ROBERT B. KOZMA
CENTER FOR TECHNOLOGY IN LEARNING
SRI INTERNATIONAL
333 RAVENSWOOD AVE.
MENLO PARK, CA 94025
650/859-3997

GOALS AND ASPIRATIONS

I see the goal of my work as applying and evaluating the enormous potential of emerging technologies to improve the quality and effectiveness of educational environments. I strive to accomplish this through the combination of research based in cognitive and social psychology, an understanding of educational subjects and contexts, and the development of advanced interactive systems. I disseminate my work through consultations with policy makers, the publication of theoretical and empirical studies; the development of advanced prototype interactive systems; the evaluation of large-scale technology-based innovations; and workshops and other presentations for faculty members, teachers, administrators, and policy makers on the use of technology in support of educational change. I am particularly interested in working with developing countries to help them find ways that technology can be used to improve their educational systems.

PRESENT POSITION

Emeritus Director and Principal Scientist
Fulbright Senior Specialist
Center for Technology in Learning
SRI International

AREAS OF EXPERTISE

Evaluation of the impact of technology on teaching and learning
Design of advanced interactive multimedia systems
Media research and theory
Faculty development and instructional innovation in higher education

EDUCATION

Ph.D. Instructional Technology, Wayne State University, 1972
M.A.T. Education, Oakland University, 1970
B.A. Political Science, University of Michigan, 1968

PROFESSIONAL EXPERIENCE

Visiting Professor, University of Hong Kong (2003). I taught two graduate instructional technology courses partially face-to-face and partially online: Hypermedia and Multimedia and Multimedia Case Study Methodology.

Fulbright Senior Specialist, Council for International Exchange of Scholars, U.S. State Department (2001-2006) Consult with ministries of education on the use of technology to improve their educational systems.

Principal Scientist, Center for Technology in Learning, SRI International (1994-2002). I directed a program of research on the impact of advanced technology systems on learning and teaching, primarily learning and teaching in the sciences. Much of my research and development focused on advanced multimedia systems and virtual environments to support student collaboration in college chemistry. I also directed several large, international research projects and evaluated large-scale, government-funded educational technology implementation projects, such as the Second Information Technology in Education Study, the Virtual High School, and the World Links for Development.

Director, Center for Technology in Learning, SRI International (1994-1996). As the first Director of this Center, I was responsible for setting a mission and vision for our efforts, for working with other researchers to develop ideas and get them funded, to supervise Center activities, and for conducting my own research projects.

Research Scientist (1992-1994), Associate Research Scientist (1979-1992), Assistant Research Scientist (1973-1979), Center for Research on Learning and Teaching, The University of Michigan. Conducted research on faculty development and instructional innovation. Consulted with University faculty on teaching improvement and conducted workshops on the use of educational computing and the design and development of educational software.

Associate Professor with tenure (1981-1994), Assistant Professor (1976-1981), School of Education, The University of Michigan. Courses taught: Cognition and Instruction; Instructional Design; Software Design and Authoring; Educational Media and Methods; Computers in Education; Research Seminar in Educational Media; Research Seminar in Educational Television; Technology of Training and Staff Development; Technology, Reading, and Writing. Chaired the instructional technology program committee and developed several graduate programs in the area including a combined program in instructional technology and computer science and a Ph.D. in Educational Technology and Science Education, Mathematics Education, and Literacy.

Director, Program on Learning, Teaching, and Technology (1986-1991), The National Center for Research to Improve Postsecondary Learning and Teaching, The University of Michigan. Conducted research on the impact of computers in English composition and chemistry. Created and directed the EDUCOM/NCRIPTAL Higher Education Software Awards Program.

Chairman, Arborworks, Inc. (1986-1990). Designed educational software for the Macintosh computer.

Dana Fellow for Educational Computing in the Humanities (1989-90). Center for Design of Educational Computing, Carnegie Mellon University. Conducted research on the effectiveness of educational applications of computers.

Visiting Professor, Humacao University College, University of Puerto Rico (April-May 1985). Taught a workshop for faculty members on the use of educational computing in higher education.

Assistant Dean for Instruction, School of Education, The University of Michigan, (1979-1982). Responsible for the undergraduate and graduate academic program.

Associate Director (1978-80), Acting Associate Director (1977-1978), Center for Research on Learning and Teaching, The University of Michigan. Responsible for coordinating the efforts of nine researchers who conducted research and provided service on the improvement of undergraduate teaching to university departments and faculty members.

Project Associate, Manpower Science Services: Research in the Social Sciences, (1972-1973).

Teacher, Detroit Public Schools (1968-1972). Taught elementary mathematics in an experimental public school in the inner city. Taught general subjects in elementary grades.

GRANTS AND CONTRACTS

National Science Foundation; $630,000. Coordinated, Innovative Designs for International ICT in the Assessment in Science and Mathematics (with E. Quellmalz). Development of technology-based performance assessment in science and mathematics, 2001-2003.

International Association for the Evaluation of Educational Achievement (IEA), $1.4 million (with funding from the governments of Japan, Denmark, Norway, France, The Netherlands, and the United States, and the Ford Foundation). Second Information Technology in Education Study: Module 2 (SITES M2). Case studies of innovative pedagogical practices supported by technology. Coordinating research teams 28 countries. 1999-2002.

World Bank, $250,000. Evaluation of the World Links for Development Program. External evaluation for a major international project to install and use networked technology in high schools in 12 developing countries in Africa and Latin America. 1998-2001.

National Science Foundation, Research on Learning and Education. $1.2 million. Use of Technology to Support Representational Competence and Chemical Understanding (with E. Coleman, P. Schank, & B. Coppola). Research and development of a networked environment that supports students' use of representational tools to understand their laboratory experiments. 1998-2001.

National Science Foundation, $160,000. External evaluation of the BioSIGHT project. Subcontract from the Integrated Multimedia Systems Center, University of Southern California. 1998-2000.

Office of Naval Research, $130,000. Adaptive Multimedia Collaborative Learning Environments (with Denise Gürer). Research on and development of artificial intelligence techniques to support collaborative learning and collaboration at a distance. 1997-1999.

National Science Foundation, Collaborative Research on Learning and Technology, $600,000. Virtual Places to Support Collaborative Science Simulations. Research on and development of an advanced multi-user environment to support synchronous and asynchronous collaborative distance learning. 1997-1999.

U.S. Department of Education, Educational Technology Challenge Grants, $850,000 subcontract with Hudson Public Schools/Concord Consortium. External evaluation for the Virtual High School project, a major national project to teach high school courses via the Internet. 1996-2001.

National Science Foundation, Division of Undergraduate Education, Curriculum and Course Development, $110,000. External evaluation for UCLA Molecular Science Curriculum Innovation. Sub-contract from University of California, Los Angeles to provide technical

support and evaluation for a highly innovative, technology-based project designed to reform introductory college chemistry. 1996-97.

National Science Foundation, Networking Infrastructure for Education Program, $100,000. Assessing the Impacts of Network-Based Projects (with E. Quellmalz). This project is aimed at aiding the National Science Foundation in reviewing its investment portfolio for networked education and determining appropriate evaluation strategies for different types of projects. 1996

National Science Foundation, $47,000. Increasing the Impact of Advanced Technology on the Education Market (with Teresa Middleton). Conduct a workshop in collaboration with the Software Publishers Association to identify opportunities and issues related to the transfer of Federally-funded advanced educational technology to the private sector in a way that supports the development of the educational technology industry and increases the positive impact that advanced technology can have on schools, teachers, and children. 1996.

National Science Foundation, National Infrastructure for Education, $48,000. Documenting the Process: School and Community Decision Making for Implementing Advanced Technologies. (with T. Middleton) Documentation of Castro Valley School's initial efforts to take advantage of Viacom's high bandwidth interactive video testbed and other advanced technology opportunities. 1995-1996.

National Science Foundation, National Infrastructure for Education. $99,986. Use of Interactive Community Cable for Education. (with T. Middleton) Planning grant that allows CTL to work with Viacom Cable and Castro Valley Schools to explore the ways that Viacom's high bandwidth interactive video testbed can be used to support the community's educational goals. 1995.

U.S. Congressional Office of Technology Assessment. $4,986. Technology and the Future of Teaching. Center for Technology in Learning. Grant to write a report that envisions the impact of technology on teaching and learning in the near future. 1995.

National Science Foundation, $387,000, The Use of Linked Multiple Representations to Understand and Solve Problems in Chemistry. Grant to conduct research on the role that external representations of various sorts (diagrams, verbal descriptions, formulae, graphs, visualizations, etc.) play in the understanding and problem solving of practicing chemistry and the role that such representations embedded in multimedia educational systems can play in improving the understanding and problem solving of chemistry students, 1993-1995.

College of Literature, Science, and Arts, University of Michigan, $25,000, BioMap: An Interactive Hypermedia Environment to Promote Flexible Problem Solving in Biology, to develop educational software environment for a course in evolution and conduct research on its impact on student understanding, 1991-92.

College of Engineering, University of Michigan, $18,900, Faculty Fellowship Program, to conduct teaching improvement activities for first year engineering faculty, 1991-1992.

National Science Foundation, $125,000, Interactive Multimedia and Mental Models in Chemistry, to develop software in chemistry and conduct research on its impact on student understanding, 1991-1992.

EDUCOM, $390,000 for the EDUCOM/NCRIPTAL Higher Education Software Awards Program, 1986-1990. Worked with 12 national academic associations to review over 1000 educational software packages in the social and natural sciences, mathematics, humanities, and the professions and make awards to the 100 most outstanding.

Office of the Vice Provost for Information Technology, University of Michigan, $63,000 for research and development on the use of microcomputers in introductory English composition, and to conduct faculty workshops on instructional design and computer-based.

National Institute for Education, $5,000,000 for the National Center for Research to Improve Postsecondary Learning and Teaching (with J. Stark and W. McKeachie), 1986-1991. Directed the research program Technology in Learning and Teaching within this Center.

National Institute of Education, $15,000, Planning Grant for a National Center for Research on Postsecondary Learning and Teaching (with J. Stark and W. McKeachie), 1985.

Center for Research on Learning and Teaching, University of Michigan, $5,000 teaching grant, Initial Support for an Innovative Program of Graduate Studies in Computers and Education, 1984-1987.

Exxon Education Foundation, $32,500, Evaluation of the Impact of Four Instructional Improvement Programs, 1979.

Exxon Education Foundation, $83,000, Development and Validation of Instructional Materials for a Freshman Chemistry Laboratory (with P. Rasmussen), 1976-1977.

National Science Foundation, $104,000, Design and Evaluation of a Program for Training Tutors in Individualized Courses, 1974.

Fund for the Improvement of Post-secondary Education, $190,000, A Systems Approach to the Analysis and Improvement of College Teaching, 1974-1976.

CONSULTATION, ADVISORY POSITIONS, AND WORKSHOPS
Workshops, Institute for the Promotion of Teaching Science and Technology, Thailand. Taught a series of graduate-level workshops to professional staff responsible for developing software, text books, and curriculum materials in science, math, and technology. Workshops included Psychological and Social Foundations of Learning and Teaching, Design of Instructional and Curriculum Materials, and Design of Educational Software and Online Materials, 2003-2004.
Consultation, Ministry of Education, Norway and Information Technology Center, University of Oslo. Consulted on directions for national information technology plan in education and on directions for future research, 2003.
Consultation, Ministry of Education, Singapore. Lead a team of external evaluators to assess the impact of their first five-year Information Technology Master Plan and advised on their second five-year plan, 2002.

Consultation, Ministry of Education, Chile. Consulted on future directions for the Enlaces
Program, their national program to integrate computers into primary and secondary
schools, 2002.

Consultation, Office of the National Education Commission and Institute for the Promotion of
Teaching Science and Technology and the Office of the National Education Commission,
Ministry of Education, Thailand. Consulted on master plan for training teachers on the
integration of technology into the curriculum, 2001-2003.

Consultation, Ford Foundation. Consulted on prospects for a new funding program in
information technology, 2000.

Consultation, Kaplan, Inc. Consulted on prospects for a new advanced technology research
effort,1998.

Expert testimony, Hearing on K-12 Educational Technology, Senate Select Committee on
Information Services in State Government, Senate of the State of California, 1996.

Evaluation Consultant, Oakland University Chemistry Department, Multiple Simultaneous
Visualizations Project, 1995-96.

Instructor, faculty workshop on computers in the classroom, Bethany College, Sept. 1992.

Instructor, Central Virginia Faculty Consortium faculty workshop on computers in the
classroom, Virginia Commonwealth University, Sept, 1992.

Consultant, technology committee, North Central Regional Laboratory, Chicago, Sept, 1992.

Consultant, Armstrong Laboratory, Brooks Air Force Base, San Antonio, TX, June, 1992.

National Advisory Panel, EDUCOM Higher Education Software Awards, University of
Maryland, 1991-1993.

Consultant, Center for Design of Educational Computing, Carnegie Mellon University, April,
1992.

Consultant, Vice President for Administration and Planning, Northwestern University, planning
for educational computing, March, 1992.

Leader, NCRIPTAL Software Design Workshop, July, 1990.

Instructor, Instructional Design Workshop (formerly Programmed Learning Workshop),
Division of Management Education, School of Business Administration, The University
of Michigan, 1973-1989.

Consultant, IBM Academic Information Systems, November, 1987.

Instructor, Workshop on Designing Computer-Based Training, Division of Management
Education, School of Business Administration, The University of Michigan, 1984-87.

Instructor, Workshop on Designing Instruction for Computer-Based Training, Dow Chemical,
1983.

Consultant, Computer-Based Training, Comshare, Inc., Ann Arbor, 1982.

Instructional design consultant, Blue Cross/Blue Shield of Southern Ohio, 1981.

Instructor, Workshop on Designing Programmed Instruction for Training, Drake University, Des
Moines, 1980.

Instructor, Personalized System of Instruction Workshop, Center for Personalized Instruction,
Georgetown University, Washington, D.C., 1976.

Instructional design consultant, Manpower Science Services, Ann Arbor, 1973-1975.

EDITORSHIPS & REVIEWER
Editorial

Associate Editor, *Handbook of Research on Educational Communication and Technology*
Editorial Board, *Educational Technology Research and Development* (1997-2000)
Program Chair, AERA, Division C, Technology Section of 1995 program

Director, EDUCOM/NCRIPTAL Higher Education Software Awards, 1987-91

Reviewer
Computers and Education
Computers in Human Behavior
Educational Psychologist
EDUCOM Higher Education Software Awards
Journal of Applied Behavioral Analysis
Journal of Higher Education
Journal of the Learning Sciences
Journal of Personalized Instruction
Learning and Instruction
National Science Foundation, Applications of Advanced Technology
Review of Educational Research
Review of Higher Education

PUBLICATIONS
Articles

Kozma, R., McGhee, R., Quellmalz, E., & Zalles, D. (2004). Closing the digital divide: Evaluation of the World Links program. *International Journal of Educational Development, 24*(4), 361-381.

Quellmalz, E. & Kozma, R. (2003). Designing assessments of learning with technology. *Assessment in Education, 10*(3), 389-407.

Kozma, R. (2003). Technology and classroom practices: An international study. *Journal of Research on Computers in Education, 36*(1), 1-14.

Kozma, R. (2003). Global perspectives: Innovative technology and integrative practices from around the world. *Learning and Leading with Technology, 21*(9), 6-9, 52-54.

Kozma, R. (2003). Material and social affordances of multiple representations for science understanding. *Learning and Instruction, 13*(2), 205-226.

Schank, P. & Kozma, R. (2002). Learning chemistry through the use of a representation-based knowledge-building environment. *Journal of Computers in Mathematics and Science Teaching, 21*(3), 253-279.

Kozma, R. & Anderson, R. (2002). "Qualitative case studies of innovative pedagogical practices using ICT." *Journal of Computer Assisted Learning, 18*, 4 387-394

Kozma, R. (2000). Reflections on the state of educational technology research and development. *Educational Technology Research and Development*, *48*(1), 5-15.

Kozma, R. (2000). The relationship between technology and design in educational technology research and development: A reply to Richey. *Educational Technology Research and Development*, *48*(1), 19-21.

Kozma, R.B., Chin, E., Russell, J., & Marx, N. (2000). The role of representations and tools in the chemistry laboratory and their implications for chemistry learning. *Journal of the Learning Sciences, 9*(3), 105-144.

Kozma, R. & Russell, J. (1997). Multimedia and understanding: Expert and novice responses to different representations of chemical phenomena. *Journal of Research in Science Teaching, 43*(9), 949-968.

Russell, J., Kozma, R. B., Jones, T., Wykoff, J., Marx, N., & Davis, J. (1997). "Use of simultaneous-synchronized macroscopic, microscopic, and symbolic representations to enhance the teaching and learning of chemical concepts. *Journal of Chemical Education, 74*(3), 330-34.

Kozma, R. (1994). "A reply: Media and method." *Educational Technology Research and Development*, 42(3), 11-14.

Kozma, R.B. (1994). "The influence of media on learning: The debate continues." *School Library Media Quarterly, 22*(4), 233-238.

Kozma, R. (1994). "Will media influence learning: Reframing the debate." *Educational Technology Research and Development*, 42(2), 7-19.

Russell, J., & Kozma, R. (1994). 4M:Chem - Multimedia and Mental Models in Chemistry. *Journal of Chemical Education, 71*(669-670).

Hammel, M. & Kozma, R. B. (1993). "Using an outliner with a word processor." *Computers in Human Behavior*, 9, 665-81.

Kozma, R.B. & Croninger, R.G. (1992). "Technology and the fate of at-risk students." *Education and Urban Society*, *24*(4), 440-453.

Kozma, R.B. (1991). "The impact of computer-based tools and rhetorical prompts on writing processes and products." *Cognition and Instruction*, *8*, 1-27.

Kozma, R.B. (1991). "Computer-based writing tools and the cognitive needs of novice writers." *Computers and Composition*, *8*(2), 31-45.

Kozma, R.B. (1991). "Learning with media." *Review of Educational Research*, *61*(2), 179-212.

Kozma, R.B. & Johnston, J. (1991). "The technological revolution comes to the classroom." *Change*, *23*(1), 10-23.

Bangert-Drowns, R. & Kozma, R. B. (1989). "Assessing the design of instructional software." *Journal of Research on Computing in Education*, *2*(3), 241-62.

Johnston, J., Kozma, R.B., Vinik, E., & Hart, C. (1989). "Quality, diversity, and new media: The 1989 EDUCOM/NCRIPTAL Awards". *Academic Computing*, *4*(2), 22-25/46-51.

Kozma, R.B. (1989). "Evaluation of Educational Software." *Syllabus*, April (5), 10-11.

Kozma, R.B., Johnston, J., & Vinik, E. (1989). "New media for more classrooms: The 1989 EDUCOM/NCRIPTAL Software Award Winners." *EDUCOM Review*, *24*(3), 44-49.

Johnston, J., & Kozma, R.B. (1988). "Software awards: The 1988 EDUCOM/NCRIPTAL competition." *Academic Computing*, *3*(4), 30-36.

Kozma, R.B., & Johnston, J. (1988). "Enhancing learning: The 1988 Software Awards Program." *EDUCOM Bulletin*, *23*(4), 25-33.

Kozma, R.B. (1987). "The implications of cognitive psychology for computer-based learning tools." *Educational Technology, 27* (11), 20-25.

Kozma, R.B., Bangert-Drowns, R., & Johnston, J. (1987). "Rewarding innovation: 1987 EDUCOM/NCRIPTAL Higher Education Software Awards." *EDUCOM Bulletin, 22*(3), 18-26.

Kozma, R.B., Johnston, J., & Bangert-Drowns, R. (1987). "EDUCOM/NCRIPTAL Higher Education Software Awards." *Academic Computing, 2*(2), 36-41.

Kozma, R.B. (1986). "Implications of instructional psychology for the design of educational television". *Educational Communication and Technology Journal, 34*(1), 11-20.

Kozma, R.B. (1986). "Present and future computer courseware authoring systems." *Educational Technology, 26*(6), 39-41.

Kozma, R.B. (1985). "A grounded theory of instructional innovation in higher education." *Journal of Higher Education, 56*(3), 300-39.

Kozma, R.B. (1984). "Computers as aids for instruction and tools for learning." *LSA Magazine, 8*(2), 10-12.

Pintrich, P., Stemmer, P., Berger, C., Goodman, F., Kozma, R., & Saunders, E. (1984). "An interactive research and development model for educational applications of technology." *Educational Technology*, *24*(12), 7-11.

Kozma, R.B. (1982). "The design of instruction in a chemistry laboratory course." *Journal for Research in Science Teaching*, *19*, 261-70.

Rasmussen, P., Hough, R., & Kozma, R. (1980). "A one-term, stand-alone, general chemistry laboratory course." *Journal of Chemical Education, 57*, 191-95.

Kozma, R.B. (1979). "Communications, rewards, and the use of classroom innovations." *Journal of Higher Education*, *50*(6), 761-71.

Kozma, R.B. (1978). "Faculty development and the adoption and diffusion of classroom innovations." *Journal of Higher Education*, *49*(5), 438-49.

Kozma, R.B. (1977). "Learning and the instructional system." *New Directions for Higher Education*, *17*, 33-48.

Kozma, R.B., Kulik, J.A., & Smith, B.B. (1977). "Development of a guide for PSI instructors." *Journal of Personalized Instruction, 2*(4), 221-26.

Books, Chapters, Encyclopedia Entries, Reviews, and Manuals

Kozma, R. & Russell, J. (in preparation). Multimedia learning of chemistry. In R. Mayer (Ed.), *Cambridge Handbook of Multimedia Learning*, New York: Cambridge University Press.

Russell, J. & Kozma, R. (in preparation). Visualizations in chemical education. In J. Gilbert (Ed.), *Visualization in science education.* London: Kluwer.

Kozma, R. & Wagner, D. (in press). Reaching the most disadvantaged with ICT: What works? In R. Sweet and D. Wagner (Eds.), *ICT in non-formal and adult education: Supporting out-of-school youth and adults*. Paris: OECD.

Wagner, D. & Kozma, R. (in preparation). *New technologies for literacy and adult education: A global perspective.* Paris: UNESCO.

Kozma, R. (Ed.) (2003). Technology, innovation, and educational change: A global perspective. Eugene, OR: International Society for Educational Technology.

Kozma, R. (2003). Information and communication technologies and educational change: A global phenomena. In R. Kozma, R. (Ed.), *Technology, innovation, and educational change: A global perspective*. Eugene, OR: International Society for Educational Technology.

Kozma, R. (2003). Study procedures and a first look at the data. In R. Kozma, R. (Ed.), *Technology, innovation, and educational change: A global perspective*. Eugene, OR: International Society for Educational Technology.

Kozma, R. & McGhee, R. (2003). ICT and innovative classroom practices. In R. Kozma, R. (Ed.), *Technology, innovation, and educational change: A global perspective*. Eugene, OR: International Society for Educational Technology.

Kozma, R. (2003). A review of the findings and their implications for practice and policy. In R. Kozma, R. (Ed.), *Technology, innovation, and educational change: A global perspective*. Eugene, OR: International Society for Educational Technology.

Zucker, A. & Kozma, R., with Yarnall, L. & Marder, C. (2003). *The Virtual High School: Teaching generation V*. New York: Teachers College Press.

Kozma, R.B. (2000). "The use of multiple representations and the social construction of understanding in chemistry". In M. Jacobson & R. Kozma (eds.), *Innovations in science and mathematics education: Advanced designs for technologies of learning* (pp. 11-46). Mahwah, NJ: Erlbaum.

Jacobson, M. & Kozma, R.B. (Eds.) (2000). *Innovations in science and mathematics education: Advanced designs for technologies of learning*. Mahwah, NJ: Erlbaum.

Jacobson, M., Angulo, A., & Kozma, R. (2000). "Introduction: New perspectives on designing the technologies of learning". In M. Jacobson & R. Kozma (eds.), *Innovations in science and mathematics education: Advanced designs for technologies of learning*. Mahwah, NJ: Erlbaum.

Kozma, R. (2000). "Students collaborating with computer models and physical experiments". In J. Roschelle & C. Hoadley (Eds.), *Proceedings of the Conference on Computer-Supported Collaborative Learning 1999*. Mahwah, NJ: Erlbaum.

Kozma, R.B. & Schank, P. (1998). "Connecting with the twenty-first century: Technology in support of educational reform". In C. Dede (ed.), *Technology and learning* (p. 3-30). Washington, DC: American Society for Curriculum Development.

Kozma, R.B., Russell, J., Jones, T., Marx, N., & Davis, J. (1996). "The use of multiple, linked representations to facilitate science understanding". In S. Vosniadou, R. Glaser, E. DeCorte, & H. Mandel (Eds.), *International perspective on the psychological foundations of technology-based learning environments* (pp. 41-60). Hillsdale, NJ: Erlbaum.

Kozma, R.B., Grant, W. and the Center for Technology in Learning (1995). "Year 2000: Using technology to build communities of understanding." In K. Fulton (Ed.) *Visions of the future*. Washington, DC: Congressional Office of Technology Assessment.

Kozma, R.B. (1994). "Computer and information science: Educational programs". In T. Husen & T. N. Postlethwaite (Eds.), *The International Encyclopedia of Education*. New York: Pergamon.

Kozma, R.B. (1994). "Mass media literacy". In T. Husen & T. N. Postlethwaite (Eds.), *The International Encyclopedia of Education*. New York: Pergamon.

Johnston, J. & Kozma, R.B. (1993). "When lectures fail: Turmoil in the academy". In J. Johnston & R. Kozma (Eds.) *When lectures fail: Educational computing in the humanities* (pp. 1-14). Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.

Johnston, J. & Kozma, R. (Eds.) (1993). *When lectures fail: Educational computing in the humanities*. Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.

Kozma, R.B. (1992). Constructing knowledge with *Learning Tool*. In P.A.M. Kommers, D.H. Jonassen, & T. Mayes (Eds.), *Cognitive tools for learning* (pp. 23-32). Berlin: Springer-Verlag.

Kozma, R.B. (1990). "Students' construction of concept maps using Learning Tool." In E. Redish and J. Risley (Eds.) *Computers in physics instruction* (pp. 325-326) (Proceedings) New York: Addison Wesley.

Kozma, R.B. (1990). "The evaluation of Educational software: The EDUCOM/NCRIPTAL Higher Education Software Awards Program." In E. Redish and J. Risley (Eds.) *Computers in physics instruction* (517-19). (Proceedings) New York: Addison Wesley.

Kozma, R.B, & Van Roekel, J. (1986). *Learning Tool Manual*. Santa Barbara, CA:
        Intellimation.
Pintrich, P., Cross, D., Kozma, R., McKeachie, W. (1986). "Instructional psychology." In M.
        Rosenzweig & L. Porter (Eds.) *Annual Review of Psychology*. Palo Alto, CA: Annual
        Reviews, Inc.
Kozma, R.B. (1978). "Review of *Individuality in Learning*" by Samuel Messick. *Journal of
        Higher Education*, *49*(2), 194-96.
Kozma, R.B., Belle, L.W., & Williams, G.W. (1978). *Instructional Techniques in Higher
        Education*. Englewood Cliffs, NJ: Educational Technology Publications.
            Reviewed in : *Educational Researcher*, July, 1979; *NSPI Journal,* December, 1979;
            Journal of Higher Education, Fall, 1980.
Kozma, R.B., Kulik, J.A., & Smith, B.B. (1977). *A Guide for PSI Proctors*. Georgetown
        University: Center for Personalized Instruction.
Kulik, J.A., Kozma, R.B., Smith, B.B., & Weitzer, W.H. (1976). *Manual for PSI Instructors*.
        Ann Arbor, MI: Center for Research on Learning and Teaching.

Computer Software

Russell, J.; Kozma, R.; Zohdy, M.; Susskind, T.; Becker, D. & Russell, C. (2000). *SMV:Chem
        (Simultaneous Multiple Representations in Chemistry)* [software]. New York: John
        Wiley.
Kozma, R.B., & Van Roekel, J. (1986/1991) *Learning Tool* [software]. Santa Barbara, CA:
        Intellimation.
Kozma, R.B., Russell, J., Jones, T., Wykoff, J., Katman, L., Davis, J., & Marx, N. *4M:Chem.
        (Mental Models and Multimedia in Chemistry)* [software]. Ann Arbor, MI: University of
        Michigan.
Kozma, R.B., Belzer, S., Jaffe, M. *BioMap* [software]. Ann Arbor, MI: University of Michigan.

Paper Presentations

Kozma, R. (July, 2003). International findings from SITES M2: A special report to the NECC.
    Invited presentation to the National Educational Computing Conference, Seattle.

Kozma, R. (April, 2003). Innovative practices from around the world: Integrating technology
    into the classroom. Presentation at the annual conference of the American Educational
    Research Association, Chicago.

Kozma, R. (September, 2002). ICT and educational change in Asia Pacific. Presentation at the
    European Educational Research Conference, Lisbon, Portugal.

Kozma, (July, 2002). Preliminary results of SITES M2. Presentation at the Symposium on
    Itineraries for Change in Education, Barcelona, Spain.

Kozma, R. (April, 2002). Cross-national analysis of cases from 28 countries. Presentation at the
    annual conference of the American Educational Research Association, New Orleans.

Kozma, R. (April, 2002). Innovative uses of ICT. An invited presentation to the conference on
    Future Challenges to Education and ICT, sponsored by the Council of Ministers of
    Education, Canada, Montreal.

Kozma, R. & McGhee, R. (April, 2002). Methodology and framework for the SITES international study. Presentation at the annual conference of the American Educational Research Association, New Orleans.

Schank, P. & Kozma, R. (April, 2002). The ChemSense learning environment. Presentation at the annual conference of the American Educational Research Association, New Orleans.

Kozma, R. (March, 2002). Innovative pedagogical practices using technology: SITES Module 2. Presentation at the Organization for Economic Cooperation and Development Conference on Educational ICT, Nashville, TN.

Kozma, R. (April, 2001). Material and social affordances of multiple representations for science understanding. Presentation at the annual conference of the American Educational Research Association, Seattle.

McGhee, R. & Kozma, R. (April, 2001). New teacher and student roles in the technology-supported classroom. Presentation at the annual conference of the American Educational Research Association, Seattle.

Kozma, R. (February, 2002). Innovative pedagogical practices using technology: International comparative case studies. Presentation at the Symposium on Itineraries for Change in Education, Barcelona, Spain.

Kozma, R. (April, 2000). Evaluation of the World Bank's World Links for Development Program. Presentation at the annual conference of the American Educational Research Association, New Orleans.

Kozma, R. (December, 1999). Students collaborating with computer models and physical experiments. Presentation at the Computer-Supported Collaborative Learning Meeting, Stanford, California.

Kozma, R. (June, 1999). The role of representations in chemistry teaching and learning. Invited address to the Gordon Conference on Chemistry Education, Groton, Connecticut.

Kozma, R. (April, 1999). Virtual High School courses and their impact on students. Presentation at the AREA Annual Meeting, Montreal, Canada.

Kozma, R. (April, 1999). Students collaborating with computer models and physical experiments. Presentation at the AREA Annual Meeting, Montreal, Canada.

Kozma, R. (April, 1999). Representations in the chemistry laboratory and their influence on discourse. Presentation at the EARLI Biannual meeting, Gothenburg, Sweden.

Kozma, R. B. (December, 1997). Computer supported collaborative learning in higher education. Presentation as part of a panel session presented at the Computer Supported Collaborative Learning Conference, Toronto.

Kozma, R. B.; Lang, R.; Schlager, M.; Schank, P.; Fong., M.; & DiGiano; C. (December, 1997). "Virtual places to support collaborative distance learning." Poster session presented at the Computer Supported Collaboartive Learning Conference, Toronto.

Kozma, R. B. (August, 1997). "The effect of single and multiple representations on the social construction of understanding in chemistry." Paper presented at EARLI Conference, Athens, Greece.

Kozma, R. B. (August, 1997). "Virtual places for distance learning." Paper presented at EARLI Conference, Athens, Greece.

Kozma, R. B. (April, 1997). "The effect of single and multiple representations on the social construction of understanding in chemistry." Paper presented at AERA Annual Conference, Chicago.

Kozma, R. B. (August, 1997). "The effect of single and multiple representations on the social construction of understanding in chemistry." Paper presented at EARLI Conference, Athens, Greece.

Kozma, R. B. (April, 1997). "The effect of single and multiple representations on the social construction of understanding in chemistry." Paper presented at AERA Annual Conference, Chicago.

Kozma, R. B. (April, 1996). "The effect of single and multiple representations on the social construction of knowledge." Paper presented at AERA Annual Conference, New York.

Kozma, R. B. (March, 1995). "Effects of media on learning." Presidential invited presentation on a panel to discuss articles from a special issue of *Educational Technology Research and Development* based on my work, Association for Educational Communication and Technology Annual Conference, San Diego, CA.

Kozma, R. B. (April, 1995). "The effect of single and multiple representations on learning and understanding chemistry." Paper presented at AERA Annual Conference, San Francisco, CA.

Kozma, R. B. (April, 1995). "The design of semiotic learning environments." Paper presented at AERA Annual Conference, San Francisco, CA.

Kozma, R.B. (April, 1994). The relationship between media, symbol systems and learning. Presentation at the Annual Meeting of the American Educational Research Association, New Orleans.

Kozma, R.B. (August, 1993). Will media influence learning? Reframing the debate. A public debate with Richard Clark, 5th Conference of the European Association for Learning and Instruction, Aix-en-Provence, France.

Kozma, R.B. (November, 1992). Instructional media research: Medium or message? Featured debate at the annual meeting of the Association for the Development of Computer-Based Instructional Systems, Norfolk, VA.

Kozma, R.B. (July, 1992). Multimedia, multiple representations, and mental models in chemistry. Presentation to the NATO Advanced Study Institute on Psychological and Educational Foundations of Technology-Based Learning Environments, Crete, Greece.

Kozma, R.B. (July, 1992). Models of the learner and learning with models. Panel discussion, NATO Advanced Study Institute on Psychological and Educational Foundations of Technology-Based Learning Environments, Crete, Greece.

Kozma, R.B. (June, 1992). Trends in higher education software. Invited presentation to the EDUCOM Corporate Associates Seminar, San Francisco, CA.

Kozma, R. B. (May, 1992). Models for innovation and change. Invited address, Workshop on Innovation and Change in Chemistry Instruction, National Science Foundation, Washington, DC.

Kozma, R. B. (April, 1992). Computing for learning and teaching. Invited address, Information Technologies: Critical Choices for Challenging Times, Council of Independent Colleges, Pittsburgh, PA.

Kozma, R.B. (April, 1992). Learning with media: What the research says. Invited address to the Annual Meeting of the American Association of Museums, Baltimore, MD.

Kozma, R.B. (April, 1992). Mapping external representations onto internal meaning: Toward a science of symbolic design. Presentation at the Annual Conference of the American Educational Research Association, San Francisco, CA.

Kozma, R. B. (October, 1991). "Designing and developing effective educational software: Lessons from the EDUCOM Award Winners." EDUCOM Annual Conference, San Diego, CA.

Kozma, R.B. (June, 1991). Trends in higher education software. Invited presentation to the EDUCOM Corporate Associates' Seminar, San Diego, CA.

Kozma, R.B. (February 1990). "The design of interactive video." Invited presentation to the Interactive Learning Forum, Carnegie Mellon University, Pittsburgh, PA.

Kozma, R.B. (February 1990). "The importance of educational software in higher education." Invited presentation at the German Higher Education Software Awards Presentations, Bonn, W. Germany.

Kozma, R.B. (March 1990). "The design of educational software." Invited presentation at the Tools for Scholars Conference, Consortium of Computer Use for Education, Carnegie Mellon University, Pittsburgh, PA.

Kozma, R.B. (March 1990). "Computer-based writing tools: What is the unique contribution." Presentation at the Conference on College Composition and Communication, Chicago, IL.

Kozma, R. B. (June 1990). "Constructing knowledge with hypertext: The case of Learning Tool." Invited presentation Tenth Annual Conference on Teaching and Learning in Higher Education, McGill University, Montreal.

Kozma, R. (July 1990). "Constructing knowledge with Learning Tool." Invited presentation, NATO Advanced Research Workshop, Mindtools: Cognitive Technologies for Modeling Knowledge, Twente University Enschede, Netherlands.

Kozma, R.B. (March 1989). "Beyond word processing." Workshop presentation given at the Conference on College Composition and Communication, Seattle, WA.

Kozma, R.B. (March 1989). "The differing needs of novice and intermediate writers and the impact of rhetorical prompts embedded in various computer-based writing tools." Presentation as part of a symposium I organized and chaired at the Conference on College Composition and Communication, Seattle, WA.

Kozma R.B. (April 1989). "The impact of computer-based tools and rhetorical prompts on writing processes and products." Presentation at AERA, San Francisco, CA.

Kozma, R.B. (April 1989). "Role of research and development centers in producing and disseminating research on educational technology." Symposium presentation at AERA, San Francisco, CA.

Kozma, R.B. (April 1989). "Principles underlying Learning Tool." Presentation as part of a symposium on Learning Tool organized by Gavriel Salomon, AERA, San Francisco, CA.

Kozma, R.B. (November 1989). "Criteria for assessing computer-based writing tools." Presentation at the Conference of the National Council for the Teachers of English, Baltimore, MD.

Kozma, R.B. (1988). "Student's Construction of Concept Maps Using Learning Tool." American Educational Research Association, New Orleans, LA.

Kozma, R.B. (July 1988). "Computer support for planning: On-line rhetorical prompting." Invited presentation at the Penn State Conference on Rhetoric and Composition, University Park, PA.

Kozma, R.B. (July 1988). "Computer-based tools in English composition." Keynote address at the MacComp '88 Conference, University of Nebraska, Lincoln, Nebraska.

Kozma, R.B. (August 1988). "Evaluation of educational software: The EDUCOM/NCRIPTAL Higher Education Software Awards Program." Presentation of the Conference on Computers in Physics Instruction, North Carolina State University, Raleigh, NC.

Kozma, R.B. (August 1988). "The construction of concept maps using Learning Tool." Presentation of the Conference on Computers in Physics Instruction, North Carolina State University, Raleigh, NC.

Kozma, R.B. (August 1988). "Computers and higher education." Keynote address given at the Wayne County Community College Faculty Organization Day.

Kozma, R.B. (October 1988). Computers in the chemistry laboratory." Presentation at the Conference on Computers in Chemistry, Eastern Michigan University, Ypsilanti, MI.

Kozma, R.B. (1987). "Learning Tool: Implications of cognitive psychology for computer-aided learning." AECT, Atlanta, GA,

Kozma, R.B. (1987). "A taxonomy of educational software: Different software for different students, goals, and situations." AERA, Washington, DC.

Kozma, R.B. (1987). "Learning Tool: An example of computer-aided learning." MACUL, Detroit, MI.

Kozma, R.B. "Evaluating educational software." (1987) Invited address, Conference on Computing in Undergraduate Education, Carnegie Mellon University, Pittsburgh, PA; (1987) EDUCOM Conference, Los Angeles, CA; (1987) Invited address, University of Northern Iowa, Cedar Falls, IA, 1987; (1987) Invited address, Central University, Pella, IA; (1988) Invited address, Harvard University, Cambridge, MA; (1988) Presentation, Software-Publisher's Association, Berkeley, CA; (1988) Presentation, International Association for Computers in Education, New Orleans, LA.

Kozma, R.B. (1986). "Present and future authoring systems." MACUL, Grand Rapids, MI.

Kozma, R.B. (1986). "Graduate studies in computers and education at the University of Michigan." MACUL, Grand Rapids, MI.

Kozma, R.B. (1986). "Research on media attributes." AERA, San Francisco, CA.

Kozma, R.B. (1984). "Instructional aspects of educational broadcast television." AERA, New Orleans, LA.

Kozma, R.B. (1983). "Innovation in higher education." AERA, Montreal.

Kozma, R.B. (1981). "A comparison of the outcomes and costs of four instructional improvement programs." AERA, Los Angeles, CA.

Kozma, R.B. (1979). "Factors involved in the adoption and dissemination of instructional innovations." AERA, San Francisco, CA

Kozma, R.B. (1978). "New roles for faculty development: Assisting those who leave or remain." Conference on Retrenchment or Renewal, Ann Arbor, MI.

Kozma, R.B. (1976). "Factors which influence the adoption of instructional innovations." Regional Conference on Instructional Improvement, Logan, Utah.

Kozma, R.B. (1976). "Faculty development and instructional innovation." Professional and Organizational Development Network, Airlie, VA.

Kozma, R.B. (1976). "Important issues in promoting effective teaching." Regional Conference on Postsecondary Instruction, Bowling Green, OH.

Kozma, R.B. (1974). "The effect of empirically validated versus reordered inter and intra-sequencing of instruction on learning." American Educational Research Association (AERA), Chicago, IL.

Kozma, R.B. (1974). "Twelve years of faculty development at the University of Michigan." International Conference on Improving University Teaching, Amherst, MA.

Kozma, R.B., & Baggett, P. (January, 1994). "The role of cohesion in multiple linked representations." Paper presented at the 5th Annual Winter Text Conference, Jackson Hole, WY.

Kozma, R.B., Bangert-Drowns, R., & Johnston, J. (1987). "Assessing the role of educational computing in higher education." AECT, Atlanta, GA.

Kozma, R.B., Belzer, S., Jaffe, M. (April, 1993). "BioMap: An interactive hypermedia environment to promote understanding in biology." Presentation made at the Annual Meeting of the American Educational Research Association Meeting, Atlanta, GA.

Kozma, R.B., & Bertcher, H. (1974). "Evaluation of a mini-course on emphatic responding." AERA, Chicago, IL.

Kozma, R.B., Gere, A., & Hitch, E. (1975). "A systems approach to diagnostic prescriptive instruction." AERA, Washington, DC.

Kozma, R. & Gürer, D. (1997) "A comparison of students' collaboration while conducting chemistry wet lab experiments and while using molecular modeling software," presented at the *Conference on Computer Support for Collaborative Learning*.

Kozma, R.B. & Johnston, J. (October 1988). "The design and implementation of the EDUCOM/NCRIPTAL Higher Education Software Awards Program." Presentation at the Annual Meeting EDUCOM, Washington, DC.

Kozma, R.B. & Johnston, J. (March 1989). "EDUCOM/NCRIPTAL Higher Education Software Awards Program." Presentation at the Sixth International Conference on Technology and Education, Orlando, FL.

Kozma, R.B. & Johnston, J. (April 1990). "The evaluation of higher education software: Examples of outstanding software and its use." Symposium presentation at the American Educational Research Association, Boston, MA.

Kozma, R.B., Johnston, J. & Connolly, F.   (October 1990). "EDUCOM/NCRIPTAL Higher Education Software Awards Presentations." EDUCOM Annual Conference, Atlanta, GA.

Kozma, R.B., Johnston, J. & Gilbert, S. (April 1990). "EDUCOM/NCRIPTAL Higher Education Software Awards Program." Panel presentation at the Conference of the American Association for Higher Education, San Francisco, CA.

Kozma, R.B., Johnston, J. & Gilbert, S. (October 1989). "EDUCOM/NCRIPTAL Higher Education Software Awards Presentation." EDUCOM Conference, Ann Arbor, MI.

Kozma, R.B., Johnston, J. & Gilbert, S. (October 1988). "EDUCOM/NCRIPTAL Higher Education Software Awards Presentations." EDUCOM Annual Conference, Washington, DC.

Kozma, R.B., Johnston, J. & Gilbert, S. (October 1987). "EDUCOM/NCRIPTAL Higher Education Software Awards Presentations." EDUCOM Annual Conference, Los Angeles, CA.

Kozma, R.B., Johnston, J. & Vinik, E. (October 1989). "Panel Discussion with NCRIPTAL Award Winners." EDUCOM Conference, Ann Arbor, MI.

Kozma, R.B., Kulik, J.A., & Smith, B.B. (1976). "The effect of trained vs. untrained proctors in a PSI course." PSI Conference, Washington, DC.

Kozma, R.B., Russell, J., Johnston, J. & Dershimer, C. (October 1989) "Designing multimedia instruction: An example from chemistry." EDUCOM Conference, Ann Arbor, MI.

Kozma, R., Russell, J., Johnston, J., & Dershimer, C. (April 1990). "College students' conceptions and misconceptions of chemical equilibrium." Presentation at the American Educational Research Association, Boston, MA.

Kozma, R.B., Russell, J., Jones, T., Marx, N., Davis, J., (April, 1994). 4M:Chem. Presentation at the Annual Meeting of the American Educational Research Association, New Orleans.

Kozma, R.B., Russell, J., Jones, T., Marx, N., Davis, J., (August, 1993). The use of multiple, linked representations to facilitate science understanding. Presentation at the 5th Conference of the European Association for Learning and Instruction, Aix-en-Provence, France.

Kozma, R.B., Russell, J., Jones, T., Marx, N., Katman, L. (April, 1993). Interactive multimedia in chemistry: The effect on teacher behavior and student understanding. Presentation at the American Educational Research Association meeting, Atlanta, Georgia.

Kozma, R.B., Russell, J., Jones, T. & Wykoff, J. (March, 1992). Multimedia and mental models in chemistry. Michigan Association of Computer Users in Learning, Grand Rapids, MI.

Kozma, R.B., Russell, J., Jones, T. & Wykoff, J. (April, 1992). Multimedia and mental models in chemistry. Presentation at the Annual Conference of the American Educational Research Association, San Francisco, CA.

Kozma, R.B., Young, D., Belzer, S., Jaffe, M. (August, 1993). Preliminary research on BioMap: The influence of design elements and purpose on reading a hypertext in biology. Presentation at the 5th Conference of the European Association for Learning and Instruction, Aix-en-Provence, France.

Kozma, R.B., Young, D., Belzer, S., Jaffe, M., Granderson, M., Clark, R. (May, 1993). "Reading and writing processes with text and hypertext in biology." Presentation made at the Ninth Conference on Computers and Writing, Ann Arbor, MI.

Ericksen, S.C., Kozma, R.B., & Lawrence, J.H. (1979) "Research on the impact of service to faculty." AERA, San Francisco, CA.

Gürer, D., Kozma, R., & Millán, E. (1999) "Impact of shared applications and implications for the design of adaptive collaborative learning environments," submitted to *Conference of Artificial Intelligence and Education, AI-ED'99*.

Johnston, J., Kozma, R., Russell , J., & Dershimer, C. (April 1990). "A comparison of the effects of interactive video simulations versus wet lab experiments and embedded cognitive versus procedural prompts on learning chemistry." Presentation at the American Educational Research Association, Boston, MA.

Russell, J. & Kozma, R. (January, 1998). "Development of representational competence in chemistry with visualization software -- SMV:Chem." Presentation made at the Gordon Conference on Chemical Education, Long Beach, CA.

Russell, J. & Kozma, R. (April, 1997). Design of assessment instruments to probe the efficacy of multimedia classroom materials for general chemistry." Paper presented at the American Chemical Association Annual Conference, San Francisco.

Russell, J. & Kozma, R. B. (April 1995). The impact of technology on the ways chemistry is practiced and taught. Paper presented at AERA Annual Conference, San Francisco, CA.

Russell, J.; Zohdy, M.; Kozma, R.; Susskind, T.; Becker, D. & Russell, C. (April, 1997). "Multimedia software to develop students' chemical visualization skills." Paper presented at the American Chemical Association Annual Conference, San Francisco.

Vinik, E., Kozma, R.B., & Johnston, J. (November 1989). "The EDUCOM/NCRIPTAL Higher Education Software Awards Program." Presentation at the Conference of the Association for the Development of Computer Information Systems, Washington, DC.

Reports

McGhee, R., & Kozma, R. (2000). *World Links for Development: Accomplishments and challenges. Monitoring and evaluation annual report, 1999-2000.* Menlo Park, CA: SRI International.

Kozma, R., McGhee, R., Marder, C., Baisden, K., Valdes, K., Lewis, A., & Agreda, M. (1999). *World Links for Development: Accomplishments and challenges. Monitoring and evaluation annual report, 1998-1999.* Menlo Park, CA: SRI International.

Kozma, R., Zucker, A., & Espinoza, C. (1998). *An evaluation of the Virtual High School after one year of operation.* Menlo Park, CA: SRI International.

Kozma, R.B., Chin, E., Russell, J., & Marx, N. (1997). "The role of representations and tools in the chemistry laboratory and their implications for chemistry instruction." [Technical Report] Menlo Park, CA: SRI International.

Kozma, R.B., & Bangert-Drowns, R. (1987). "Design in context: A conceptual framework or the study of computer software in higher education." Ann Arbor, MI: NCRIPTAL.

Kozma, R. B., Bangert-Drowns, R., & Johnston, J. (1987). "EDUCOM/NCRIPTAL Higher Education Software Awards 1987." Ann Arbor, MI: NCRIPTAL.

Kozma, R.B., & Johnston, J. (1988). "Report on the 1988 EDUCOM/NCRIPTAL Higher Education Software Awards" Ann Arbor, MI: NCRIPTAL.

Kozma, R.B., & Johnston, J. (1990). "The first four years of the EDUCOM/NCRIPTAL Higher Education Software Awards." Ann Arbor, MI: NCRIPTAL, University of Michigan.

Kozma, R.B., Russell, J., Jones, T., Katman, E., Marx, N., Davis, J. & Wykoff, J. (1993). Multimedia and mental models in chemistry: A final report to the National Science Foundation. Ann Arbor, MI: Center for Research on Learning and Teaching, University of Michigan.

Bissell, S., Belle, L., Huntley, J., & Kozma, R. (1985). "A three site evaluation of Computer Literacy: An interactive videodisc course produced by JAM, Inc." Rochester, NY: Rochester Institute of Technology.

MEMBERSHIPS

American Educational Research Association; Divisions: Learning and Instruction and Higher Education; Special Interest Groups: Subject Matter Knowledge and Conceptual Change, Microcomputer Applications in Education, Writing

European Association for Research on Learning and Instruction; Special Interest Groups: Learning and Instruction with Computers, Individual Differences in Learning and Instruction, Writing

National Association for Research in Science Teaching