# **DR. WILLIAM R. KJELLSTROM**

http://www.willykjellstrom.com

# EDUCATION

#### University of Virginia, Charlottesville, VA

Ph.D. in Instructional Technology, December 2017, <u>CeDiploma</u> Dissertation: *Evaluating two course sections for enhancing novice elementary preservice teachers' technological, pedagogical, and content knowledge* Awards: *Outstanding Graduate Teaching Assistant, HASTAC Scholar* 

#### Harvard University, Cambridge, MA

Ed.M. in Technology in Education, May 2005

#### Vanderbilt University, Nashville, TN

M.Ed. in Elementary Education (PK - 6<sup>th</sup> Certification), May 2001 Awards: *Kappa Delta Pi Honor Society, Golden Key National Honor Society* 

### Wake Forest University, Winston-Salem, NC

B.A. in Psychology, May 1998 Awards: Psi Chi Honor Society, Donald Alan Memorial Scholarship

# **HIGHER EDUCATION EXPERIENCE**

#### Black Hills State University, 2013 - 2014

Assistant Professor: Taught courses on technology integration and research methods for graduate students enrolled in an online Master's degree program

**Committee Member:** Served on the University Technology Committee as well as the College of Education's Social Committee

#### University of Virginia, 2009 - 2013

Lab Manager: Managed purchases, lab equipment, and IRB protocols for the Science, Technology, Engineering, and Mathematics lab

**Director of the Technology Infusion Program:** Coordinated and supervised pre-service teacher placements in practicum classrooms that emphasized technology integration

**Instructor:** Taught a graduate-level course (Applied Teaching with Technology: EDIS 5440) for preservice teachers focusing on the integration of technology into curricula and learning experiences **Consultant:** Provided consultation and subject matter expertise for Fab@School Maker Studio (Fablevision) and FabLab ModelMaker (Aspex Software)

**Graduate Fellow:** Supported and implemented research on use of digital fabrication systems to enhance elementary students' understanding of science, technology, engineering, and mathematics

#### Harvard University, 2004 - 2005

Intern at Tom Snyder Productions: Conducted usability and design analysis for *Go Solve Word Problems* and *FASTT Math* 

#### Vanderbilt University, 1999 - 2001

Graduate Assistant: Assisted four college professors with tasks including research in classroom management, class structure, and record keeping

# K-12 EXPERIENCE

Albemarle County Public Schools, Albemarle, VA, 2015 - Present

Learning Technology Integrator: Served as a technology integration specialist for two middle schools, eight elementary schools, and a high school learning center (Albemarle Tech); Led formal and informal professional development on the use of technology to support teaching and learning; Supported division-wide projects that featured microcontrollers, robotics, and environmental science topics littleBits Lead Educator: Participated in the first cohort of littleBits Lead Educators, a company-selected partnership between 16 teacher experts throughout the nation focusing on STEM activities Robotics Consultant: Established and coached two FIRST LEGO teams for elementary students. Environmental Science Consultant: Directed and designed project-based learning experiences across all grade levels on topics that included weather, water, and apiology

Maker Space Consultant: Provided advice and professional development for district-wide initiatives related to hands-on learning and maker spaces

Albemarle County Public Schools, Albemarle, VA, 2011 - 2013

**Online Teacher:** Co-taught an online course for K-12 teachers on digital fabrication technologies **Consultant:** Provided workshops and guidance on implementing digital fabrication systems in elementary classrooms

**Informal Education Teacher:** Taught afterschool classes in circuitry and educational toy design for fourth and fifth grade students

Trinity School, Atlanta, GA, 2006 - 2009

Sixth Grade Teacher: Served as a lead sixth grade teacher for language arts, social studies, and character education

**Website Manager:** Collaborated with administrators and teachers to develop and implement a multifaceted, Web 2.0-enhanced website

**Video Production Teacher:** Managed a video production studio and coordinated bi-monthly, studentrun closed circuit broadcasts for the school community

**Instructional Technology Specialist:** Served as the primary professional development leader for instructional technology initiatives

Sussex County Public Schools, Sussex, VA, 2005 - 2006

**Instructional Technology Resource Teacher:** Provided technology professional development for six schools in the district; Helped teachers integrate technology into daily instruction through planning consultations, co-teaching lessons, and assessing student outcomes

The Lovett School, Atlanta, GA, 1999 and 2001 - 2003

Fifth Grade Teacher: Taught language arts, mathematics, social studies, and character education to fifth grade students

Athletic Coach: Coached middle and high school students in football and track

Fourth Grade Assistant Teacher: Prepared lesson plans, created the daily schedule, and graded student work

Substitute Teacher: Substitute taught in middle and high schools while assuming the coaching the track team

The Summit School, Winston-Salem, NC, 1998

Tutor: Developed the linguistic, organizational, and scholastic skills of a third-grade student

### **PUBLICATIONS**

Standish, N., Christensen, R., Knezek, G., Kjellstrom, W., & Bredder, E. (2016). The effects of an engineering design module on student learning in a middle school science classroom. *International Journal of Learning, Teaching and Educational Research, 15*(6).

Kjellstrom, W., Berry, R. Q., & White, P. (2015). Elementary Math. In Hofer, M., Bell, L. & Bull, G. (Eds.), *Practitioner's Guide to Technology, Pedagogy, and Content Knowledge (TPACK): Rich Media Cases of Teacher Knowledge* (pp. 1-14). Waynesville, North Carolina: Association for the Advancement of Computing in Education.

Alexander, C. & Kjellstrom, W. (2014). The Influence of a Technology-Based Internship on First-Year Teachers' Instructional Decision-Making. *Journal of Technology and Teacher Education, 22*(3), 265-285. Chesapeake, VA: Society for Information Technology & Teacher Education.

Tillman, D.A., An, S.A., Cohen, J.D., Kjellstrom, W. & Boren, R.L. (2014). Exploring wind power: Improving mathematical thinking through digital fabrication. *Journal of Educational Multimedia and Hypermedia*, 23(4), 401-421. Chesapeake, VA: Association for the Advancement of Computing in Education (AACE). Retrieved March 4, 2015.

Bull, G., Kjellstrom, W., & Patel, Y. (2013). Mixed-reality demonstrations involving gravity. *Learning and Leading with Technology*, 41(1).

Bull, G. & Kjellstrom, W. (2013). Refresh your flipped classroom with interactive video. *Learning and Leading with Technology*, 40(7).

Bull, G., Ferster, B., & Kjellstrom, W. (2012). Inventing the flipped classroom. *Learning and Leading with Technology*, 40(1).

Chiu, J. L., Bull, G. Berry, R. Q. & Kjellstrom, W. (2013). Teaching engineering design with digital fabrication: Imagining, creating, and refining ideas. In N. Levine & C. Mouza (Eds.), *Emerging Technologies for the Classroom: A Learning Sciences Perspective* (pp. 47-62). New York, NY: Springer.

Kjellstrom, W., Tillman, D. & Cohen, J. (2012). The paper airplane contest: Fabricating for flight and mathematical problem solving. In *Proceedings of Society for Information Technology & Teacher Education 2012* (pp. 1046-1051). Chesapeake, VA: AACE.

Slykhuis, D., Cline, T., Kjellstrom, W., Bell, R., Tillman, D., Lenk, C., Thornburg, D., Spector, M. & Barbier, S. (2012). Creating a NASA MMS trans-media book. In *Proceedings of Society for Information Technology & Teacher Education 2012* (pp. 1066-1069). Chesapeake, VA: AACE.

Tillman, D., Ducamp, G., Dejaegher, C., Cohen, J., Kjellstrom, W. & Smith, S. (2012). A role for digital fabrication activities utilizing the engineering design process in developing preservice elementary teachers' mathematics and science pedagogy. In *Proceedings of Society for Information Technology & Teacher Education 2012* (pp. 1085-1090). Chesapeake, VA: AACE.

Cohen, J., Ducamp, G., Kjellstrom, W. & Tillman, D. (2012). What happens when children encounter the tbook?: The potential for transmedia books in teacher education. In *Proceedings of Society for Information Technology & Teacher Education 2012* (pp. 1033-1040). Chesapeake, VA: AACE.

Bull, G. & Kjellstrom, W. (2011). Introducing mechatronics in schools. *Learning and Leading with Technology*, *39*(3).

Tillman, D., Kjellstrom, W., Smith, S. & Yoder, E. (2011). Digital fabrication scaffolds for developing preservice elementary teachers' mathematics pedagogy. In *Proceedings of Society for Information Technology & Teacher Education 2011* (pp. 892-897). Chesapeake, VA: AACE.

Alexander, C. & Kjellstrom, W. (2010). The influence of a technology-based internship on first-year teachers' instructional decision-making. In *Proceedings of Society for Information Technology & Teacher Education 2010* (pp. 2132-2137). Chesapeake, VA:AACE.

Bull, G. & Kjellstrom, W. (2009). Using interactive data. Virginia Journal of Education, 103(2).

# PRESENTATIONS

Johnston, E. & Kjellstrom, W. (2019). *Easy tools for integrating physical computing from K through 12* [Conference session]. VSTE Annual Conference, Roanoke, VA.

Kjellstrom, W., Rachau, R. & Ziegler, K. (2019). *Coding without computers: Using unplugged activities to teach computer science to elementary students (grades 3-5)* [Conference session]. Making Connections 2019, Charlottesville, VA.

Kjellstrom, W. (2019). *The (im)possibility of counting honeybees* [Conference session]. STEM Learning Summit: Artificial Intelligence, Farmville, VA.

White, P. & Kjellstrom, W. (2018). *Developing design thinking through playing cards* [Conference session]. 2018 VMI STEM Education Conference, Lexington, VA.

Kjellstrom, W., Stauffer, J., Agee, B., & Poole, C. (2018). *Analyzing local waterways: An exploration of math and science with microcontrollers* [Conference session]. Virginia Children's Engineering Conference, Roanoke, VA.

Stanek, C. & Kjellstrom, W. (2017). *Designing, coding, and building scientific instruments for field-based inquiry* [Conference session]. VSTE Annual Conference, Roanoke, VA.

Garbaccio, B., Stauffer, J., Agee, B., Stanek, C. & Kjellstrom, W. (2017). *Show me the money! Unleashing student passion, projects, and partnerships to secure grants and funding for your classroom work* [Conference session]. VASCD Annual Conference, Williamsburg, VA.

Kjellstrom, W. & Stanek, C. (2017). *Testing the health of rivers using a microcontroller and large datasets* [Conference session]. World Maker Faire 2017, New York, NY.

Osborn, G., Kjellstrom, W. & Ellis, G. (2015). *Immersive learning and the emerging world of Minecraft* [Conference session]. 2015 VSTE Annual Conference, Roanoke, VA.

Kjellstrom, W. (2015). *Revising the ISTE technology standards* [Conference session]. Making Connections 2015, Charlottesville, VA.

Kjellstrom, W. (2015). *Birds-of-a-feather: Earth science* [Conference session]. Making Connections 2015, Charlottesville, VA.

Kjellstrom, W., Kinzie, M., & Bull, G. (2013). *Hybrid course design at Curry: EDIS 3450 Teaching with Technology* [Symposium]. EdTalk at University of Virginia, Charlottesville, VA.

Kjellstrom, W. & Cohen, J. (2012). *Exploring physical objects and a virtual simulation in a spatial visualization task* [Paper presentation]. Virginia Education Research Association, Charlottesville, VA.

Kjellstrom, W., Tillman, D. & Cohen, J. (2012). *The paper airplane contest: Fabricating for flight and mathematical problem solving* [Paper presentation]. Society for Information Technology and Teacher Education, Austin, TX.

Slykhuis, D., Cline, T., Kjellstrom, W., Bell, R., Tillman, D., Lenk, C., Thornburg, D., Spector, M. & Barbier, S. (2012). *Creating a NASA MMS trans-media book* [Paper presentation]. Society for Information Technology and Teacher Education, Austin, TX.

Tillman, D., Ducamp, G., Dejaegher, C., Cohen, J., Kjellstrom, W. & Smith, S. (2012). *A role for digital fabrication activities utilizing the engineering design process in developing preservice elementary teachers' mathematics and science pedagogy* [Paper presentation]. Society for Information Technology and Teacher Education, Austin, TX.

Cohen, J., Ducamp, G., Kjellstrom, W. & Tillman, D. (2012). *What happens when children encounter the t-book?: The potential for transmedia books in teacher education* [Paper presentation]. Society for Information Technology and Teacher Education, Austin, TX.

Kjellstrom, W., Tillman, D., Cohen, J., Ducamp, G. (2012). *Exploring project-based learning and digital fabrication through transmedia books* [Paper presentation]. Society for Information Technology and Teacher Education, Austin, TX.

Stearns, P.H., Bull, G. & Kjellstrom, W. (2011). *Children's engineering: Digital fabrication workshop* [Conference session]. Society for Information Technology and Teacher Education. Nashville, TN.

Tillman, D., Kjellstrom, W., Smith, S., & Yoder, E. (2011). *Digital fabrication scaffolds for developing preservice elementary teachers' mathematics pedagogy* [Paper presentation]. Society for Information Technology and Teacher Education, Nashville, TN.

Kjellstrom, W., Tillman, D., Smith, S., & Yoder, E. (2011). *Digital fabrication: Engaging elementary students with design and construction* [Paper presentation]. Society for Information Technology and Teacher Education, Nashville, TN.

Kjellstrom et al. (2011). *Fab@School: Children's engineering across the curriculum in your classroom* [Paper presentation]. Society for Information Technology and Teacher Education, Nashville, TN.

Bull, G. & Kjellstrom, W. (2011). *Digital fabrication in K-12 schools* [Paper presentation]. Fourth Annual STEM Learning Summit. Longwood, VA.

Alexander, C. & Kjellstrom, W. (2010). *The influence of a technology-based internship on first-year teachers' instructional decision-making* [Paper presentation]. Society for Information Technology and Teacher Education 2010, San Diego, CA.

Bull, G., Marks, G., Sanham, N., & Kjellstrom, W. (2010). *SITE's Digital Fabrication Initiative* [Paper presentation]. Society for Information Technology and Teacher Education International Conference, San Diego, CA.

Bull, G., Moore, S., & Kjellstrom, W. (2010). *Personal fabrication systems in the classroom: Lessons, examples, and learning* [Conferences session]. International Society for Technology in Education, Denver, CO.

Carson, E. & Kjellstrom, W. (2010). *Fabrication systems: Engaging elementary and middle school students in meaningful, creative construction* [Conference session]. Capital Region Society for Technology in Education, online.

# **GRANTS (ASSISTED IN WRITING AND/OR IMPLEMENTATION)**

**Graduate Fellow**, *Interactive Video-based Teaching Cases*, Teaching Resource Center's Hybrid Challenge at the University of Virginia, Funded at \$1,000 from August 2012 - December 2012, PIs Bull, G., & Kinzie, M.

**Graduate Fellow**, *The FabLab Classroom: Preparing Students for the Next Industrial Revolution*, National Science Foundation's Innovative Technology Experiences for Students and Teachers (ITEST), Funded at \$1,199,967 from October 2010 - September 2013, PIs Bull, G., Berry, R. Q., Lipson, H., & Knezek, G.

**Graduate Fellow,** *Fab@School Digital Fabrication Initiative*, John D. and Catherine T. MacArthur Foundation's MacArthur Digital Media and Learning Award, Funded at \$185,000 from July 2010 - June 2011, PIs Bull, G. & Berry, III, R. Q.

**Graduate Fellow**, *Designing a Digital Fabrication Laboratory for the Classroom*, Motorola Innovation Grant, Funded at \$250,000 from July 2010 - June 2011, PIs Lipson, H., Bull, G., & Berry, R. Q.

**Graduate Fellow**, *FabLab Construction Station: Engaging Teachers and Students in Technology, Engineering, and Math*, Institute for Education Sciences (IES) Small Business Innovation Research Phase I Award, Funded at \$100,000 from July 2010 - December 2010, PIs Goldberger, G., Bull, G., & Berry, R. Q.

**Graduate Fellow**, *STEM Innovation in Teacher Education: Children's Engineering*, University of Virginia's Commission on the Future of the University, Funded at \$12,000 from February 2010 - May 2011, PIs Berry, R. Q., Bull, G., & Smolkin, L.

## SERVICE

Workshop Facilitator, CodED: Coding in the Extended Day Enrichment Program, Albemarle County Public Schools, 2019

Workshop Facilitator, New Teacher Academy, Albemarle County Public Schools, 2019

**Guest Lecturer**, *Inventing to Learn: Teaching and Learning with Maker Technologies (LT 3737/7777)*, Georgia State University, 2018

Volunteer Instructor, Girls Geek Day, Charlottesville Area Schools, 2018

Reviewer, ISTE 2019 Conference, Philadelphia, PA, 2018

Workshop Facilitator, New Teacher Academy, Albemarle County Public Schools, 2018

Workshop Facilitator, Universal Design for Learning, Albemarle County Public Schools, 2017

Workshop Facilitator, New Teacher Academy, Albemarle County Public Schools, 2017

Workshop Facilitator, New Teacher Academy, Albemarle County Public Schools, 2016

Volunteer Instructor, Girls Geek Day, Charlottesville Area Schools, 2015

Workshop Facilitator, KidVention, Virginia Discovery Museum, 2013

Teaching Assistant, EDIS 7020: Courseware Tools, University of Virginia, 2013

Workshop Facilitator, Young Women Leaders Program, University of Virginia, 2013

Volunteer Designer and Webmaster, Commonwealth Engineering Design Academies, 2013

Reviewer, Society for Information Technology and Teacher Education Conference, New Orleans, LA, 2012

**Program Committee Member**, *Society for Information Technology and Teacher Education Conference*, New Orleans, LA, 2012 - 2013

**Volunteer Designer and Webmaster**, National Technology Leadership Coalition, University of Virginia, 2012 - 2013

Video Production Consultant, EDIS 7010: Courseware Tools, University of Virginia, 2012

Secretary, American Society of Engineering Education Chapter, University of Virginia, 2012 - 2013

Workshop Facilitator, Making Connections Conference, Albemarle County Public Schools, 2012

Facilitator (Case Study Strand), National Technology Leadership Summit, Washington, DC, 2012

Presider, Society for Information Technology and Teacher Education Conference, Austin, TX, 2012

Invited Exhibitor, National Science Foundation's ITEST Summit, Washington, DC, 2012

Facilitator (STEM Strand), National Technology Leadership Summit, Washington, DC, 2011

**Technology Supervisor**, *Math, Men, and Mission (M-Cubed): Algebra Readiness Camp for Middle School African American Students*, Charlottesville, VA, 2011

**Committee Member**, Scholarship and Professional Development Committee of the Student Council, University of Virginia, 2010 - 2011

Facilitator, National Technology Leadership Summit, Washington, DC, 2010

Workshop Facilitator, Digital Fabrication in the Middle School, The Lovett School, Atlanta, GA, 2010

**Technology Supervisor**, *Math, Men, and Mission (M-Cubed): Algebra Readiness Camp for Middle School African American Students*, Charlottesville, VA, 2010

**Volunteer Designer and Webmaster**, http://www.digitalfabrication.org (website moved to *http://www.maketolearn.org*), University of Virginia, 2009 - 2010

Committee Member, Curry Library Innovation Commons, University of Virginia, 2009 - 2010

### **PROFESSIONAL ASSOCIATIONS**

- International Society for Technology in Education (ISTE): Former Member
- American Education Research Association (AERA): Former Member
- Virginia Education Research Association (VERA): Former Member
- Society for Information Technology and Teacher Education (SITE): Former Member
- American Society for Engineering Education (ASEE): Former Member
- National Council of Teachers of Mathematics (NCTM): Former Member