

**VITA for MICHAEL BARNETT**  
URL: <http://urbaneco.bc.edu/mikeb>

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Professor, Science Education and Technology  
Lynch School of Education  
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**EDUCATION**

Ph.D. Instructional Systems Technology with emphasis in Science Education, Indiana University. Bloomington, IN, May 2003.

M.S. Physics, Indiana University, Bloomington, IN, 1997

B.S. Physics, University of Kentucky, Lexington, KY, 1994, with high distinction.

**PROFESSIONAL EXPERIENCE AND WORK HISTORY**

**Professor of Science Education and Technology, Boston College**, Fall 2014 – present. Responsible for teaching two courses each academic term in science education and technology. These courses typically included elementary science methods, advanced educational technology, and a large introductory science course.

**Associate Professor of Science Education and Technology, Boston College**, Fall 2008 – present. Responsible for teaching two courses each academic term in science education and technology. These courses typically included elementary science methods, advanced educational technology, and a large introductory science course.

**Visiting Professor, National Geographic Society**, Spring 2010 – Summer 2010. Researched the design and implementation of mobile technologies for the learning of science and the use of such technologies in citizen science projects.

**Visiting Scholar, American Forests**, Spring 2010 – Summer 2010. Worked with the Urban Ecosystems center on the development of CITYgreen (an ecological computer modeling program) and the training of teachers in multiple cities regarding how to implement the technology in classroom settings.

**Assistant Professor of Science Education and Technology, Boston College**, Fall 2003 – Spring 2008. Responsible for teaching secondary and elementary science methods,

introductory and advanced educational technology courses, and advising undergraduate and graduate students.

**Adjunct Assistant Professor of Science Education and Technology, Boston College, 2002 – 2003.** Taught secondary science methods and integration of technology courses. These courses included both undergraduates and graduate students.

**Clinical Faculty, Boston College, Spring 2003.** Visited, observed, and supervised secondary science student teachers. Responsibilities included providing feedback and support regarding how to improve their teaching.

**Curriculum Consultant, ActiveInk Network, Austin, TX, Spring 2000 – Summer 2001.** Developed K-12 environmental science curriculum emphasizing student engagement in scientific inquiry and problem solving while investigating various environmental issues.

**Curriculum Developer and Instructor, Virtual Solar System Project, Instructional Systems Technology and Astronomy Departments, Indiana University** Fall 1999 – Fall 2002. Developed a middle school curriculum unit on the Earth-Moon-Sun system where students worked in teams to model the dynamic concepts of the Moon's phases and eclipses.

**Curriculum Developer, Oregon Adventure, Children's Museum of Indianapolis, Fall 1998.** Assisted in the development of an interactive web site that allowed for communication between elementary school students and science educators from the Indianapolis Children's Museum as members traveled across the country to Oregon.

**Evaluator, Center of Reading and Language Studies, Indiana University, Fall 1994 – Fall 1995.** Assisted the Indiana State Department of Education in revamping the state high school curriculum to consist of a core forty credit hours of class work in order to graduate from high school.

## **PEER REVIEWED PUBLICATIONS**

### Books

Barnett, M., Patchen, A., Esthers, L., & Knobloch, N. (in press). STEM Learning and teaching through urban agriculture: What the research says. To be published by Springer in 2016.

Patchen, A. Barnett, M. Esthers, L., & Knobloch, N. (in press). Designing urban agriculture programs to improve STEM learning and teaching. To be published by Springer in 2016.

MaKinster, J., Trautmann, N., & Barnett, M. (2013). Teaching science and investigating environmental issues with geospatial technology: Designing effective professional development for teachers. Springer.

### Book Chapters

Debay, D., Patchen, A., Cruz, A., Madden, P., Xu, P., Vaughn, & Barnett (in press). Coupling geospatial and computer modeling technologies to engage high school students in learning urban ecology. To appear in *Improving K-12 STEM Education Outcomes through Technological Integration*, Eds. M. Urban and D. Falvo. IGI Global.

Patchen, A., Debay, D., Barnett, M., & Strauss, E. (2014). *Engaging students in scientific inquiry: Successes and challenges of engaging non-science majors in scientific inquiry* (p. 271-289). In P. Blessinger & Carfora, J (Eds.). *Inquiry-based Learning for Faculty and Institutional Development: A Conceptual and Practical Resource for Educators*. Emerald Publishers.

Barnett, M., Houle, M., Hirsch, L., Minner, D., Strauss, E., Mark, S., & Hoffman, E. (2013). *Participatory professional development: Geospatially enhanced urban ecological field studies* (p. 13-33). In MaKinster, J., Trautmann, N., & Barnett, M. (Eds). *Teaching Science and Investigating Environmental Issues with Geospatial Technology: Designing Effective Professional Development for Teachers*. Springer.

Debay, D., Haley, J., Mark, S., Barnett, M., Anderson, A., Strauss, E., Cotter-Hayes, L., Blustein, D., & Wong, C. (2012). *Engaging youth in visualizing sustainable urban plans for their neighborhoods using geographic information systems coupled with computer visualization* (p. 477-496). Wals, A., & Corcoran, P. (eds). *Learning for Sustainability in Times of Accelerating Change*. Springer, NY.

Price, J., Johnson, M., & Barnett, M. (2012). *Teaching science with UDL and technology* (p. 55-70). T.E. Hall, A. Meyer, & D.H. Rose (Eds.) *Universal design for learning and technology in the classroom*. New York, N.Y.: Guilford.

Barnett, M., MaKinster, J., Trautmann, N., Houle. M., & Mark, S. (2012). *Geospatial technologies: The present and future roles of emerging technologies in environmental education* (p. 327-344). Stevenson, R., Brody, M. Dillon, J., and Walls, A. (eds). *International Handbook of Research on Environmental Education*. American Educational Research Association, Washington D.C.

Marulcu, I., & Barnett, M. (2010). Tensions that students face in the lego-engineering, design based simple machines module. In M.F. Taşar & G. Çakmakçı (Eds.), *Contemporary science education research: international perspectives* (pp. 439-445). Ankara, Turkey: Pegem Akademi.

Marulcu, I., & Barnett, M. (2010). Teaching simple machines to college students through LEGO™ engineering design challenges. In M.F. Taşar & G. Çakmakçı

(Eds.), *Contemporary science education research: learning and assessment* (pp. 173-182). Ankara, Turkey: Pegem Akademi.

### Published Papers

- Zhang, L., & Barnett, M. (2014). How high school students envision their STEM career pathways. *Cultural Studies of Science Education*, 1-20.
- Mark, S., DeBay, D., Zhang, L., Haley, J., Patchen, A., Wong, C., & Barnett, M. (2013). Coupling social justice and Out-of-School time learning to provide opportunities to motivate engage and interest under-represented populations in STEM fields. *Journal of Career Planning and Adult Development*, 29(2), 93-105.
- Maruclu, I., & Barnett, M. (2013). Fifth Graders' Learning about Simple Machines through Engineering-Design Based Instruction Using Lego Materials. *Research in Science Education*, 43(5), 1825-1850.
- Anderson, J. & Barnett, M. (2013). Learning physics with digital game simulations in middle school science. *Journal of Science Education and Technology*, 22(6), 914-926.
- Blustein, D., Barnett, M., Mark, S., Depot, M., Lovering, M., Lee, Y., Hu, Q., Kim, J. Backus, F., Dillon-Lieberman, K., & Debay, D. (2012). A longitudinal examination of high school students' exploration of STEM careers. *Journal of Career Development*, 39(4), 341-356.
- Anderson, J., & Barnett, M. (2011). Using video games to support pre-service elementary teachers learning of basic physics principles. *Journal of Science Education and Technology*, 20(4), 347-362.
- Barnett, M., Houle, M., Strauss, E., & Hoffman, E. (2011). Urban Environmental Education: Leveraging Technology and Ecology to Engage Students in Studying the Environment. *International Journal of Research in Geographical and Environmental Education*, 20(3), 199-214.
- Barnett, M., Higginbotham, T., Houle, M., Anderson, J., & Gatling, A. (2010). The process of trust building between university researchers and urban school personnel. *Urban Education*, 45(5), 630 – 660.
- Barnett, M., Houle, M., Hufnagel, B., Pancic, A., Lehman, M., & Hoffman, E. (2010). Using GIS to determine the ecological value of urban street trees. *The Science Teacher*, 77(2), 35-39.
- Barnett, M., Houle, M., Mark, S., Strauss, E. & Hoffman, E. (2010). Learning about Urban Ecology Through the use of Visualization and Geospatial Technologies. *Journal of Technology and Teacher Education*, 18(2), 287-317.

- Barnett, M., Houle, M., Strauss, E. (2008). Leveraging GIS technologies to support student understanding of urban ecology. In T. Kirshner (Ed.), *Eighth International Conferences of the Learning Sciences*. Mahwah, NJ: Lawrence Erlbaum. Available: <http://www.isls.org/icls2008/>.
- Houle, M., & Barnett, M. (2008). Students' conceptions of sound waves resulting from the enactment of a new technology-enhanced inquiry-based curriculum on urban bird communication. *Journal of Science Education and Technology*, 17(3), 242-251.
- Barnett, M. (2008). Using authentic cases through the use of a web-based professional development system to support pre-service teachers in examining classroom practice. *Action in Teacher Education*, 30(1), 1-25.
- Barnett, M., & Kafka, A. (2007). Using science fiction movie scenes to support critical analysis of science. *Journal of College Science Teaching*, 36(4), 31-35.
- Kafka, A., Ebel, J., Barnett, M., Macherides Moulis, A., Campbell, L., & Gordon, S. (2006). Classroom seismographs and the challenge of encouraging a culture of scientific inquiry in K-12 schools, *Seismological Research Letters*, 77(6), 734-738.
- Barnett, M., Wagner, H., Gatling, A., Anderson, J., Houle, M., & Kafka, A. (2006). The impact of science fiction film on student understanding of science. *Journal of Science Education and Technology*, 15(2), 179-191.
- Barnett, M. (2006). Using a web-based professional development system to support pre-service teachers in examining authentic classroom practice. *Journal of Technology and Teacher Education*, 14(4), 701-729.
- Barnett, M., Lord, C., Strauss, E., Rosca, C., Langford, H., Chavez, D., & Deni, L. (2006). Using the urban environment to engage youth in urban ecology field studies. *The Journal of Environmental Education*, 37(2), 3-11.
- Barnett, M., Yamagata-Lynch, L., Keating, T., Barab, S., & Hay, K. (2005). Using virtual reality computer models to support student understanding of astronomical concepts. *Journal of Computers in Mathematics and Science Education*, 24(4), 333-356.
- Barnett, M., Kafka, A., Pfitzner, A., & Syzmansky, E. (2005). The living earth: Inviting students into the world of scientific research through seismology. *Journal of College Science Teaching*, 34(6), 50-54.
- Barnett, M. (2005). Engaging inner city students in learning through designing remote operated vehicles. *Journal of Science Education and Technology*, 14(1), 87-101.
- Barnett, M., Strauss, E., Rosca, C., Langford, H., Chavez, & D. Deni, L. (2004). Improving urban youth's interest and engagement through field-based scientific investigations. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon & F. Herrera (Eds.), *Sixth*

*International Conferences of the Learning Sciences* (pp. 73-80). Mahwah, NJ: Lawrence Erlbaum.

- Squire, K., Barnett, M., Grant, J. M., & Higginbotham, T. (2004). Electromagnetism supercharged! Learning physics with digital simulation games. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon & F. Herrera (Eds.), *Proceedings of the Sixth International Conferences of the Learning Sciences* (pp. 513-520). Mahwah, NJ: Lawrence Erlbaum.
- Hansen, J., Barnett, M., MaKinster, J., & Keating, T. (2004). The impact of three-dimensional computational modeling on student understanding of astronomy concepts: A quantitative analysis. *International Journal of Science Education*, 26(11), 1365-1378.
- Hansen, J., Barnett, M., MaKinster, J., & Keating, T. (2004). The impact of three-dimensional computational modeling on student understanding of astronomy concepts: A qualitative analysis. *International Journal of Science Education*, 26(13), 1555-1576.
- Squire, K., MaKinster, J., Barnett, M., Leuhman, A., & Barab, S. A. (2003). Designed curriculum and local culture: Acknowledging the primacy of classroom culture. *Science Education*, 87(4), 468-489.
- Barab, S. A., Barnett, M., Yamagata-Lynch, L., Squire, K., & Keating, T. (2002). Using activity theory to understand the contradictions characterizing a technology-rich introductory astronomy course. *Mind, Culture, and Activity*, 9(2), 76-107.
- Barnett, M., Harwood, W., Keating, T., & Saam, J. (2002). Using emerging technologies to bridge the gap between university theory and classroom practice: Challenges and successes. *School Science and Mathematics*, 102(6), 1-15.
- Barab, S. A., Barnett, M., & Squire, K. (2002). Preparing pre-service teachers: Developing an empirical account of a community of practice. *The Journal of the Learning Sciences*, 11(4), 489-542.
- Keating, T., Barnett, M., Barab, S. A., & Hay, K. E. (2002). Developing conceptual understanding of scientific concepts through building three-dimensional computational models. *Journal of Science Education and Technology*, 11(3), 261-275.
- Barnett, M., & Morran, J. (2002). Addressing childrens' understanding of the Moon's phases and eclipses. *International Journal of Science Education*, 24(8), 859-879.
- Barnett, M., Barab, S. A., & Hay, K. E. (2001). The virtual solar system project: Student modeling of the solar system. *The Journal of College Science Teaching*, 30(5), 300-305.

- Barab, S. A., Hay, K. E., Barnett, M., & Squire, K. (2001). Constructing knowledge and virtual worlds: Knowledge diffusion in future camp 97 *Cognition and Instruction*, 19(1), 47-94.
- Barnett, M., Keating, T., Barab, S., & Hay, K. (2000). Conceptual change through building three-dimensional models. In B. J. Fishman & O'Connor S. F. (Eds.), *Proceedings of the 5<sup>th</sup> annual International Conference of the Learning Sciences* (pp. 134-142). Hillsdale, NJ: Erlbaum.
- Barab, S. A., Hay, K. E., Barnett, M., & Keating, T. (2000). Virtual solar system project: Building understanding through model building. *Journal of Research in Science Teaching*, 37(7), 719-756.
- Hay K., Crozier, J., Barnett, M., Allison, D., Bashaw, M., Hoos, B., & Perkins, L., (2000). Virtual Gorilla Modeling Project: Middle School Students Constructing Virtual Models for Learning. In B. J. Fishman & O'Connor S. F. (Eds.), *Proceedings of the International Conference of the Learning Sciences* (pp. 212-214). Hillsdale, NJ: Erlbaum.
- Barab, S., A., Hay, K. E., Squire, K., Barnett, M., Schmidt, R., Karrigan, K., & Johnson, C. (2000). Virtual solar system project: Developing scientific understanding through model building. *Journal of Science Education and Technology*, 9, 7–26.
- Smith, H. A., Barnett, M., Silbermann, N. A., & Gay, P. (1999). The blazhko effect of AR Her. *The Astronomical Journal*, 118(1), 572–579.
- Straley, J. P., & Barnett, M. (1993). Phase diagram for a Josephson network in a magnetic field. *Physical Review B*, 48(5), 3309–3315.

### Curriculum Materials and Textbooks

Connolly, K. Jarvin, L, Barnett, M., Rogers, C., Wendell, K. Wright, C., & Marulcu, I (2011) Science through LEGO engineering design: A series of modules. Published on-line at: [http://www.legoengineering.com/index.php?option=com\\_content&view=article&id=92&Itemid=144](http://www.legoengineering.com/index.php?option=com_content&view=article&id=92&Itemid=144)

- Sound Unit  
[http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom\\_Compiled\\_Packet\\_Sound\\_LowRes.pdf](http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom_Compiled_Packet_Sound_LowRes.pdf)
- Properties of Materials Unit  
[http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom\\_Compiled\\_Packet\\_Props\\_LowRes.pdf](http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom_Compiled_Packet_Props_LowRes.pdf)
- Animal Studies Unit  
[http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom\\_Compiled\\_Packet\\_Animals\\_LowRes.pdf](http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom_Compiled_Packet_Animals_LowRes.pdf)

- Simple Machines  
[http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom\\_Compiled\\_Packet\\_Machines\\_LowRes.pdf](http://www.legoengineering.com/images/stories/curriculum/REESE%20curriculum/LEcom_Compiled_Packet_Machines_LowRes.pdf)

McNeill, K., Strauss, E., Barnett, M., & Reece, F. (2011). Urban Ecolab. Published on-line at:  
<http://urbanecolabcurriculum.com>

- Link to all modules which is one year of instructional materials:  
<http://urbanecolabcurriculum.com/modules/>

### **EXTERNAL FUNDED GRANTS:**

#### PENDING GRANTS

**Principal Investigator:** Community, Social and Food Justice: Creating Change through Urban Food Justice Ambassadors, \$106,000, Merck Family Foundation

**Principal Investigator:** Know your air: A Guerilla Science Project Designed to Engage a Broad Audience Through Innovative Touchscreen and Participatory Sensor Technologies, \$2,999,840. National Science Foundation: Co-Principal Investigators: Dr. Eric Strauss (LMU), Dr. Kirsten Ellenbogen (Great Lakes Science Center), Dr. Laura O'Dwyer (Boston College)

**Principal Investigator:** A Strategies Project: An Integrated Approach to Creating STEM Career Pathways. \$1,198,141. National Science Foundation. Co-Principal Investigators, Dr. David Blustein (Boston College), Dr. Shamsi Moussavi (Massachusetts Bay Community College), Dr. Laura Foote (Boston College – Carroll School of Management)

**Co-Principal Investigator:** iCREAT: A pathway to middle-skill positions through the Introduction to Coding, Robotics, Electronics, And Technology. \$891,411. National Science Foundation. Principal Investigator: Dr. Shamsi Moussaiv (Massachusetts Bay Community College), Co-Pis. Dr. Suzanne Escoba (MassBay), Dr. David Blustein (Boston College) – *This grant has been recommended for funding but not yet awarded.*

#### AWARDED GRANTS

TOTAL IN EXTERNAL FUNDS: **\$10,533,182**

**Co-Principal Investigator:** *iCREAT: A pathway to middle-skill positions through the Introduction to Coding, Robotics, Electronics, And Technology*, National Science Foundation, \$894,999. Sept. 1 2015 – August 30, 2018.



**Principal Investigator:** Seeding the Future: Integrating Financial Literacy, Environmental Education, and Scientific Research through Hydroponic Food Production, National Institutes for Food and Agriculture, \$221,923. Aug. 15, 2015 – Aug. 14<sup>th</sup>, 2018.

**Principal Investigator:** *A Strategies Project – Seeding the Future: Creating a Green Collar Workforce through Learning about Indoor Urban Farming Technologies and Alternative Energy Sources*, National Science Foundation, \$1,196,580.00. Co-Principal Investigators– David Blustein, Elizabeth Bagnani, Catherine Wong, Eric Strauss. July 1, 2013 – June 30 2016

**Principal Investigator:** Connecting undergraduate research with the public through innovative technologies, \$199,714. National Science Foundation, Fall 2012 – Fall 2014.

**Principal Investigator:** *Seeding the Future: Growing STEM learning and interest through hydroponic food production*, \$246,524. National Science Foundation, Fall 2012 – Fall 2014.

**Principal Investigator:** *IT and College Pathways through application of Technology to explore Urban Ecological Challenges*, \$1,499,812.00. National Science Foundation. Fall 2008 – Fall 2014. Co-Principal Investigators: Dr. Eric Strauss, Dr. David Blustein, Dr. Laura O’Dwyer, Ms. Catherine Wong.

**Principal Investigator:** *HP Technology Leadership Award*, HP Foundation, Summer 2008 – Fall 2010, approximately ~\$131,000. This grant provided the Lynch School of Education with a cutting edge computing facilities. This grant provided the school 40 tablet PCs and supporting peripherals as well as \$20,000 in funds to purchase additional materials and support students.

**Co-Principal Investigator.** *Improving Teacher Content Knowledge through Field Studies*. Summer 2008 – Fall 2011. Funder: Massachusetts Board of Higher Education, \$319,999. Principal Investigator: Dr. Eric Strauss, Co-principal Investigators: Frank Reese

**Co-Principal Investigator:** *Urban Ecology and Information Technology*, National Science Foundation, Fall 2007 – Fall 2009, \$79,847. This was a supplemental grant for our existing NSF ITEST grant to conduct research on student persistence in STEM careers. PI: David Blustein.

**Co-Principal Investigator:** *Incorporated Research Institutions for Seismology (IRIS)*. Fall 2007 – Fall 2008, \$60,000. This grant provides additional support and funding for the existing educational seismology program. This grant builds upon the work of an earlier NSF grants and school district based grants. Principal Investigator: Alan Kafka. Other Co-PIs: John Ebel

**Principal Investigator:** *HP Technology Initiative*, HP Foundation, Summer 2007 – Fall 2008, approximately ~\$68,000. This grant provided the Lynch School of Education with a cutting edge computing facilities. This grant provided the school 21 tablet PCs and supporting peripherals as well as \$19,000 in funds to purchase additional materials and support students.

This grant was made possible through the work conducted through the NSF ITEST funded grant.

**Principal Investigator:** *Exploratory Research in Urban Schools using an Ecological Science-Based Video Game*, Fall 2006 – Spring 2007, \$17,000 (Subcontract through Indiana University). This project focuses on implementing and researching the impact of an academic video game on student learning outcomes. This grant was a direct result from the work conducted through funding with the Boston College Collaborative Fund.

**Principal Investigator:** *Development Of An Integrated Pathway For Urban Stem Teaching and Learning In Grades 5-8*, \$800,000, National Science Foundation, Spring 2007 – Summer 2010. This grant focuses on the development of urban ecology field materials that are sequenced to improve students' learning of ecological concepts from grade five through eight. Co-Principal Investigators: Dr. Eric Strauss, Boston College. Other Co-principal Investigators: Dr. Kate McNeill (Boston College), Mr. Charles Lord (Urban Ecology Institute).

**Co-Principal Investigator:** *Urban Ecology Course Materials Created with a Universal Design for Learning Framework*, \$2,093,000, National Science Foundation, Fall 2006 – Fall 2009. This project focuses on the development and implementation of a year-long interdisciplinary curriculum on urban ecology. PI: Dr. Eric Strauss, Boston College. Other Co-principal Investigators: Dr. Kate McNeill (Boston College), Mr. Charles Lord (Urban Ecology Institute), and Dr. Tracey Hall (Center for Applied Special Technologies)

**Co-Principal Investigator:** *Transforming Elementary Science Learning through LEGO(TM) Engineering Design*, \$1,000,000, National Science Foundation, REESE program, Fall 2006 – Fall 2011. This program will track how design and engineering education project supports students learning of physics concepts from 1<sup>st</sup> to 5<sup>th</sup> grade and in elementary teacher preparation programs. Principal Investigator: Dr. Chris Rogers (Tufts University). Subcontract of \$225,000 through Tufts University.

**Principal Investigator:** *Urban Ecology and Information Technology for Students and Teachers*, \$1,345,000.00, National Science Foundation, Fall 2005 – Fall 2010. This was a collaborative project with the Urban Ecology Institute, Department of Environmental Studies, and The Department of Counseling Psychology in the Lynch School of Education. Co-Principal Investigators: Eric Strauss (BC, A&S), Charles Lord (UEI, A&S), David Blustein (LSOE), and Maureen Kenney (A&S).

**Co-Principal Investigator:** *Smith Foundation Capital Grant*, Fall 2006 – Fall 2007, \$45,760. This grant builds upon the ITEST NSF grant and provided funding for equipment which provided valuable support for the ITEST program because NSF did not permit the purchasing of equipment for our existing ITEST work. Principal Investigator: Mr. Charlie Lord.

**Principal-Investigator,** *Women in Science and the Environment*, \$24,500.00, United States Department of Education, Spring 2005 – Fall 2006. This was a sub-contract through the Boston Public Schools to better understand how project based learning influences girls and

boys interest toward science and how such learning environments improve student achievement. Co-Principal Investigator: Thomas Higginbotham.

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$60,000 “Sea Lab Educational Seismology Project”, 6/1/04-9/30/07. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$6,700 Amesbury Middle School. \$6,700, 6/1/04-9/30/07. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$8,430, Andover High School, 6/1/04-9/30/07. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$22,878.00, 6/1/04-9/30/05. Nashoba Valley Technical High School. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$2,500.00, 6/1/04-9/30/05. C.J. Prescott School. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$4,500.00, 6/1/04-9/30/05. Falmouth High School. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$3,941, 6/1/04-9/30/05. St. Peter Elementary School. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$19,978.00, 6/1/04-9/30/05. Pine Hill Elementary School. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$22,878.00, 6/1/04-9/30/05. Rochester Memorial School. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Recording Earthquakes in the Classroom: Inviting Students into the World of Science Research*, \$3,941, 6/1/04-9/30/05. Dr. Paul Nettle Middle School. Collaborators: Alan Kafka, John Ebel

**Co-Principal Investigator**, *Inquiry-Based Learning through Laboratory Exercises in Seismology: An Invitation to the World of Science Research*, \$177,200.00, National Science Foundation, September 2003 – September 2005.

**Principal Investigator,** *A Strategic Education Research Partnership: Examining the Challenges of Practice in an Urban High School*, \$15,000.00, Boston College, June 2004 – June 2005. This grant supports the beginning of a longitudinal research project developed in collaboration with the faculty and staff at Odyssey high school (a Boston Public High School and is designated as a Small Learning Community (SLC)).

**Co-Principal Investigator,** *Using Science Portfolios to Improve Student Learning*, \$28,500.00, May 2004 – December 2004. Massachusetts Board of Higher Education. This project is a collaboration with the Boston Public Schools and the Urban Ecology Institute to implement portfolio based assessment in high school science classrooms. Principal Investigator:

**Principal Investigator,** *Improving High School Student Achievement in Science in the Boston Public Schools*, \$45,000.00, Massachusetts Board of Higher Education, June 2003 – June 2004. This project is a collaboration between Boston College, Brandeis University, Tufts University and the Boston Public Schools (BPS).

#### **INTERNAL FUNDED GRANTS**

**Principal Investigator:** *Innovative Mobile Technologies for the Improvement of Science Teaching and Learning* (A Boston College Teaching and Mentoring Grant), Fall 2010 – Spring 2010. \$14,522.

**Principal Investigator:** *TouchTree: Re-envisioning urban ecology education with mobile technologies*, \$68,000. Academic Technology Innovation Grant, Boston College. Spring 2011 – Spring 2012.

**Principal Investigator:** *Improving Learning and Teaching Through Collaborative Computing*, Summer 2009 – Fall 2010. ~\$60,000. This grant provides additional equipment to improve pre-service teacher training in use of technology and supports continued work on our ITEST grant.

**Principal Investigator:** *Creating Innovative Simulations for Urban Ecology, Boston College Academic Technology*, Spring 2008 – Fall 2008, \$35,000. This grant funded by Boston College's academic technology program was funded to develop a habitat fragmentation activity by Simbiotic.

**Principal-Investigator,** *A Mutually Beneficial Partnership: Improving Urban Elementary Science Education through Collaboration*, \$149,998.00, Lynch School of Education Collaborative Fellows Scholarship Program, Fall 2004 – Fall 2007. This work is a joint effort between the science education program in the Lynch School of Education and Garfield Elementary. Co-Principal Investigator: Alan Kafka (Department of Geology and Geophysics).

#### **INVITED TALKS AND INVITED PRESENTATIONS**

- Barnett, M. (Feb 17<sup>th</sup>, 2015). *Seeding the Future: Creating the next generation of role models for under-represented populations*. University of Massachusetts-Amherst.
- Barnett, M. (Oct. 15, 2014). *Career discernment and career trajectories in academic settings*. National Science Foundation CADRE meeting.
- Barnett, M. (Oct. 11, 2014). *Hydroponics and Robots?*, MIT maker faire.
- Barnett, M., Trossello, A., Anderson, R., & Gay, T. (Oct 8<sup>th</sup>, 2014). *Motivating and engaging youth in STEM*. Massachusetts STEM Summit.
- Duggan, C., & Barnett, M. (May 15, 2013). *Beyond self-efficacy and interest in improving opportunities for green tech careers*. Workshop presentation at Greentech Summit, Boston MA.
- Barnett, M. (April 18, 2013). *The Future of learning through disruptive technologies*. Digital learning for 21st century catholic and private schools. Mid-Atlantic Catholic Schools Consortium.
- Barnett, M. (April 18, 2013). *Improving the STEM pathway. Fixing the leaking STEM Pipeline*. Panel Session at the Cambridge Science Festival.
- Barnett, M. (Dec. 6, 2012). *Blending Learning: What the research says*. Presentation at the Jesuit Virtual Learning Academy.
- Barnett, M. (July 29, 2012). *The future of cities: A holistic scientific perspective*. Presentation to the AP environmental bridge program. University Massachusetts-Boston.
- Barnett, M. (June 27, 2012). *21<sup>st</sup> century learners: Who they are and how to engage them*. The Catholic Schools Foundation.
- Barnett, M. (April 11, 2012). *Learning science in informal environments*. A forum on Informal Science Education, Boston After School and Beyond.
- Barnett, M. (April 6, 2012). *Innovative technologies for urban ecosystem analysis and community engagement*. Department of Geographic Sciences. Clark University.
- Barnett, M. & Johnson, J. (October 18, 2011). *Building partnerships between university researchers and schools*. Panel presentation. Massachusetts STEM summit.
- Barnett, M. (July 20<sup>th</sup>, 2011). *Urban Heat islands and ecological impacts of green space*. Presentation to the AP environmental bridge program. University Massachusetts-Boston.
- Barnett, M. (April 18, 2011). *Innovative technologies for urban ecosystem analysis and community engagement*. Presentation as part of a full day workshop for Loyola Marymount University's sustainability festival.
- Barnett, M., Lorden, J., Cotter-Hayes, L. (November 5, 2011). *Learning through hydroponics*. Massachusetts Agriculture in the Classroom.

- Barnett, M. (April 4<sup>th</sup>, 2011). *How to engage the media in reporting about your NSF project*. Presentation that was a part of a plenary session at the 8<sup>th</sup> annual NSF ITEST PI meeting. Washington, DC.
- Barnett, M. (March 30, 2011). *What do career education, STEM education, and policy have in common?* Colloquium presented at the University of Massachusetts-Dartmouth at the Kaput Center for Science and Mathematics Education.
- Barnett, M. (March 28, 2011). *Mobile Computing for the 21<sup>st</sup> Century*. Presentation as part of an invited workshop at NERCOMP Educase. Providence, RI.
- Barnett, M. (March 5, 2011). *How to engage the media to reach out to the public to disseminate findings from your NSF funded project*. Plenary panel at the annual principal investigator NSF ITEST meeting. Washington, DC.
- Barnett, M. (February 5, 2011). *Curriculum developed in the ITEST and COSEE programs*. Invited presentation to share the curriculum work that we had conducted at Boston College on urban ecology.
- Barnett, M. (January 15, 2011). *Going mobile: How to learn with mobile computing and current trends in mobile computing*. Presentation to the educational division at WGBH.
- Barnett, M., Blustein, D., Mark, S. (2010, November). *Enhancing youth motivation for STEM career development*. Presented as a part of the Learning Resources Center at the Educational Development Center ITEST webinar series. In ITEST Program Findings on Youth Motivation, Interest, and Identity as it Relates to STEM Career Development. Online at: <http://itestlrc.edc.org/resources/itest-program-findings-youth-motivation-interest-and-identity-it-relates-stem-career-devel>
- Strauss, E., Barnett, M., Blustein, D., & Reece, F. (2010, April). *Developing a model for sustainability and impact: Our Urban Ecology ITEST program at Boston College*. Presented at the 2010 NSF funded EPSCoR Annual Conference. Little Rock, AR.
- Barnett, M. (2010, June). *GIS: Story-Making for Social and Environmental Change*. Presented at the 4<sup>th</sup> annual National Summit on Geospatial Education. National Center for Rural Science, Technology, James Madison University.
- Barnett, M., Mark, S., Blustein, D., Strauss, E., Hoffman, E. (Invited Symposium, 2010). *Citizen Science in urban ecology: Intersection between environmental and STEM education and Career Development*. National Association for Research in Science Teaching, Philadelphia, PA.
- Barnett, M., & Houle, M. (October 2, 2008) *Information Technology and Curriculum*. Presented as a part of the National Science Foundations' funded Learning Resource Center ITEST project at the Educational Development Center.

- Barnett, M. (October 30, 2008). *Conducting and Evaluating Student Learning Outcomes. Presentation of our research and evaluation program of our ITEST program.* Foundation for Blood Research, University of Southern Maine.
- Barnett, M. (November 4 and 5, 2008). American Educational Communications and Technology. Part of a National Science Foundation Funded invited panel to share experience for attracting funding and developing a research agenda for early career faculty. Orlando, FL.
- Barnett, M. (June 15, 2008). *Using technology to improve teacher education.* Moffit Institute, Israel.
- Barnett, M., & Houle, M. (May 20, 2008). *Using information and technology to engage urban students.* Presentation as a part of the presidential award teaching ceremonies. National Science Foundation.
- Barnett, M. (June 5, 2008). *How to motivate and engage urban students.* This presentation was part of the National Science Foundations' funded Learning Resource Center ITEST project. Educational Development Center.
- Barnett, M., & Houle, M. (July 16, 2008). *Urban Ecology and Information Technology.* This presentation was part of the National Science Foundations' funded Learning Resource Center ITEST project. Educational Development Center.
- Barnett, M. (May 3, 2004). *Teaching Physics through Engineering Design in Urban Classrooms.* Center for Engineering Education and Outreach, Tufts University,
- Barnett, M. (October 10, 2002). *Designing and Researching Computer Based Modeling Environments.* Comparative Media Studies Department. Massachusetts Institute of Technology

#### Other Talks and Policy Presentations

- Presentations to the Massachusetts Congressional Delegation. Boston College Urban Ecology Program, Presentations as a part of Educational Development Center's Learning Resource Center outreach initiative. March 3<sup>rd</sup>, 2011.
- Presentations to the Massachusetts Congressional Delegation. Boston College Urban Ecology Program, Presentations as a part of Educational Development Center's Learning Resource Center outreach initiative. February 24<sup>th</sup>, 2010.
- Presentations to the Massachusetts Congressional Delegation.. Boston College Urban Ecology Program, Presentations as a part of Educational Development Center's Learning Resource Center outreach initiative. February 5<sup>th</sup>, 2008.

Presentations to the Massachusetts Congressional Delegation. Boston College Urban Ecology Program, Presentations as a part of the National Center of Informal Science Education outreach initiative. July 24<sup>th</sup>, 2008.

Presentations to the Massachusetts Delegation. Boston College Urban Ecology Program, Presentations as a part of Educational Development Center's Learning Resource Center outreach initiative. February 6<sup>th</sup>, 2007.

Presentations to the Massachusetts Delegation. Boston College Urban Ecology Program, Presentations as a part of Educational Development Center's Learning Resource Center outreach initiative. February 6<sup>th</sup>, 2006.

## **MEDIA REFERENCES/STORIES**

### News Outlets

Nancy Liu (July 14, 2015). Begin to solve the problem of the introduction of China's basic education. World Journal, <http://www.worldjournal.com/3333165/article--動手解決問題-引入中國基礎教育/> (Note – this work is based on NSF funded work over the past six years)

Landergan, K. (July 13, 2015). BC professor adds hands-on lessons to Chinese schools. <https://www.bostonglobe.com/metro/2015/07/12/chinese-educators-tap-professor-help-loosen-country-learning-style/Z4TT4zgruxitAqSeuT8neN/story.html>

Li Zhou (July 23, 2015). Boston College professor innovative practice hands-on curriculum helps China improve elementary and secondary education. <http://video.sinovision.net/?id=29693>

Schneck, K., & Zacharias, M. (Nov. 6, 2014). Soil-free farming prepares next generation for Green Energy future. [http://www.nsf.gov/discoveries/disc\\_summ.jsp?cntn\\_id=133284](http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=133284)

Fox 25 News. (Oct 17, 2014). Math app helps solve math problems: Is it cheating? <http://www.myfoxboston.com/clip/10779785/new-app-solves-math-problems-is-it-cheating>

Schiller, B. (2014). Citizen Air Quality Sensors Cover the Places Governments Can't Reach. Fast Company. <http://www.fastcoexist.com/3031162/citizen-air-quality-sensors-cover-the-places-governments-cant-reach>

Carannante, T. (May 31, 2014). Research Aims to Utilize Technology and Citizen Science to Record and Broadcast Environment Data. <http://www.scienceworldreport.com/articles/15100/20140531/research-aims-utilize-technology-citizen-science-record-broadcast-environment-data.htm>



- Bruggers, J. (Sept. 30, 2014). Personal air monitors less useful than hoped.  
<http://www.courier-journal.com/story/tech/science/environment/2014/09/29/pollution-micro-monitors-less-useful-hoped/16420565/>
- (August 15, 2013), Back to the Land: Teaching a new generation. The Chronicle, WCVB-Channel 5, online at:  
<http://www.wcvb.com/chronicle/back-to-the-land/-/12523032/21473460/-/5hyx38/-/index.html>
- (October 7, 2013). Professor recycles drug-trade tools to teach kids science. The Chronicle of Higher Education, online at: <http://chronicle.com/article/Education-Professor-Recycles/142159/>
- Conrad, N. (April 11, 2013). Hydroponic Gardening: Hands-on learning at the Kroc Center. Uphams Corner News, online at: <http://www.uphamscornernews.com/hydroponic-gardening-hands-on-learning-at-the-kroc-center.html>
- Rosso, P. (March 5, 2013). Something is growing Uphams Corner. Boston.com,  
[http://www.boston.com/yourtown/news/roxbury/2013/03/hold\\_something\\_is\\_growing\\_in\\_u.html](http://www.boston.com/yourtown/news/roxbury/2013/03/hold_something_is_growing_in_u.html)
- Pyenson, A. (Feb, 23, 2013). Boston Teens Grow Green. Edible Boston,  
<http://edibleboston.com/boston-teens-grow-green/>
- Walker, A. (Nov. 19, 2012). A gateway to science. Boston Globe. Online:  
<http://www.bostonglobe.com/metro/2012/11/19/professor-wins-kudos-for-using-fruits-and-vegetables-introduce-kids-science/SdUzy0BMZ81xPz3s24jivM/story.html?event=event12>
- Tarini, G. (Dec. 3, 2012). BC professor recognized for urban education. The Heights, Boston College. Online: <http://www.bcheights.com/bc-professor-recognized-for-urban-education-1.2963054>
- Russo, P. (Oct. 9, 2012). Boston college professor looks to bring hydroponic agriculture to Uphams Corner. Boston Globe. Online:  
[http://www.boston.com/yourtown/news/dorchester/2012/10/hold\\_with\\_grant\\_boston\\_college.html](http://www.boston.com/yourtown/news/dorchester/2012/10/hold_with_grant_boston_college.html)
- Rocheleau, M. (Nov 3, 2011). A growing success at St. Columbkille Partnership School in Brighton. Boston Globe:  
Online: [http://www.boston.com/yourtown/news/allston\\_brighton/2011/11/a\\_growing\\_success\\_at\\_st\\_columb.html](http://www.boston.com/yourtown/news/allston_brighton/2011/11/a_growing_success_at_st_columb.html)
- O'Neil, Meg (April 7, 2011). Soilless growing takes root at SRU. Newport News. Newport, RI.

- WGBH (2009). Video segment to appear on WGBH that features the urban ecology ITEST project. Available: [http://itestlrc.edc.org/inside\\_iteest/maprofile.html](http://itestlrc.edc.org/inside_iteest/maprofile.html)
- Hallmark Morning and Hallmark Sunday (December, 24<sup>th</sup>, 2007). Video segment on ITEST summer program with Boston Public School students. Hallmark Cable Channel.
- Perkins, M. (June 6, 2007). Urban Tree Project engages students in surroundings. Daily News Tribune. Available at <http://www.dailynewstribune.com/education/x1689350349> .
- Wagner, S. (May 03, 2007). Talk on influence of science fiction. Weston Town Crier. Available at <http://www.townonline.com/weston/news/x251103172> .
- Williams, C. (December, 18, 2006). Tufts grant to help kids learn engineering. Mass High Tech. The New England Journal of Technology. Available: <http://masshightech.bizjournals.com/masshightech/stories/2006/12/18/story15.html> .
- Ackermann, M. (August 4, 2006). Teaching through trees. *Allston-Brighton Tab*.
- Boyce, N. (October 23, 2006). Interviewed for the impact of educational video games on classrooms, *All Things Considered*: National Public Radio.
- Guha, A. (January 20, 2006). Where extra credit equals extra lives. *Allston-Brighton Tab*.
- Kocian, L. (June 22, 2006). Fun and games at Waltham school: Video program as teaching tool. *Boston Globe*, p. 3.
- LaBella, M. (October 1, 2006). Feeling the Earth move: Students get the jump on studying New England earthquakes. *The Eagle-Tribune*.
- Rocchio, C. (July 27, 2006). Taking stock in trees. *Daily News Tribune*.
- Rocchio, C. (June 20, 2006). The joy of discovery. *Daily News Tribune*.
- Simmons, C. (November 9, 2005). Loud and Clear: McDevitt students participate in bioacoustics research with BC. *Daily News Tribune*.
- Myerov, J. (September 10, 2003). Grant helps school get a seismograph: Machine will let McDevitt students see tremors from as far away as Asia. *Daily News Tribune*.

#### Other media references and stories

- Roach, R. (Dec 28, 2006). Boston College Researchers to Develop Urban Environmental Science Curriculum. *Diverse Issues in Higher Education*.

Eureka Report (2006). Boston College to develop urban environmental science curriculum for use in urban high schools. [http://www.eurekaalert.org/pub\\_releases/2006-10/bc-bct103106.php](http://www.eurekaalert.org/pub_releases/2006-10/bc-bct103106.php).

## **PROFESSIONAL SERVICE**

### Editorial Duties

**Editorial Board, Journal of Science Education and Technology**, Fall 2006 – present.

**Education Section Editor, Cities and the Environment**, Fall 2007 – Fall 2010.

**Assistant Regional Editor, International Journal of Science Education**, Summer 2004 – Fall 2006. Responsible for half of all articles submitted to the International Journal of Science Education.

### Journal and other Professional Reviewing

**Reviewer, CASE Professor of the year award**, 2013, 2014, and 2015. Reviewed applications for the CASE professor of the year award.

**Committee Member, NARST Outstanding Conference Paper Committee**, 2002 – 2005. Reviewed nominated conference manuscripts and made recommendations concerning their value for receiving the most outstanding conference paper award.

**Science Education, 2002 –2005**. Reviewed manuscripts and evaluated their quality for publication in the journal.

**Journal of Teacher Education (JTE), 2003 - 2005**. Reviewed manuscripts and evaluated their quality for publication in the journal.

**Journal of Research in Science Teaching (JRST)**, 2001 – 2004. Reviewed manuscripts and evaluated their quality for publication in the journal

**National Association of Research in Science Teaching (NARST)**, 2000 – 2004. Reviewed proposals for the NARST annual meeting concerning technology, curriculum, and conceptual change.

**American Educational Research Association (AERA), 2000 – 2004.** Reviewed proposals for the AERA annual meeting concerning science education, instructional technology, and learning and cognition.

**Electronic Journal of Science Education (EJSE), 1999 – present.** Reviewed manuscripts and evaluated their quality for publication in the journal.

**International Conference of the Learning Sciences (ICLS), 2000.** Reviewed proposals for the 2000 ICLS conference concerning designing learning environments and learning and cognition.

**Educational Technology Research & Development (ETR&D), 2000 – 2002.** Reviewed manuscripts and evaluated their quality for publication in the journal.

#### Funding Agency Reviewing

**National Science Foundation, 2012-2014.** Reviewed applications for the National Science foundation Division on Research on Learning (DRL). Program.

**National Science Foundation, Geoscience Education Program, 2010.** Reviewed 15 pre-proposals for the National Science Foundation's geoscience education program

**National Science Foundation, Information Technology Experiences for Students and Teachers (ITEST), 2009.** Reviewed 20 pre-proposals for the National Science Foundation's ITEST program

**National Science Foundation, Information Technology Experiences for Students and Teachers (ITEST), 2007.** Reviewed 15 pre-proposals for the National Science Foundation's ITEST program

**National Science Foundation, Information Technology Experiences for Students and Teachers (ITEST), 2006.** Reviewed 13 proposals as part of the review panel and made recommendations concerning funding.

**National Science Foundation, SBIRII, 2003.** Reviewed Small Business Initiative Research Phase II proposals and made recommendation concerning funding.

**Israel Science Foundation, 2004.** Reviewed proposals as part of the review panel and made recommendations concerning funding.

**National Science Foundation, Center for Learning and Teaching Program, 2003.** Reviewed proposals as part of the review panel and made recommendations concerning funding.

**Massachusetts Department of Education, 2003.** Reviewed 10 proposal for the Board of Higher Education Teacher Quality grant program.

Invitations to serve on national and international advisory boards

**Advisory Board, STEM Garden Institute – 2011 – present.** Worked with the non-profit on how to develop and implement a hydroponics educational platform to expand their work.

**Advisory Board, Project LEAH – 2014 – present.** Worked with the non-profit on how to develop and implement a mentoring program for at risk-youth around STEM education.

**Advisory Board, Urban Forest Map.** Fall 2011 – present. Worked with the non-profit UrbanEcos on how to develop and implement a mobile education platform to expand their work.

**Advisory Board, Youth and Motivation Convening:** September 2011. Conference funded by the National Science Foundation that focuses on how to improve youth motivation to study science.

**Board of Advisors, Somolia School of Science and Technology, 2008 – 2009.** In this role I helped the school think through their science curriculum.

**Center for Engineering Education and Outreach (CEEEO), Tufts University, 2004 - 2008.** Worked with the CEEEO faculty and staff to guide the research agenda of the center.

**Steppingstones Project, Center for Applied Special Technology (CAST), 2003 – 2006.** Advising on the instructional design and research design of CAST's science writer program. Project PI: Dr. Tracey Hall at Cast

**Geographic Information Technology (GIT Ahead Project). 2006-2009.** Advised the project on how to integrate geographic information technology into scientific inquiry investigations. Project PI: Dr. James MaKinster at Hobart Williams-Smith Colleges.

**Synthesis and Assessment of the Research Base for a K-12 Environmental Literacy Curriculum, National Science Foundation, 2003 – 2005.** Worked with leaders in the field of Science Education to develop an environmental literacy blueprint synthesize current knowledge and suggest future lines of research and development.

**Virtual Astronaut Project, 2007-2010.** This project is building “the space game” for elementary and middle school students. Providing feedback on the content and the structural aspects of the computer game. Project PIs: Sonny and Jamie Kirkley at Information in Place inc.

**The Universally Designed Science Notebook: An Intervention to Support Science Learning for Students with Disabilities.** 2007 – 2011. Project Leaders: Lawrence Hall of Science and CAST. Provided guidance and evaluation of the scientific content of the technology-enhanced materials.

### Selected Workshops

**Urban Ecology Workshop**, Summer 2007-2011. Conducted a month long institute in collaboration with the urban ecology institute with teachers and students.

**Active Physics: Heat and Temperature**, 2003-2004. Conducted a week long workshops and a regular once a month workshop in partnership with Dr. Bob Lange at Brandeis University for Boston Public School Teachers.

**Science in the Elementary School. Fall 2004.** Conducted a semester long, one hour per week content workshop for teachers at Garfield Elementary.

**Identifying Learning Styles in the Classroom**, Fall 2006. Conducted for graduate students in arts and sciences.

### UNIVERSITY AND LYNCH SCHOOL SERVICE

#### Committees

**Lynch School of Education Awards Committee**, 2010 - 2013.

**Mathematics Education Search Committee**, 2008.

**Special Education Search Committee**, 2013.

**Teachers for a New Era, Member of the Learning Design Community Committee**, Fall 2005 – 2006. Served on the oversight committee of the teachers for a new project for the learning design committee to ensure cooperation and collaboration across different teams.

**Co-Director Science and Mathematics Team, Teachers for a New Era, Carnegie and Ford Foundation**, January 2004 – December 2005. This project is a collaboration between the Lynch School of Education, the College of Arts and Sciences and the Boston Public Schools. Specifically, this work entails the redesign of the science teacher education program at Boston College in collaboration with Dr. Eric Strauss (director of environmental studies) and Dr. Alan Kafka (chair Geophysics).

Lynch School of Education, **Educational Resource Center Advisory Committee**, Fall 2004 – present.

Lynch School of Education, **Graduate Advisory Committee**, Fall 2005.

Lynch School of Education, **Technology Advisory Committee**, Fall 2005 – present.

#### Selected Internal Presentations and workshops

*Making Scientists of Us All: A 21st-Century Requirement*. Presentation given as a part of Parent Day at Boston College, September, 26 2006.

*Using advanced technologies to engage students*. Presentation to the biology department on how to use emerging technologies to improve student learning, September 10<sup>th</sup>, 2006.

*Teaching to different learning styles*. Presentation to the biology department on how to use concept mapping to improve student learning, September 9<sup>th</sup>, 2005.

*E-learning Symposium, E-Learning Tools: What, Why and How to use them effectively*, Boston College, March 15, 2003.

*Using technology to engage students*. Presentation to graduate student teaching assistants sponsored by instructional services. March 20, 2005.

*E-learning Symposium, Boston College Law School: E-Learning Tools: What, Why and How to use them effectively*, Boston College, May 20, 2004.

#### **UNIVERSITY TEACHING EXPERIENCE**

##### Boston College Teaching

**Instructor, Boston College, Teaching about the Natural World, ED546**, Fall 2006 – Spring 2015. This course focused on providing real-world, hands-on inquiry-based scientific experiences for beginning elementary school teachers who are enrolled in the Master's program. Each student completed misconception interviews with students, constructed instructional units, constructed and maintained fish tanks, and cared for various plants and animals throughout the course.

**Instructor, Boston College, GEO182: The Living Earth**, Spring Term, 2004- 2015. This is in an interdisciplinary course that was developed in collaboration with the department of Geology and Geophysics. The course is designed primarily to meet the needs of future elementary teachers. The content covered ranged from astronomy to ecology.

**Instructor, Boston College, Teaching and Learning in the Elementary School, ED039,** Spring 2003 and Fall 2007. This course introduced students to the profession of education and the roles of teachers. It provided students with an understanding of the contexts in which education is delivered in multicultural settings in the United States and with an opportunity to gain knowledge and experience about the interpersonal, observational, and organizational skills, which underlie teaching.

**Instructor, Boston College, Restructuring Classrooms with Technology, ED367,** Spring 2003, Fall 2008. This course emphasized critical reflection on the uses and purposes of technology in K-12 education. Students constructed web quests, FileMaker Pro databases of website reviews, and co-wrote grants with in-service teachers.

**Instructor, Boston College, Teaching about the Natural World, ED109,** Spring 2003, Fall 2004, Fall 2005, Spring 2005, Spring 2006. This course focused on providing real-world, hands-on inquiry-based scientific experiences for beginning elementary school teachers. Each student completed misconception interviews with students, constructed instructional units, constructed and maintained fish tanks, and cared for various plants and animals throughout the course.

**Instructor, Boston College, Transforming Classrooms with Technology, ED128/628,** Fall 2002, Summer, 2003, Fall 2003. In this course students explore the possibilities afforded by emerging technologies for classroom teachers and teacher educators. The assignments were project-based, with an emphasis placed on producing tangible artifacts that would serve a practical need. Another goal was to establish a community of learners that embodies the Teacher Education Themes of the Boston College Teacher Education Program and is tuned to the potential of new technological applications while at the same time aware of the potential inequities and consequences presented by a dependence on these tools and materials.

**Instructor, Boston College, Secondary and Middle School Science Methods, ED300,** Fall 2002, Fall 2003, Fall 2004, Fall 2005. This course provides an active, instructional environment for science learning that enables each student to construct knowledge (skill, affective, and cognitive) that, in turn allows them to be prepared to construct instructional environments meeting the needs of tomorrow's secondary and middle school students. Activities include reflection on current research; reform movements of AAAS, NRC, and NSTA; inclusionary practices; interactions with experienced teachers, firsthand experience with instructional technology; and review and development of curriculum and related instructional materials.

#### Other University/Professional Teaching Experience

**Instructor, Elementary Methods for the Science Classroom, Indiana University,** Fall 2001. This course supported pre-service elementary teachers who were working towards a dual certification in elementary and special needs in developing confidence in teaching science using pedagogical strategies consistent with national and state standards. A central feature of this course was the collaboration between pre-service teachers, in-service teachers, and other science methods from Indiana University-Kokomo and Boston College.



**Instructor, Physics Instructor, Ivy Tech State College**, Fall 1998. Taught introductory physics to returning and adult students who were studying to obtain degrees in electrical and mechanical engineering. Developed course content, lectures, activities, assessments, and lab experiments. Course content emphasized the understanding of real world phenomena and how physics concepts can be applied to solve engineering problems.

**Instructor, Kaplan Corporation**, Spring 1997 – Spring 1999. Taught the physical sciences (physics and chemistry) sections of Kaplan's Medical College Admissions Test (MCAT), Dental Admissions Test (DAT), and Ophthalmology Admissions Test (OAT) courses. Improved students' skills by implementing an interactive dialogue between instructors and students as well as increasing students' time management skills.

**Associate Instructor, Indiana University, Q202: Physical Science for Elementary Teachers**, Spring 1997. Taught pre-service elementary teachers basic physical science concepts and supported them in developing ideas and approaches for teaching science to their students. This course emphasized developing a sound conceptual understanding of the relationships between topics and how the pre-service teachers can help their students to make those same connections.

**Instructor, Indiana University, A100: Introductory Astronomy**, Spring 1998, Summer 1998, Spring 1999. Developed web-based curriculum resources, assessments to evaluate student understanding of astronomical concepts and taught the course each semester. This course was a curriculum/research project intended to design and evaluate a project-based course in which students constructed computer models of the solar system to learn astronomy concepts. Available: <http://vss.crlt.indiana.edu/>

**Associate Instructor, Indiana University, W310: Computer Based Teaching Methods**, Fall 1997, Spring 1998, Spring 1999. Co taught and assisted in the design and development of this course for three semesters. This hands-on class was designed to introduce education students to advanced uses of computers in education. Specifically, this class develops students' skills related to: integrating educational technology into the school curriculum, engaging in professional development activities involving technology in K–12 schools, writing grants to acquire technology for the classroom, and appreciating principles of software design and evaluation. Available: <http://inkido.indiana.edu/w310/>

**Associate Instructor, Indiana University, W200: Introduction to Computers**, Spring 1998. Co-taught and assisted in the development of this course for pre-service teachers. This is the first course concerning how to integrate technology into classroom activities that pre-service teachers take at Indiana University. This course emphasized how to use technology to support students' learning, evaluate software, and use different software packages such as Microsoft Word and PowerPoint.

**Associate Instructor, Indiana University Physics Department**, Fall 1994 – Fall 1996. Taught both discussions (recitation sections) and labs for a wide range of courses including: P101 (Physics in the Modern World), P201 (General Physics I), P202 (General Physics II),

and P309 (Modern Physics Laboratory). Duties included grading, helping students develop problem-solving skills, and developing assessments to evaluate student learning.

## **K-12 TEACHING EXPERIENCE**

**K-12 Public Science School Teacher and Curriculum Specialist, Ellettsville and Stinesville Elementary**, Fall 1995 – Spring 2000. This work involved the teaching of 4<sup>th</sup> and 5<sup>th</sup> grade classes as well as working with teachers to develop innovative instructional projects. Specifically, in collaboration with teachers I designed, implemented, and evaluated project-based curriculum units at Ellettsville elementary and Stinesville elementary.

**High School Instructor, International Studies Program, Indiana University**, Fall 1995 – Fall 1997. Taught two introductory physics and chemistry courses for Malaysian high school students. These courses were designed to develop students' problem solving skills with the goal of preparing the students to take college level science courses.

**High School Instructor, International Studies Program, Indiana University**, Fall 1998. Taught two beginning algebra courses for students from Angola who were preparing for college in the United States. Developed instructional activities, assessing student work, and developed a curriculum that incorporated students' existing knowledge of algebra. These activities were designed not only to improve students' mathematical problem solving skills but designed to help the students learn English.

## **SCIENTIFIC RESEARCH EXPERIENCE**

**Research Associate, Physics Department, Indiana University**, Fall 1996 – Spring 1997. Developed computer programs to model experimental detectors, to detect quasars, and analyze other astronomical data. This research also involved studying existing graphic and imaging software to determine how to use them to locate quasars (distant bright galaxies).

**Project Researcher, High Energy Astrophysics Telescope (HEAT) Project**, Fall 1994 – Fall 1996. Developed computational models of experimental detection equipment that allowed comparisons between experimental findings and theoretical predictions concerning the characteristics of high energy particles striking the Earth's upper atmosphere (cosmic rays).

**Project Researcher, Josephson Junctions**, Fall 1992 – Spring 1993. Developed computational models of how magnetic fields can induce regions of superconductivity in different types of materials. This research showed how patterns of superconducting regions can be formed and changed depending on the strength of the magnetic field applied to materials.

**Project Researcher, Variable Stars**, Summer 1992. Conducted observations at Michigan State University of the variable star AR Her. Studied the fluctuation patterns of AR Her, with

an emphasis on understanding the Blazkho effect. The results of this project improved our understanding of why certain types of variable stars oscillate with irregular frequencies.

#### **SELECTED AWARDS**

**2012 CASE/Carnegie Foundation for the Advancement of Teaching, Massachusetts Professor of the Year.**

**Teaching with Technology Award, Summa Cum Laude, Boston College, Spring 2008.** Award given to faculty who have demonstrated innovative and creative ways to support student learning through technology.

**National Science Foundation Fellowship, June 2006, \$500.00.** Awarded by the organizers of the International Conference of the Learning Sciences. This fellowship provided funding to attend the International Conference of the Learning Sciences (2006) and to attend workshops on qualitative video analysis and hierarchical linear modeling analysis.

**Early Career Research Associate, Center for Curriculum Materials in Science. June 2005 – June 2007.** This position is funded by the National Science Foundation through the American Association for the Advancement of Science. This position is designed to study the design and implementation of curriculum materials in public schools.

**Teaching with Technology Award, Summa Cum Laude, Boston College, Spring 2005.** Award given to faculty who have demonstrated innovative and creative ways to support student learning through technology.

**National Science Foundation Fellowship, \$1,000.00.** Awarded by the organizers of the International Conference of the Learning Sciences. This fellowship provided funding to attend the International Conference of the Learning Sciences (2004) and to attend workshops on qualitative video analysis and hierarchical linear modeling analysis.

**AERA/Spencer Foundation Pre-Dissertation Fellowship, Spencer Foundation, June 2000 – June 2001.** This fellowship supplemented my stipend and allows for my participation in the professional enhancement activities of the fellowship program.

#### **MAJOR CONFERENCE PRESENTATIONS**

David Blustein, Michael Barnett, Bailey Rand, Benjamin Tan, Deborah Wan and Sean Flanagan (2014). Survival Strategies in Maintaining STEM interests: Lessons from the Field. Paper to be presented as a part of the National Career Development Association Conference, Boston, MA.

Mark, S., Debay, D., Haley, J., Zhang, L., Blustein, D., & Barnett, M. (2014). Social Justice, Technology, and Career Development. In N. Alyssa (chair). *Working toward STEM*

*and social justice in technologically rich settings.* Paper presented as a part of a symposium at the 2013 annual meeting of the American Education Research Association, San Francisco, CA.

- DeBay, D., Lee, Y., Barnett, M., Haley, J. & Anderson, A. (2012, April). An exploration of geospatial technology as a mechanism for college students' scientific and mathematical understanding of the ecological and economic trade-offs of urban planning. In T. Bastiaens & G. Marks (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2012* (pp. 110-117). Chesapeake, VA: AACE.
- Blustein, D., Barnett, M., Mark, S., Depot, M., Lovering, M., Lee, Y., Kim, J. Hu, Q., Backus, F., & Debay, D. (2011, April). Exploring High School Students' Development of STEM-Related Career Interests. Paper presented at the 2011 annual meeting of the American Education Research Association, New Orleans, LA.
- Barnett, M., Houle, M., Mark, S., Chen, S. (2010, May). Using geographic information systems to support student learning through urban ecology. Paper presented at the 2010 annual meeting of the American Education Research Association, Denver, CO.
- Mark, S., Blustein, D., & Barnett, M., (2010, May). Barriers, Resources and Challenges that Urban youth experience and overcome in STEM career development. In M. Barnett (chair) *STEM Career Development: Lessons Learned from the NSF ITEST program*. Paper presented as a part of a symposium at the 2010 annual meeting of the American Education Research Association, Denver, CO.
- Mark, S., Barnett, M., Houle, M., Strauss, E., Hirsch, L, & Minner, D. (2010, May). Technology-enhanced urban ecology field Studies: Impacts on students' science self-efficacy and ecological mindset. In M. Barnett (chair). *Improving Student Interest Toward Science: Results from National Science Foundation ITEST Program*. Paper presented as a part of a symposium at the 2010 annual meeting of the American Education Research Association, Denver, CO.
- Houle, M. E., McNeill, K. L., & Nolasco, M. (2010, March). *Investigating the influence of teachers' orientations toward curriculum materials on enactment*. Paper to be presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
- Invited Symposium. National Association for Research in Science Teaching (2010, March). *Citizen Science in urban ecology: Intersection between environmental and STEM education and Career Development*. National Association for Research in Science Teaching, Philadelphia, PA.
- Mark, S., Blustein, D. Backus, F. Barnett, M., Hoffman, E. (2010, March). *Helping minority students get into the game: Research outcomes of a technology-enhanced STEM*

*development program*. National Association for Research in Science Teaching, Philadelphia, PA.

Blustein, D. L., Barnett, G. M., Backus, F. R., Catraio, C., Coutinho, M., Dillon, K., Medvide, M. B., & Murphy, K. (2009, June). *An exploration of high school students' values about STEM careers*. Paper presented at the biennial conference of the Society for Vocational Psychology, St. Louis, MO.

McNeill, K.L. & Pimentel, D. S. (2009, April). *Scientific discourse in urban classrooms: The role of the teacher in engaging students in argumentation*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Hufnagel, B., & Pacheco, H, Barnett, M., & Strauss, E. (2009, March). *Urban Ecology: A New Frontier for Curriculum*. Presented at the 2009 Annual Meeting of the Massachusetts Environmental Education Society, Worcester, MA.

Barnett, M., Houle, M, Goodman, J., Hufnagel, B., & Smith, M. (2008). Using GIS to Model Urban Street Value. Presented and the 2008 Annual Meeting of the National Science Teachers Association, Boston, MA.

Barnett, M., Pirello, C, Hufnagel, B, & Goodman, J. (2008). Ecology and the Economy of Trees. Presented at the 2008 Annual Meeting of the Massachusetts Environmental Education Society, Worcester, MA.

Strauss, E., Barnett, M., McNeill, K., & Houle, M. (2008). Urban Ecology: A New Frontier for Curriculum. Presented at the 2008 Annual Meeting of the Massachusetts Environmental Education Society, Worcester, MA.

Houle, M., Gatling, A., & Barnett, M. (2007). The Birds & the Trees: Leveraging Technology to Engage Urban Youth. Presented at the 2007 Annual meeting of the North American Association for Environmental Education. Virginia Beach, VA.

Houle, M., Barnett, M., Rosca, C., & Strauss, E. (2007). An Urban Ecology Summer Institute's Impact on Teachers and Students. Paper presented at the North American Association for Environmental Education. Virginia Beach, VA.

Anderson, J., Jong, C., & Barnett, M. (2008) Virtual World, Real Impact: Gender, Race and The Use of a 3D Virtual World to Teach Concepts Around Water Quality. Paper presented at the National Association for Research in Science Teaching. Baltimore, MD.

Gatling, A., McNeill, K., Martin, D., & Barnett, M. (2008). A Comparison of Field and University Based Science Methods Courses' Impact on Preservice Teacher's View of How Students Learn Science. Paper presented at the National Association for Research in Science Teaching. Baltimore, MD.

- Barnett, M., Houle, M., Smith, M. (2008). Leveraging GIS Technology in Urban Schools to Visualize Impact of Urban Forests on Climate, Energy Use and Air Quality. Paper presented at the National Association for Research in Science Teaching. Baltimore, MD.
- Houle, M., Barnett, M., Piazza, P., Strauss, E. (2008). Preparing Teachers to Support Students in Conducting a Field-Based, Technology-Rich Scientific Investigation. Paper presented at the National Association for Research in Science Teaching. Baltimore, MD.
- Houle, M., & Barnett, M. (2008). Participation and Learning: Two Sides of the Information Technology Coin. In SIG-Technology as an Agent of Change in Teaching and Learning (M. Houle, chair). Paper presented at the American Educational Research Association. New York, NY.
- Anderson, J., Jong, C., Barnett, M. (2008). Virtual World, Real Impact: Gender, Race, and the Use of a 3-D Virtual World to Teach Concepts Around Water Quality. Paper presented at the American Educational Research Association. New York, NY.
- Piazza, P., Houle, M., Chavez, D., Barnett, M., & Strauss, E. (2008) Engaging Urban Students and Teachers in Urban Ecology Field Studies. Paper presented at the North American Association for Environmental Education. Virginia Beach, VA
- Houle, M., Barnett, M., & Strauss (2008). How Do Birds Deal with Noise? Teaching Physics and Ecology in the School Yard. Presented and the 2008 Annual Meeting of the National Science Teachers Association, Boston, MA.
- Houle, M., & Barnett, M. (pending, 2008). Participation and Learning: Two Sides of the Information Technology Coin. In *J. Malyn-Smith (chair), Game Learning Designs: ICT for "New Learners" Empowered with Technology*. A symposium to be conducted at the 2008 annual meeting of the American Educational Research Association. New York.
- Anderson, J. & Barnett, M. (pending, 2008). Workshop on educational video games in K-12 classrooms. Workshop to be conducted at the National Science Teachers Association, Boston, MA.
- Houle, M.E., Barnett, M., Rosca, C., & Strauss, E. 2007. *An Urban Ecology Summer Institute's Impact on Teachers and Students*. Paper to be presented at the Research Symposium at the Annual Meeting of the North American Environmental Educational Association, November 14, 2007. Virginia Beach VA.
- Houle, M.E., Gatling, A.P., & Barnett, M. (November 2007) *The Birds & the Trees: Leveraging Technology to Engage Urban Youth*. Presentation to be given at the North American Environmental Educational Association, Virginia Beach VA.

- Piazza, P. Houle, M., Chavez, D. Barnett, M., Strauss, E., 2007. *Engaging Urban Students and Teachers in Urban Ecology Field Studies*. Presentation to be given at the North American Environmental Educational Association, Virginia Beach VA.
- Houle, M., Barnett, M., Strauss, E., Piazza, P. (November, 2007). *Urban Students and Teachers in Urban Ecology Field Studies*. Paper to be presented at the North American Environmental Educational Association, Virginia Beach VA.
- Houle, M., Barnett, M., Strauss, E., & Gatling, A. (November, 2007). *Birds & the Trees: Leveraging Technology to Engage Urban Youth*. Paper to be presented at the North American Environmental Educational Association, Virginia Beach VA.
- Anderson, J. & Barnett, M. (2007). *The Kids Got Game: Using Quest Atlantis, a 3D Virtual Computer Game to Develop Critical Thinking and Problem Solving Skills in Elementary Science Classrooms*. Paper presented at the American Educational Research Association, Chicago IL.
- Anderson, J., & Barnett, M. (2007). *Using an environmental science educational computer video game in elementary science classrooms*. Paper presented at the 2007 National Science Teachers Association, St. Louis MO.
- Houle, M., Barnett, M., & Strauss, E (2007). *Teaching physics in the schoolyard: Urban noise, bird song, and sound waves*. Paper presented at the 2007 National Science Teachers Association Conference, St. Louis MO.
- Gatling, A., Barnett, M., & Martin, D. (2007). *Impacts of a field based science methods course on pre-service teacher preparedness to teach in urban settings*. Paper presented at the 2007 Conference for American Association of Colleges for Teacher Education. New York.
- Anderson, J., Barnett, M. and Bergin, J. (2007) *Quest Atlantis: Using computer gaming technology to teach problem solving surrounding water quality and environmental issues*. Paper presented at the National Association for Research in Science Teaching, New Orleans, LA..
- Houle, M., Barnett, M., & Strauss, E. (2006). *Bird Song, Sound Waves, and Urban Ecology: Issues of Authentic Science, Agency and Advocacy in Curriculum Design*. Paper presented at the International Conference of the Society for Human Ecology, Bar Harbor, Maine.
- Higginbotham, T., Anderson, J., & Barnett, M. (2006). *Didn't I tell you that? Challenges and tensions in developing and sustaining school-university partnerships*. International Conference of the Learning Sciences, Bloomington, IN.
- Anderson, J. Higginbotham, T., Barnett, M., Jencunas., D., Rosca, C., Copman, S., & Zinkowski, J. (2006). *The Story of one Urban High School's Efforts to Improve*

*Student Attitudes, Motivation, Self-Efficacy and Perceptions of Self, School, and Science through Project-Based Science Instruction*. International Conference of the Learning Sciences (2006), Bloomington, IN.

Anderson, J., & Barnett, M. (2006). *Innovative Session: Early Childhood Robotics for Learning*. International Conference of the Learning Sciences (2006), Bloomington, IN.

Barnett, M., Wagner, H., Kafka, A., & Pfitzner, A. (2006). *Impact of Popular Science Fiction Movies on Student understanding of Science Content and Process*. Paper to be presented at the 2006 annual meeting of the National Association of Science Teaching.

Higginbotham, T., Barnett, M, Anderson, J. (2006). *Building trust between partners: University, teacher, and administrators in K-12 schools*. Paper to be presented at the 2006 annual meeting of the National Association of Science Teaching.

Pfitzner, A., & Barnett, M. (2006). *Challenges in Supporting Pre-Service Teachers Learning to Teach Science in Urban Elementary Schools*. Paper to be presented at the 2006 annual meeting of the Association of Science Teacher Educators.

Anderson, J., & Barnett, M. (2005). *Using activity theory and situated cognition to analyze and describe special needs students understanding of engineering design principles through Lego robotics*. Paper presented at the 2005 ROBOLAB Conference, Austin, Texas.

Barnett, M. (2005). *Engaging Inner City Students in Learning through Designing Remote Operated Vehicles*. Paper presented at the 2005 annual meeting of the National Association for Research in Science Teaching. Dallas, TX.

Barnett, M. & the Urban Sciences Research and Learning Group (2005). *The Process of Building Trust between University and School Personnel*. Paper presented at the 2005 annual meeting of the American Educational Research Association. Montreal, CA.

Barnett, M., Higginbotham, T., & Jecunas, D., & the Urban Sciences Research and Learning Group (2005). *Maintaining and Sustaining a Partnership through Building Trust: The Story of Odyssey High School and its Partners*. In M. Barnett (chair), *Urban School and University Partnerships: The Challenges, Successes, Advantages, and their Future*. A Special Colloquium conducted at the 2005 annual meeting of the National Association for Research in Science Teaching. Dallas, TX.

Anderson, J., Higginbotham, T., Barnett, M., Rosca, C., & Jecunas, D. (2005). *Understanding change in an urban high school and its impact on student self-efficacy and learning*. Paper presented at the 2005 annual meeting of the American Educational Research Association. Montreal, CA.

Higginbotham, T., Anderson, J., Barnett, M., Rosca, C., Jecunas, D. (2005). *Chamberlain High School: A Story of an Urban High School's Efforts to Improve Student Attitudes*,



*Motivation, Self-Efficacy and Perceptions of Self, School, and Science.* Paper presented at the 2005 annual meeting of the National Association for Research in Science Teaching. Dallas, TX.

Bellegarde, H., Barnett, M., Pfitzner, A., Anderson, J., Houle, M., & Kafka, A. (2005). *Inviting Students into The World of Seismology Research: Impact on Student Understanding of Seismological Concepts.* Paper presented at the 2005 annual meeting of the National Association for Research in Science Teaching. Dallas, TX.

Houle, M., Rosca, C., Barnett, M., Strauss, E., Lord, C., Deni, L. (2005). *Urban Ecology Field Studies: A Model for Engaging Urban Youth in Science?* Paper presented at the 2005 annual meeting of the American Educational Research Association. Montreal, CA.

Kafka, A., Barnett, M., & Ebel, J. (2004). *The 2004 Parkfield, CA Earthquake: A Teachable Moment for Exploring Earthquake Processes, Probability, and Earthquake Prediction.* Paper presented at the 2004 annual meeting of the American Geophysical Union, San Francisco, CA.

Kafka, A., Barnett, M., Bellegarde, H., & Ebel, J. (2004). *Inviting students into the world of scientific inquiry through seismology.* Paper presented at the 2005 annual meeting of the American Geophysical Union, San Francisco, CA.

Squire, K., Barnett, M., Grant, J., Higginbotham, T. (2004). *Electromagnetism Supercharged! Learning Physics in Simulated Worlds.* Paper to be presented at the International Conference of the Learning Sciences. Los Angeles, CA.

Barnett, M. (2004). *Investigating Inquiry: A Historical Unfolding of Teaching and Learning.* In *Understanding Inquiry-Based Scientific Experiences: A Look across Contexts* (M. Barnett, Chair). Paper presented at the National Association for Research in Science Teaching. Vancouver, CA.

Barnett, M., Rosca, C., Strauss, E., Langford, H., Deni, L., & Langford, H. (2004). *Urban ecology field studies: Providing opportunities for urban students to do science.* Paper to be presented at the American Educational Research Association. San Diego, CA.

Barnett, M., Higginbotham, Squire, K., & Grant, J. (2004). *The games to teach project: Supporting science learning through video game play.* Paper to be presented at the American Educational Research Association. San Diego, CA.

Squire, K., Barnett, M., Higginbotham, T., & Grant, J., (2004). *Electromagnetism supercharged! Using 3D simulation games in middle school physics.* Paper to be presented at the American Educational Research Association. San Diego, CA.

- Higginbotham, T. Barnett, M., Squire, K., & Grant, J. (2004). *Learning electricity and magnetism through the playing of video games*. Paper presented at the National Association for Research in Science Teaching. Vancouver, CA.
- Rosca, C., Barnett, M., Strauss, E., Lord, C., & Langford, H. (2004). *Using field based studies to improve urban student engagement in science*. Paper presented at the National Association for Research in Science Teaching. Vancouver, CA.
- Barnett, M. (2004). Using a web-based professional development to pre-service teacher understanding of inquiry-based science. Paper presented at the annual meeting of the Association for Educators of Teachers of Science. Nashville, TN.
- Barnett, M. (2003). *Investigating inquiry-teaching in elementary classrooms: A teaching experiment*. Paper presented at the American Educational Research Association, Chicago, IL.
- Barnett, M., Harwood, W., & Hansen, J. (2003). *Coming to terms with inquiry-based teaching through collaborative discussion, participation, and reflection*. Paper presented at the National Association for Research in Science Teaching, Philadelphia, PA.
- Barnett, M., Morran, J., & DeMoss, S. (2003). *Investigating Inquiry-science teaching in elementary through collaborative action research*. Paper presented at the American Educational Research Association, Chicago, IL.
- Harwood, W., Saam, J., Barnett, M., & Keating, T. (2003). *Using emerging technologies to bridge the gap between university theory and classroom practice: Challenges and successes*. Paper presented at the Association for Educators of Teachers of Science, St. Louis, MO.
- Barnett, M (2002, April). Investigating inquiry: Challenges, trials, and tribulations of teachers and students. In D. Meyer (chair), *Social engagement and social studies of teacher practice*. Symposium conducted at the annual meeting of the National Association of Research in Science Teaching, New Orleans, LA.
- Hansen, J., Barnett, M., MaKinster, J., & Keating, T. (2002, April). *Does computational 3-D modeling technologies support student learning?* Paper presented at the annual meeting of the National Association of Research in Science Teaching, New Orleans, LA.
- Barnett, M. (2002, April). *Issues and trends concerning electronic networking technologies for teacher professional development: A critical review of the literature*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

- Barnett, M., & Morran, J. (2001, March). *Addressing children's understanding of astronomy through curriculum design*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Barnett, M., MaKinster, J., Barab, S., Squire, K., & Kelly, C. (2001, March). Addressing the challenges of designing an on-line environment to support student learning through the use of inscriptions and technology-rich resources. In E. Toth (chair), *Using online modeling tools to support knowing-in-the-making*. Symposium conducted at the annual conference of the National Association for Research in Science Teaching, St. Louis, MO.
- Barnett, M., MaKinster, J. G., & Hansen, J. (2001, April). *Exploring elementary students' learning of astronomy through model building*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Barnett, M., Barab, S., Warren, S., & Schatz, S. (2001, April). *Designing a project-based history course to support student engagement in a community of historical inquiry*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Squire, K., Barnett, M., Thomas, M., & Barab, S. (2001, April). *Fostering against-the-grain teaching in a community of teachers*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Barab S. A., Kelly C., Squire K., Barnett M., & MaKinster J. (2001, April). Designed curriculum and local culture: Acknowledging the primacy of classroom culture. In S. Barab (chair), *Building sustainable science curriculum: Acknowledging and accommodating local adaptation*. Symposium conducted at the annual meeting of the American Education Research Association, Seattle, WA.
- Barnett, M., Yamagata-Lynch, L., Keating, T., Barab, S. A., & Squire, K. (2000, April). *The virtual solar system project: Tracing the historical development of learner conceptual understandings*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Barnett, M., Keating, T., Barab, S., & Hay, K. E. (2000, June). *Building understanding through building models*. Paper presented at the 4<sup>th</sup> International Conference of the Learning Sciences, Ann Arbor, MI.
- Hay K., Crozier, J., & Barnett, M. (2000, April). *Virtual gorilla modeling project: Middle school students constructing virtual models for learning*. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Barab, S., A., Hay, K. E., Squire, K., Barnett, M., Schmidt, R., Karrigan, K., & Johnson, C. (2000, April). *Virtual solar system project: Developing scientific understanding*

*through model building.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Barab, S. A., Hay, K. E., & Barnett, M. (1999, April). *A vision for learning astronomy.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, CA.

Keating, T., Barnett, M., & Barab, S. A. (1999, April). *The virtual solar system project: Conceptual change through building three-dimensional virtual models.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, CA.

Barab, S. A., Barnett M., Yamagata-Lynch, L., Squire, K., & Keating, T. (1999, April). *Using activity theory to understand the contradictions characterizing a technology-rich introductory astronomy course.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, CA.

Barab, S. A., Squire, K., & Barnett, M. (1999, April). *From teachers' fixed curricular objectives toward students' emergent practices.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, CA.

Barab, S. A., Hay, K. E., & Barnett, M. (1999, April). *Virtual solar system project: Building understanding through model building.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, CA.

Bichelmeyer, B.A., Monson, J., Baek, E., Barnett, M., & Capps, P. (1999, February). *Principals' perceptions of the role of teacher in the information-age classroom.* Paper presented at the annual convention of the Association for Educational Communications and Technology, Houston, TX.

Barab, S. A., Hay, K. E., Barnett, M., & Squire, K. (1998, May). *Constructing knowledge and virtual worlds: Knowledge diffusion in future camp 97.* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.