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## **EDUCATION**

- **Ph.D. from Michigan State University, East Lansing, MI (2012).**  
Curriculum, Instruction, and Teacher Education; major: Science Education.  
Dissertation Chair: Dr. Amelia Wenk Gotwals.
- **Masters in Science Education, American University of Beirut, Lebanon (2006).**  
Masters Thesis Chair: Dr. Saouma BouJaoude.
- **Teaching Diploma in Science, American University of Beirut, Lebanon (1999).**
- **B.S. in Biology, American University of Beirut, Lebanon (1996).**

## **PROFESSIONAL APPOINTMENTS**

- **Professor (with Tenure) in Science Education at Texas Christian University (TCU) (2024- present).**
- **Associate Professor (with Tenure) in Science Education at TCU (2018-2024).**
- **Assistant Professor in Science Education at TCU (2012- 2018).**
- **Teaching Instructor at Michigan State University (2011-2012).**  
Teaching science method courses to elementary pre-service teachers and interns.
- **Editorial Officer to the Journal of Research in Science Teaching (2010-2011).**  
Editors: Dr. Angela Calabrese-Barton & Dr. Joseph Krajcik.
- **Research Assistant (RA) at Michigan State University (2007-2011).**
  - RA in the Deep Think project with Dr. Amelia Wenk Gotwals.
  - RA in the MoDeLS Project with Dr. Christina Schwarz.
  - RA in the GET City Project with Dr. Angela Calabrese-Barton.
- **Biology/Science teacher in four different schools in Beirut, Lebanon (1996-2007).**
  - Christian Teaching Institute, Beirut.
  - City International School, Beirut.
  - Modern Community School, Beirut.
  - Eastwood College, Beirut.

## AWARDS & HONORS

- Nominated by graduate students to the Clark Society Endowed Faculty award which recognizes outstanding faculty who prioritize engagement with students. (2022/2023).
- Outstanding Faculty Mentor Award at TCU's College of Education (2021).
- Texas Christian University (TCU) Merited Research Leave (Fall 2019).
- Selected to participate in the HERS Higher Education Leadership Development Program in Wellesley College, MA (2017-2018).
- Nominated for the National Association for Research in Science Education (NARST) early career award (2018).
- Publications Advisory Committee, National Association for Research in Science Teaching (NARST) selected the Article: Hokayem, H., & Gotwals, A. (2016). Early elementary students' understanding of complex ecosystems: A learning progression approach. *Journal of Research in Science Teaching*, 53, pp. 1524-1545 for NSTA 2017 worth reading list.
- Nominated to the Wassenich Award for Mentoring at Texas Christian University (TCU) Community (2016).
- Wiley statistics for JRST showed that the following paper (Hokayem, H., & BouJaoude, S. (2008). College students' perceptions of the theory of evolution. *Journal of Research in Science Teaching* 45, pp. 395-419 was among the most cited article in 2009-2010.
- Won the Council of Graduate students (COGS) Travel award and Graduate School Travel award at Michigan State University (MSU) to present my research in ESERA, Istanbul during the Summer of 2009 (\$1300).
- Won the Travel Award for graduate students to present the modeling poster in LeaPS conference at the University of Iowa during the Summer of 2009 (\$250).
- Won the Travel Award for International participant at NARST in Spring of 2007 (\$500).
- Nominated by 3 community members (Previous Associate Principle of Haslett High School, Director of Caribbean Studies at MSU, and Director of Residence Life at MSU) for the Homer Higbee International Education Award at MSU for engagement and promoting *International Awareness* and supporting *Cross-cultural Understanding* in 2011.

## PUBLICATIONS

\* Indicates joint work with graduate students.

\*\* Indicates joint work with a graduate student & K-12 science teacher.

### Peer Reviewed Journal Articles

- \*Fayad, C., **Hokayem, H.**, & Ihsan Ghazal (2024) Using mathematical and technological skills to teach third graders about carbon footprint, *Science Activities*, DOI: [10.1080/00368121.2023.2284913](https://doi.org/10.1080/00368121.2023.2284913)
- \***Hokayem, H.**, Ghazal, I., & Graham, S. (2023). Learning progression of student reasoning about life cycles. *Science Education International* 34 (4); 339-346.
- \*Ghazal, I. & **Hokayem, H** (2023). High school students' reasoning about the immune system in Beirut, Lebanon. *Research in Science and Technological Education*. <https://doi.org/10.1080/02635143.2023.2209866>
- \*St. Lewis, A., & **Hokayem, H** (2023). Comparing undergraduate NOS views in traditional vs. inquiry taught science courses. *Journal of College Science Teaching*, 52(7), 145-152.
- \***Hokayem, H.**, & Fayad, C. (2023). Lebanese undergraduate students' perception of tentativeness and evidence of the theory of evolution. *Science Education International*, 34 (1). pp. 35-41.
- \*Ihsan Ghazal, Saouma Boujaoude & **Hayat Hokayem** (2023). Grade 8 Lebanese students' reasoning and decision-making about scientific versus socio-scientific issues, *International Journal of Science Education*. <https://doi.org/10.1080/09500693.2023.2281296>
- \*Enugu, R., & **Hokayem, H.** (2023). How to make the engage really engaging: A framework for an instructional approach for pre-service teachers. *Eurasian Journal of Science and Environmental Education*, 3 (1), pp. 1-5. DOI: <https://doi.org/10.30935/ejsee/12706>
- Jin, H, **Hokayem, H.**, & Cisterna, D. (2023). New aspects of working with scientific data: a study with practicing scientists and science teachers. *Research in Science & Technological Education*, 41(1), pp. 306-325.
- \*Graham, S., & **Hokayem, H.** (2022). Pre-Service Teachers Nature of Science Views After Engaging with COVID-19 as a Socio-scientific Issue. *Eurasian Journal of Science and Environmental Education*, 2 (2), pp. 29-34.

- \*Graham, S., Tolar, A., & **Hokayem, H.** (2020). Teaching preservice teachers about COVID-19 through distance learning. *Electronic Journal for Research in Science and Mathematics Education*, 24, pp. 29-37.
- **Hokayem, H.**, Jin, H., & Yamaguchi, E. (2020). Feedback loop reasoning and knowledge sources for early elementary students in three countries. *Eurasia Journal of Mathematics, Science, and Technology Education*, 16 (2)  
DOI: <https://doi.org/10.29333/ejmste/112582>
- Jin, H., Mikeska, J., **Hokayem, H.**, & Mavronikolas, E. (2019). Toward coherence in curriculum, instruction, and assessment: A review of learning progression literature. *Science Education*, 103, pp. 1206-1234.
- Jin, H., Shin, H., **Hokayem, H.**, Querishi, F., & Jenkins, T. (2019). Secondary students' understanding of ecosystems: A learning progression approach. *International Journal of Science and Mathematics Education*, 17, pp. 217-235.
- **Hokayem, H.**, & Jin, H., (2018). Elementary students' knowledge sources for understanding ecosystems. *International Journal of Environmental and Science Education*, 13, pp. 631-645.
- \*de la Fuente, Y., & **Hokayem, H.** (2018). Relating ecological technical terms to students' reasoning in lower elementary. *Journal of Biological Education*, 52, pp. 196-205.
- \*\*Rowlands, O., **Hokayem, H.**, & Beidiger, D. (2017). Using a multi-literacy approach to teach about adaptation: The case of polar bears. *Science and Children*, 55, pp. 60-65.
- \*Enugu, R., & **Hokayem, H.** (2017). Challenges pre-service teachers face when implementing a 5E inquiry model of instruction. *European Journal of Science and Mathematics Education*, 5, pp. 178-209.
- **Hokayem, H.**, & Gotwals, A. (2016). Early elementary students' understanding of complex ecosystems: A learning progression approach. *Journal of Research in Science Teaching*, 53, pp. 1524-1545.
- **Hokayem, H.** (2016). Patterns of reasoning about ecological systemic reasoning for early elementary students. *Science Education International*, 27, pp. 117-135.
- Jin, H., **Hokayem, H.**, Wang, S., & Wei, X. (2015). How do US and Chinese biology students compare in explaining energy consumption issues? *International Journal of Environmental and Science Education*, 10, pp. 301-318.

- Jin, H., **Hokayem, H.**, Wang, S, & Xin, W. (2015). A US-China Interview Study: Biology students' argumentation and explanation about energy and consumption issues. *International Journal of Science and Mathematics Education*, 10, pp. 301-318.
- \***Hokayem, H.**, Ma, J, & Jin, H. (2015). A learning progression for feedback loop reasoning at the lower elementary level. *Journal of Biological Education*, 49, pp. 246-260.
- \***Hokayem, H.**, Jin, H., & Zhu, M. (2014). Scientific literacy in Lebanese biology national exams: A case study comparing pre/post reform exams. *International Education*, 44, pp. 73-89.
- **Hokayem, H.**, & Schwarz, C. (2014). Engaging 5<sup>th</sup> graders in scientific modeling to learn about evaporation and condensation. *International Journal of Science and Mathematics Education*, 12, pp. 49-72.
- Gotwals, A., **Hokayem, H.**, Song, T, & Songer, N. (2013). The role of disciplinary core ideas and practices in the complexity of large scale assessment items. *Electronic Journal of Science Education.*, 17 (1). Retrieved from <http://ejse.southwestern.edu>
- **Hokayem, H.**, & BouJaoude, S. (2008). College students' perceptions of the theory of evolution. *Journal of Research in Science Teaching* 45, pp. 395-419.

#### Editorials & Invited Publications

- **Hokayem, H.**, & Jin, H. (2019, February). Enhancing scientific literacy in K-12 science classrooms. *Eurasia Journal of Mathematics, Science, Technology Education*, 15 (6).
- **Hokayem, H.** & BouJaoude, S. (2008). How College students in Lebanon perceive the theory of evolution. *The Science Education Review*, 7, pp. 53-56.

#### Peer Reviewed Conference Proceedings

- Suzuki, K., Yamaguchi, E., & **Hokayem, H.** (2015). Learning progression for Japanese elementary students' reasoning about ecosystems. *Procedia-Social and Behavioral Sciences*, 167, pp. 79-84. doi:10.1016/j.sbspro.2014.12.646  
<http://www.sciencedirect.com/science/article/pii/S1877042814067937>
- **Hokayem, H.** & Gotwals, A. (2014). Fusing a cross-cutting concept, science practice, a core disciplinary core idea in a single learning progression. Peer reviewed conference proceedings paper of the *International Conference of the Learning Sciences (ICLS)*, Boulder, CO.
- **Hokayem, H.**, & Gotwals, A. (2012). Students' systemic reasoning of food webs at lower elementary level. Peer reviewed Conference proceedings paper of the *National Association of Biology Teachers (NABT)*, Dallas, TX.
- **Hokayem, H.**, & Gotwals, A. (2010). Investigating the Nature of Evidence 6<sup>th</sup> grade Students use when constructing Scientific Explanations in Biodiversity. Peer reviewed

conference proceeding paper of the *International conference of the Learning Sciences (ICLS)*, Chicago, IL.

### Book Chapters

- **Hokayem, H.**, Gotwals, A., & Weinburgh, M. (2014). The method of developing a learning progression of systemic reasoning. In A. White & D. Berlin (Eds). *Initiatives in Mathematics and Science Education: Global Implications*. pp. 63-71. Columbus: OH.
- **Hokayem, H.**, Calabrese-Barton, A. & Tan, E. (2011). Participation in and transforming communities of practice. In S. J. Basu., A. Calabrese-Barton, & E. Tan (Eds). *Democratic Science Teaching: Building the Expertise to Empower Low Income Minority Youth in Science*. p. 55-72. Rotterdam, Netherlands: Sense Publishers.
- Baek, H., Schwarz, C., Chen, J., **Hokayem, H.**, & Zhan, L. (2011). Engaging elementary students in scientific modeling: The MoDeLS 5th grade approach and findings. In M. S. Khine & I. M. Saleh (Eds.), *Models and modeling: Cognitive Tool for Scientific Enquiry*. p. 195-218. New York: Springer.

### PRESENTATIONS

\* Indicates joint work presented with graduate students.

\*\* Indicates joint work presented with a high school student.

#### National Conferences

- \*Hokayem, H., Ghazal, I., & Graham, S. (2024). Learning progression of students' reasoning about life cycles. Paper presented at the *National Association of Research of Science Teaching*, Denver, Colorado.
- \*Fayad, C., & Hokayem, H. (2024). Interactions in a multilingual science classroom in Lebanon. Paper presented at the *National Association of Research of Science Teaching*, Denver, Colorado.
- \*Graham, S., & Hokayem, H. (2024). Pre-service teachers and socio-scientific issues: Their views and creation of issues based science lessons. Paper presented at the *National Association of Research of Science Teaching*, Denver, Colorado.
- \*Ghazal, I., BouJaoude, S., & Hokayem, H. (2024). Grade 8 students' argumentation about scientific vs. socio-scientific issues. Paper presented at the *National Association of Research of Science Teaching*, Denver, Colorado.
- \*Ghazal, I., & **Hokayem, H.** (2023). Lebanese students' reasoning of the immune system in grades 8 and 12. Paper presented at the *National Association of Research of Science Teaching*, Chicago, Illinois.

- \*Graham, S. & **Hokayem, H.** (2023). Pre-service teachers' scientific content knowledge and nature of science views after a socio-scientific based issues based unit. Paper presented at the *National Association of Research of Science Teaching*, Chicago, Illinois.
- \*Wallace, S., & **Hokayem, H.** (2023). The effects of gestures in teaching and learning anatomy and physiology. Poster presented at the *National Association of Research of Science Teaching*, Chicago, Illinois.
- \*Graham, S. & **Hokayem, H.** (2023). Pre-Service teachers views of nature of science after engaging with a socio-scientific issues based unit. Paper presented at the *Association of Science Teacher Education*, Salt Lake City, Utah.
- \* **Hokayem, H.** & Graham, S. (2022). Science Education during the COVID-19 pandemic. Symposium organizer and presenter at the *National Association of Research for Science Teaching*, Vancouver, Canada.
- \*Ghazal, I. & **Hokayem, H.** (2022). High school students' reasoning about the immune system in Beirut, Lebanon. Paper presented at the *National Association of Research for Science Teaching*, Vancouver, Canada.
- \*St. Lewis, A., & **Hokayem, H.** (2022). Comparing undergraduate NOS views in traditional vs. inquiry taught science courses. Paper presented at the *National Association of Research for Science Teaching*, Vancouver, Canada.
- \*Graham, S. & **Hokayem, H.** (2021). How do preservice teachers learn about COVID-19. Paper presented at the *School Science and Mathematics Association (SSMA)*. (online).
- \*St. Lewis, A. Harvill, M., Moore, M., & **Hokayem, H.** (2021). Affordances and challenges of virtually supporting inquiry science practices for elementary students. Paper presented at the *School Science and Mathematics Association (SSMA)*. (online).
- \*Enugu, R., & **Hokayem, H.** (2020). Pre-Service teacher's challenges perceiving and successfully implementing the engage phase of the 5E inquiry model. Paper presented at the *Association of Science Teacher Education (ASTE)* in San Antonio, TX.
- \*Enugu, R., & **Hokayem, H.** (2019). Is the engage really engaging? How pre-service teachers engage their students in a 5E lesson. Poster presented at the *National Association for Research in Science Teaching (NARST)* in Baltimore, MD.
- Jin, H., **Hokayem, H.**, & Cisterna, D. (2019). Scientists and science teacher views on handling data in scientific investigations. Poster presented at the *National Association for Research in Science Teaching (NARST)* in Baltimore, MD.

- **\*Hokayem, H.,** Jin, H., & Wu, S. (2018). Elementary students' knowledge sources of ecosystems. Poster presented at the *National Association for Research in Science Teaching (NARST)* in Atlanta, GA.
- **\*Enugu, R., & Hokayem, H.** (2017). Challenges pre-service teachers face when implementing a 5E inquiry model of instruction. Paper presented at the *National Association for Research in Science Teaching (NARST)* in San Antonio, TX.
- Jin, H., Qureshi, F., **Hokayem, H.,** & Jenkins, T. (2017). Development and validation of a learning progression of systems thinking in ecosystems. Poster presented at the *National Association for Research in Science Teaching (NARST)* in San Antonio, TX.
- Jin, H., Mikeska, J., **Hokayem, H.,** & Mavronikolas, E. (2017). Learning Progression Research: Toward Coherence in Teaching and Learning of Science. Paper presented at the *National Association for Research in Science Teaching (NARST)* in San Antonio, TX.
- **Hokayem, H.** (2016). Students' ideas about ecosystems and their implications for teaching. Paper presented at the *National Association of Research in Science Teaching (NARST)*, Baltimore, MD.
- **Hokayem, H.,** Jin, H., Alameh, S., & Yacoubian, H. (2015). Using a learning progression to compare the feedback loop reasoning of elementary students in the US and Lebanon. Paper presented at the *National Association of Research in Science Teaching (NARST)*. Chicago, IL.
- Jin, H., **Hokayem, H.,** He, W., & Mehl, C. E., (2015, April). Consistency of students' reasoning about changes in matter across contexts. Paper presented at the annual conference of *American Educational Research Association (AERA)*, Chicago, IL.
- Jin, H., Wei, X., Peng, Q., **Hokayem, H.** (2015). An Investigation of Chinese Teachers' Inquiry-oriented classroom discourse. Paper presented at the *National Association of Research in Science Teaching (NARST)*. Chicago, IL.
- Jin, H., Mehl, K., & **Hokayem, H.** (2015). A model of students' reasoning about matter across disciplines and its implications for methods course. Paper presented at the *Association of Science Teacher Education (ASTE)*, Portland, Oregon.
- Gotwals, A., **Hokayem, H.,** & Wright, T. (2014). Argumentation at the start of school: Characterizing the entry points into the learning progression for argumentation. Paper presented at the *National Association for Research in Science Teaching (NARST)*. Pittsburgh, PA.
- **\*Henry, D.,** Barrett, C., Fogelberg, K., Patterson, M., & **Hokayem, H.** (2014). U.S. science classes compared to top performing countries: Trends in international mathematics and science studies analysis. Paper set presented in the *Association of Science Teacher Education (ASTE)* in San Antonio, TX.



- **Hokayem, H.** & Gotwals, A. (2013). Learning Progression of Lower Elementary Students' Systemic Reasoning in Ecology. Paper presented at the *National Association for Research in Science Teaching (NARST)*. Rio Grande, Puerto Rico.
- **Hokayem, H.,** & Gotwals, A. (2012). Students' Systemic Reasoning of Food Webs at Lower Elementary level. *Paper presented at the National Association of Biology Teachers (NABT)*, Dallas, TX.
- **Hokayem, H.,** & Gotwals, A. (2012). Students' systemic reasoning of food webs at lower elementary level (Grades 1-4). Paper to be presented at the *National Association for Research in Science Teaching (NARST)*. Indianapolis, IN.
- **Hokayem, H.,** & Gotwals, A. (2011). Investigating 6<sup>th</sup> grade students' causal reasoning in biodiversity. Poster presented at the *National Association for Research in Science Teaching (NARST)*. Orlando, FL.
- **Hokayem, H.,** Schwarz, C., Baek, H., Chen, J., & Zhan, L. (2010). Patterns of scientific modeling practices of 5th graders while learning evaporation and condensation. Paper presented at the *National Association for Research in Science Teaching (NARST) 2010*, Philadelphia, PA.
- **Hokayem, H.** & Barton, A. (2009). From a "Hybrid discourse" towards "legitimate peripheral participation". Paper presented at the *National Association for Research in Science Teaching (NARST)*, Garden Grove, CA.
- **Hokayem, H.,** Chen, J., & Schwarz, C. (2009). Investigating the relationship between scientific modeling and content knowledge. Poster presented at *Learning Progressions in Science Conference (LeaPS)*, University of Iowa, IA.
- Gotwals, A., **Hokayem, H.,** & Song, T. (2009). What types of cognitive demands do standardized testing items place on students? Paper presented at the *National Association for Research in Science Education (NARST) 2009*, Garden Grove, CA.
- Chen, J., **Hokayem, H.,** & Schwarz, C. (2009). The relationship between scientific modeling and learning content knowledge. Poster presented at Paper presented at the *National Association for Research in Science Education (NARST)*, Garden Grove, CA.
- **Hokayem, H.,** & BouJaoude, S. (2007). College students' perceptions of the theory of evolution. Paper presented at *National Association for Research in Science Teaching (NARST)*, 2007, New Orleans, LA.

## International Conferences

- \*Ghazal, I., **Hokayem, H.** (2023). A learning progression on Lebanese students systems thinking about the immune system. Paper presented at the *European Science Education Research Association (ESERA)*, Cappadocia, Turkey.
- \*Ghazal, I. & **Hokayem, H.** (2023). A systemic reasoning framework on body systems. Paper presented at the *International Consortium of Science and Mathematics Education (ICRSME)*, Panama City, Panama.
- \*Fayad, C., & **Hokayem, H.** (2023). Lebanese undergraduate student perceptions of the evolution theory. Paper presented at the *International Consortium of Science and Mathematics Education (ICRSME)*, Panama City, Panama.
- \*Graham, S., Tolar, A., & **Hokayem, H.** (2021). Teaching pre-service teachers about COVID-19 through distance learning. Paper presented *virtually at the International Consortium of Science and Mathematics Education (ICRSME)*, Panama City, Panama.
- **Hokayem, H.**, Jin, H., & Yamaguchi, E. (2019). Ecological feedback loop reasoning and knowledge sources in three countries. Paper presented at *International conference on teaching science and mathematics in culturally and linguistically diverse settings* in Nicosia, Cypress.
- Yamaguchi, E., Suzuki, K., & **Hokayem, H.** (2014). Learning Progressions for Japanese Elementary Students' Reasoning about Ecosystems. Paper presented at that *International Organization for Science and Technology Education (IOSTE)* during September 2014 in Kuching, Malaysia.
- **Hokayem, H.**, & Weinburgh, M. (2013). Elementary Students' Reasoning about Species Interactions in an Ecosystem. Paper presented at the *International Consortium for Research in Science and Mathematics Education (ICRSME)*. Granada, Nicaragua.
- **Hokayem, H.**, & Gotwals, A. (2010). Investigating the Nature of Evidence 6<sup>th</sup> Grade Students Use When Constructing Scientific Explanations in Biodiversity. Poster presented at the *International Conference of the Learning Sciences (ICLS) 2010*, Chicago, IL.
- **Hokayem, H.** & Barton, A. (2009). A "Hybrid Discourse" fostering "legitimate peripheral participation". Paper presented at the *European Science Education Research Association (ESERA)*, Istanbul, Turkey.
- **Hokayem, H.**, & BouJaoude, S. (2005). How college students in Beirut perceive the theory of evolution. Paper presented at the 9<sup>th</sup> *Science and Mathematics Education Conference (SMEC IX)* at the American University of Beirut, Beirut, Lebanon.
- \*\***Hokayem, H.**, & Klait, M. (2004). Using an example of a controversial issue to learn science content. Workshop presented at the 8<sup>th</sup> *Science and Mathematics Education Conference (SMEC VIII)* at the American University of Beirut, Beirut, Lebanon.

## Invited Talks

- **Hokayem, H.** (2017). Early elementary students' understanding of complex ecosystems: A learning progression approach. Invited talk presented at NARST, San Antonio, TX, as part of NSTA's research worth reading special administrative session.
- **Hokayem, H.** (2013). Learning progression as a way of understanding elementary students' reasoning and developing curricula. Invited talk presented for pre-service teachers in the Reaching for outstanding outdoor teaching strategies to support STEM Learning.
- **Hokayem, H.** (2011). *Understanding learning progressions and finding ways to construct an integrated science curriculum*. Invited Talk to the Department of Biology at Grand Valley State University, Allendale, MI.
- **Hokayem, H.** (2008). *Problems and possibilities of science education: The case of Lebanon*. Seminar talk part of "Partnership to prepare Global and International Educators Talk series" at the Teacher Education Department in Michigan State University, MI.

## GRANTS

### Funded

- Academic Excellence Grant from TCU College of Education for 2023. (\$2160).
- Inclusive Biologists Exploring Active Research with Students (iBEARS). National Science Foundation (NSF) INCLUDES planning grant for 2020-2022. [Role: Consultant, PI: T. Sulak, Co-PI: M. Moore, P. Thompson, B. Christian] (\$99,999).
- Andrews Institute Grant for Investigating pre-service teachers learning about COVID-19 for the Spring 2021 (\$810).
- Andrews Institute Grant for studying the learning progression of life cycles 2019 (\$2,800).
- TCU College of Education Summer Research Grant 2019 (\$5,000).
- ETS sub-grant award for the project "Developing a learning progression for systems thinking", Fall 2016 (\$8,000).
- TCU College of Education Summer Research Project 2014 (\$5,000).
- Junior Faculty Summer Research Program Grant for Summer of 2013: received from TCU to work on investigating feedback loop reasoning for elementary students (\$6,000).
- Dissertation Completion Grant from Michigan State University for Summer 2012 from Teacher Education Department during Spring of 2012 (\$4,200).

- Dissertation Research Funds Fellowship from the Teacher Education Department at Michigan State University (MSU) which supports dissertation research during the Fall of 2011 (\$3,000).
- Research Enhancement Fellowship Grant from MSU graduate school which supports research expenses during the Fall of 2011. (\$1,000).
- Summer Research fellowship Grant from MSU to support Graduate Student to work on my research project of Students’ reasoning about biodiversity during the Summer of 2010. (\$6,000).
- Linking All Types of Teachers and International Community Experience (*LATTICE*) fellowship to support my research on investigating science leaning from a socio-cultural perspective during the Spring of 2008. (\$1,000).

#### **Not funded**

- One Earth for all People: Equity based elementary science resources to support diverse learners in understanding Earth as a system. Submitted to NSF-DKR12 October 2022. Role: Key personnel. TCU subcontract (\$100,000).
- Alliance Grant submitted to NSF in January 2022. “Supporting elementary student inquiry practices through online mentoring” Role: Co-PI.
- MISK Foundation Grant: Food, Carbon Print, and Each Other (FCPEO); Spring 2018; (\$100,000).
- NSF ECR Grant: “Developing a Learning Progression for Systems Thinking in Social-ecological Systems” in collaboration with Dr. Hui Jin at Educational Testing Services; Fall 2015; (\$204,000).
- National Endowment for the Humanities (NEH) Grant: “A comparative study about ecological systemic reasoning for lower elementary students; Summer 2014; (\$6,000).
- (NSF DKR12): “Using the Learning Progression Approach to Enhance Students’ Argumentation Practice in the Context of Global Climate Change” in collaboration with Dr. Hui Jin from The Ohio State University; Fall 2013; (\$150,000).

## **POST SECONDARY TEACHING**

### **Texas Christian University (TCU)**

#### *Graduate Courses*

- EDSC 70011: Colloquium in Science Education.
- EDSC 70043: Science and Science Education in a Global Community.

- EDUC 70973: Learning Progressions in Science Education.
- EDSC 70033: Science Inquiry and Nature of Science.
- EDUC 60943: Teaching Apprenticeship.
- EDUC 70790: Advanced Directed Reading.
- EDUC 70960: Research Apprenticeship.

#### *Undergraduate Courses*

- EDEC 30013: Methods for Teaching Elementary Science.
- EDMS/EDSE 40453: Methods of Teaching Middle Science/Secondary Science.
- EDEC 20013: Science Content for Elementary Teachers.

#### **Michigan State University (MSU)**

##### *Undergraduate Courses*

- TE 401: Science Method Course for elementary pre-service teachers.
- TE 804: Science Method Course for elementary interns.

## **STUDENT MENTORSHIP**

### **Ph.D Students**

- Ihsan Ghazal: my role was a dissertation advisor (Graduated May 2024, Accepted a full time lecturer position at Boston University).
  - Won the Basu Award for academic achievement at the NARST (Spring 2024).
  - Won the 3 minute dissertation award at School Science and Mathematics conference.
  - Won the Outstanding Graduate Student Research Award (Spring 2023).
  - Won the NARST scholarship (\$700) for classroom teacher to present her research *twice* (2021 and 2022).  
<https://coe.tcu.edu/news/2022/ihsan-ghazal-wins-prestigious-award.php>
- Savannah Graham: my role was a dissertation advisor (Graduated May 2023, Currently a post-doctoral fellow at the University of Houston)
  - Won the Outstanding Dissertation Award from the College of Education at TCU (2023).
  - Won 3 minute Dissertation Award at the International Consortium of Research in Science and Mathematics Education (ICRSME) (2023).
  - Won the first prize in the Research and Pedagogy Festival at TCU.

- Alex Tolar St. Lewis: my role was a dissertation advisor (Dissertation advisor, Graduated 2022, Currently Coordinator of Undergraduate Research at Augusta University):
  - Won the outstanding Dissertation Award from the College of Education at TCU (2022).
  - Won 3 minute Dissertation Award at the ICRSME (2022).
  - Won the Travel Dissertation Award at AERA (2022).
  - Won the outstanding graduate student Research Award (Spring 2021).
  - Won the first place award for the Research and Pedagogy festival at TCU College of Education (Spring 2021).
- Christelle Fayad: my role was a dissertation advisor: (Dissertation advisor, Expected to graduate in 2026)
  - Won the College of Education Service Award (2024).
  - Won TCU service award for students (2024)
- Yohanis de la Fuente: my role was an academic advisor (Graduated in 2016, I was the academic advisor only)
  - Won first place for the Ph.D category in the Research and Pedagogy festival (2014).

### **Masters Students**

- Molly Marek: my role was an academic advisor (Graduated in 2022)
  - Won the first place for masters students in the Research and Pedagogy Festival award (Spring 2021).
- Ramya Enugu: Masters: Thesis Chair (Graduated 2016):
  - Won NARST scholarship (\$700) for classroom teacher *twice* to present her research in 2017 and 2019.
  - Successfully defended her thesis in April 2016.
  - Elementary school science teacher in Great Hearts, Irving TX (2016-2019).

### **Undergraduate students**

- Steve Hart: My role was a class instructor (Graduated 2014)
  - Won first place for undergraduates in the Research and Pedagogy Festival (2014).

## **PROFESSIONAL LEADERSHIP & SERVICE**

### **National Leadership**

- Co-Chair of NARST International Committee (2022-2024).
- Committee Co-chair for selecting the NSTA worth reading research at NARST. My duties reside in chairing the process of selecting the winning papers from the *Journal of Research in Science Teaching*. (2020).

- Committee Co-Chair for selecting the NSTA worth reading research at NARST. My duties reside in co-chairing the process of selecting the winning papers from the *Journal of Research of Science Teaching*. (2019).
- Official NARST mentor to Ph.D student Asnat Zohar’s presentation & paper (2019).
- NARST Strand 4 co-ordination “Science Teaching in Middle and High School” whereby I assigned reviewers to the proposals, made decisions on accepting/rejecting papers and assigned paper sets (2012-2014).

### **National Service**

- Member of NARST International Committee (2021-2024).
- Member on the NARST Publication Advisory Committee: Scholarship Subcommittee. My duties reside in reviewing and evaluating materials for scholarship applications and weighing in in choosing the scholarship winners (2017- 2020).
- Member of NARST Outstanding Paper Award Committee. My responsibilities included reading, evaluating, and selecting award winners of nominated papers (2011-2014).

### **University Leadership**

- Diversity Advocate for the College of Education at TCU (2021-2024).
  - Recruited & supported the success of students from underrepresented backgrounds (2014-present).
  - Speaker at Race & Reconciliation Talk at TCU (2021).  
<https://www.youtube.com/watch?v=zcYgDzvu4xw&list=PLDPPOGOgoRp5Fphw6tgwrPB1MqzBtieeU&index=23>
  - Reviewed job announcements and the interview questions to make sure they complied with the university Diversity Equity Inclusion (DEI) rules and standards (2021-2023).
  - Met with six Job Candidates to explain DEI at TCU and College of Education (2021-2023).
  - Co-Organized the Green Chair Visit with Dr. Mohammad Khalifa (2023).
  - Organized a cultural event (TCU’s Annual Iftar) to support Muslim Students (2023).
  - Participated in professional training for “Design for belonging” (2023).
  - Participated in professional development workshop learning about LGBTQIA+ (2023).
  - Interviewed by Fort Worth Report to weigh in on the removal of DEI in Texas Public Universities (2023).  
<https://fortworthreport.org/2023/04/07/diversity-offices-dei-statements-would-be-banned-at-texas-universities-under-senate-bill/>
- Reviewing committee member for the faculty handbook (Summer 2023).
- Faculty Senate Secretary at TCU (2020-2025).

- Faculty Senate Executive Committee member at TCU (2020-2025).
- Faculty Senate liaison to TCU's Committee on University Committees (2020-2024).
- Chair of the Committee on University Committees at TCU (2018-2019). My responsibilities include organizing the orientation session for the university committee chairs, work with committee members to select the new committee members and chairs.
- Chair of the International Peer Mentor Program (IPMP). My responsibilities resided in interacting with international students in the College of Education TCU and assigning them American mentors. I also organize monthly meetings to facilitate the international students' transition to the American setting. (2016-2019).
- Co-Chair of Research and Pedagogy fair at TCU: my responsibilities resided in organizing and managing a poster research fair for undergraduate and graduate students (2013 & 2014). *Note that five of the student whom I mentored won the first prizes: 2014(one undergraduate and one doctoral student, 2021(one masters student and one doctoral student), 2023 (one doctoral student) .*

### **University Service**

- Member of the Search Committee for the professor of professional practice educational leadership position at TCU College of Education (2021-2022).
- Member of the search Committee for the tenure track educational leadership position at TCU College of Education (2018-2019).
- Member of the Tenure & Promotion Faculty Committee in TCU's College of Education (2018-present).
- Member of the Graduate Council: My duties reside in revising and voting on changes that happen to the graduate program across the university. (2017-2020).
- Member of the Committee on University Committees at TCU. My duties reside in attending committee meetings and give input when selecting committee members and chairs. (2017-2018).
- Member of the Faculty Senate at TCU (2015-present).
- Member of the Faculty Relation Committee at TCU My responsibilities reside in attending monthly meeting and discussion several issues pertaining to faculty at the university levels, and contribute to designing resolutions to be moved to the faculty senate (2015-2017).



- Member of the Administrative Council at TCU. My responsibilities reside in attending monthly meetings and discussing the university updates with the presenters. (2016-present).
- Member of the Search Committee for the Professor of Professional Practice for Literacy at TCU College of Education (2016-2017).
- Member of TCU Teach Admissions Committee. My responsibilities reside in reading, evaluating and interviewing students who apply to the masters plus certification program. (2017-2019).
- Member of Admission Committee for the science and mathematics masters/Ph.D students at TCU: My responsibilities resided in reading and discussing prospective students in the masters/Ph.D. programs (2013-present).
- Committee member of Steering Committee at Teacher Education department at MSU. My responsibilities included reading, discussing with other committee members and selecting applicants to serve on various MSU departmental committees (2011-2012).
- Committee Member of Graduate Student Advisory Board for Teacher Education at MSU. My responsibilities resided in sharing professional ideas, concerns, and acting as a liaison between graduate students and department chair. (2007-2009).

### **Editorial Leadership**

- Panelist, NSF DRK-12 program. (2022).
- Associate Editor for *Electronic Journal for Research in Science and Mathematics Education* (2019-2025).
- Associate Editor for *Eurasia Journal of Mathematics, Science, and Technology Education*. (2019-2022).
- Lead Guest co-editor for the special issue “Enhancing Scientific Literacy in K-12 Classrooms” in *Eurasia Journal of Mathematics, Science, and Technology Education*. (Published 2019).
- Editorial Board Member for the *Journal of Research in Science Teaching* (2015-2018).
- Editorial Board Member for the *Journal of Education and Learning*. (2012-2015).

### **Editorial Service**

- Reviewer for the Journals:
  - *Educational Assessment*.
  - *Science Education*.
  - *Science and Education*.

- *International Journal of Science and Mathematics Education.*
  - *Instructional Science.*
  - *Journal of Biological Education.*
  - *International Journal of STEM Education.*
  - *International Journal of Environmental and Science Education.*
- Reviewer for the Conferences:
    - *National Association of Research in Science Teaching (NARST).*
    - *International Conference for Learning Sciences (ICLS).*
    - *European Science Education Research Association (ESERA).*

### **Community Leadership**

- Alice Carlson Elementary School. Created and co-taught a unit on protecting the environment for 3<sup>rd</sup> to 5<sup>th</sup> graders during a family engagement program. (Fall 2022).
- TCU & Fort Worth Museum of Science and History, Fort Worth. Supervised an event for 112 first graders from West Park Elementary School to learn about endangered species. (Spring 2019).
- TCU and West Park Elementary, Fort Worth, TX. Led and supervised the Science/Math trail for 112 fourth graders from West Park Elementary School who visited TCU to learn about science and math in an inquiry manner (Fall 2018).  
<https://www.fwisd.org/site/default.aspx?PageType=3&DomainID=4&ModuleInstanceID=1326&ViewID=6446EE88-D30C-497E-9316-3F8874B3E108&RenderLoc=0&FlexDataID=39938&PageID=1>
- West Park Elementary School, Fort Worth, TX. Supervised a Science/Math event in the school where the third graders got exposed to inquiry lessons in the school. (Spring 2018).

### **Community Service**

- Member of the Chairs for Teaching Excellence Committee for Secondary STEM education designed Fort Worth Independent School District. My role involved evaluating, interviewing participants and selecting the winner teacher (Fall 2017).
- Alice Carlson elementary school, Fort Worth, TX. Judge for the elementary science fair (Fall 2015).
- Michigan State University. Discussed *Literacy in Lebanon* with undergraduates as part of their literacy talk (Fall 2010).
- Haslett High School, Michigan and Portland Middle School. Presented about Lebanese culture, youth and science teaching and learning in Lebanon (Spring 2008).

### **Evaluator Service**

- Biology curriculum Evaluation Committee (at Eastwood College). Revised and evaluated the middle and high school Lebanese biology curriculum as part of the self-study developed for purposes of accreditation by Middle State Association and European Council of International Schools. (2002-2003).
- National Curriculum Evaluation Committee member: Revised and implemented reform based rubric to evaluate the Lebanese national biology high school curriculum. Submitted the recommendation report to Lebanese Ministry of Education (Summer of 2002).
- Lebanese National Evaluator for biology National Exams (Brevet & Bacculaureate): Negotiated the coding scheme and graded national high stakes biology exams. (2003-2005).

### **PROFESSIONAL MEMBERSHIPS**

- Member of National Association of Research in Science Teaching (NARST).
- Member of **Phi Beta Delta**, MSU chapter.