Thomas Andrew Brush
Indiana University
Education 2236
201 N. Rose Ave.
Bloomington, IN 47405-1006
Phone: 812-856-8458
Email: tbrush@indiana.edu

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EDUCATION	**Ph.D. in Special Education,** 1995

Ph.D. in Special Education, 1995
Indiana University, Bloomington, IN
Cognate Area: Instructional Systems Technology
Research Interests: Design of inquiry-oriented learning environments;
                     Technology integration and teacher education.

Master of Science in Education, 1988
Potsdam College of SUNY, Potsdam, NY
Major: Instructional Technology
Honors & Awards: Kappa Delta Pi, Education Honor Society

Bachelor of Arts in Mathematics, 1986
Potsdam College of SUNY, Potsdam, NY
Minor: Secondary Education
Teaching Certification: Math 7-12
Honors: Pi Mu Epsilon, Mathematics Honor Society

EXPERIENCE

Barbara B. Jacobs Chair in Education and Technology
Indiana University, Bloomington, IN
Endowed Chair for the School of Education. (7/10 – present)

Professor, Instructional Systems Technology
Indiana University, Bloomington, IN
Faculty in School of Education. (7/09 – present)

Chair, Instructional Systems Technology Department
Indiana University, Bloomington, IN
Department Chair for IST Department at Indiana
University's School of Education. (7/12 – 6/18; 1/19 – 5/19)

Associate Dean for Teacher Education
Indiana University, Bloomington, IN
Head administrator for teacher education at Indiana
University's School of Education. (7/08 – 6/12)

Associate Professor, Instructional Systems Technology
Indiana University, Bloomington, IN
Faculty in School of Education. (8/02 – 6/09)

Associate Professor and Program Leader, Educational Technology
Arizona State University, Tempe, AZ

Faculty and program leader for Ed. Technology. (7/01 – 8/02)

Assistant Professor, Educational Media/Educational Technology
Arizona State University, Tempe, AZ
Junior faculty in Ed. Media/Ed. Technology. (8/98 – 6/01)

Assistant Professor, Educational Media
EFLT Department, Auburn University, Auburn, AL
Graduate faculty in Educational Technology. (9/95 – 8/98)

Director of Instructional Technology
Mt. Clemens Community School District, Mt. Clemens, MI
Oversaw all aspects of technology and instruction for the
district. Developed and presented in-service opportunities for
faculty. Managed technology budget. (1/93 - 9/95)

Associate Director for Technology
Indiana University, Center for Media and Teaching Resources
Consulted with faculty and public school clients on technology-based
instructional development projects. Oversaw administration, design,
and evaluation of technology-based instructional projects. (1991 –
1992)

Project Director, Instructional Services
Indiana University, School of Education
Developed instructional materials and supervised audio-visual center.
Consulted with faculty on teaching (1990 – 1991).

Research and Development Assistant
Indiana University, Department of Special Education
Developed and field-tested instructional materials.
Taught field-based classes using distance learning techniques.
Assisted with communication technology. (1989 - 1992)

**TEACHING
EXPERIENCE**

Indiana University, Bloomington, IN

Graduate Courses Taught
J762 – Doctoral Seminar: Inquiry-Based Learning
R795 – Dissertation Proposal Preparation (*online*)
R711 – Readings in Instructional Systems Technology *(F2F & online)*
R695 – Doctoral Research Seminar for EdD Students *(online)*
R695 – Doctoral Research Seminar for PhD Students
R695 – Doctoral Seminar: Technology Integration in K-12 Settings
R685 – Technology Training in Pre-Service and Inservice Education
R622 – Learning Environment Design (*online*)
R621 – Needs Analysis and Assessment (*F2F & online*)
R561 – Evaluation in the Instruct Des/Dev Process (*F2F & online*)
R541 – Development and Production Processes (*online*)
R521 – Instructional Design and Development *(F2F & online)*
R511 – Instructional Technology Foundations *(online)*
R505 – Leadership Issues in Educational Technology (*online*)
R505 – Masters Portfolio *(F2F & online)*

Undergraduate Courses Taught
W210 – Computers in Education
W301 – Integrating Technology into Teaching I
W435 – Leadership Issues in Educational Technology

Arizona State University, Tempe, AZ

Graduate Courses Taught
EMC598 – Learning Environments
EDT531 – Hypermedia
EDT504 – Development of Computer-Based Instruction
EDT511 – Technology Applications in Education
EMC528 – Media Production
EMC525 – Web-Based Development
EMC505 – Presentation Technologies

Auburn University, Auburn, AL

Graduate Courses Taught
EM630 - Community Information and Reference Sources
EM651 - Research in Educational Media
EM670 - Advanced Computer-Based Instructional Design
EM671 - Computer-Based Instructional Strategies
EM672 - Emerging Technologies in Education
EM685 - Computer Graphics in Educational Applications
EDL750 - Doctoral Seminar in Educational Leadership

Undergraduate Courses Taught
EM200 - Teaching with Technology
EM370 - Microcomputer Concepts and Applications

AWARDS

2018 Young Researcher Award (co-author with Ms. Suhkyung Shin), *Association for Educational Communications and Technology*.

2014 Young Researcher Award (co-author with Ms. Sungwon Shin), *Association for Educational Communications and Technology*.

2014 NTLI Fellows Award (co-recipient with Dr. Cory Callahan and Dr. John Saye). *Presented by the Society for Information Technology and Teacher Education*.

2013 Technology Paper Award (co-author with Dr. Cory Callahan and Dr. John Saye). *Presented by the College and University Faculty Assembly of the National Council for Social Studies*.

2012 Excellence in Education Award, *Presented by the Office of Disability Services, Indiana University*.

2011 Leadership Award. *Presented by SIG-Instructional Technology of the American Educational Research Association*.

2010 Appointed Barbara B. Jacobs Chair for Education and Technology. *Indiana University School of Education*.

2010 Presidential Award for Service. *Presented by the Association for Educational Communications and Technology*.

2010 Research Paper Award for Excellence (co-author with Ms. Susie Gronseth). *SIG-Teacher Education of the International Society for Technology in Education*.

2008 Trustees Teaching Award – Nominee. *Indiana University School of Education*.

2007 Award for Excellence in Mentoring. *Indiana University School of Education*.

2007 GPSO Faculty Mentoring Award – Nominee. *Indiana University*.

2006 Young Scholar Award (co-author with Dr. Khe Foon Hew), *Association for Educational Communications and Technology*.

2003 Best Paper Award – Honorable Mention. *American Educational Research Association, SIG – Research in Social Studies*.

1998-99 Best Paper Award, *Arizona Educational Research Organization*.

1998 Young Scholar Award, *Association for Educational Communications and Technology*.

1998 Nominee for best paper, *Eastern Educational Research Association*.

1992 Award - Best Field-based Application of Technology. *Society for Information Technology and Teacher Education*.

BOOKS

Brush, T. & Saye, J. (2017). *Successfully implementing problem-based learning in classrooms: Research in K-12 and teacher education*. West Lafayette, IN: Purdue University Press.

REFEREED PUBLICATIONS

Brush, T., Ottenbreit-Leftwich, A., Kwon, K., & Karlin, M. (2020). Implementing socially relevant problem-based computer science curriculum at the elementary level: Students' computer science knowledge and teachers' implementation needs. *Journal of Computers in Mathematics and Science Teaching, 39*(2), 109-123.

Richardson, J., Brush, T., Ottenbreit-Leftwich, A., Karlin, M., Leary, H., Shelton, B., Lowell, V., Exter, M., Strycker, J., & Shin, S. (2020). Innovation in instructional design and technology programs: A view from PIDT 2018. *Tech Trends, 64*, 432-438.

Shin, S., Brush, T. A., & Glazewski, K. D. (2020). Examining the hard, peer, and teacher scaffolding framework in inquiry-based technology-enhanced learning environments: Impact on academic

achievement and group performance. *Educational Technology Research and Development*, *68*, 2321-2350.

Shin, S., Brush, T. A., & Glazewski, K. D. (2020). Patterns of peer scaffolding in technology-enhanced inquiry classrooms: Application of social network analysis. *Educational Technology Research and Development*, *68*, 2321–2350.

Sadik, O., Ottenbreit-Leftwich, A.T., & Brush, T.A. (2020). Secondary computer science teachers' pedagogical needs. *International Journal of Computer Science Education in Schools, 4*(1), 33-52.

Shin, S., Brush. T., Saye, J., & Zhang, Z. (2019). Integrating classroom video cases into a teaching methods course: A two-year journey of curriculum redesign. *International Journal of Designs for Learning, 10*(1), 35-52.

Shin, S., Brush, T., & Saye, J. (2019). Using technology-enhanced cases in teacher education: An exploratory study in a social studies methods class. *Teaching and Teacher Education, 78*, 151-164.

Ottenbreit-Leftwich, A., Glazewski, K., Brush, T., Aslan, S., & Zachmeier, A. (2018). Addressing technology integration concerns: Asynchronous video mentoring between pre-service teachers and exemplary technology-using in-service teachers. *Australasian Journal of Educational Technology*, *34*(4), 1-15.

Kwon, K., Shin, S., Brush, T., Glazewski, K., Edelberg, T., Park, S., Khlaif, Z., Nadiruzzaman, H., & Alangari, H. (2018). Inquiry learning behaviors captured through screencasts in problem-based learning. *Interactive Learning Environments*, *26*(6), 839-855.

Liao, Y-C., Ottenbreit-Leftwich, A., Karlin, M., Glazewski, K., & Brush, T. (2017). Supporting change in teacher practice: Examining shifts of teachers' professional development preferences and needs for technology integration. *Contemporary Issues in Technology and Teacher Education, 17*(4). Retrieved from http://www.citejournal.org/volume-17/issue-4-17/general/supporting-change-in-teacher-practice-examining-shifts-of-teachers-professional-development-preferences-and-needs-for-technology-integration.

Saye, J. W., Kohlmeier, J., Howell, J. B., McCormick, T. M., Jones, R. C., & Brush, T. (2017). Scaffolded lesson study: Promoting professional teaching knowledge for problem-based historical inquiry. *Social Studies Research and Practice, 12*(1), 95-112.

Wallace, S., Banks, T., Sedas, M., Glazewski, K., Brush, T., & McKay, C. (2017). What will keep the fish alive? Exploring the intersections of designing, making, and inquiry among middle school learners. *International Journal of Designs for Learning*, *8(*1), 11-21.

Shin, S., Brush, T., & Glazewski, K. (2017). Designing and implementing web-based scaffolding tools for technology-enhanced socioscientific inquiry. *Educational Technology and Society*, *20*(1), 1-12.

Brush, T., Shin, S., Shin, S., Jung, J., Gensic, J., & Glazewski, K. (2016). Design and implementation of a technology-supported socioscientific inquiry unit in high school biology. *International Journal of Designs for Learning*, *7*(2), 1-10.

Callahan, C., Saye, J., & Brush, T. (2016). Interactive and collaborative professional development for in-service history teachers. *The Social Studies, 107*(6), 227-243.

vanLeusen, P., Ottenbreit-Leftwich, A., & Brush, T. (2016). Interpersonal consulting skills for instructional technology consultants: A multiple case study. *TechTrends*, *60*(3), 253-259.

Callahan, C., Saye, J., & Brush, T. (2015). Supporting in-service teachers' professional teaching knowledge with educatively scaffolded digital curriculum. *Contemporary Issues in Technology and Teacher Education*, *15*(4). Retrieved from http://www.citejournal.org/vol15/iss4/socialstudies/article2.cfm.

Zhang, Z., Brush, T., & Shin, S. (2014). Open source software in development of functional education website: Concepts and practice [published in Chinese]. *The Chinese Journal of ICT in Education, 336*, 87–89. **Published in 2015**.

Brush, T. & Saye, J. (2014). An instructional model to support problem-based historical inquiry: The Persistent Issues in History Network. *Interdisciplinary Journal of Problem-Based Learning*, *8*(1).

Glazewski, K., Shuster, M., Brush, T. & Ellis, A. (2014). Conexiones: Fostering socioscientific inquiry in graduate teacher preparation. *Interdisciplinary Journal of Problem-Based Learning, 8*(1).

Shen, Y.W., Reynolds, T., Bonk, C., & Brush, T. (2013). A case study of applying blended learning in an accelerated post-baccalaureate teacher education program. *Journal of Educational Technology Development and Exchange, 6*(1), 59-78.

Callahan, C., Saye, J., & Brush, T. (2013). Designing web-based educative curriculum materials for the social studies. *Contemporary Issues in Technology and Teacher Education*, *13*(2). Retrieved from http://www.citejournal.org/vol13/iss2/socialstudies/article1.cfm

Ottenbreit-Leftwich, A., Brush, T., Strycker, J., Gronseth, S., Roman, T., Abaci, S., van Leusen, P., Shin, S., Easterling, W., & Plucker, J. (2012). Preparation versus practice: How do teacher education programs and practicing teachers align in their use of technology

to support teaching and learning? *Computers & Education, 59*(2), 399-411.

Kale, U., Brush, T., Bryant, A., & Saye, J. (2011). Online communication patterns of teachers. *Journal of Interactive Learning Research, 22*(4), 489-520.

Kohlmeier, J., Saye, J., Mitchell, L., & Brush, T. (2011). Using mentoring to support a novice teacher using problem based historical inquiry with "low achieving" students. *The Journal of Social Studies Research, 35*(1), 56-79.

Gronseth, S., Brush, T., Ottenbreit-Leftwich, A., Strycker, J., Abaci, S., Easterling, W., Roman, T., Shin, S., & van Leusen, P. (2010). Equipping the next generation of teachers: Technology preparation and practice. *Journal of Digital Learning in Teacher Education, 27*(1), 20-26.

Hur., J., Cullen, T., & Brush, T. (2010). Teaching for application: A model for assisting pre-service teachers with technology integration. *Journal of Technology and Teacher Education*, *18*(1), 161-182.

Callahan, C., Saye, J., & Brush, T. (2009-2010). Educative curriculum materials to develop social studies teachers' professional teaching knowledge. *International Journal of Social Education, 24*(2), 5-33. **Published in 2013**.

Saye, J., Kohlmeier, J., Brush, T., Howell, J., & Maddox, L. (2009-2010). Assessing the effects of a teacher education program on pre-service secondary social studies teachers' instructional decision-making. *International Journal of Social Education, 24*(2), 35-76. **Published in 2013**.

Brush, T., & Saye, J. W. (2009). Strategies for preparing preservice social studies teachers to integrate technology effectively: Models and practices. *Contemporary Issues in Technology and Teacher Education* [Online serial], *9*(1). Retrieved from http://www.citejournal.org/vol9/iss1/socialstudies/article1.cfm.

.   Brush, T., Saye, J., Kale, U., Hur, J., Kohlmeier, J., Yeasimou. T., Guo, L., & Symonette, S. (2009). Evaluation of the Persistent Issues in History Laboratory for Virtual Field Experience (PIH-LVFE). *Journal of Interactive Online Learning* [Online serial], *8*(1). Retrieved from http://www.ncolr.org/jiol/issues/viewarticle.cfm?volID=8&IssueID=25&ArticleID=128.

Hur, J. & Brush, T. (2009). Teacher participation in online communities: Why do teachers want to participate in self-generated online communities of K-12 teachers? *Journal of Research on Technology in Education*, *41*(3), 279-303.

Kale, U., Brush, T., & Saye, J. (2009). Assessing teachers thinking and

participation online. *Journal of Educational Computing Research, 41*(3), 287-317.

Saye, J., Kohlmeier, J., Brush, T., Mitchell, L., & Farmer, C. (2009). Using mentoring to develop professional teaching knowledge for problem-based historical inquiry. *Theory and Research in Social Education, 37*(1), 6-41.

Brush, T. & Saye, J. (2008). The effects of multimedia-supported problem-based inquiry on student engagement, empathy, and assumptions about history. *Interdisciplinary Journal of Problem-Based Learning*, 2(1), 21-56.

Brush, T., Glazewski, K., & Hew, K. (2008). Development of an instrument to measure pre-service teachers' technology skills, technology beliefs, and technology barriers. *Computers in the Schools*, *25* (1-2), 112-125.

So, H. & Brush, T. (2008). Student perceptions of collaborative learning, social presence, and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education, 51*, 318-336.

Hew, K. & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development, 55*(3), 223-252.

Saye, J. & Brush, T. (2007). Using technology-enhanced learning environments to support problem-based historical inquiry in secondary school classrooms. *Theory and Research in Social Education, 35*(2), 196-230.

Cullen, T., Brush, T., Frey, T., Hinshaw, R., & Warren, S. (2006). NCLB technology and a rural school: A case study. *The Rural Educator, 28*(1), 9-16.

Saye, J. & Brush, T. (2006). Comparing teachers' strategies for supporting student inquiry in a problem-based multimedia-enhanced history unit. *Theory and Research in Social Education, 34*(2), 183-212.

Hur, J., Tan, A., Brush, T., Saye, J., & Chen, L. (2005). Redesigning the Persistent Issues in History (PIHNet) online forum and journal to promote interaction and reflection. *TechTrends, 49*(6), 63-66.

Saye, J.W. & Brush, T. (2005). The persistent issues in history network: Using technology to support historical inquiry and civic reasoning. *Social Education, 69*(4), 168-171.

Brinkerhoff, J., Klein, J., Brush, T., & Saye, J. (2005). The effects of advisement and small groups on learning from a multimedia database. *International Journal of Instructional Media, 32*(4), 409-418.

Brush, T. & Saye, J. (2004). Supporting learners in technology-enhanced student-centered learning environments. *International Journal of Learning Technology, 1*(2), 191-202.

Saye, J. & Brush, T. (2004). Scaffolding problem-based teaching in a traditional social studies classroom. *Theory and Research in Social Education, 32*(3), 349-378.

Simons, K., Klein, J., & Brush, T. (2004). Instructional strategies utilized during the implementation of a hypermedia, problem-based learning environment: A case study. *Journal of Interactive Learning Research*, *15*(3), 213-233.

Wolf, S.E., Brush, T., & Saye, J. (2003). Using an information problem-solving model as a metacognitive scaffold for multimedia-supported information-based problems. *Journal of Research on Technology in Education, 35*(3), 321-341.

Wolf, S.E., Brush, T., & Saye, J. (2003). The Big Six information skills as a metacognitive scaffold: A case study. *School Library Media Research, 6*(1). [On-line]. Available: http://www.ala.org/Content/NavigationMenu/AASL/ Publications_and_Journals/School_Library_Media_Research/ Contents1/Volume_6_(2003)/Big_Six_Information_Skills.htm.

Brush, T., Glazewski, K., Rutowski, K., Berg, K., Stromfors, C., Hernandez-Nest, M., Stock, L., & Sutton, J. (2003). Integrating technology into a pre-service teacher training program. The PT3@ASU project. *Educational Technology Research and Development, 51*(1), 57-72.

Brush, T. & Saye, J. (2002). A summary of research exploring hard and soft scaffolding for teachers and students using multimedia-supported learning environments. *Journal of Interactive Online Learning*. Online: Available: http://www.ncolr.org/jiol/index.html

Saye, J. & Brush, T. (2002). Scaffolding critical reasoning about history and social issues in multimedia-supported learning environments. *Educational Technology Research and Development, 50*(3), 77-96.

Brush, T. & Saye, J. (2001). The use of embedded scaffolds in a technology-enhanced student-centered learning activity. *Journal of Educational Multimedia and Hypermedia, 10*(4), 333-356.

Brush, T., Igoe, A., Brinkerhoff, J., Glazewski, K., Ku, H., & Smith, T.C. (2001). Lessons from the field: Integrating technology into preservice teacher education. *Journal of Computing in Teacher Education, 17*(4), 16-20.

Brush, T. & Saye, J. (2000). Implementation and evaluation of a student-centered learning unit: A case study. *Educational Technology Research and Development, 48*(3), 79-100.

Brush, T. & Uden, L. (2000). Using computer-mediated communications to enhance instructional design classes: A case study. *International Journal of Instructional Media, 27*(2), 157-163.

Brush, T. (2000). Using an ILS to help students at-risk of school failure. *Journal of Research in Education, 10*(1), 28-31.

Saye, J. & Brush, T. (1999). Student engagement with social issues in a multimedia-supported learning environment. *Theory and Research in Social Education, 27*(4), 472-504.

Brush, T., Armstrong, J., Barbrow, D., & Ulintz, L. (1999). Design and delivery of Integrated Learning Systems: Their impact on student achievement and attitudes. *Journal of Educational Computing Research*, 21(4), 475-486.

Brush, T. (1999). Technology planning and implementation in public schools: A five-state comparison. *Computers in the Schools, 15*(2), 11-23.

Scott, B. & Brush, T. (1998). Teaching instructional technology: A problem-based learning approach. *Canadian Journal of Educational Communications*, 27(1), 1-18.

Brush, T. (1998). Embedding cooperative learning into the design of Integrated Learning Systems: Rationale and guidelines. *Educational Technology Research and Development, 46*(3), 5-18.

Brush, T. (1998). Teaching pre-service teachers to use technology in the classroom. *Journal of Technology and Teacher Education*, 6(4), 243-258.

Brush, T. & Bannon, S. (1998). Characteristics of technology leaders: A survey of school administrators in the United States. *International Studies in Educational Administration, 26*(2), 47-56.

Brush, T. (1997). The effects on student achievement and attitudes when using integrated learning systems in cooperative pairs. *Educational Technology Research and Development*, 45(1), 51-64.

Brush, T. (1997). The effects of group composition on achievement and time-on-task for students completing ILS activities in cooperative pairs. *Journal of Research on Computing in Education*, 30(1), 2-17.

Knapczyk, D., Rodes, P., & Brush, T. (1994). Improving staff development in rural communities using distance education and communication technology. *Rural Special Education Quarterly*, 13(2), 19-24.

Brush, T., Knapczyk, D., & Hubbard, L. (1994). Incorporating technology in the field-based preparation of teachers. *Journal of Technology and Teacher Education, 2*(1), 91-102.

Knuth, R.A. & Brush, T. (1990). Results of the Hypertext '89 design survey. *Hypermedia, 2*, 91-107.

BOOK CHAPTERS

Gomoll, A., Glazewski, K., Hmelo-Silver, C.E., Brush, T., & Jung, J. (2018). Defined and enacted threshold concepts in engineering education: Applied competencies within multi-level systems. In M. Savin-Baden & G. Tombs (Eds.), *Threshold Concepts in Problem-Based Learning* (67-80). Brill Sense: Leiden, The Netherlands.

Ottenbreit-Leftwich, A. & Brush, T. (2018). Integrating technology into K-12 education. In R. Reiser and J. Dempsey (Eds.), *Trends and issues in instructional design and technology* (4th Ed). New York: Pearson.

Brush, T. & Saye, J. (2017). Problem-based learning in K-12 and teacher education: Introduction and current trends. In T. Brush & J. Saye (Eds.), *Successfully implementing problem-based learning in classrooms: Research in K-12 and teacher education*. West Lafayette, IN: Purdue University Press.

Brush, T. & Saye, J. (2017). An instructional model to support problem-based historical inquiry: The Persistent Issues in History Network. In T. Brush & J. Saye (Eds.), *Successfully implementing problem-based learning in classrooms: Research in K-12 and teacher education*. West Lafayette, IN: Purdue University Press. **[Revision of a previously published journal article].**

Glazewski, K., Shuster, M., Brush, T. & Ellis, A. (2017). Conexiones: Fostering socioscientific inquiry in graduate teacher preparation. In T. Brush & J. Saye (Eds.), *Successfully implementing problem-based learning in classrooms: Research in K-12 and teacher education*. West Lafayette, IN: Purdue University Press. **[Revision of a previously published journal article].**

Saye, J. & Brush, T. (2017). Using technology-enhanced learning environments to support problem-based historical inquiry in secondary school classrooms. In T. Brush & J. Saye (Eds.), *Successfully implementing problem-based learning in classrooms: Research in K-12 and teacher education*. West Lafayette, IN: Purdue University Press. **[Revision of a previously published journal article].**

Brush, T., Glazewski, K., Ottenbreit-Leftwich, A., & Baker, J. (2014). Using technology to support the unique needs of gifted learners: Promise and challenges. In J. Plucker & C. Callahan (Eds.), *Critical issues and practices in gifted education* (2nd Ed). Waco, TX: Profrock Press.

Brush, T., Glazewski, K., Ottenbreit-Leftwich, A., Saye, J., Zhang, Z., & Shin, S. (2013). The PBL-TECH project: Web-based tools and resources to support problem-based learning in pre-service teacher education. In L. Liu, D. Gibson, & C. Maddux (Eds.), *Research highlights in technology and teacher education 2013*. Chesapeake, VA: AACE.

Hur, J., Brush, T., & Bonk, C. J. (2012). An analysis of teacher knowledge and emotional sharing in a teacher blog community. In V. Dennen & J. Myers (Eds.), *Virtual professional development and informal learning via social networks*. Hershey, PA: IGI Global.

Saye, J. & Brush, T. (2009). Using the affordances of technology to develop teacher expertise in historical inquiry. In J. Lee and A. Friedman (Eds.), *Research on Technology in Social Studies Education*. Greenwich, CT: Information Age Publishing.

Brush, T., Sugar, W., & Brush, J. (2006). Case Study 32: Andrew Brown and Deborah Frye. In P. Ertmer and J. Quinn (Eds.), *The ID Casebook: Case Studies in Instructional Design* (3rd Ed). Upper Saddle River, NJ: Merrill-Prentice Hall.

Simons, K. & Brush, T. (2005). Examining the impact of field-based technology preparation for pre-service teachers. In C. Vrasidas & G. Glass (Eds), *Preparing Teachers to Teach with Technology*. Greenwich, CT: Information Age Publishing.

Savenye, W., Brush, T., Middleton, J., Igoe, A., & Kurtz, T. (2004). Developing online teacher videocases for learning technology integration. In C. Vrasidas & G. Glass (Eds), *Online Professional Development for Teachers*. Greenwich, CT: Information Age Publishing.

Saye, J.W. & Brush, T. (2004). Promoting civic competence through problem-based history learning experiments. In G.E. Hamot, J.J. Patrick, & R.S. Leming (Eds), *Civic Learning in Teacher Education*, Vol. 3. Bloomington, IN: The Social Studies Development Center.

Brush, T. (1998). Using CMC to bring real-world experiences into the classroom: The electronic "pen-pal" project. In Berge, Z.L. and Collins, M.P. (Eds.), *Wired Together: The Online Classroom in K-12. (Volume 4: Writing, Reading, and Language Acquisition)*. Cresskill NJ: Hampton Press.

OTHER PUBLICATIONS   Brush, T. & Saye, J. (2014). Introduction to special issue on technology-supported problem-based learning in teacher education. *Interdisciplinary Journal of Problem-Based Learning, 8*(1).

Uden, L. & Brush, T. (2004). Introduction to the special issue on

technology-supported learning. *International Journal of Learning Technology, 2*(1), 145-146.

Brush, T. (2003). Introduction to special issue on Preparing Tomorrow's Teachers to Use Technology (PT3). *Educational Technology Research and Development, 51*(1), 39-40.

Brush, T. & Igoe, A. (2001). A field-based model for integrating technology into preservice teacher education. *Technology and Teacher Education Annual – 2001*. Charlottesville, VA: AACE.

Brush, T. & Bitter, G. (2000). An innovative approach to high-tech learning. *Leading and Learning with Technology, 28*(1), 22-27, 30.

Brush, T. (1997). Curriculum integration of technology: Teaching pre-service teachers to use technology in the classroom. *Technology and Teacher Education Annual - 1997*. Charlottesville, VA: AACE.

Brush, T., Knapczyk, D., & Hubbard, L. (1993). Developing a collaborative performance-support system for practicing teachers. *Educational Technology, 33*(11), 39-45.

Knapczyk, D., Brush, T., Rodes, P., & Marche, T. (1993). Continuing teacher education through distance learning and audiographics. *T.H.E. Journal, 20*(11), 74-77.

Knapczyk, D., Brush, T., Champion, M., Hubbard, L., & Rodes, P. (1993). Staff development in rural schools through distance education. *Educational Media International, 30*(2), 78-82.

Brush, T., Knapczyk, D., & Hubbard, L. (1992). Using technology to facilitate field-based training of practicing teachers. *Technology and Teacher Education Annual - 1992*. Charlottesville, VA: AACE.

Knapczyk, D., Brush, T., Champion, M., Hubbard, L., & Rodes, P. (1992). Staff development in rural schools through distance education. *Educational Horizons, 70*, 88-91.

Brush, T., Carr, A., & Honebein, P. (1992). Using hyper-media to facilitate art education: The *Artstrands* project. *HyperNexus, 2*(4), 6-11.

FUNDED PROJECTS

National computer science education preservice case studies. (2019 –). Proposal funded by the Google Foundation. One year grant, approximately $140,000. **Co-principal investigator**.

Augmented cognition for teaching: Transforming teacher work with intelligent cognitive assistants. (2018 –). Proposal funded by the National Science Foundation. Three year grant, approximately $1.5 million. **Co-principal investigator**.

Examining the impact of socially relevant problem-based learning curriculum at the elementary level: Students' CS interest/ knowledge and teachers' implementation needs. (2018 –). Proposal funded by the Google Foundation. One year grant, approximately $100,000. **Co-principal investigator**.

The Mendel Sherman Video Case Database. (2014 -). Proposal funded by the estate of the late Dr. Mendel Sherman. Ongoing award, approximately $550,000. **Project director**.

Wise practice cases to support complex information problem-solving. (2015 - 2018). Proposal funded by private donor. Ongoing award, approximately $40,000. **Co-project director**.

The Problem-Based Learning Virtual Case Laboratory. (2014 – 2015). Proposal funded by the Office of the Vice-Provost for Research, Indiana University. One year grant, approximately $25,000. **Co-project director**.

PBL-Tech: Using Web 2.0 Resources to Support Problem-Based Curricular Innovations in Pre-Service Teacher Education. (2010 – 2014). Proposal funded by the Fund for the Improvement of Postsecondary Education (FIPSE). Three year grant, approximately $750,000. **Project director**.

Evaluation of Indiana's Enhancing Education Through Technology (EETT) Program. (2010 – 2011). Proposal funded by the Indiana Department of Education. One year contract, approximately $325,000. **Principal investigator.**

Conexiones: Fostering technology-enhanced socioscientific inquiry in graduate teacher preparation. (2010 – 2011). Proposal funded by the Fund for the Improvement of Postsecondary Education (FIPSE). Two year grant, approximately $200,000. **Project evaluator**.

Plowing Freedom's Ground. (2009 – 2012). Proposal funded by the United States Department of Education, Teaching American History grant competition. Five year grant, approximately $1.7 million. **Co-project director**.

Leveraging Technology to Keep America Competitive. (2007 – 2009). Proposal funded by the United States Department of Education. Two year contract, approximately $3,000,000. **Co-task leader**.

The Persistent Issues in History Laboratory for Virtual Field Experience. (2004 – 2007). Proposal funded by the Fund for the Improvement of Post-Secondary Education (FIPSE). Three-year grant, approximately $550,000. **Principal investigator**.

Researching the Persistent Issues in History Network. (Summer, 2004). Proposal funded by the Proffitt Internal Research Grant Competition, Indiana University. Summer fellowship,

approximately $10,000. **Principal investigator**.

Scaffolding disciplined inquiry about history and social issues in multimedia-supported learning environments. (2003 – 2004). Proposal funded by the Proffitt Internal Research Grant Competition, Indiana University. Two-year grant, approximately $40,000. **Principal investigator**.

Reasoning about critical issues of the Civil Rights Movement. (2002 – 2004). Proposal funded by the National Endowment for the Humanities. Two-year grant, approximately $230,000. **Co-principal investigator**.

A field-based model for integrating technology into preservice teacher education. (2000 – 2003). Proposal funded by the US Department of Education, Preparing Tomorrow's Teachers to Use Technology competition. Three-year grant, approximately $1,150,000. **Principal investigator**.

Video cases of ISTE NETS standards. (2001 – 2004). Proposal funded by the US Department of Education, Preparing Tomorrow's Teachers to Use Technology competition. Three-year grant, approximately $1,800,000. **Co-principal investigator**.

Learning anytime, anywhere partnership. (1999 - 2003). Proposal funded by the Fund for the Improvement of Post-Secondary Education. Four-year grant, approximately $4,000,000. **Co-principal investigator**.

Arizona Teacher Excellence Coalition (AzTEC). (1999 – 2004). Proposal funded by the US Department of Education, Title II competition. Five-year grant, approximately $15,000,000. **Co-principal investigator**.

Daniel F. Breeden endowment for faculty enhancement and competitive teaching grant-in-aid. (1996). Proposal funded by Auburn University. One-year grant, approximately $10,000. **Principal investigator**.

INVITED SESSIONS/PAPERS AND KEYNOTES

Brush, T., Glazewski, K., Ottenbreit-Leftwich, A., Callison, M., Shin, S. (2015, November). *Cultivating university-school partnerships to support research and practice: The Jacobs Educator Program*. Invited panel discussion at the Association for Educational Communication and Technology Conference, Indianapolis, IN.

Brush, T. Glazewski, K., Ertmer, P., Belland, B., Ottenbreit-Leftwich, A., & Leary, H. (2012, October). *Problem-based learning and teacher education*. Invited panel discussion at the Association for Educational Communication and Technology Conference, Louisville, KY.

Perichitte, K., Herring, M., Smaldino, S., & Brush, T. (2012, October). *Teacher education programs under attack! A panel of teacher*

education administrators and experts discussing their curriculum changes. Invited panel discussion at the Association for Educational Communication and Technology Conference, Louisville, KY.

Kopcha, T., Ottenbreit-Leftwich, A., Brush, T., and others. (2012, October). *Crafting a dossier that effectively represents yourself and your scholarship*. Invited panel discussion at the Association for Educational Communication and Technology Conference, Louisville, KY.

Brush, T., Glazewski, K., Hennessey, M., Martin, J., Saye, J., & Sherwood, R. (2011, April). *Successful grantmanship in instructional technology: A panel discussion*. Invited session at the annual meeting of the American Educational Research Association, New Orleans, LA.

Brush, T. & Klein, J. (2010, April). *Expert roundtable: Job searching and professional development*. Invited session at the annual meeting of the American Educational Research Association, Denver, CO.

Brush, T. & Ottenbreit-Leftwich, A. (2009, April). *Expert roundtable: Technology and Teacher Education*. Invited session at the annual meeting of the American Educational Research Association, San Diego, CA.

Brush, T. (2008, November). *Panel discussion on management of educational software development: Strategies for different educational audiences*. Presentation at the annual conference of the Association for Educational Communications and Technology, Orlando, FL.

Saye, J., Hess, D., Parker, W., Brush, T., & Maddox, L. (2008, November). *Envisioning powerful social studies teaching: PIH wise practice videocases*. Presentation at the annual meeting of the College and University Faculty Assembly, National Council for the Social Studies, Houston, TX.

Brush, T. & Ottenbreit-Leftwich, A. (2008, March). *SITE forum discussion: A U.S. Department of Education national study of preservice technology integration programs*. Paper presented at the 2008 Society for Information Technology and Teacher Education conference, Las Vegas, NV.

Black, L. & Brush, T. (2007, March). *Opening the lid to KnowledgeBox: Increasing student achievement and teacher enthusiasm*. Paper presented at the 2007 Pearson Digital Learning User's Conference, Orlando, FL.

Brush, T. (2005, April). *Integrating problem-based learning into secondary social studies: The Persistent Issues in History Network*. Keynote address for the Problem-Based Learning SIG, American Educational Research Association, Montreal, Canada.

Brush, T. (2004, November). *Problem-based learning: What is it? Why do it?* Keynote address for the annual Tech-Know-Build Seminar Program, Crawfordsville, IN.

Saye, J. & Brush, T. (2003, May). *Promoting civic competence through problem-based history learning environments*. Paper presented at the Third Annual Freeman Butts Institute on Civic Learning in Teacher Education, Indianapolis, IN.

CONFERENCE PAPERS AND PRESENTATIONS

Rodgers, K., Feng, C., Bhimdiwala, A., Gok, S., Glazewski, K., Hmelo-Silver, C., Brush, T., Lee, S., Mott, B., & Lester, J. (2020, November). *Supporting teacher orchestration of collaborative inquiry in game-based learning with intelligent assistants.* Paper presented at the annual meeting of the Association for Educational Communications and Technology, Jacksonville, FL (conference moved to virtual format).

Bae, H., Saleh, A., Feng, C., Glazewski, K., Hmelo-Silver, C., Chen, Y., Scribner, A., Brush, T., Mott, B., Lee, S., & Lester, J. (2020, June). *Designing intelligent cognitive assistants with teachers to support classroom orchestration of collaborative inquiry*. Paper presented at the annual conference of the International Society of the Learning Sciences, Nashville, TN (conference moved to virtual format).

Kwon, K., Ottenbreit-Leftwich, A., Brush, T., & Jeon, M. (2020, April). *Effects of problem-based learning curriculum for computer science education in an elementary school*. AERA Annual Meeting, San Francisco, CA (Conference canceled).

Ottenbreit-Leftwich, A., Kwon, K., & Brush, T. (2020, April). *Teaching computational thinking with socially relevant problems at the elementary level*. AERA Annual Meeting, San Francisco, CA (Conference canceled).

Kwon, K., Ottenbreit-Leftwich, A., Brush, T., Jeon, M., Zhu, M., & Gok, F. (2019, October). *Exploring 6th-grade students' CT concepts and practices*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Las Vegas, NV.

Ottenbreit-Leftwich, A., Brush, T., Kwon, K., Karlin, M., and others. (2019, October). *Inspiring the next generation of learners: Using socially relevant computer science (CS) problem-based learning curriculum at the 6th grade level*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Las Vegas, NV.

Nadir, H., Glazewski, K., Brush, T., & Kwon, K. (2019, April). *When middle school kids make: Understanding the roles of scaffolding for troubleshooting to support inquiry*. Paper presented at the

annual meeting of the American Educational Research Association, Toronto, Canada.

Brush, T., Ottenbreit-Leftwich, A., Kwon, K., & Karlin, M. (2019, March). *Implementing socially relevant problem-based computer science curriculum at the elementary level: Students' computer science knowledge and teachers' implementation needs*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Las Vegas, NV.

Bae, H., Glazewski, K., Brush, T., & Kwon, K. (2018, October). *Investigating scaffolding as social interaction: Looking closely at fading through conversation analysis*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Kansas City, MO.

Farnsworth, K., Winters, S., Ellard, S. Berry, D., Glazewski, K., & Brush, T. (2018, October). *Scaffolding middle school students in a PBL makerspace unit: Scaffolding means versus scaffolding intentions*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Kansas City, MO.

Nadir, H., Glazewski, K., Brush. T., & Kwon, K. (2018, October). *Understanding a middle-school teacher's scaffolding and troubleshooting practices to support student inquiry during making*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Kansas City, MO.

Bae, H., Glazewski, K., Brush, T., & Kwon, K. (2018, April). *Fostering transfer of responsibility in the middle school problem-based learning classroom. An investigation of dialogic scaffolds*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

Brush, T., Glazewski, K., Wallace, S., & Banks, T. (2017, November). *Making history come alive! Integrating history, ecology, and makerspaces*. Presentation at the annual meeting of the National Council for Social Studies, San Francisco, CA.

Brush, T., Glazewski, K., Shin, S., & Shin, S. (2017, November). *Implementation of a socioscientific inquiry unit in high school biology: Results of a multi-year design project*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Jacksonville, FL.

Karlin, M., Bae, H., Aslaif, M., Basdogan, M., Edelberg, T., Nadiruzzaman, H., Sari, A., Zhu, M., Brush, T., & Glazewski, K. (2017, May). Examining reflective thinking in middle school design problem-solving in a maker environment. Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.

Shin, S. & Brush, T. (2017, April). Promoting preservice teacher reflection: Implementation of classroom video cases in a teaching methods course. Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.

Glazewski, K., Gomoll, A., Hmelo-Silver, C., Brush, T., & Jung, J. (2017, April). *"We are a nonlinear dynamic system": Problem-based design in engineering at a Hispanic-serving institution.* Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.

Alangari, H., Brush, T., & Boling, E. (2017, April). *Factors contributing to the use of technology for Saudi female K-12 ESL teachers.* Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.

Shin, S., Brush, T., & Glazewski, K. (2017, April). *Peer scaffolding patterns in inquiry-based collaborative learning tasks supported by mobile devices.* Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.

Shin, S., Brush, T., & Glazewski, K. (2016, October). *Identifying peer scaffolding types and interaction patterns in inquiry-based learning.* Paper presented at the annual meeting of the Association for Educational Communication and Technology, Las Vegas, NV.

Shin, S., & Brush, T. (2016, October). *Promoting reflective practice in teacher education: Technology-enhanced case-based instruction.* Paper presented at the annual meeting of the Association for Educational Communication and Technology, Las Vegas, NV.

Brush, T., Glazewski, K., & Saye., J. (2016, June). *The PBL-Tech project: Web 2.0 tools and resources to support PBL in teacher education.* Paper presented at the 2016 PBL Congress, Zurich, Switzerland.

Glazewski, K., Brush, T., Shin, S., & Shin, S. (2016, June). *Implementing socioscientific inquiry in high school biology: Teacher and student perspectives.* Paper presented at the 2016 PBL Congress, Zurich, Switzerland.

Gomoll, A., Glazewski, K., Brush, T., Hmelo-Silver, C., & Jung, J. (2016, June). *What do instructors want other instructors to know? Making experiences usable through PBL Virtual Case Laboratory (VCL).* Paper presented at the 2016 PBL Congress, Zurich, Switzerland.

Ergulec, F., Brush, T., Glazewski, K., Shin, S., Shin, S., Hogaboam, P., & Guo, M. (2016, April*). Teacher scaffolding strategies for socioscientific inquiry-based learning in a high school biology classroom.* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Ergulec, F., Brush, T., Glazewski, K., Shin, S., Shin, S., Hogaboam,

P., & Guo, M. (2016, March). *Teacher scaffolding for inquiry-based learning in a technology-enhanced student-centered high school biology classroom: A case study*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Savannah, GA.

Brush, T., Glazewski, K., Shin, S., & Shin, S. (2016, March). *The effects of technology-supported socioscientific inquiry (SSI) on student achievement and attitudes towards science*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Savannah, GA.

Brush, T., Glazewski, K., Shin, S., Shin, S., Saye, J., & Zhang, Z. (2016, March). *The Mendel Sherman wise practice video case database*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Savannah, GA.

Shin, S., Brush, T., & Saye, J. (2015, November). *Integrating technology-enhanced cases in a secondary social studies methods course: A three-semester long experience of a teacher educator*. Presented at the annual meeting of the College and University Faculty Assembly of the National Council for the Social Studies, New Orleans, LA.

McCormick, T., Morowski, D., & Brush, T. (2015, November). *Elementary methods professors, don't throw in the towel!* Presented at the annual meeting of the College and University Faculty Assembly of the National Council for the Social Studies, New Orleans, LA.

Shin, S., Brush, T., & Saye, J. (2015, November). *Integrating technology-enhanced cases into a teaching methods course: A teacher educator's perspective*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Indianapolis, IN.

Shin, S., Shin, S., Brush, T., & Glazewski, K. (2015, November). *Identifying the relationship between group communication behavior and student learning style in collaborative learning: A case of inquiry-based learning classrooms*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Indianapolis, IN.

Shin, S., Brush, T., & Glazewski, K. (2015, November). *An analysis of scaffolding patterns in a technology-enhanced inquiry-based classroom*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Indianapolis, IN.

Liao, Y., Ottenbreit-Leftwich, A., Glazewski, K., Brush, T., & Karlin, M. (2015, November). *Supporting change in teacher practice: Examining teachers' professional development for technology integration*. Paper presented at the annual meeting of the Association for Educational Communication and Technology,

Indianapolis, IN.

Anderson, G. & Brush, T. (2015, November). *Emerging perspectives in multimedia use for learning*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Indianapolis, IN.

Edelberg, T. & Brush. T. (2015, November). *Characteristics of technology leaders 2.0: A survey of school administrators and teachers in Indiana*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Indianapolis, IN.

Shin, S., Brush, T., Jung, J., Glazewski, K., Shin, S., Ergulec, F., Hogaboam, P., & Gensic, J. (2015, April). *Towards designing and implementing socioscientific inquiry: Scaffolding students' inquiry-based learning*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Kohlmeier, J., Saye, J., Howell, J., McCormick, T., Jones, R., & Brush, T. (2015, April). *Promoting problem-based historical inquiry through scaffolded lesson study*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Gensic, J., Shin, S., Jung, J., Glazewski, K., & Brush, T. (2015, March*). Improve student argumentation and engagement with socio-scientific inquiry*. Presented at the annual meeting of the National Science Teachers Association, Chicago, IL.

Kohlmeier, J., Saye, J., McCormick, T. Howell, J., Jones, C. & Brush, T. (2014, November). *Promoting professional teaching knowledge with scaffolded lesson study*. Presented at the annual meeting of the College and University Faculty Assembly of the National Council for the Social Studies, Boston, MA.

Shin, S. & Brush, T. (2014, November). *Designing case-based learning experiences for pre-service teachers in a teaching methods course*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Jacksonville, FL.

Shin, S., Brush, T., Jung, J., & Glazewski, K. (2014, November). *Scaffolding 8th graders' socioscientific inquiry in technology-enhanced classrooms: Towards designing and implementing distributed scaffolding*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Jacksonville, FL.

Brush, T., Glazewski, K., Shin, S., Shin, S., Jung, J., & Hogaboam, P. (2014, November). *Iterative implementation of socioscientific inquiry in high school biology: A teacher's perspective*. Paper presented at the annual meeting of the Association for Educational

Communication and Technology, Jacksonville, FL.

Shin, S. & Brush, T. (2014, November). *Supplementing field-based experiences through the use of technology-enhanced cases*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Jacksonville, FL.

Brush, T., Glazewski, K., Shin, S., Shin, S., & Jung, J. (2014, April). *Implementation of a socioscientific inquiry unit in a high school biology classroom: A teacher's perspective*. Paper presented at the Annual Meeting of the American Educational Research Association, Philadelphia, PA.

Glazewski, K., Brush, T., Jung, J., Shin, S., & Shin, S. (2014, April). *SSI-Net: Design, development, and practice of web- and mobile-based tools to scaffold socioscientific inquiry*. Paper presented at the Annual Meeting of the American Educational Research Association, Philadelphia, PA.

Shen, Y. & Brush, T. (2014, April). *Digital-native preservice teachers' technology skills, technology beliefs, and perceived technology barriers*. Paper presented at the Annual Meeting of the American Educational Research Association, Philadelphia, PA.

Shin, S. & Brush, T. (2014, April). *A case study of implementing technology-enhanced cases in a social studies methods course*. Paper presented at the Annual Meeting of the American Educational Research Association, Philadelphia, PA.

Shin, S., Brush, T., Jung, J., Glazewski, K., & Shin, S. (2014, April). *Implementing scaffolding for socioscientific inquiry in the secondary science classroom: A case study*. Paper presented at the Annual Meeting of the American Educational Research Association, Philadelphia, PA.

Saye, J., Kohlmeier, J., McCormick, T., Howell, J., Jones, R., Shannon, D., & Brush. T. (2013, November). *Scaffolded lesson study: Promoting professional teaching knowledge for problem-based historical inquiry*. Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for Social Studies, St. Louis, MO.

Shin, S., Brush, T., & Saye, J. (2013, November). *Social studies teacher educators' use of hypermedia-enhanced cases in teacher education programs*. Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for Social Studies, St. Louis, MO.

Brush, T., Glazewski, K., Ottenbreit-Leftwich, A., Shin, S., Jung, J., Shin, S., Saye, J., Kohlmeier, J., & Howell, J. (2013, October). *The PBL-Tech project: Web 2.0 tools to support problem-based learning in science and social studies*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Shin, S. & Brush, T. (2013, October). *Preparing preservice teachers for meaningful teaching and learning using a hypermedia-enhanced case-based learning approach*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Uzan, M., Uzan, E., Glazewski, K., & Brush, T. (2013, October). *Use of mobile devices to foster inquiry-based learning: A case of exemplary teachers*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Jung, J., Shin, S., Lu, Y., Glazewski, K., & Brush, T. (2013, October*). A collaborative curriculum design project: Major events, roles, and issues*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Hoey, B., Aslan, S., Zachmeier, A., Sadik, O., Glazewski, K., Leftwich, A., & Brush, T. (2013, October). *Technology integration concerns: Expanding the dialogue between pre-service teachers and exemplary technology-using in-service teachers*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Shin, S., Brush, T., & Saye, J. (2013, April). *Social studies teacher educators' purposes in using hypermedia-enhanced cases in methods courses*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Shin, S., Brush, T., Zhang, Z., Shin, S., Kim, M., & Lu, Y. (2013, April). *Evaluation of the new construction tools in the Persistent Issues in History Network*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Saye, J., Kohlmeier, J., McCormick, T., Howell, J., Jones, R., Shannon, D., & Brush, T. (2013, April). *Supporting problem-based historical inquiry for elementary and secondary teachers: Scaffolded lesson study*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Brush, T., Glazewski, K., Ottenbreit-Leftwich, A., Saye, J., Zhang, Z., & Shin, S. (2013, March). *The PBL-Tech project: Web-based tools and resources to support problem-based learning in preservice teacher education*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, New Orleans, LA.

Shin, S. & Brush, T. (2013, March). *"I think this is really beneficial. You should do this again": A case study of implementing authentic K-12 classroom cases in a social studies methods course*. Paper

presented at the annual meeting of the Society for Information Technology and Teacher Education, New Orleans, LA.

Jia, X., Jung, J., Huh, Y., Min, M., Shin, S., Ottenbreit-Leftwich, A., Glazewski, K., & Brush, T. (2012, October). *Breaking barriers for technology integration in K-12 classrooms: Success stories from exemplary in-service teachers*. Paper presented at the Association for Educational Communication and Technology Conference, Louisville, KY.

Shin, S., Kim, M., & Brush, T. (2012, October). *The redesign of the Persistent Issues in History Network*. Paper presented at the Association for Educational Communication and Technology Conference, Louisville, KY.

Shin, S., Kim, M., & Brush, T. (2012, October). *The redesign of the Wise Practice Case Database*. Paper presented at the Association for Educational Communication and Technology Conference, Louisville, KY.

Brush, T. & Saye, J. (2012, April). *An instructional model to support problem-based historical inquiry: The Persistent Issues in History Network*. Paper presented at the Annual Meeting of the American Educational Research Association, Vancouver, BC.

Brush, T. & Ottenbreit-Leftwich, A. (2012, April). *The PBL-TECH project. Using Web 2.0 tools and resources to support problem-based curricular innovations in preservice teacher education*. Paper presented at the Annual Meeting of the American Educational Research Association, Vancouver, BC

Shin, S., Brush, T., & Saye, J. (2012, March). *Social studies teacher educators' use of the Wise Practice Case Database in teacher education courses*. Paper presented at the Society for Information Technology and Teacher Education Conference, Austin, TX.

Callahan, C., Saye, J. & Brush, T. (2012, March). *Designing more effective educative curriculum materials for the social studies*. Paper presented at the Society for Information Technology and Teacher Education Conference. Austin, TX.

Callahan, C, Saye, J. & Brush, T. (2011, December). *Designing more effective educative curriculum materials for the social studies*. Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for the Social Studies. Washington, DC.

Gronseth, S. & Brush, T. (2011, April). Expanding opportunities for secondary students with mild disabilities: A national study of assistive technology use. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Ottenbreit-Leftwich, A., & Brush, T. (2011, March). *Comparing how

teachers use technology and teacher education programs prepare teachers to use technology. Paper presented at the Society for Information Technology & Teacher Education International Conference, Nashville, TN.

Brush, T., Ottenbreit-Leftwich, A., Saye, J., Glazewski, K., McCormick, T. (2011, March). *PBL-TECH: Using web 2.0 tools and resources to support problem-based curricular innovations in pre-service teacher education.* Paper presented at the Society for Information Technology & Teacher Education International Conference, Nashville, TN.

Brush, T. & Saye, J. (2010, November*). Using digital resources to facilitate professional practice and community among elementary social studies teacher educators.* Paper presented at the College and University Faculty Assembly of the National Council for Social Studies, Denver, CO.

Ottenbreit-Leftwich, A.T., & Brush, T.A. (2010, October). *Comparison of technology topics and experiences: A national study of teacher education programs and K-12 teachers.* Paper presented at Association for Educational Communications and Technology International Convention, Anaheim, CA.

Roman, T.A., Ottenbreit-Leftwich, A.T., Brush, T.A., & TeachTech (2010, October). *How Elementary and Secondary Teachers Use Technology Differently: A National Study of Accomplished Technology-Using Teachers.* Paper presented at Association for Educational Communications and Technology International Convention, Anaheim, CA.

Strycker, J., Brush, T.A., & Ottenbreit-Leftwich. (2010, October). *Comparing Computer Self-Efficacy and Technology Requirements between Traditional and Alternative TEP Students at Four Institutions.* Paper presented at Association for Educational Communications and Technology International Convention, Anaheim, CA.

Brush, T., Saye, J., Kohlmeier, J., Maddox, L., & Howell, J. (2010, April). *Assessing pre-service teachers' knowledge of implementing problem-based inquiry strategies in social studies.* Paper presented at the annual conference of the American Educational Research Association, Denver, CO.

Saye, J., Kohlmeier, J., Howell, J., Maddox, L., & Brush, T. (2009, November). *Assessing programmatic effects on pre-service social studies teachers' instructional decision-making.* Paper presented at the College and University Faculty Assembly of the National Council for Social Studies, Atlanta, GA.

Brush, T. & Ottenbreit-Leftwich, A. (2009, October). *A national study comparing how teacher education programs prepare teachers to use technology and how teachers use technology.* Paper presented

at the annual meeting of the Association for Educational Communications and Technology, Louisville, KY.

Saye, J., Kohlmeier, J., Howell, J., Maddox, L., Brush, T., Wang, Y., & Lee-Watson, S. (2009, April). *Assessing program effectiveness for promoting professional teaching knowledge about problem-based historical inquiry*. Paper presented at the annual conference of the American Educational Research Association, San Diego, CA.

Ottenbreit-Leftwich, A., Brush, T, & Plucker, J. (2009, April). *Technology experiences in teacher preparation: A national study of teacher education programs and teachers*. Paper presented at the annual conference of the American Educational Research Association, San Diego, CA.

Brush, T. & Ottenbreit-Leftwich, A. (2008, November).*Supporting the use of emerging technologies in schools: Research and implications*. Presentation at the annual conference of the Association for Educational Communications and Technology, Orlando, FL.

Brush, T. & Saye, J. (2008, March). *How do preservice social studies teachers implement problem-based historical inquiry strategies: A scenario-based survey study*. Paper presented at the annual conference of the American Educational Research Association, New York, NY.

Saye, J., Kohlmeier, J., Brush, T., Maddox, L., & Howell, J. (2008, March). *Developing a professional knowledge culture of problem-based historical inquiry: Scaffolded lesson study*. Paper presented at the annual conference of the American Educational Research Association, New York, NY.

Hur, J. & Brush, T. (2008, March). *Reasons for participation in online communities of K-12 teachers*. Paper presented at the annual conference of the American Educational Research Association, New York, NY.

Hur, J. & Brush, T. (2008, March). *Emotional support in online communities of teachers*. Paper presented at the 2008 Society for Information Technology and Teacher Education conference, Las Vegas, NV.

Brush, T. & Saye, J. (2007, December). *Strategies for preparing pre-service social studies teachers to effectively integrate technology: Models and practices*. Paper presented at the College and University Faculty Assembly of the National Council for Social Studies, San Diego, CA.

Kohlmeier, J., Mitchell, L., Saye, J., & Brush, T. (2007, December). *Meeting the challenges of issues-centered instruction with "low achieving" students*. Paper presented at the College and University Faculty Assembly of the National Council for Social Studies, San

Diego, CA.

Saye, J., Kohlmeier, J., Brush, T., Maddox, L., & Howell, J. (2007, December). *Using lesson study to build a professional knowledge community for problem-based history study*. Paper presented at the College and University Faculty Assembly of the National Council for Social Studies, San Diego, CA.

Kale, U., Yerasimou, T., & Brush, T. (2007, October). Can they use it to learn? Usability testing with pre-service teachers learning through video cases. Paper presented at the Annual Meeting of the Association for Educational Communications and Technology, Anaheim, CA.

Brush, T., Saye, J., Kohlmeier, J., and others. (2007, October).*The Persistent Issues in History Laboratory for Virtual Field Experience (PIH-LVFE)*. Demonstration/presentation at the first annual Design and Development Showcase at the Annual Meeting of the Association for Educational Communications and Technology, Anaheim, CA.

Brush, T., Saye, J., and others. (2007, April). *Evaluating the Persistent Issues in History Laboratory for Virtual Field Experience (PIH-LVFE)*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Cullen, T. & Brush, T. (2007, April). *Preservice teachers' inclusion of technology in their visions of their future classrooms*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Hur, J. & Brush, T. (2007, April). *From learning to implementing technology: Helping preservice teachers with technology integration*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Stirling, D. & Brush. T. (2007, April). *The impact of open-ended, computer-based courseware on student achievement and attitudes in mathematics, reading, and language*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Saye, J. & Brush, T. (2006, November). *Supporting problem-based historical inquiry with technology-enhanced learning environments*. Paper presented at the annual meeting of the College and University Faculty of the National Council for Social Studies, Washington, DC.

Cullen, T. & Brush, T. (2006, October). *The use of preservice teachers' drawings of future classrooms to inform teacher educators and facilitate reflection about classroom beliefs.* Paper presented at the Annual Conference of the International Visual Media Association, Fort Worth, TX.

Kale, U., Hur, J., Yerasimou, T., & Brush, T. (2006, June). *A model for video-based virtual field experience*. Presentation at the 2006 International Conference of the Learning Sciences, Bloomington, IN.

Brush, T. & Saye, J. (2006, April). *Scaffolding critical reasoning in history and social studies: Tools to support problem-based historical inquiry*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

So, H. J., & Brush, T. (2006, April). *Student perceptions of cooperative learning in a distance learning environment: Relationships with social presence and satisfaction*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Saye, J. & Brush, T. (2005, November). *Technology as a lever for expanding investigations of the development of problem-based civic inquiry*. Paper presented at the annual meeting of the College and University Faculty of the National Council for Social Studies, Kansas City, MO.

Brush, T., Saye, J., and the PIHNet Development Team. (2005, October). *Modeling problem-based inquiry in social studies. The Persistent Issues in History Laboratory for Virtual Field Experience*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Orlando, FL.

Brush, T. & Saye, J. (2005, April). *The effects of multimedia-supported problem-based historical inquiry on student engagement, empathy, and assumptions about history*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Saye, J., Kohlmeieir, J., Brush, T., Mitchell, L., & Farmer, C. (2005, April). *Nurturing a professional community of practice for promoting problem-based historical inquiry*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Brush, T., Saye, J., & the PIHNet Development Team. (2005, March). *Tools to promote problem-based inquiry in social studies: The Persistent Issues in History Network*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Phoenix, AZ.

Hur, J., Brush, T., Kim, K., Tan, A., Dysard, G., Liu, X., Feng, Y., Kale, U., Chen, L., & Saye, J. (2005, March). *Online forum:a tool that can foster teachers' collaborative reflection*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Phoenix, AZ.

Brush, T. & Simons, K. (2004, October). *Scaffolding disciplined inquiry in online learning environments*. Presentation at the annual meeting of the Association for Educational Communications and Technology, Chicago, IL.

Brush, T. & Saye, J. (2004, April). *The effects of multimedia-supported problem-based historical inquiry on student engagement, empathy, and historical reasoning*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Saye, J. & Brush, T. (2004, April). *Using technological affordances to facilitate problem-based historical inquiry*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Brush, T. & Saye, J. (2004, March). *PIHNet: A web-based environment for supporting student historical thinking*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Atlanta, GA.

Saye, J. & Brush, T. (2004, March). *Supporting problem-based historical inquiry in the high school history classroom*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Atlanta, GA.

Saye, J. & Brush, T. (2003, November). *Supporting problem-based historical inquiry in a web-based learning environment*. Paper presented at the annual meeting of the College and University Faculty of the National Council for Social Studies, Chicago, IL.

Brush, T. & Saye, J. (2003, October). *Decision Point!: A web-based environment for supporting student historical thinking*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Brush, T., Saye, J., and others. (2003, October). *Supporting problem-based historical inquiry with digital resources*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Glazewski, K., Brush, T., Sutton, J. & Ozogul, G. (2003, October). *The impact of integrated field-based technology courses on preservice teachers' beliefs and practices*. Paper presented at the annual meeting of the Association for Educational Communication and Technology, Anaheim, CA.

Saye, J. & Brush, T. (2003, April). *Supporting student inquiry about social issues: Three teachers' implementations of a problem-based multimedia-enhanced unit*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Rutowski, K. & Brush, T. (2003, April). *A comparison of two models of technology education for preservice teachers: Stand-alone*

courses and field-based courses. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Wolf, S., Brush, T., & Saye, J. (2003, April). *The Bix Six Information Skills as a metacognitive scaffold*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Brush, T. & Saye, J. (2003, April). *Supporting problem-based historical inquiry using a multimedia learning environment*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Brush, T., Glazewski, K., & Rutowski, K. (2003, April). *Integrating technology and methods in a field-based teacher training program*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Appelman, R. & Brush, T. (2003, March). *Transforming the pre-service teacher education technology curriculum at Indiana University*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Albuquerque, NM.

Brush, T., Glazewski, K., and others. (2003, March). *The PT3 special issue of Educational Technology Research and Development*. Symposium paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Albuquerque, NM.

Brush, T., Savenye, W., and others. (2003, March). *Teacher videocases for learning how to integrate technology*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Albuquerque, NM.

Saye, J. & Brush, T. (2002, November). *Supporting student inquiry in a multimedia learning environment: Comparative case studies*. Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for Social Studies, Phoenix, AZ.

Brush, T. & Saye, J. (2002, November). *Supporting student historical inquiry using a multimedia learning environment*. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Dallas, TX.

Savenye, W., Brush, T., Blocher, M., Horn, P., Chadwick, J., & Middleton, J. (2002, November). *A multimedia database to improve teaching with technology: The "Best Practices" digital video project*. Presentation at the annual meeting of the Association for Educational Communications and Technology, Dallas, TX.

Stromfors, C. & Brush, T. (2002, November). *Modeling technology integration in education*. Presentation at the annual meeting of the Association for Educational Communications and Technology, Dallas, TX.

Glazewski, K., Berg, K., Sutton, J., & Brush, T. (2002, November). *An evaluation of pre-service teacher technology integration techniques and attitudes toward technology integration in a field-based mode*l. Presentation at the annual meeting of the Association for Educational Communications and Technology, Dallas, TX.

Brush, T. & Saye, J. (2002, April). *A summary of research exploring hard and soft scaffolding for teachers and students using multimedia-supported learning environments*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Savenye, W., Brush, T., Middleton, J., and others. (2002, April). *Improving teaching with technology: The "Best Practices" digital video project*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Berg, K., Glazewski, K., & Brush, T. (2002, March). *Integrating technology into preservice teacher education: Comparing a field-based model with a traditional approach*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Nashville, TN.

Brush, T., Rutowski, K., and others. (2002, March). *Strategies for integrating technology into field-based teacher training programs: perspectives from educational technology and teacher education faculty*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Nashville, TN.

Brush, T., Savenye, W., Ziobrowski, C., and others. (2002, March). *Developing digital video resources to improve teaching with technology: The PT3 "Best Practices" database*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Nashville, TN.

Smith, T.C. & Brush, T. (2002, March). *Preparing teacher educators to use technology: Issues and perceptions in elementary education methods courses*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Nashville, TN.

Saye, J. & Brush, T. (2001, November). *Scaffolding problem-centered teaching in traditional social studies classrooms*. Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for Social Studies, Washington, DC.

Brush, T. & Saye, J. (2001, November). *Defining hard and soft scaffolding in technology-enhanced student-centered learning*

environments. Paper presented at the annual meeting of the Association for Educational Communications and Technology, Atlanta, GA.

Glazewski, K., Brush, T., & Klein, J. (2001, November). *The role of scaffolds in support of learners within hypermedia, problem-based learning environments.* Paper presented at the annual meeting of the Association for Educational Communications and Technology, Atlanta, GA.

Brinkerhoff, J., Klein, J., & Brush, T. (2001, November). *The effects of advisement and informal cooperative grouping on learning from a multimedia database.* Paper presented at the annual meeting of the Association for Educational Communications and Technology, Atlanta, GA.

Brush, T., Brinkerhoff, J., Glazewski, K., Ku, H.Y., Hernandez, M., Igoe, A., Smith, T.C., & Stromfors, C. (2001, November). *Moving technology experiences to the field: A new model for teacher training.* Presentation at the annual meeting of the Association for Educational Communications and Technology, Atlanta, GA.

Hernandez, M. & Brush, T. (2001, November). *The effects of a technology competency institute on practicing teachers' attitudes towards technology integration.* Presentation at the annual meeting of the Association for Educational Communications and Technology, Atlanta, GA.

Savenye, W., Biltgen, R., Middleton, J., Horn, P., Blocher, M., & Brush, T. (2001, November). *The "Best Practices" project: Building a multimedia database on technology and teaching.* Presentation at the annual meeting of the Association for Educational Communications and Technology, Atlanta, GA.

Glazewski, K., Ku, H.Y., Brinkerhoff, J., & Brush, T. (2001, November). *Development, results, and validation of a technology integration surveys for preservice and practicing teachers.* Presentation at the annual meeting of the Association for Educational Communications and Technology, Atlanta, GA.

Brush, T., Berg, K., Glazewski, K., Hernandez Van-Nest, M., Pallapu, P., Stock, L., Stromfors, C., Sutton, J., & Tan, A. (2001, October). *Integrating technology into pre-service teacher education: A field-based model.* Paper presented at the annual meeting of the Arizona Educational Research Organization, Tempe, AZ.

Brush, T. & Saye, J. (2001, April). *Implementing technology-supported student-centered learning activities in the classroom: Models and recommendations.* Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

Saye, J. & Brush, T. (2001, April). *The prospects of a technology-supported learning environment for encouraging problem-centered inquiry in a traditional social studies classroom*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

Glazewski, K., Ku, H.Y., Brush, T., & Igoe, A. (2001, April). *The current state of technology integration in pre-service teacher education*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

Wolf, S. & Brush, T. (2001, April). *The big six information skills as a metacognitive scaffold in solving information-based problems*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

Brush, T. & Igoe, A. (2001, March). *A field-bade model for integrating technology into preservice teacher education*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Orlando, FL.

Brinkerhoff, J., Glazewski, K., & Brush, T. (2001, March). *An assessment of technology skills and classroom technology integration experience in preservice and practicing teachers*. Paper presented at the annual meeting of the Society for Information Technology and Teacher Education, Orlando, FL.

Saye, J. & Brush, T. (2000, November). *Scaffolding the development of civic competence: Problems and potential*. Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for Social Studies, San Antonio, TX.

Brush, T. & Saye, J. (2000, October). *Designing hard and soft scaffolds in a technology-supported learning environment*. Paper presented at the 2000 Association for Educational Communications and Technology Conference, Denver, CO.

Brush, T. & Saye, J. (2000, October). *Design, implementation, and evaluation of student-centered learning in social studies: A case study*. Paper presented at the annual meeting of the Arizona Educational Research Organization, Tucson, AZ.

Brush, T. (2000, October). *A comparison of teacher attitudes using open-ended versus tutorial ILS software*. Presentation at the 2000 Association for Educational Communications and Technology Conference, Denver, CO.

Brush, T. & Saye, J. (2000, April). *The effectiveness of various scaffolds for student-centered learning activities*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Saye, J. & Brush, T. (2000, April). *The potential of multimedia environments for supporting problem-centered social studies.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Brush, T., Saye, J., & Miller, M. (2000, February). *Utilizing open-ended learning environments to support problem-based learning.* Presentation at the 2000 Association for Educational Communications and Technology Conference, Long Beach, CA.

Saye, J. & Brush, T. (1999, November). *Student reasoning with social issues in a multimedia-supported learning environment.* Paper presented at the annual meeting of the College and University Faculty Assembly of the National Council for Social Studies, Orlando, FL.

Brush, T. & Saye, J. (1999, November). *Supporting problem-based social studies with hypermedia learning environments.* Presentation at the annual meeting of the National Council of Social Studies, Orlando, FL.

Brush, T., Saye, J., & Miller, M. (1999, October). *Promoting student-centered learning in social studies: The Decision Point! project.* Paper presented at the annual meeting of the Arizona Educational Research Organization, Flagstaff, AZ.

Brush, T. & Saye, J. (1999, April). *The Decision Point! Project: Tools to promote a problem-centered learning environment in social studies.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Brush, T. (1999, February). *Embedding cooperative learning structures into the design of Integrated Learning Systems: Rationale and guidelines.* Presentation at the 1999 Association for Educational Communications and Technology Conference, Houston, TX.

Brush, T. & Saye, J. (1999, February). *Instructional tools for Student problem-solving: The Decision Point! project.* Presentation at the 1999 Association for Educational Communications and Technology Conference, Houston, TX.

Bannon, S. & Brush, T. (1999, February). *Technology skills for School library media specialists.* Presentation at the 1999 Association for Educational Communications and Technology Conference, Houston, TX.

Brush, T. (1998, October). *Design and delivery of Integrated Learning Systems: Their impact on student achievement and attitudes.* Paper presented at the annual meeting of the Arizona Educational Research Organization, Mesa, AZ.

Brush, T. (1998, April). *Technology planning and implementation in public schools: A five state comparison.* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Brush, T. (1998, February). *Integrating Cooperative Learning with Advanced CMI: Research and Future Directions.* Paper presented at the 1998 Meeting of the Eastern Educational Research Association, Tampa, FL.

Brush, T. (1998, February). *The Effects of Combining Adult Tutoring with ILS-Based Instruction on the Behaviors of Students At-Risk of School Failure* Paper presented at the 1998 Meeting of the Eastern Educational Research Association, Tampa, FL.

Brush, T. & Scott, B. (1998, February). *Teaching Instructional Technology: A Problem-Based Learning Approach.* Presentation at the 1998 Association for Educational Communications and Technology Conference, Saint Louis, MO.

Brush, T. & Bannon, S. (1998, February). *What do schools need from technology leaders? A comparison of rural schools in five southeastern states.* Presentation at the 1997 Association for Educational Communications and Technology Conference, Saint Louis, MO.

Brush, T. (1997, June). *Reviewing and selecting software.* Presentation at the 1997 Alabama Educational Technology Conference, Birmingham, AL.

Brush, T. (1997, April). *Teaching pre-service teachers to use technology in the classroom.* Paper presented at the 1997 Society for Information Technology in Education Conference, Orlando, FL.

Brush, T. (1997, February). *Technology leaders: What do schools need?* Paper presented at the 1997 Eastern Educational Research Association, Hilton Head, SC.

Brush, T. (1997, February). *Planning for technology: Guidelines For school districts.* Presentation at the 1997 Association for Educational Communications and Technology Conference, Albuquerque, NM.

Brush, T. & Bannon, S. (1997, February). *Characteristics of technology leaders: A survey of school administrators.* Presentation at the 1997 Association for Educational Communications and Technology Conference, Albuquerque, NM.

Brush, T. (1996, February). *The effectiveness of cooperative learning for low- and high-achieving students using an integrated learning system.* Paper presented at the 1996 Association for Educational Communications and Technology Conference,

Indianapolis, IN.

Brush, T. (1996, February). *The effects on student achievement and attitudes when utilizing cooperative learning with ILS-delivered instruction*. Paper presented at the 1996 Eastern Educational Research Association, Boston, MA.

Brush, T. & Prigge, W. (1995, October). *Bringing multimedia into the classroom*. Presentation at the Hypermedia '95 Conference, Bloomington, IN.

Brush, T. & Armstrong, J. (1995, February). *Using technology to facilitate extended learning opportunities for students at-risk of school failure*. Presentation at the 1995 AASA Conference, New Orleans, LA.

Brush, T. & Refalo, M. (1994, October). *Integrating technology into the curriculum*. Presentation at the 1994 NSBA Technology and Learning Conference, Dallas, TX.

Knapczyk, D. & Brush, T. (1992, August). *Using audiographics in field-based teacher training*. Presentation at the 1992 Audiographics Conference, State College, PA.

Brush, T., Knapczyk, D., & Hubbard, L. (1992, March). *Using technology to facilitate field-based training of practicing teachers*. Paper presented at the 1992 STATE Conference, Houston, TX.

Brush, T. (1992, February). *Audiographic applications in field-based teacher training*. Presentation at the 1992 Association for Educational Communications and Technology Conference, Washington, DC.

Knapczyk, D., & Brush, T. (1991, November). *Staff development in rural schools through distance education*. Presentation at the 1991 Council for Exceptional Children Conference, "Children on the edge.", New Orleans, LA.

Brush, T. & Honebein, P. (1991, October). *Using hypermedia to facilitate art education: The Artstrands project*. Presentation at the 1991 Hypermedia conference, Ball State University, Muncie, IN.

Knapczyk, D., Brush, T., Garfinkle, R., Glendening, J., & Rodes, P. (1991, March). *Collaborative teacher training via distance education*. Presentation at the 1991 Indiana Council for Exceptional Children Conference, Indianapolis, IN.

Brush, T. (1991, February). *Teaching students with learning disabilities math problem-solving processes*. Presentation at the 1991 Association for Educational Communications and Technology Conference, Orlando, FL.

Brush, T., Prigge, W. & Welsh, T. (1991, February). *The use of hypermedia to promote a new epistemology of learning*. Presentation at the 1991 Association for Educational Communications and Technology Conference, Orlando, FL.

Brush, T. & Knuth, R.A. (1990, October). *The use of Intermedia to promote a new epistemology of learning*. Paper presented at the 1990 Mid-Western Education Research Association, Chicago, IL.

DISSERTATIONS   Parker, C. (2020). *Instructional design perception and practice in United States Army training organizations: A case study*. Indiana University. Dissertation chair.

Edelberg, T. (2020). *Rural school district leadership: Supporting technology integration for instructional spaces*. Indiana University. Dissertation chair.

Lachheb, A. (2020). *Design failure in instructional design practice: Practitioners' perspective*. Indiana University. Committee member.

Barber, R. (2020). *A case study of communications between school administrators and teachers in an urban middle school*. Indiana University. Committee member.

Alangari, H. (2019). *Parents as stakeholders in the use of digital technology in elementary classrooms*. Indiana University. Dissertation chair.

Leuchtmann, A. (2019). *New teacher induction: Perspectives from participants of a new teacher mentoring program*. Indiana University. Dissertation chair.

Barnette, J. (2018). *Instructor presence in online education: An analysis of student perceptions and performance*. Indiana University. Dissertation chair.

Liao, Y-C. (2018). *Coaching in teacher professional development for technology integration: Examining teacher practices and perceptions*. Indiana University. Committee member.

Rodriguez, O. (2018). *A study of the effectiveness of computer-aided instruction for the improvement of hands-on engineering technology education*. Indiana University. Dissertation chair.

Ding, A-C. (2018). *Language teachers' reflection on using technology in language education through an online video-embedded reflective inquiry process*. Indiana University. Committee member.

Drumm, S. (2018). *Parent perceptions of an elementary one-to-one initiative: First year reflections*. Indiana University. Dissertation chair.

Wise, S. (2018). *Collective participation professional development in*

standards-based instruction: An investigation of teacher and administrator perceptions. Indiana University. Dissertation chair.

Callison, M. (2017). *A case study examining how school leaders support school-wide implementation of problem-based learning in a comprehensive public high school*. Indiana University. Dissertation chair.

Sadik, O. (2017). *What do secondary computer science (CS) teachers need? Examining curriculum, pedagogy, and contextual support*. Indiana University. Dissertation co-chair with Anne Ottenbreit-Leftwich.

Jung, J. (2017). *Case-based instructional practices: A multiple case study from torts, marketing, and online instructional design classes*. Indiana University. Committee member.

Shin, S. (2016). *Scaffolding students' inquiry-based learning in a technology-enhanced classroom: An analysis of interaction patterns of scaffolding*. Indiana University. Dissertation chair.

Kim, M. (2016). *Formative research on instructional overlay for collaborative project-based learning*. Indiana University. Committee member.

Goodrum, D. (2016). *Relative utility of three models for user evaluation of learning management systems: A higher-ed institution decision context*. Indiana University. Dissertation chair.

Shin, S. (2015). *The use of technology-enhanced cases in teacher education: A case study of a social studies methods course*. Indiana University. Dissertation chair.

Anderson, G. (2015). *An exploration of multimedia use in an online RN-BSN program*. Indiana University. Dissertation chair.

Song, D. (2015). *Scaffolding student-generated questioning for improving reading comprehension*. Indiana University. Committee member.

Hsieh, Y. (2015). *The nature of peer-peer interaction in Internet-supported collaboration: A case study in a freshman English class in Taiwan*. Indiana University. Committee member.

Barrett, A. (2014). *Facilitating variable-length computerized classification testing via automatic racing calibration heuristics*. Indiana University. Committee member.

Cao, K. (2014). *Exploring users' goals and behaviors in two commercial games*. Indiana University. Committee member.

Chang, J.Y. (2013). *The effects of agent-based lecturers on student learning and conceptual change in an online inquiry-based learning environment*. Indiana University. Committee member.

Van Leusen, P. (2013). *Interpersonal consulting skills among instructional technology consultants at an institution of higher education in the Midwest: A multiple case study*. Indiana University. Dissertation chair.

Lara, M. (2013). *Personality traits and performance in online game-based learning: Collaborative versus individual settings*. Indiana University. Committee member.

Lin, C.Y. (2013). *Instructional theory for using a class wiki to support collaborative learning in higher education*. Indiana University. Committee member.

Studebaker, J. (2011). *Online education and high school students: A mixed methods investigation into performance, access, and perception*. Indiana University. Committee member.

Strycker, J. (2011). *A comparison of technology experiences included in alternative and traditional teacher education programs*. Indiana University. Dissertation chair.

Sheu, Feng-Ru. (2011). *Understanding expertise from elite badminton coaches*. Indiana University. Committee member.

Gronseth, S. (2011). *Factors that impact the use of assistive technologies to support secondary students with mild disabilities*. Indiana University. Dissertation chair.

Feng, Yu. (2010). *A discourse analysis of five experienced secondary social studies teachers scaffolding historical empathy through deliberative discussion*. Indiana University. Dissertation chair.

Yerasimou, T. (2010). *Examining interactivity and flow in a blended course to advance blended learning practices*. Indiana University. Dissertation chair.

Kim, N. (2010). *Scaffolding critical thinking in wikibook creation across international institutions*. Indiana University. Committee member.

Pereira-Leone, M. (2010). *Constraints, resources, and interpretive schema: Explorations of teachers' decisions to utilize, under-utilize, or ignore educational technologies*. Indiana University. Committee member.

Marquis, J. (2009). *Children without toys: How home computer use impacts school achievement, behavior, and attitudes*. Indiana University. Dissertation chair.

Wang, Y. (2009). *A case study of an accelerated blended teacher education program*. Indiana University. Dissertation chair.

Lee-Watson, S. (2008). *Somebody's gotta fight for them: A*

disadvantaged and marginalized alternative school's culture of learning and its case of change. Indiana University. Committee member.

Scott, B. (2008). *The role of teacher epistemology in integrating student-centered instructional software: A case study in social studies education*. Auburn University. Committee member.

DeFazio, J. (2008). *Designing with precedent: A cross-disciplinary inquiry into the design process*. Indiana University. Committee member.

Kelly, M. (2008). *The use of multimedia technology to enhance self-determination skill and encourage student leadership in educational goal planning for post-secondary students with Asperger syndrome*. Indiana University. Committee member.

Richter, K. (2007). *Integration of a decision-making process and a learning process in a newly formed leadership team for systemic transformation of a school district*. Indiana University. Committee member.

Hinshaw, R. (2007). *Universal design for learning procedures in special education teacher education*. Indiana University. Committee member.

Kale, U. (2007). *Online communication patterns in a teacher professional development program*. Indiana University. Dissertation chair.

Hur, J.W. (2007). *Understanding teacher participation in online communities: Why do teachers want to participate in online communities of teachers?* Indiana University. Dissertation chair.

Kirkley, J. (2006). *An exploratory study on designing expert and novice scaffolds to support decision making and learning in a set of simulation vignettes*. Indiana University. Committee member.

Hew, K. (2006). *Knowledge sharing among professionals in three online communities*. Indiana University. Dissertation chair.

Tan, A. (2006). *Does scaffolded blogging promote preservice teacher reflection? Examining the relationships between learning tool and scaffolding in a blended learning environment*. Indiana University. Dissertation chair.

Cullen, T. (2006). *The role of technology in preservice teachers' images of their future classroom*. Indiana University. Dissertation chair.

Gottschall, H. (2006). *Faculty and student attitudes towards group work in higher education and why faculty use groups*. Indiana University. Committee member.

Su, B. (2006). *Experiences of and preferences for interactive instructional activities in an online learning environment*. Indiana University. Committee member.

Sung, L. (2006). *How methods and technology instructors think about good practice: An exploration for transforming pre-service curriculum*. Indiana University. Committee member.

del Valle, R. (2005). *Online learning: Learner characteristics and their approaches to managing learning*. Indiana University. Committee member**.**

Liu, X. (2005*). Socio-cultural factors affecting the success of an online MBA course: A case study viewed from activity theory perspective*. Indiana University. Committee member.

Frey, T. (2005). *Investigating the impact of an on-line practicum experience for in-service special education teachers*. Indiana University. Committee member.

Kim, M. (2005). *Concerns of teacher education methods instructors and strategies for integrating technology into methods courses*. Indiana University. Dissertation director.

So, H. (2005). *Examining the relationships among collaborative learning, social presence, and satisfaction in a distance learning environment*. Indiana University. Dissertation chair.

Hixon, E. (2005). *Collaborative online course development: The faculty experience*. Indiana University. Committee member.

Keller, J. (2003). *A systems view of professional development in a K-12 school district*. Indiana University. Committee member.

Glazewski, K. (2003). *The impact of scaffolding and student ability in a hypermedia, problem-based learning unit*. Arizona State University. Committee member.

Jowett, M. (2003). *Integrating technology into instruction: Relative effects of two types of mentoring models*. Arizona State University. Committee member.

Judson, E. (2002). *Relationship among instructional beliefs, attitudes toward technology, and constructivist practices of technology*. Arizona State University. Committee member.

Batarelo, I. (2002). *Educational technology promises as perceived by secondary special education teachers*. Arizona State University. Committee member.

Smith, T.C. (2002). *An analysis of teacher educators and technology integration projects at four universities*. Arizona State University. Co-chair with Dr. Nicholas Appelton.

Niemczyk, M. (2002). *The effects of prompting and advisement on student learning from an open-ended database*. Arizona State University. Committee member.

Stirling, D. (2002). *Towards new norms of professional interaction: Facilitating teacher talk using multimedia*. Arizona State University. Committee member.

Rich, D. (2001). *Creating meaningful computer instruction for young children through transactional tutoring*. Arizona State University. Chair.

Brinkerhoff, J. (2001). *The effects of advisement and informal cooperative groups on learning from a multimedia database*. Arizona State University. Co-chair with Dr. James Klein.

Ku, H.Y. (2001). *The effects of personalization on comprehension of word problems for students in Taiwan*. Arizona State University. Committee member.

Wolf, S. (2000). *The big six information skills as a metacognitive scaffold in solving information based problems*. Arizona State University. Chair.

Sutton, L. (2000). *Vicarious interaction in a course enhanced through the use of computer-mediated communication*. Arizona State University. Committee member.

Miltiadou, M. (2000). *Motivational constructs as predictors of success in the online classroom*. Arizona State University. Committee member.

Mahesh, V. (2000). *The nature and purpose of feedback in a dialogic online learning community*. Arizona State University. Committee member.

Winograd, D. (2000). *The effects of trained moderation in online asynchronous distance learning*. Arizona State University. Committee member.

Koroghlanian, C. (2000). *Animation, audio, and spatial ability: Optimizing multimedia for scientific explanations*. Arizona State University. Committee member.

Vrasidas, C. (1999). *Meanings of online and face-to-face interactions in a graduate course*. Arizona State University. Committee member.

Amato, V. (1999). *The effect of learner control on knowledge gain in an interactive multimedia instructional environment*. Arizona State University. Committee member.

SERVICE ACTIVITIES

Co-Director, Persistent Issues in History Summer Seminar
(2003 – 2013)
Co-director of summer institutes in which 20 social studies teachers from around the country came to Auburn University to learn about problem-based historical inquiry strategies in secondary social studies.

Coordinator, Professors of Instructional Design and Technology (PIDT) Conference (2018 – 2019)
Coordinator and leader of planning for annual conference with approximately 40 faculty and graduate student attendees.

AERA SIG – Instructional Technology
Chair (2009-2010)
Chair-elect (2008-2009)

AECT Young Researcher Award
Coordinator (2004 – 2011)
Member of Selection Committee (2002 – present)

Educational Technology Research and Development
Editorial Board (2001 – 2004)
Consulting Editor (1997 – present)
Guest Editor, Issue *51*(1)

International Journal of Learning Technology
Editorial Board (2004 – 2010)
Guest Editor, Issue *1*(2)

Tech Trends
Editorial Board (2005 – 2014)
Consulting Editor (2004 – present)

International Journal of Web Engineering and Technology
Editorial Board (2003 – 2010)

Computers & Education
Consulting Editor (2008 – present)

Interdisciplinary Journal of Problem-Based Learning
Consulting Editor (2005 – present)
Guest Editor, Issue *8*(1)

Teacher College Record
Consulting Editor (2003 – present)

Theory and Research in Social Education
Consulting Editor (2003 – present)

Journal of Educational Computing Research
Consulting Editor (1999 – present)

Educational Leadership
Consulting Editor (2000 – present)

Arizona Educational Research Organization
Board Member (2001 – 2002)

Association for Educational Communications and Technology
Board Member, Research and Theory Division (1997 - 2000)

Eastern Educational Research Association
Alabama, Kentucky, Louisiana, Mississippi, and Tennessee
Regional Representative (1997 - 1998)

Allyn and Bacon Publishers
Book reviewer for educational technology publications (1997)

Indiana University
Interim Department Chair, Instructional Systems Technology (Spring 2019)
Coordinator, IST EdD Program (2018 – present)
Member, IST EdD and Online Masters Self-Study Committee (2020)
Member, School of Education Tenure and Promotion Committee (2018 – 2020)
Member, Shool of Informatics and Computer Science Collaboration Committee (2019 – present)
Member, Otting Chair Selection Committee (2018)
Member, School of Education Policy Council (2018 – 2019)
Member, IU-Bloomington Technology Policy Committee (2018 – 2019; 2020 – present)
Member, Associate Dean for Teacher Education Review Committee (2020).
Chair, Associate Dean for Teacher Education Evaluation Committee (2017 – 2018)
Chair, Center for Research on Learning and Technology Review Committee (2016 – 2017)
Chair, ELPS Department Chair Evaluation Committee (2013 – 2014)
Member, Indiana University Learning Technologies Steering Committee (2017 – present)
Member, Alliance for Distinguished and Titled Professors (2011 – 2016)
Member, Scholarship of Teaching and Learning Advisory Committee (2011 – 2016)
Search Committee Co-Chair, joint IST/Informatics search (2011 -2012)
Chair, General Education Social and Historical Subcommittee (2009 – 2014)
Member, General Education Evaluation System Committee (2009- 2014)
Member, Lumina Foundation Tuning Project Committee (2009)
Member, General Education Social and Historical Subcommittee (2008-2009, 2014 – 2015)
Chair, Committee for Teacher Education (2005-2006, 2008)
Faculty Advisor, GIST – Graduate Students in Instructional

Systems Technology (2005 – 2012)
Member, Committee on Writing (2007 – 2008)
Member, Secondary Education Council (2007 – 2008)
Member, Associate Dean Search Committee (2008)
Search Committee Chair, IST (2005-2006; 2010-2011)
Member, Staff Merit Awards Committee (2004 – 2015)
Member, IST Portfolio Committee (2012 – present)
Member, IST Admissions Committee (2002 – 2019)
Member, IST Undergraduate Curriculum Committee (2002 – present)
Member, Structural Reorganization Committee (2003)
Member, Jacobs and Armstrong Chair Selection Committee (2003)
Member, Committee for Teacher Education (2003 – 2008)
Member, Research and Development Committee (2002 – 2003; 2005 – 2006; 2007 – 2008; 2019 – present)

Arizona State University
Program Leader, Educational Technology (2001 – 2002)
Secretary, College Council (2001 – 2002)
Search Committee Chair, Educational Technology (2001 – 2002)
Search Committee Member, Learning (2001 – 2002)
Search Committee Member, Educational Technology (2000 – 2001)
Search Committee Member, Learning (2000 – 2001)
Search Committee Member, Learning (1998 – 1999)

Auburn University
Search Committee Chair, Educational Media (1997 – 1998)
Search Committee Member, Educational Media (1996 – 1997)
Member, Equipment Committee (1995 – 1998)

State of Arizona
Member, State Technology Plan Steering Committee (2000 – 2002)

State of Alabama
Member, Technology Planning Advisory Committee (1996 – 1998)
Member, Technology for Alabama Teachers Standards Committee (1996 – 1998)

Army Research Institute, Fort Benning, GA
Design/evaluation consultant (1995 – 1998)

US Army
Trainer/developer for the Army Infantry School at Ft. Benning, GA and the Chemical School at Ft. McLellan, AL (1996 – 2000)
Design/evaluation consultant for the Army Intelligence School, Ft. Huachuca, AZ (1999 – 2002)
Trainer for Air Force personnel, Goodfellow AFB, San Angelo, TX (2020)
Trainer for TRADOC personnel, Ft. Rucker, AL (2006 – present)
Trainer for TRADOC personnel, Redstone Arsenal, AL (2008)
Trainer for TRADOC personnel, Ft. Benning, GA (2008 – present)

Trainer for TRADOC personnel, Ft. Sill, OK (2008 - 2010)
Trainer for TRADOC personnel, Ft. Eustis, VA (2015)
Trainer for TRADOC personnel, Ft. Lee, VA (2017)
Trainer for TRADOC personnel, Ft. Bliss, TX (2018)

US Department of Education
Member, external advisory board, Charter School grant program
(2016 – present)

Pearson Digital Learning, Scottsdale, AZ
Design/evaluation consultant (2004 – 2011)

Program reviewer for the following universities:
Wayne State University, Detroit, MI
Keiser University, Ft. Lauderdale, FL
University of Tennessee, Knoxville, TN
Florida State University, Tallahassee, FL
Old Dominion University, VA
Sam Houston State University, TX

Educational technology consultant/trainer for the following schools:
Mount Clemens Schools, Mount Clemens, MI
L'Anse Creuse Schools, Harrison Township, MI
South Lyon Schools, South Lyon, MI
Auburn City Schools, Auburn, AL
Opelika City Schools, Opelika, AL
Monroe County Community Schools, Bloomington, IN
Cristel House Academy, Indianapolis, IN
El Paso School District, El Paso, TX