Kristen A. Brown, PhD

Contact Information

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Academic Background

Ph.D. in Science Education, Texas Christian University, *2020 – 2024*
Dissertation: *Science Teacher Narratives on Professional Development*
M.Ed. in Educational Administration, Texas Woman's University, 2007 - 2008
M.S. in Environmental Science, Texas Christian University, 2002 – 2004
B.A. in Biology, Texas Christian University, 1999 – 2002

University Teaching & Research Experience

Post-Doctoral Research Scholar, Texas Christian University, *August 2024 - present*

- Research interests include science teacher professional development, university partnerships with in-service science teachers, and curriculum alignment between high school and post-secondary science courses.
- Continuing data analysis and writing publications related to National Science Foundation (NSF) Grant # 1949393: Socio- Environmental Science Investigations: Exploring Alternative New Directions (SESI-ExpAND)
- Collaborating with Principal Investigator and Co-Principal Investigator to resubmit an NSF Grant to create curriculum and provide PD for middle school science teachers across the U.S. for the Dragonfly Mercury Project with the National Park Service.
- Serving on the Editorial Board of the Electronic Journal of Research in Science and Mathematics Education (three-year term)
- Presenting research at state, national, and international science and education conferences including ASTE, ESRI, ICRSME, NARST, SSMA, and Southwest ASTE.

Adjunct Professor, Midwestern State University, *August 2024 - present*

- Teaching online Elementary Science Methods EC-5 for undergraduate students seeking Texas elementary teaching certification.

Graduate Research Assistant, Texas Christian University, 2020 - 2024

- National Science Foundation (NSF) Grant # 1949393
    - Socio-Environmental Science Investigations: Exploring Alternative New Directions SESI-ExpAND
    - Four-year collaborative grant with Lehigh University and Washington State Tri-Cities, total award $3,000,000
    - Principal Investigator, Dr. Curby Alexander and Senior Personnel, Dr. Molly Weinburgh
- Co-delivered and planned monthly professional development for a cohort of high school teachers from science, social studies, and STEM teaching areas.
- Collaborated with cohort teachers on lesson planning, delivery, and assessment using geospatial

technology and tools.
- Presented grant research at state, national, and international science and education conferences including ASTE, ESRI, ICRSME, NARST, SSMA, and Southwest ASTE.

Instructor, College of Education, Texas Christian University, 2017 - 2020
- Courses Taught:
    - EDEC 30013 Creative Thinking for Science
    - EDEC 20013 Science for the Elementary Teacher
    - EDUC 30013 Professional Roles & Responsibilities *(Writing Emphasis course)*
    - EDUC 30001 Professional Practice Seminar
- Supervised student teachers across school district sites in DFW, observed teachers monthly using T-TESS, and mentored students during their last semester before graduation.
- Research interests included effective practices in the science classroom, preservice teacher preparation, and transitioning into the classroom for beginning educators.

University Field Supervisor, Tarleton State University, 2015 – 2020
- Supervised teachers across school district sites in North Texas in grades K-12 in a variety of subject areas during their first year of full-time teaching or student teaching.
- Observed teachers monthly and provided feedback on classroom management, lesson design and delivery, and interactions with students using the Texas Teacher Evaluation and Support System (T-TESS).
- Corresponded weekly with teachers regarding their concerns about classroom management, lesson planning, issues with teaching peers or administrators, and other reflections they had about their experience as a new educator.

Graduate Teaching Assistant, Texas Christian University: Aug. 2002 – May 2004
- Taught three undergraduate biology labs each week.
- Participated in field data collection and laboratory research under Dr. Ray Drenner with freshwater fishes and mercury contamination.
- Planned lab sessions with lecturing professors, Dr. Ray Drenner and Dr. Molly Weinburgh.

Educator Certifications

Texas Principal Certification, Grades PK-12

Texas Composite Science, Grades 8-12

Publications

Hammond, T.C., **Brown, K.A.**, Alexander, C., Weinburgh, M., Popejoy, K., Bodzin, A., Morrison, J., Malone, D., Firestone, J., Lightner, L.K., & Leeson, D. (Accepted - 2024). "Off the bench": Three case studies of Geographic Information System (GIS) integration in high school chemistry instruction. *Innovations in Science Teacher Education, 9*(3).

Hammond, T. C., Alexander, C., **Brown, K.**, Miller, W., & Weinburgh, M. (2024). That thing in your pocket: Cultivating a geo-sustainable mindset in high school chemistry students using GIS to

study smartphone components. *Journal of Strategic Innovation and Sustainability, 19*(2), 82 – 88.

Brown, K. A. (2024). *Science Teacher Perspectives on Professional Development* (Order No. 31242841). Available from Dissertations & Theses @ Texas Christian University; ProQuest Dissertations & Theses Global. (3050044539). https://repository.tcu.edu/handle/116099117/64208

Alexander, C., Weinburgh, M., **Brown, K.,** & Stroup, M. (2023). Mapping emotions. *Social Education, 87*(2), 119-123.

Popejoy, K., Hammond, T., Malone, D., Morrison, J., Firestone, J., Bodzin, A. M., Leeson, D., **Brown, K. A.**, Alexander, C., & Weinburgh, M. (2023). Integrating ArcGIS digital technologies for learning: Three case studies from university design partnerships with teachers. In J. Trumble, S. Asim, J. Ellis, & D. Slykhuis (Eds.), *Theoretical and Practical Teaching Strategies for K-12 Science Education in the Digital Age* (pp. 98-115). IGI Global. https://doi.org/10.4018/978-1-6684-5585-2.ch006

Casey, P., Dunlap, K., **Brown, K**., & Davison, M. (2012). Elementary principals' role in science instruction. *Administrative Issues Journal: Education, Practice, and Research, 2*(2), 57-62. https://doi.org/10.5929/2012.2.2.5

Conference Proceedings

Alexander, C., **Brown, K.**, & Weinburgh, M. (2024). Cultivating a Geo-Sustainable Mindset in High School Chemistry Students using GIS. In J. Cohen & G. Solano (Eds.), Proceedings of Society for Information Technology & Teacher Education International Conference (pp. 984-985). Las Vegas, Nevada, United States: Association for the Advancement of Computing in Education (AACE).

Alexander, C., **Brown, K.,** Weinburgh, M. & Valverde, E. (2023). "Whose story is being told?": Local History, Cultural Heritage, and Digital Maps. In E. Langran (Ed.), Proceedings of Society for Information Technology & Teacher Education International Conference (pp. 1501-1508). New Orleans, LA, United States: Association for the Advancement of Computing in Education (AACE). Retrieved April 7, 2023 from https://www.learntechlib.org/primary/p/222023/.

Alexander, C., Weinburgh, M., **Brown, K.,** Hammond, T., Popejoy, K. & Leeson, D. (2022). Strategies for Building Hands-On Data Collection Activities for Students. In E. Langran (Ed.), Proceedings of Society for Information Technology & Teacher Education International Conference (pp. 1396-1399). San Diego, CA, United States: Association for the Advancement of Computing in Education (AACE).

Conference Presentations

Hammond, T., Popejoy, K.L., Bodzin, A., Morrison, J., **Brown, K**., Weinburgh, M., Firestone, J., Alexander, C., Malone, D., & Leeson, D. (2024, April). Advancing Teachers' Geospatial

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TPACK Via an Integrated Professional & Curriculum Development Program: A Multi-Year Study. Accepted as a poster for the Poster Session titled, "Multiple Perspectives of Technology as an Agent of Change in Teaching and Learning," hosted by SIG-Technology as an Agent of Change in Teaching and Learning at the *American Educational Research Association* annual meeting in Philadelphia, PA. Retrieved from https://t.ly/Vn59y

Alexander, C., Weinburgh, M., & **Brown, K.** (2024). Geospatial technologies incorporated into high school chemistry. Presented at the *International Consortium for Research in Science and Mathematics Education (ICRSME)* Virtual Conference on April 6, 2024.

Brown, K., & Weinburgh, M. (2023). STEM teacher goes rogue: PD with an innovative implementation of GIS. Presented at the *2023 School Science and Mathematics Association Conference*, Colorado Springs, CO.

Alexander, C., Weinburgh, M., **Brown, K.**, & Valverde, E. (2023). Exploring Intersections of Local Identity, Global Heritage, and GIS. Presented at the *National Council for Social Studies (NCSS)* Annual Conference in Nashville, TN.

Alexander, C., Weinburgh, M., **Brown, K.**, & Lugo, C. (2023). Taking Prime to the Skies: Student-led geospatial inquiry with ArcGIS. Presented at the *National Council for Geographic Education Conference* in Columbia, SC.

Alexander, C., **Brown, K.**, Weinburgh, M., & Valverde, E. (2023). Exploring Heritage and Identity with GIS in a Texas High School. Presented at the *Esri Education Summit Conference*, San Diego, CA.

Brown, K., Weinburgh, M., & Alexander, C. (2022). Professional development during COVID-19: Using socio-environmental science investigations to promote geospatial thinking. Presented as a roundtable themed paper set at the *2022 Association for Science Teacher Education Conference*, Charleston, SC.

Brown, K. A., Weinburgh, M.H., & Alexander, B (2022). Professional development during COVID-19: Using socio-environmental science investigations to promote geospatial thinking. Paper set presented at the virtual annual meeting of the *Association for Science Teacher Education Conference*, Salt Lake City, UT.

Alexander, C., Hammond, T., Popejoy, K., Valverde, E., Stroup, M., Weinburgh, M., **Brown, K.**, & Leeson, D. (2021). Cultural heritage mapping with GIS in two U.S. Cities. Presented at the *2021 National Council for the Social Studies Conference*. Online.

Brown, K., Weinburgh, M., & Alexander, C. (2021). Zooming through professional development: Learning geospatial thinking and reasoning through ZOOM. *2021 School Science & Mathematics Association Conference*. Online.

Brown, K., Weinburgh, M., & Alexander, C. (2021). Teachers learning with GIS while learning about GIS: 2020-2021 PD. Presented at the *2021 Southwest Association for Science Teacher Education Conference*, The Woodlands, TX.

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Weinburgh, M., Alexander, C., & **Brown, K.,** (2021). Synchronous or Asynchronous: Learning geospatial thinking and reasoning through ZOOM. Presented as a roundtable themed paper set at the 2021 *International Consortium for Research in Science and Mathematics Education*, online.

Leeson, D., Malone, D., **Brown, K.,** Hammond, T., & Popejoy, K. (2020). Putting it on the Map: Building Authentic Local Geospatial Inquiries with ArcGIS Online. Presented as a Workshop at the *Innovate Learning 2020 Summit*, online. (slides)

Casey, P. & **Brown, K.** (2009). Principal Support for Elementary Science Programs. *2009 Hawaii International Conference on Education*, Honolulu, Hawaii.

School District Administrator Experience

Special Education Coordinator (Long-Term Administrative Substitute), Keller ISD: November 2018 – March 2019

- Supported administrators and teachers at 1 high school, 4 middle/intermediate schools, and 6 elementary schools.
- Supervised teachers, curriculum, and programs for adult transition students and transition services for students over the age of 18.
- Coordinated students moving campuses due to changes in their program of services.
- Provided administrative support to teachers, diagnosticians, and campus administrators during ARD meetings.
- Conducted goal setting and mid-year performance evaluations for 18 special education staff members including diagnosticians, Licensed Specialists in School Psychology (LSSPs), and Speech Language Pathologists (SLPs) using a T-TESS format.

Director of Enrichment Programs, Coppell ISD: July 2012 – May 2014

- Led curriculum and instruction for grades K-12 in the areas of Career Technology Education (CTE), Advanced Placement (AP), International Baccalaureate (IB), Gifted and Talented (GT), Fine Arts, and Languages Other Than English (LOTE).
- Observed instruction and provided feedback for educators in grade K-12 through walkthroughs and learning rounds.
- Designed and facilitated professional learning for educators and administrators in the areas of CTE, Fine Arts, LOTE, GT, and IB, as well as professional learning for campus and district administrators on district strategic initiatives.
- Served as district liaison for programs including Service Learning, Academic Decathlon, Elementary Academic UIL, CISD Elementary Honor Choir, and the CHS Academies.
- Partnered with local colleges and universities for dual credit initiatives and articulation agreements in CTE, Fine Arts, LOTE, and IB.
- Managed district Federal Perkins grant, budget expenditures, required reports, and related documentation.

Content Instructional Coach, Coppell ISD: 2010 – 2012

- Led district-wide staff development in project-based learning for K-12 educators.
- Collaborated with educators in the research and design of project and problem-based learning in

science, math, English Language Arts, social studies, and electives.
- Created project-based rubrics, assessments, and instructional activities for K-12 educators.

Assistant Principal, New Tech High @ Coppell, Coppell ISD: 2008 – 2010
- Observed and appraised 10 members using PDAS.
- Managed schedules, textbooks, maintenance, substitutes, student activity funds, 504 plans, student attendance and discipline.
- Assisted in recruitment, staff development, budget, and student events.

Classroom Teaching Experience

Biology Teacher, New Tech High @ Coppell, Coppell ISD: 2008 – 2009
- Wrote a project-based learning curriculum for 9th grade biology course.
- Collaborated with New Tech teachers to write biology, chemistry, and physics projects.
- Participated in a one-week professional learning conference in project-based learning with the New Tech Network.

Biology & Chemistry Teacher, Coppell High School, Coppell ISD: 2006 – 2008
- Lead teacher for a program for at-risk freshman and sophomores.
- Wrote new cross-curricular lessons for biology to meet the needs of learners.
- Served on the CHS Strategic Planning Committee.

8th Grade Science Teacher, Coppell Middle School East, Coppell ISD: 2005 – 2006
- Taught on-level and honors science.
- Represented school on district service learning committee.
- Wrote middle school GT curriculum for science.

Biology Teacher, Polytechnic High School, Fort Worth ISD: 2004 – 2005
- Taught on-level and honors biology, and science TAKS remediation.
- Served as science representative on vertical team for curriculum alignment.
- Completed 30 hours of gifted and talented professional development.
- Coached girls' soccer and cross-country.

Professional Service

Editorial Board, Electronic Journal for Research in Science & Mathematics Education (EJRSME)
Article Reviewer, Electronic Journal for Research in Science & Mathematics Education (EJRSME)
Conference Proposal Reviewer, International Consortium for Research in Science & Mathematics Education (ICRSME)
Graduate Student Ambassador, ICRSME, 2022-2023
Conference Proposal Reviewer, National Association for Research in Science Teaching
Conference Proposal Reviewer, School Science and Mathematics Association
Conference Proposal Reviewer, Association of Science Teacher Educators

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Professional Service to the Community

Paschal HS Pyramid Liaison for Overton Park Elem. PTA, Fort Worth ISD, 2024-2025
Site Based Decision-Making Committee, McLean Middle School, Fort Worth ISD, 2023-2024
Kappa Kappa Gamma Sorority Alumni, 2003 - present
(UNT Chapter Advisor, 2010 – 2011)
Academy 4 Mentor, Alice Contreras Elementary, Fort Worth ISD, 2021-2023
Family & Community Engagement for PTA, McLean 6th Grade School, Fort Worth ISD, 2021-2022
Site Based Decision-Making Committee, McLean 6th Grade School, Fort Worth ISD, 2021-2022
Science Lab Coordinator, Tanglewood Elementary, Fort Worth ISD, 2019-2020
Site Based Decision-Making Committee, Tanglewood Elementary, Fort Worth ISD, 2018-2020
New School Transition Committee, Tanglewood Elementary, Fort Worth ISD, 2017-2018
Site Based Decision-Making Committee, Valley Ranch Elementary, Coppell ISD, 2013-2014

Professional Memberships

Current
Association of Science Teacher Educators
International Consortium for Research in Science & Mathematics Education
National Association for Research in Science Teaching
School Science and Mathematics Association
Southwest Association of Science Teacher Educators

Previous
Career & Technology Association of Texas (CTAT), 2012 – 2014
Association for Career and Technical Education (ACTE), 2012 – 2014
Career & Technical Educators of North Texas (CTENT), 2012 – 2014
Metroplex Foreign Language Supervisors (MFLS), 2013 – 2014
Texas Association for the Gifted and Talented (TAGT), 2012 – 2014
National Association for Gifted Children (NAGC), 2012 – 2013
Metroplex Advanced Academics Cooperative (MAAC), 2012 – 2013
National Science Teacher Association, 2004 – 2009
Science Teacher Association of Texas, 2004 – 2009
Association for Supervision and Curriculum Development, 2008 – 2010

Awards and Honors

TCU College of Education Dissertation Award, Spring 2024
TCU Andrews Institute for Research in Mathematics and Science Education Tuition Scholarship, 2020-2023
TCU Andrews Institute for Research in Mathematics and Science Education Travel Grants, 2020-2023
TCU Office of Graduate Studies Travel Grant for ICRSME Conference, March 2023
College of Education Representative for TCU Office of Graduate Studies 3 Minute Thesis Competition, April 2023
1st Place – 3 Minute Thesis Competition, SSMA Conference, Colorado Springs, CO, October 2023

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2nd Place – 3 Minute Thesis Competition, ICRSME Conference, Panama City, Panama, March 2023
Southwest ASTE Travel Grant to ASTE, 2021-2022
Teacher of the Month Award, Coppell MS East, November 2005
Teacher of the Month Award, Polytechnic High School, October 2004
Environmental Science Graduate Teaching Award at TCU, May 2004

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References

Dr. Curby Alexander
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Tabitha Branum
Superintendent, Richardson ISD
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Dr. Laura Estes
Retired Associate Professor, Tarleton State University
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Dr. Brad Hunt
Superintendent, Coppell ISD
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Dr. Cynthia Savage
Associate Dean of Undergraduate Studies, TCU
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Laura Springer
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Dr. Molly Weinburgh*
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* Current supervisor