Tyler Hansen

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Academic and Professional Appointments

Utah State University 2023-present
Emma Eccles Jones College of Education and Human Services
School of Teacher Education and Leadership
Project Manager: Ingenieros Ingeniosos (Ingenious Engineers): Connecting Latinx Youths' Workplace Practices with Engineering through Out-of-School Time Programs (NSF 2115472)

Graduate Research Assistant 2019-2023

CAREER: Job Embedded Education for CT for Rural STEM Teachers (NSF 1942500) 2022-2023

Project E-STITCH (NSF 175883) 2019-2022

Cache Valley School District
Mountain Crest High School
High School Science Teacher 2016-2023
Online High School Science Teacher

Education

Ph.D., Curriculum and Instruction expected 2025
Concentration in Science Education
Utah State University, School of Teacher Education and Leadership
Second Nature: Understanding Localized Conceptions of Environment through Ecological Presence

M.S., Science Education 2021
Utah State University, School of Teacher Education and Leadership

B.S., Biology-Teaching Composite. 2016
Minor in Chemistry-Teaching Composite
Utah State University, School of Teacher Education and Leadership

Awards and Recognitions

Outstanding Biology Educator of the Year, Utah Science Teaching Association **2022**
Masters Researcher of the Year, College of Education and Human Services, Utah State University **2021**
Masters Researcher of the Year, Teacher Education and Leadership Department, Utah State University **2021**
Teacher of the Year, Mountain Crest High School **2021**

Hats Off Award, Cache Education Foundation, **2021**

Grants & Funding

AERA Deaf and Hard of Hearing Intersectionalities and Perspectives Special Interest Group (DHHIP SIG 095) Travel Award. *Role: Conference Presenter.* Budget: $250. I received a travel award to present at the AERA conference (PA, 2024).

CAREER: Job Embedded Education for CT for Rural STEM Teachers Supplement. (2025-2026; NSF 2050408). *Role: Graduate Research Assistant.* Budget: $82,439 over 12 months. Funded by the National Science Foundation CAREER grant solicitation. This project explores rural PD approaches for rural educators in computer science education. I co-authored the supplement submitted and funded by NSF.

STEM Action Center Grant (2020-2021). *Role: Classroom Teacher.* Budget: $1,300 over 12 months. Funded by the Utah STEM Action Center. This grant provided me funding to purchase genetic laboratory equipment for my high school classroom.

STEM Action Center Grant (2019-2020). *Role: Classroom Teacher.* Budget: $1,400 over 12 months. Funded by the Utah STEM Action Center. This grant provided me funding to purchase genetic laboratory equipment for my high school classroom.

STEM Action Center Grant (2018-2019). *Role: Classroom Teacher.* Budget: $1,400 over 12 months. Funded by the Utah STEM Action Center. This grant provided me funding to purchase genetic laboratory equipment for my high school classroom.

STEM Action Center Grant (2018-2019). *Role: Classroom Teacher.* Budget: $1,400 over 12 months. Funded by the Utah STEM Action Center. This grant provided me funding to purchase genetic laboratory equipment for my high school classroom.

The Undergraduate Research and Creative Opportunities (URCO) Grant (2015-2016). *Role: Undergraduate Researcher*: $1,000 over 12 months + $1,000 scholarship. Funded by the Utah State University. This grant provided me funding to conduct a study on radiostable isotopes on the side-blotched lizard (*Uta stansburiana*). I authored the grant.

Utah State University Student Association Academic Opportunity Fund (2014-2015). *Role: Undergraduate Researcher*: $500 over 12 months. Funded by the Utah State University. This grant provided me funding to conduct a study on radiostable isotopes on the side-blotched lizard (*Uta stansburiana*). I authored the grant.

Grants Authored for Community Partners

Office of Native Hawaiian Relations Kapapahuliau Native Hawaiian Climate Resilience Program (2024-2025). *Role: co-author*. Budget: $150,000. Funding pending.

Peer Reviewed Research Journal Articles

(2 first authored)

Hansen, T., Suarez, M., & Tofel-Grehl, C. (under review). Differences in high school students' perceptions of science by race and gender. *Journal of Science Teacher Education.* (Impact Factor: 1.9)

Tofel-Grehl, C., Bennett, B., Lott, K. **Hansen, T**., Ball, D., Longhurst., M., & Balls, M. (under review). Misconceptions and instruction: An examination of how elementary science teachers' scientific misconceptions move from private understandings to instructional barriers. *Cogent Education, STEM Education.* (Impact Factor: 1.2)

Tofel-Grehl, C., **Hansen, T.**, Penrod, C., & Ellis, M. (accepted). A scoping review of the uses of technology for climate science education: Field challenges and future opportunities. *Journal of Science Education and Technology*. (Impact Factor: 4.4l; 5 year Impact Factor:4.0)

Tofel-Grehl, C. & **Hansen, T**. (in press). When the land whispers: Engaging geographic consequential learning with Indigenous Hawaiian youth. *Educational Designer.*

Tofel-Grehl, C., Feldon, D., Jeong, S., Searle, K., **Hansen, T**., & Bennett, B. (2023). Impacts of maker technologies on classroom learning outcomes: A quasi-experimental study. *Journal of Educational Research.* https://doi.org/10.1080/00220671.2023.2239185 (Impact Factor: 2.1; 5 year Impact Factor: 2.8).

Searle, K.A., Tofel-Grehl, C., Fischback, L., & **Hansen, T**. (2023). Affordances and limitations of teachers' instructional styles when teaching computer science and computational thinking. *Computer Science Education, 33*(1), 139-161. https://doi.org/10.1080/08993408.2022.2154992 (Impact Factor: 2.7; 5 year Impact Factor: 3.1)

Hansen, T., Fields, D., Strawhacker, A., & Kafai, Y. (2023). Immersive learning through experiential inquiry of a virtual epidemic: The curricular unit of spikey-20. *The Science Teacher*

Tofel-Grehl, C., Braden, S., Pennrod, C., Wheeler, L., **Hansen, T.,** Jones, A., & Chamberlin, C. (2023). Eco chess. *Science and Children, 60*(3), 24-28.

Fields, D., Strawhacker A., Giang, M., Kafai Y., Tofel-Grehl, C., **Hansen, T**., Sun, J., & Dinan, M. (2022). Pandemics & people: Designing a virtual epidemic event for immersive, connected, and playful participation in an infectious disease outbreak. *Educational Designer, 4*(15), article 59.

Tofel-Grehl, C., Searle, K., Hawkman, A., **Hansen, T**., & Lott, K. (2021). Crafting Circuits: Integrating Culturally Responsive Teaching and Current Events into Science. *Science and Children. 58*(4), 81-86.

Neuman-Lee, L.A., Brodie Jr., E.D., **Hansen, T**., Brodie III, E.D., French, S.S., 2017. To stress or not to stress: Physiological responses to tetrodotoxin in resistant gartersnakes vary by sex. Comparative Biochemistry and Physiology Part A: Molecular and Integrative Physiology, 209, 34-40

Neuman-Lee, L.A., Brodie Jr., E.D., **Hansen, T.,** Brodie III, E.D., French, S.S., 2016. Comparing the Natural and Anthropogenic Sodium Channel Blockers Tetrodotoxin and Indoxacarb in Garter Snakes. Journal of Experimental Zoology, 325(4), 255-264

Smith, G.D., Hopkins, G.R., Mohammadi S., Skinner, H.M., **Hansen T.,** Brodie Jr., E.D., French S.S., 2015. Effects of temperature on embryonic and early larval growth and development in the rough-skinned newt (*Taricha granulosa*). Journal of Thermal Biology, 51, 89-95

Published Conference Proceedings (*denotes student co-author)

Tofel-Grehl, C. & **Hansen, T**. (2023). *Leveraging app making as a constructionist tool for developing Indigenous Hawaiian youth's rightful presence.* In *Proceedings of the 8th Annual Conference on Creativity and Fabrication in Education*. New York: Association for Computing Machinery (ACM).

Hansen, T., & Tofel-Grehl, C. (2023). *Investigating Invasive Species by Constructing Data Visualizations with Teachable Machines and Coding.* In *Proceedings of the 8th Annual Conference on Creativity and Fabrication in Education*. New York: Association for Computing Machinery (ACM).

Book Chapters

Hansen, T., Searle, K., Jiang, M., & Barker, M. (in press). Shrinking Lands and Growing Perspectives: Affordances of Data Science Discourse During a Culturally-Responsive Maker Project. In C. Tofel-Grehl & E. Schanzer (Eds.), *Data science for equity within K16 classrooms*. New York: Routledge.

Tofel-Grehl, C., **Hansen, T**., & Feldon, D. (Accepted). Kilo: the case for community centered data science. In C. Tofel-Grehl & E. Schanzer (Eds.), *Data science for equity within K16 classrooms*. New York: Routledge.

Tofel-Grehl, C., **Hansen, T**., & Feldon, D. (2023). "How do we know technology can help us teach this?': Using the technological instructional overhead inventory to evaluate the cognitive load of technology adoption. In R. Ferdig, R. Hartshorne, E. Baumgartner, R. Kaplan-Rakowski, & C. Mouza (Eds.), *What PreK-12 Teachers Should Know about Educational Technology in 2023: A Research-to-Practice Anthology.* (pp. 329-336). Waynesville, NC: Association for the Advancement of Computing in Education.

Conference Presentations

International and National Presentations

Slater, E., Feldon, D., **Hansen, T**., & Tofel-Grehl, C. (2024) *Professional Development for Culturally Responsive Teaching: A Case Study of an Indigenous Teacher in an Indigenous Space*. Paper presented at the annual meeting of the International Society of the Learning Sciences. Buffalo, NY.

Tofel-Grehl, C**. & Hansen, T**. (2024). *Elementary STEM Teaching Integrating Computing Holistically: Integrating community and culture within US history.* Presented in the symposium "Building Culturally Sustaining Projects and Partnerships to Support Science for the 'Rest of Us'" at the annual meeting of National Association for Research in Science Teaching (NARST). Denver,

CO.

Tofel-Grehl, C. & **Hansen, T.** (2024) Kilo: A model of community centered integrated science and data science learning. Presentation at Annual International Conference for the National Association for Research in Science Teaching (NARST). Denver, CO.

Slater, E., **Hansen, T.**, Feldon, D. & Tofel-Grehl, C. (2024). Pacific Island teachers' experiences of culturally-responsive professional development in community-centered science. Presentation at Annual International Conference for the National Association for Research in Science Teaching (NARST). Denver, CO.

Hansen, T., Castro Volez, C., Hart, L., Torres-Rua A. F., & Tofel-Grehl, C. (2024). *Shifts in Latinx youths' engineering identity.* Paper presented at the Annual Meeting of the American Educational Research Association. Philadelphia, PA: April, 2024.

Hansen, T., & Tofel-Grehl, C., (2024) *Exploring the weather-climate misconception: A review of literature.* Paper submitted to the Association for Science Teacher Education. New Orleans, LA; January 2024

Tofel-Grehl, C. & **Hansen, T.** (2024). *Integrated teacher professional development's impacts on elementary teacher perceptions of teaching computing and science.* Poster presented at the International Conference of the Association for Science Teacher Education. New Orleans, La; January 2024.

Tofel-Grehl, C., **Hansen, T.,** & Barker, M. (2024). *Designing geographically and culturally responsive STEM learning opportunities: A Hawaiian case study*. Paper presented as part of poster session entitled ASTE 2024 Equity Structured Poster Session and Townhall. Presented at the International Conference of the Association for Science Teacher Education. New Orleans, La; January 2024.

Tofel-Grehl, C. & **Hansen, T.** (2023). *Leveraging app making as a constructionist tool for developing Indigenous Hawaiian youth's rightful presence.* Paper presented at the Annual Flagship Meeting of FabLearn*.* New York, NY: October, 2023.

Hansen, T., & Tofel-Grehl, C. (2023). *Investigating Invasive Species by Constructing Data Visualizations with Teachable Machines and Coding.* Paper presented at the Annual Flagship Meeting of FabLearn*.* New York, NY: October, 2023.

Tofel-Grehl, C., **Hansen, T**., & Ball, D. (2023) *Leveraging educational technologies in support of consequential learning centered on community and culture.* Paper submitted to the Annual Meeting of the American Education Research Association. Chicago, IL: April, 2023.

Hansen, T., & Tofel-Grehl, C**.,** (2023). *Science discourse patterns compared with instructional practices during a maker activity in an elementary classroom*. National Association for Research in Science Teaching Annual Conference, Chicago, IL, United States. April, 2023.

Tofel-Grehl, C., & **Hansen, T**. (2023) *Geology and geography as contexts for consequential learning with rural youth by integrating science and technology*. Paper submitted to the annual meeting of the Association for Science Teacher Education. Salt Lake City, UT. January 2023.

Hansen, T. & Tofel-Grehl, C. (2023) *Science Discourse Patterns Compared with Pedagogical Content*

Knowledge During a Maker Project in an Elementary School Classroom. Paper presented at the International Meeting of the Association for Science Teacher Education.

Strawhacker, A., **Hansen, T**., Tofel-Grehl, C., & Kafai, Y. (2021). *Teaching about COVID-19: Using a virtual epidemic to contextualize and problematize infectious disease epidemiology in a high school class.* Poster presented at the International Conference of the Learning Sciences.

Tofel-Grehl, C., **Hansen, T**., Fields, D., Strawhacker, A., Kafai, Y., Sun, J., & Dinan, M. (2021). *Making connections: High school students writing in online newspaper about their experiences with virtual and real epidemics.* Presented as part of *the Infectious Designs: Youth and Family Learning about COVID-19 with Popular and Social Media* for the Connected Learning Summit

Hansen, T., Durso, A. Effects of Dehydration on Oxygen Isotopes Present in Uta stansburiana. Department of Biology Undergraduate Research Symposium, Utah State University 2016

Hansen, T. Effects of temperature on embryonic and early larval growth and development in the rough-skinned newt (*Taricha granulosa*). Society for Integrative and Comparative Biology, West Palm Beach, FL, 2015

Teaching

University Teaching History

Fall 2014: Utah State University TEAL, Logan UT
USU 1320: Science Teaching Methods (3 credits)

Spring 2015: Utah State University TEAL, Logan UT
USU 1320: Science Teaching Methods (3 credits)
BIOL 5610: Comparative Animal Physiology (3 Credits)

Fall 2023: Utah State University TEAL, Logan UT
TEAL 5810: Science Teaching Methods (3 credits)

Fall 2023: Utah State University TEAL, Logan UT
TEAL 5810: Science Teaching Methods (3 credits)

High School Teaching History

Fall 2016: Mountain Crest High School, Hyrum UT
High School Chemistry (0.5 credits)
High School Biology (0.5 credits)

Spring 2017: Mountain Crest High School, Hyrum UT
High School Chemistry (0.5 credits)
High School Biology (0.5 credits)

Fall 2017: Mountain Crest High School, Hyrum UT
High School Earth Science (0.5 credits)
High School English Literature (0.5 credits)

Spring 2018: Mountain Crest High School, Hyrum UT
High School Earth Science (0.5 credits)

Fall 2018: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)

Spring 2019: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)

Fall 2019: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)

Spring 2020: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)
High School Agricultural Biology (0.5 credits)

Fall 2020: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)
High School Agricultural Biology (0.5 credits)

Spring 2021: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)
High School Agricultural Biology (0.5 credits)

Fall 2021: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)
High School Earth Science (0.5 credits)

Spring 2022: Mountain Crest High School, Hyrum UT
AP Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)
High School Earth Science (0.5 credits)

Fall 2022: Mountain Crest High School, Hyrum UT
High School Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)
High School Earth Science (0.5 credits)

Fall 2022: Mountain Crest High School, Hyrum UT
High School Biology (0.5 credits)
High School Environmental Science (0.5 credits)
High School Botany (0.5 credits)
High School Earth Science (0.5 credits)

Reviewer Service

Journal of Science Teacher Education	2023- present
Journal of Research in Science Teaching	2024- present
Journal of Science Education and Technology	2022- present
The Science Teacher	2022-present

Other Service

2024
Service to Field
Association of Science Teacher Education South West Regional Graduate Student Representative

Academic Memberships

Utah State University CHAOS Learning Lab **2019-present**
Utah State University French Lab **2014-2017**
Utah State University Brodie Lab **2015-2017**
Phi Sigma Tau (Philosophy National Honors Society) **2014**