Houston; <http://www.lpi.usra.edu/meetings/lpsc2010/pdf/1439.pdf>
- Ruberg, L., Wood, C. A., Reese, D. D., Lightfritz, C., & Harrison, A. (2009). *MoonWorld: Virtual Fieldwork in Second Life*. Paper presented at the meeting of the 40th Lunar and Planetary Science Conference, The Woodlands, TX. Abstract retrieved from <http://www.lpi.usra.edu/meetings/lpsc2009/pdf/2229.pdf>
- Ruberg, L., & Calinger, M. (2009). *Evaluation of educational simulations of extreme weather events*. American Evaluation Association annual meeting, Nov. 10-14, Orlando, FL.
- Ruberg, L. (2009, April). *Blending globalization and curriculum analysis to study technology-focused teacher training*. Paper presented at the annual meeting of the American Educational Research Association, San Diego.
- Ruberg, L., Smith, D., Shipp, S., Shupla, C., & Grier, J. (2008). Efforts of space science EPO professionals to meet the needs of pre-service students and faculty: Analysis of results. In C. D. Garmany, M.G. Gibbs; & J.W. Moody (Eds.), *EPO and a changing world: Creating linkages and expanding partnerships, Vol. 389*. Astronomy Society of the Pacific: http://www.aspbooks.org/a/users/add_volume.
- Chen, C-H., Ruberg, L., & Martin, J. (2008). Modeling scientific inquiry through technology-mediated tools. In R. Kobayashi (Ed.), *New educational technology*. NOVA Publishers.

- Ruberg, L.F., Chen, C-H., & Martin, J. (2008, March). *Applying blended research methods to school-based intervention evaluation*. Paper presented at the annual meeting of the American Educational Research Association, New York.
- Chen, C-H., Ruberg, L., Hull, J., & Martin, J. (2008, March). *Promoting STEM teaching practices and student learning: A longitudinal impact of professional development*. Paper presented at the annual meeting of American Educational Research Association, New York.
- Ruberg, L., Chen, C-H., & Martin, J. (2007). *NASA Explorer Schools project evaluation: Summer 2003 to spring 2006*. Center for Educational Technologies, <http://www.cet.edu/?cat=publications&page=35>
- Ruberg, L., Martin, J., & Chen, H-C. (2007). *Value-added assessment: Teacher training designed to improve student achievement*. Evaluation in Education Multipaper Session 344. Evaluation 2007: Evaluation and Learning. American Evaluation Association annual conference, Nov. 7-10, Baltimore.
- Chen, K., Ruberg, L., & Martin, J. (2007). *Promoting science, technology, engineering, mathematics, and geography (STEM-G) through professional development: Learning from evaluation*. Poster presentation 131. Evaluation 2007: Evaluation and Learning. American Evaluation Association annual conference, Nov. 7-10, Baltimore.
- Ruberg, L., Smith, D., Shipp, S., Shupla, C., & Grier, J. (2007). *Efforts of space science EPO professionals to meet the needs of pre-service students and faculty: Analysis of results*. Astronomy Society of the Pacific 119th annual conference, Sept. 5-8, Chicago.
- Ruberg, L.F., Steel, S., & Wood, C. (2006, September). *Transforming scientific discoveries into exciting inquiry activities*. Astronomy Society of the Pacific, Baltimore.
- Ruberg, L.F. (2006, June). *Aligning student learning with astronomy research: The Virtual Design Center*. American Astronomical Society annual conference, Calgary.
- Ruberg, L.F., Grier, J. (2006, February). *Sensing energy: Light sources and detectors*. Pre-Service Teacher Conference, Alexandria, VA.
- Ruberg, L.F., Shipp S., & Smith, D.A. (2005, January). *Exploring ways to help pre-service teachers meet science education challenges* (Abstract 132.07). Poster session presented at the American Astronomical Society 205th annual meeting, San Diego.
- Ruberg, L.F. (2005, February). *Testing ideas about light with hands-on learning centers*. National AfterSchool Association annual conference, San Antonio, TX.
- Ruberg, L.F. (2004, November). *What kinds of support can the broker/facilitator program provide to support scientists involvement in E/PO?* Abstract of poster presentation at 36th annual American Astronomical Society Division of Planetary Sciences meeting, Louisville, KY.
- Ruberg, L.F., & Jones, S.P. (2004, July). *Examining the potential for using space science as a context for teaching among minority-serving pre-service faculty*. Poster presented at the *Proceedings of the Introduction to Cosmos in the Classroom Conference*. Medford, MA: Astronomy Society of the Pacific.
- Ruberg, L.F., Reese, D., Kirby, J., & Hernandez, V. (2004, June). *Bridging the gap between urban and rural schools with technology*. Paper presented at National Education Computing Conference annual meeting, New Orleans: International Society for Technology Education. <http://center.uoregon.edu/ISTE/NECC2004/program/>

- Ruberg, L. F. (2003, April). *Applying the design process to curriculum development in technology education*. Poster session presented at the American Educational Research Association, Chicago.
- Ruberg, L.F., & Baro, J.A. (2002). Designing graphical, interactive simulations to model scientific problem solving. In S. Naidu (Ed.), *E-Learning: Technology and the development of teaching and learning*. London: Kogan Page.
- Ruberg, L.F. (2002, September). *Know your content and how to deliver it*. NSF-/NASA-sponsored pre-service teacher conference, Effective Science, Technology, Engineering, and Mathematics Partnerships: Strategies for Success, Orlando, FL.
- Ruberg, L.F. (2001, June). Evaluation of program impact based on teacher implementation and student performance. *Proceedings from World Conference on Educational Multimedia, Hypermedia, and Telecommunications*, Tampere, Finland. Norfolk, VA: Association for the Advancement of Computing in Education.
- Ruberg, L. (2000, February). *Space station engineering and science activities for high school classes*. International Space Station Educators Conference, Houston.
- Ruberg, L.F., & McGee, S. (2000, April). *The role of instructional software in facilitating learner-centered science teaching*. Paper presented at the American Educational Research Association, New Orleans.
- Ruberg, L., & Neuenschwander, J. (2000, June). *Applying NASA research to project-based and problem-based curricula for grades 4-12*. National Educational Computing Conference.
- Ruberg, L., & Baro, J. (1999). BioBLAST: A multimedia-learning environment to support student inquiry in the biological sciences. In W. Bozeman (Ed.), *Educational technology: Best practices from America's schools*, (pp. 62-70). Larchmont, NY: Eye on Education.
- Baro, J.A., Coffield, J.E., & Ruberg, L.F. (1999). An integrated model of an advanced life support system for use in the high school classroom. *Society of Automotive Engineers Inc.* Publication No. 1999-01-2039.
- Ruberg, L. (1999, October). *Simulations for learning: Using NASA data to build instructional tools*. Partners in Education and Research Conference, Kennedy Space Center, FL.
- Ruberg, L.F. (1999, April). *Promises versus product: A problem-based learning environment*. Poster session presented at the American Educational Research Association, Montreal.
- Carlson, P.A., Ruberg, L., Johnson, T., Kraus, J., & Sowd, A. (1998). Collaborations for learning: The experience of NASA's Classroom of the Future. *T.H.E. Journal*, 25(7), 50-53.
- Ruberg, L.F. (1998, June). Simulations for learning: An inquiry-based approach to biology. *Proceedings from World Conference on Educational Multimedia, Hypermedia, and Telecommunications*, Freiburg, Germany. Norfolk, VA: Association for the Advancement of Computing in Education.
- Ruberg, L. (1997, April). *What is BioBLAST and how does it link with NASA's life science research?* Faculty seminar presented to NJ NSCORT faculty, Cook College, Rutgers University, NJ.

- Ruberg, L.R., Taylor, C.D., & Moore, D.M. (1996). Student participation and interaction online: A case study of two college classes—freshman writing and a plant science lab. *International Journal of Educational Telecommunications*, 2(1), 69-92.
- Ruberg, L.F., Moore, D.M., & Taylor, C.D. (1996). Student participation, interaction, and regulation in a computer-mediated communication environment: A qualitative study. *Journal of Educational Computing Research*, 14(3), 243-268.
- Ruberg, L. F. (1996). Bridging the gap between science education reform and space life sciences research. (1996, November). (Keynote presentation). Eco-Informa Annual International Ecology and Engineering Conference, Lake Buena Vista, FL.
- Ruberg, L.F., Scheckler, S., & Taylor, C.D. (1994). *Evaluating undergraduate learning in a technological environment*. Paper presented at the State Council for Higher Education in Virginia, Faculty Forum, Nov. 1994, Richmond, VA.
- Ruberg, L. (1994). Writing as interactive “discussion” in the multimedia classroom. *Connecting Through Writing*, 8-9. Center for Excellence in Undergraduate Teaching, Virginia Tech.
- Ruberg, L.F., & Sherman, T.M. (1993). Computer-mediated communication: How does it change the social-psychological aspects of teaching and instruction? *Educational Technology Research and Development*, 41(4), 122.
- Ruberg, L.F., Nespor, J., & Scales, G.R. (1993, October). *An ethnographic study of the impact of digital technologies on classroom learning: Visualizing change at Oakland elementary school*. Selected readings from the 25th annual conference of International Visual Literacy Association, Rochester, NY.
- Miller, M.G., & Ruberg, L.F. (1990). Putting the end-user first—A challenging but promising concept. *Interactive Instruction Development*, 3(2), 20-25.
- Ruberg, L.F. (1989). Human services on cable: A case study of a data retrieval system designed for public access. *Computers in Human Services*, 3(4), 233-241.
- Ruberg, L.F., & Miller, M.G. (1992, September/October). Moving from U.S. mail to e-mail. *Imagery in Science and the Arts*. Selected readings from the 24th annual conference of the International Visual Literacy Association, Pittsburgh, PA.
- Ruberg, L.F., Ruberg, G.E., & Schwab, J.L. (1992, September/October). Analysis of visual cues for an electronic bulletin board. *Imagery in Science and the Arts*. Selected readings from the 24th annual conference of the International Visual Literacy Association, Pittsburgh, PA.
- Ruberg, L.F., & Miller, M.G. (1992). Use of visuals to introduce computer novices to routine maintenance tasks. *Visual Communication: Bridging Across Cultures*, 409-418. Selected readings from 23rd annual conference of the International Visual Literacy Association, Blacksburg, VA.
- Ruberg, L. (1991). The ideology of images in educational media: Hidden curriculum in the classroom. *Virginia English Bulletin*, 41 (1), 137-140. Blacksburg, VA: Virginia Association of Teachers of English.