

**DEEPIKA MENON**  
**Assistant Professor of Science Education**  
**Department of Teaching, Learning & Teacher Education**  
**University of Nebraska-Lincoln**

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## EDUCATION

- 2015      **Ph.D.** in Curriculum and Instruction-Science Education, Minor in College Teaching, University of Missouri, Columbia, MO.  
*Dissertation:* Development of preservice elementary teachers' science self-efficacy beliefs and its relation to science conceptual understanding. (Dissertation Chair: Dr. Troy D. Sadler).
- 2007-2008      **Graduate Student.** Department of Physics and Astronomy. University of Missouri, Columbia, MO
- 2006-2007      **M.Ed.** in Science Education – Punjab University, Chandigarh, India.  
*Electives:* Educational Psychology, Educational Technology  
*Thesis:* Study of levels of defense mechanisms used by adolescent science and adolescent arts students.
- 2000-2002      **M.Sc.** in Physics – GNDU, Amritsar, Punjab, India  
*Specialization:* Radiation Physics  
*Thesis:* Theory of Luminescence
- 1996-2000      **B.Sc. & B.Ed.** (4-year integrated course) – Regional Institute of Education, Utkal University, Bhubaneswar, India  
*Major:* Physics - Applied Electronics  
*Specialization:* Mathematics and Science (Middle school).

## PROFESSIONAL WORK EXPERIENCE

- 2020 Fall -      *Assistant Professor of Science Education* (Tenure-track), Teaching, Learning & Teacher Education, College of Education and Human Sciences. University of Nebraska-Lincoln, Lincoln, NE
- 2015 Fall-  
 2020 Spring      *Assistant Professor of Science Education* (Tenure-track), Department of Physics, Astronomy and Geosciences. Towson University, Towson, MD
- 2014-2015  
 Spring      *ReSTEM Associate*, The ReSTEM Institute: Reimagining & Researching STEM Education, College of Education, University of Missouri-Columbia, MO

- 2013-2014 *Graduate Assistant, The ReSTEM Institute: Reimagining & Researching STEM Education, College of Education, University of Missouri-Columbia, MO*
- 2008-2012 *Graduate Assistant/Facilitator, The MU Quality Elementary Science Teaching (QUEST) Professional Development Program*
- 2004-2007 *High School Physics Teacher, Shiv Jyoti Public School (SJPS), Jalandhar, India.*

### AWARDS & HONORS

- 2020-2021 Research Development Fellow, Research Development Fellow Program (RDFP), Office of Research and Economic Development (ORED), University of Nebraska-Lincoln.
- 2019 Selected participant for the PERSIST pre-conference workshop, *Association of Science Teacher Education* (2020), San Antonio, TX. (\$750 for travel).
- 2012 Chancellors' Award for Excellence - Graduate Student Leader Award
- 2012 Chancellors' Award for Public Outreach – At Mizzou Adventures in Education Event.
- 2011 The Southwest Bell Graduate Teaching Assistant of the Year Award (\$500 awarded by the University of Missouri, Science Education Center)
- Summer, 2011 Sandra K. Abell Institute for Doctoral Students, *National Association for Research in Science Teaching*, BSCS and Pennsylvania State University
- Spring, 2011 Nominee, Teaching Assistant Choice Awards.
- Fall, 2010 Nominee, Teaching Assistant Choice Awards.

### RESEARCH & SCHOLARSHIP

#### REFEREED JOURNAL PUBLICATIONS (^Graduate Student, \*Undergraduate Student) [Google Scholar Citations Menon](#)

- McNeal, P. M., **Menon, D.**, ^Al Shorman, D. A., & \*Schaefer, P. G. (2023). Drawing as a Tool: Investigating Undergraduate Conceptions of Earth Scientists. *Journal of Geoscience Education*. <https://doi.org/10.1080/10899995.2023.2246346>
- Menon, D.**, Cheng, D., Ngugi, W. R. (2023). Investigating Preservice Secondary Teachers' Understanding and Enactment of the Standards-based Practices during Microteaching. *Journal for STEM Education Research*. <https://doi.org/10.1007/s41979-023-00093-x>
- Menon, D.**, ^Al Shorman, D. A., Cox, D & Thomas, A. (2023). Preservice Elementary

- Teachers' Integrated STEM Teaching Self-efficacy. *Educational Sciences*, 13(5). 1-12. <https://doi.org/10.3390/educsci13050529>
- Smith, C. R., **Menon, D.**, ^Wierzbicki, A., Dauer, J. M. (2023). Exploring STEM Teaching Assistants Self-efficacy and its Relation to Approaches to Teaching. *CBE-Life Sciences Education*, 22(1). 1-11. <https://doi.org/10.1187/cbe.22-06-0115>  
*Impact Factor*: 4.10, [h-5 Index – 74]
- Smith, C. R., **Menon, D.**, ^Wierzbicki, A., Dauer, J. M. (2023). Teaching assistants' responses to COVID-19: Investigating relationships between stress, self-efficacy and approaches to teaching. *Journal of College Science Teaching*. 52(3).
- Menon, D.**, & ^Ngugi, W. R. (2022). Preservice secondary STEM teachers' reflective practice in microteaching: An analysis of journal writing and video-mediated reflections. *Teacher Education Quarterly*, 49(1). 29-52.
- Menon, D.**, & Azam, S. (2021). Preservice Elementary Teachers' Identity Development in Learning to Teach Science: A Multi-site Case Study, *Journal of Science Teacher Education*, 32(5). 558-577. DOI: [10.1080/1046560X.2020.1870810](https://doi.org/10.1080/1046560X.2020.1870810)  
*Impact Factor*: 1.8, [h-5 Index – 48]
- Menon, D.**, & Azam, S. (2021). Investigating preservice teachers' science teaching self-efficacy: An analysis of reflective practices. *International Journal of Science and Mathematics Education*, 19. 1587-1607. <https://doi.org/10.1007/s10763-020-10131-4>  
*Impact Factor*: 2.295, [h-5 Index – 45]
- Azam, S., & **Menon, D.** (2021). Influence of science experiences on preservice elementary teachers' beliefs. *Electronic Journal for Research in Science & Mathematics Education*, 25(1). 20-45. <https://ejrsme.icrsme.com/article/view/20199>
- Menon, D.**, Chandrasekhar, M, Kosztin, D., \*Salas, Z., & \*Mellendick, A. (2020). Learning science with mobile technologies: Opportunities for enhancing preservice elementary teachers' science conceptual understanding. *Journal of College Science Teaching*, 50(1).
- Menon, D.** (2020). Influence of the sources of science teaching self-efficacy in preservice elementary teachers' identity development. *Journal of Science Teacher Education*, 31(4). 460-481. DOI: [10.1080/1046560X.2020.1718863](https://doi.org/10.1080/1046560X.2020.1718863)  
*Impact Factor*: 1.8, [h-5 Index – 48]
- Menon, D.**, Chandrasekhar, M., Kosztin, D., & Steinhoff, D. (2020) Impact of mobile technology-based physics curriculum on preservice elementary teachers' technology self-efficacy. *Science Education*, 104(2), 252-289. <https://doi.org/10.1002/sce.21554>  
*Impact Factor*: 6.0, [h-5 Index – 121]
- Menon, D.**, & Devadas, M. S. (2019). Engaging preservice secondary science teachers in a NGSS-based energy lesson: A Nanoscience context. *Journal of Chemical Education*,

96(3), 528-534. <https://doi.org/10.1021/acs.jchemed.8b00169>

*Impact Factor:* 3.208

- Menon, D., & Sadler, T. D.** (2018). Sources of science self-efficacy beliefs for preservice elementary teachers in science content courses. *International Journal of Science and Mathematics Education, 16*(5), 835-855. <https://rdcu.be/b6ihW>  
*Impact Factor:* 2.281
- Menon, D., Chandrasekhar, M., Kosztin, D., & Steinhoff, D.** (2017). Examining Preservice Elementary Teachers' Technology Self-Efficacy: Impact of Mobile Technology-Based Physics Curriculum. *Contemporary Issues in Technology and Teacher Education, 17*(3), 336-359.
- Cite, S., Lee, E. J., **Menon, D., & Hanuscin, D.** (2017). Learning from 'rookie mistakes': Critical incidents in developing PCK for teaching teachers. *Studying Teacher Education, 13*(3), 275-293.
- Menon, D., & Sadler, T. D.** (2016). Preservice elementary teachers' science self-efficacy beliefs and science content knowledge. *Journal of Science Teacher Education, 27*(6), 649-673. <https://doi.org/10.1007/s10972-016-9479-y>  
*Impact Factor:* 1.8, [h-5 Index – 48]
- Menon, D., Blake, S.\*, & Mattingly, C\*.** (2016). Understanding energy: Primary students investigate the effects of energy. *Science and Children, 54*(4), 54-58.
- Menon, D., & Lankford, D. M.** (2016). Making sense of sound: Fourth graders use physical and technological models to illustrate and explain the nature and characteristics of sound. *Science and Children, 54*(4), 41-47.
- Sadler, T. D., Romine, W. L., **Menon, D., Ferdig, R. E., & Annetta, L.** (2015). Learning biology through innovative curricula: A comparison of game- and nongame-based approaches. *Science Education, 99*(4), 696-720. <https://doi.org/10.1002/sce.21171>  
*Impact Factor:* 4.593
- Siegel, M. A., **Menon, D., Sinha, S., Promyod, N., Wissehr, C., & Halverson, K. L.** (2014). Equitable written assessments for English language learners: How scaffolding helps. *Journal of Science Teacher Education, 25*(6), 681-708.
- Menon, D., & Sinha, S.** (2013). Professional journals as a source of information about teaching nature of science (NOS): An examination of articles published in *JCST*, 1996-2012. *Electronic Journal of Science Education, 17*(3), 1-19.
- Hanuscin, D., van Garderen, D., **Menon, D., Davis, J., Lee, E. J., & Smith, S. R.** (2011). Teacher? Learner? Both! *Science and Children, 48*(6), 55-59.

**BOOK CHAPTER** (^Graduate Student, \*Undergraduate Student)

**Menon, D.**, ^Bauer, A. S.; ^Hasseler, E. V., ^Johnson, K. L., Thomas, A., Martinez, R., & Trainin, G. (In press). *Greater Than the Sum of Its Parts: Centering Science within Elementary STEM Education*. Palgrave Macmillan. In (Eds) Al-Balushi, S., Martin-Hansen, L. & Song, Y. Palgrave Studies on Leadership and Learning in Teacher Education.

Hanuscin, D., van Garderen, D., **Menon, D.**, Davis, J., Lee, E. J., & Smith, S. R. (2013). Quality Elementary Science Teaching: A Professional Development QUEST. In R. A. Yager (Ed.) *Exemplary science: Best practices in professional development*. NSTA Press: Arlington, VA.

#### **MANUSCRIPTS UNDER REVIEW** (^Graduate Student, \*Undergraduate Student)

**Menon, D.**, Wieselmann, J., Haines, S., & Asim, S. (Under first-round review). A Meta-Synthesis of the Literature on Science & Engineering Teaching Self-Efficacy: Current Gaps and Future Research Directions. Submitted to the *Journal of Science Teacher Education*.

#### **MANUSCRIPTS UNDER PREPARATION**

**Menon, D.**, Wieselmann, J., Haines, S., & Asim, S., Koch, A., ^Cox, D. (In Progress). *Elementary Preservice Teachers' Integrated STEM Teaching Self-Efficacy: Contributing Factors Within STEM Education Courses*. To be submitted to a peer-reviewed journal in STEM education.

**Menon, D.** (In Progress). *Investigating Active Learning and Inclusive Practices in Introductory College Science Courses*. To be submitted to a peer-reviewed journal in science education.

**Menon, D.**, & McNeal, P. M. (In Progress). Investigating Undergraduate Conceptions of Earth Scientists using Drawings. To be submitted to a peer-reviewed practitioner journal.

#### **GRANT PROJECTS**

**Funded (Total: External \$1,235,327 (as PI or Co-PI); Internal \$86,922.20)**

##### **External**

*Collaborative Research: Research on Integrated STEM Self-Efficacy: A Study of Elementary Preservice Teachers including Noyce Scholars*. (2022-2027). Funding Agency: National Science Foundation, NOYCE Track 4. \$481,065. **D. Menon (PI)**.

*Enhancing Early Childhood Educators' Reflective Practice and Content Knowledge to Increase Children's Capacity for Science Talk*. (2023-2026). Funding Agency: National Science Foundation (NSF) DRK-12. \$449,918. **D. Menon (Co-PI)**; Hong, S. Y. (PI).

*Development and Research on Smartphone Simulations in Introductory College Astronomy.* (2022-2025). Funding Agency: National Science Foundation, DUE. \$299,344. **D. Menon (Co-PI)**; K. M. Lee (PI).

*Meeting the Needs of Diverse Students through a Next Generation of Science Teacher-Leadership in Nebraska.* (2021-2027). Funding Agency: National Science Foundation, NOYCE Track 3. \$2,916,074.0. **D. Menon (Senior Personnel)**; B. Lewis (PI).

*STEM Model-Eliciting Activities for Middle School Students.* (July 1, 2020 – June 30, 2021). Funding Agency: Mathematics Association of America's Dolciani Mathematics Enrichment Grants. \$5000. D. Cheng (PI); K. Corum (Co-PI); K. Frank (Co-PI); M. Kara (Co-PI); R. M. Krach (Co-PI); **D. Menon (Co-PI)**; S. Spitzer (Co-PI).

### Internal

*Examining the Impact of Science Content Courses on Preservice Elementary Teachers' Self-Efficacy Beliefs.* (January 1, 2021 – December 31, 2022). Funding Agency: Research Council Faculty Seed Grants. University of Nebraska-Lincoln. \$10,000. **D. Menon (PI)**.

*Engaging TU Students in Interdisciplinary STEM Research and Practice: The Analysis of the Energy Project* (2019-2020). Funding Agency: Jess & Mildred Fisher College of Science and Mathematics General Endowment Funds, Towson University. \$16,391.0. **D. Menon (PI)**; M. S. Devadas (Co-PI).

*Scale-up of the Energy Project: Engaging TU Students in STEM Research and Practice* (2018-2019). Funding Agency: Jess & Mildred Fisher College of Science and Mathematics General Endowment Funds, Towson University. \$14,164. **D. Menon (PI)**; M. S. Devadas (Co-PI).

*3-Dimensional Energy Lessons: Preparing STEM Teachers* (2017-2018). Jess & Mildred Fisher College of Science and Mathematics General Endowment Funds. Towson University. \$18,891.20. **D. Menon (PI)**; M. S. Devadas (Co-PI).

*3-Dimensional Approach to Energy Lessons: Preparing STEM Teachers at TU* (2016-2017). Funding Agency: Faculty Development Research Committee (FDRC), Towson University. \$6,000. **D. Menon (PI)**; M. S. Devadas & D. S. Cheng (Co-PIs).

### Unfunded

*STEMentors: eMentors Advance Rural Informal STEM Programming.* (2022-2026). Funding Agency: National Science Foundation (NSF), AISL. \$1,527,635. **D. Menon (Co-PI)**; S. Frerichs (PI).

*Coaching science - Elementary.* (2022-2026). Funding Agency: National Science Foundation (NSF) DRK-12. \$1,499,814. **D. Menon (Co-PI)**; Nugent, G. (PI).

*Enhancing early childhood educators' reflective practice and content knowledge to increase children's capacity for science talk.* (2022-2026). Funding Agency: National Science Foundation (NSF) DRK-12. \$449,865. **D. Menon (Co-PI)**; Hong, S. Y. (PI).

*STEMentors: eMentors Advance Rural Informal STEM Programming.* (2021-2025). Funding Agency: National Science Foundation, AISL. \$1,239,093. **D. Menon (Co-PI)**; S. Frerichs (PI).

*Research on Efficacy and Effectiveness in Elementary Science and Engineering Teaching: A Study of Noyce Scholars and Pre-Service Teachers.* (2021–2026) Funding Agency: National Science Foundation (NSF) NOYCE Track 4. \$393,163. **D. Menon (PI)**.

*Science Teacher Identities of Preservice Elementary and Early Childhood Teachers: A Cross-cultural Analysis.* (2019). Funding Agency: Faculty Development Research Committee (FDRC), Towson University. \$6,000. **D. Menon (PI)**.

*Pathways and Processes to Developing STEM Teacher Identity.* (2019-2022). Funding Agency: Fisher Endowed Chair Application 2019. **D. Menon (PI)**.

*Investigating Science Teacher Identities of Prospective Elementary Teachers: A Cross-cultural Analysis* (2019-2021). Funding Agency: Spencer Foundation Research Grant. \$49,896.59. **D. Menon (PI)**; T. Morton (Co-PI).

*Investigating Science Teacher Identities of Prospective Elementary Teachers* (2019-2020). Funding Agency: The American Association of University Women Research Publication Grant in Engineering, Medicine, and Science, AAUW. \$34,720. **D. Menon (PI)**.

*Scale-up of the Energy Project: Engaging TU STEM Students in Research and Practice* (2018-2019). Funding Agency: Faculty Development Research Committee (FDRC), Towson University. \$6,000. **D. Menon (PI)**; M. S. Devadas (Co-PI).

*Investigating Science Teacher Identities of Prospective Elementary Teachers: A Cross-cultural Analysis.* (2018-2020). Funding Agency: Spencer Foundation Research Grant. \$49,858.04. **D. Menon (PI)**; Saiqa Azam (Co-PI).

*IGE: Cross-Disciplinary Training in Chemistry, Physics and Astronomy - A Triple Helix Model (University-Government-Industry) for Enhanced STEM Workforce Marketability.* (FY 2018-2021). Funding Agency: National Science Foundation. \$489,777  
M. S. Devadas (PI); E. Hondrogiannis (Co-PI); **D. Menon (Co-PI)**; R. Kolagani (Co-PI); V. Smolyaninova (Co-PI).

*Prospective STEM Teachers' Understanding of the Three-dimensional Learning: Scale-up of the Energy Project* (2017-2018). Funding Agency: Jess & Mildred Fisher College of Science and Mathematics General Endowment Funds, Towson University. \$22,415. **D. Menon (PI)**; M. S. Devadas (Co-PI).

*Preparing STEM Teachers at TU: A 3-Dimensional Approach to Energy Lessons* (2017).  
Funding Agency: Towson Academy of Scholars, Towson University. \$1000. **D. Menon (PI)**.

*Investigating Prospective TU Elementary Teachers' Science Teaching Identities and Self-Efficacy* (2016-2017). Funding Agency: Towson Academy of Scholars, Towson University. \$1000. **D. Menon (PI)**.

*Examining High School Student Interest in Science after Participation in an Energy Workshop.* (2016-2017). Funding Agency: American Institute of Indian Studies. M. S. Devadas (PI); **D. Menon (Co-PI)**.

## REFEREED CONFERENCE PAPER PRESENTATIONS

(^Graduate Student, \*Undergraduate Student)

### (INTERNATIONAL/NATIONAL)

Haines, S., Wieselmann, J., **Menon, D.**, & Asim, S. (2024, April). *Inservice Elementary Science & Engineering Teaching Self-Efficacy: Trends & Gaps in the Literature*. Proposal submitted for research presentation at the American Educational Research Association International Meeting. Philadelphia, PA.

**Menon, D.** (2024, March). *Challenges and Accomplishments in Active Learning Implementation: Case Studies from Undergraduate STEM Classrooms*. Proposal submitted for research presentation at the National Association for Research in Science Teaching International Conference. Denver, CO.

Wieselmann, J., **Menon, D.**, Haines, S., Asim, S., Koch, A., & Cox, D. (2024, March). *Development of integrated STEM teaching self-efficacy among elementary preservice teachers*. Proposal submitted for research presentation at the National Association for Research in Science Teaching International Conference. Denver, CO.

Romine, W., **Menon, D.**, McNeal, P. M. (2024, March). *What is a Geoscientist? Uncovering Conceptual Profiles in Undergraduate Student Drawings*. Proposal submitted for research presentation at the National Association for Research in Science Teaching International Conference. Denver, CO.

Haines, S., **Menon, D.**, Wieselmann, J., & Asim, S. (2024, January). *Elementary Teachers' Science Teaching Self Efficacy: Trends in the Literature*. Proposal accepted for research presentation at the Association for Science Teacher Education International Meeting. New Orleans, LA.

Asim, S., **Menon, D.**, Wieselmann, J., & Haines, S. (2023, October). *STEM Online Professional Development: Key Features for Success and Sustainability*. Presentation at the School Science and Mathematics Association annual convention. Colorado Springs, CO



- Asim, S., **Menon, D.**, Wieselmann, J., & Haines, S. (2023, October). *International STEM career role models: Curated children's books at the forefront of K-6 STEM lessons*. National Science Teachers Association National Conference. Kansas City, MO
- Haines, S., Wieselmann, J., **Menon, D.**, & Asims, S. (2023, September). *What the literature is telling us about elementary preservice & inservice science teaching self-efficacy*. Research presentation at the Mid-Atlantic Association for Science Teacher Education. Kingsport, TN.
- \*Schaefer, P. G., McNeal, P. M., **Menon, D.**, ^Al Shorman, D. A. (2023). *Drawing as a tool: Investigating undergraduate conceptions of earth scientists*. Abstract accepted for research presentation at the Geological Society of America Connects 2023 annual meeting. Pittsburgh, PA.
- Cheng, D., & **Menon, D.** (2023, June). *Enactment of Science and Engineering Practices by Perspectives in Science and Mathematics Students in Micro-teaching Settings*. Research poster presented at the annual meeting of the UTeach STEM Educators Conference. Austin, TX.
- Trainin, G., ^Johnson, K. L., **Menon, D.**, Thomas, A. (2023, June). *Preparing New Teachers for Equity in Teaching about and through Technology*. Paper presented at the ISTE Live 23 conference. Philadelphia, PA.
- Menon, D.**, Wieselmann, J., Asim, S., & Haines, S. (2023, April). *Science and Engineering Teaching Self-Efficacy: A Systematic Literature Review*. Paper presented at the presentation at the annual meeting of the American Educational Research Association. Chicago, IL.
- Menon, D.**, & ^Al Shorman, D. A. (2023, April). *Investigating preservice elementary teachers' integrated STEM teaching self-efficacy*. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Chicago, IL.
- Wieselmann, J., **Menon, D.**, Asim, S., & Haines, S. (2023, April). *Inservice Elementary Teachers' Science and Engineering Teaching Self-Efficacy: A Synthesis of the Literature*. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Chicago, IL.
- ^Al Shorman, D. A., **Menon, D.**, McNeal, P. M., & \*Schaefer, P. G. (2023, April). *Draw an Earth Scientist: Investigating Undergraduate Students' Conceptions of Earth Scientists*. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Chicago, IL.
- Khajeloo, M., **Menon, D.**, ^Al Shorman, D. A. (2023, April). *Investigating Active Learning and Inclusive Practices in Introductory College Science Courses*. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Chicago, IL.

- Haines, S., **Menon, D.**, Wieselmann, J., & Asim, S. (2023, January). *Teaching the E in STEM: A Synthesis of the Engineering Teaching Self-Efficacy Literature*. Paper presented at the annual meeting of the Association for Science Teacher Education. Salt Lake City, UT.
- Menon, D.**, & Ngugi, W. R. (2022, March). *Investigating Preservice Secondary STEM teachers' Reflective Practice in a Microteaching Context*. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Vancouver, BC.
- Wieselmann, J., **Menon, D.**, Haines, S., & Asim, S. (2022, March). *Elementary Teacher Self-Efficacy in Science and Engineering Instruction: Trends in the Literature and a Framework for Future Research*. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Vancouver, BC.
- Haines, S., **Menon, D.**, Wieselmann, J., & Asim, S. (2022, January). *A Research-Based Framework for Teacher Self-Efficacy and Connections to Effectiveness and Retention*. Paper presented at the annual meeting of the Association for Science Teacher Education. Greenville, SC.
- McNeal, P. M., & **Menon, D.** (2021, July). *Draw an Earth Scientist: Investigating the Evolution of Conceptions in Preservice Teachers*. Research presentation at the 2021 virtual Earth Educators' Rendezvous.
- Azam, S., & **Menon, D.** (2021, June). *Learning to Teach Science: Development of Two Preservice Elementary Teachers' Science Teaching Identity*. Research presentation at the annual virtual meeting of the Canadian Society for the Study of Education (CSSE).
- Menon, D.**, & Ngugi, W. R. (2021, April). *Reflective Practice in Microteaching: An Analysis of Preservice Secondary STEM Teachers' Video-based Reflections*. Paper presented at the 2021 annual virtual meeting of the National Association for Research in Science Teaching (NARST).
- Haines, S., **Menon, D.**, Wieselmann, J., & Asim, S. (2021, April). *Researching teacher self-efficacy: Linking self-Efficacy to teacher effectiveness, persistence and retention*. Poster presentation at the 2021 annual virtual meeting of the National Association for Research in Science Teaching (NARST).
- Haines, S., **Menon, D.**, Wieselmann, J., & Asim, S. (2021, April). *Teacher effectiveness, persistence and retention: Links to self-Efficacy*. Round table session presentation at the 2021 annual virtual meeting of the American Educational Research Association (AERA).
- Jackson, J., **Menon, D.**, & Overduin, J. (2020, July). *Superhero physics as a teaching tool in introductory physics*. Poster presentation at the annual virtual meeting of the 2020 American Association of Science Teachers (AAPT).
- \*Shaw, K., Overduin, J., **Menon, D.**, & Lowing, T. (2020, April). *Steam power as a teaching tool in introductory physics*. Presentation at the American Physical Society April virtual

meeting (virtual conference due to COVID-19). Washington, D.C.

Azam, S., & **Menon, D.** (2020, March). *Pre-service elementary teachers' science teaching beliefs: Influence of science learning and teaching experiences*. Paper accepted for the annual meeting of the National Association for Research in Science Teaching. Portland, OR. (Conference cancelled due to COVID-19).

**Menon, D.**, Azam, S. (2020, March). *Pre-service elementary teachers' identity development in learning to teach science: A multi-site case study*. Paper accepted for the annual meeting of the National Association for Research in Science Teaching. Portland, OR. (Conference cancelled due to COVID-19).

**Menon, D.**, Azam, S. (2020, January). *Learning to teach science: Development of two preservice teachers' science teaching identity*. Paper presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX.

Azam, S., & **Menon, D.** (2020, January). *Preservice elementary teachers' science teaching beliefs: Influence of science learning and teaching experiences*. Paper presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX.

^Ngugi, W. R., \*Mangano, J., & **Menon, D.** (2020, January). *Preservice secondary science teachers' reflective practice on a peer-teaching experience*. Paper accepted to present at the annual meeting of the Association for Science Teacher Education. San Antonio, TX.

\*Mangano, J., & **Menon, D.** (2020, January). *Using reflective analysis to explore preservice elementary teachers' science teaching beliefs*. Paper accepted to present at the annual meeting of the Association for Science Teacher Education. San Antonio, TX.

Lowing, T (presenter)., Overduin, J., & **Menon, D.** (2019, November). *Steam Power as a Teaching Tool in Physics and Science Education*. Poster presentation at the PhysCon 2019: The Quadrennial Physics Congress, Providence, RI.

**Menon, D.**, & Azam, S. (2019, April). *Investigating Preservice Elementary Teachers' Science Teacher Identity and Self-efficacy*. Paper presented at annual meeting of the National Association for Research on Science Teaching. Baltimore, MD.

Chandrasekhar, M., **Menon, D.**, Kosztin, D., & Steinhoff, D. (2019, April). *Investigating Preservice Elementary Teachers' Technology Self-efficacy: Affordances of a Mobile Technology-based Curriculum*. Paper presented at annual meeting of the National Association for Research on Science Teaching. Baltimore, MD.

Azam, S. & **Menon, D.** (2019, April). *Investigating preservice elementary teachers' science teacher identity using science autobiographies and reflections*. Poster presented at the annual meeting of the American Educational Research Association (AERA). Toronto, Canada.

**Menon, D.**, & Azam, S. (2019, January). *Investigating preservice elementary teachers' science*

*teacher identity and self-efficacy*. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Savannah, GA.

Azam, S., & **Menon, D.** (2018, May). *Investigating elementary preservice teachers' development of science teacher identity: The cases from Canada and USA*. Paper presented at the Canadian Society for the Study of Education (CSSE). Regina, SK, Canada.

**Menon, D.** (2018, April). *Role of self-efficacy in preservice science teacher identity: The influence of field-experiences*. Paper presented at annual meeting of the National Association for Research on Science Teaching. Atlanta, GA.

Chandrasekhar, M., **Menon, D.**, \*Conway, M., Kosztin, D., & Steinhoff, D. (2018, April). *Effects on an iPad-based curriculum: Investigating preservice elementary teachers' science conceptual understanding and technology self-efficacy*. Paper presented at annual meeting of the National Association for Research on Science Teaching. Atlanta, GA.

Devadas, M. S.; **Menon, D.** (2018, March). *A 3-D nanoscience lesson based on NGSS Standards implemented at Towson University*. Presentation at the 255th American Chemical Society national meeting & exposition. New Orleans, LA. (Talk)

Devadas, M. S.; **Menon, D.** (2018, March). *A 3-D nanoscience lesson based on NGSS Standards implemented at Towson University*. Poster presentation at the 255th American Chemical Society national meeting & exposition. New Orleans, LA. (Sci-Mix session).

**Menon, D.**, \*Conway, M., Chandrasekhar, M., & Kosztin, D. (2018, January). *Prospective teachers' science conceptual understanding and technology self-efficacy: Affordances of an iPad-based physics curriculum*. Paper presented at the annual meeting of the Association for Science Teacher Education, Baltimore, MD.

**Menon, D.**, & Devadas, M. S. (2017, September). *Prospective teachers' understanding of the three-dimensional learning in a science lesson*. Presentation at the Mid-Atlantic Association of Science Teacher Education, Prestonsburg, KY.

**Menon, D.**, Chandrasekhar, M., Kosztin, D., & Steinhoff, D. (2017, July). *Impact of an iPad-based Physics Curriculum on Physics Teacher Preparation*. Presentation at the American Association of Physics Teachers. Summer Meeting, Cincinnati, OH.

**Menon, D.**, & \*Conway, M. (2017, July). *Affordances of an iPad-based Physics Curriculum: Prospective Teachers' Physics Conceptual Understanding and Technology Self-efficacy*. Presentation at the Physics Education Research Conference. Cincinnati, OH.

\*Conway, M., **Menon, D.**, Chandrasekhar, M., & Kosztin, D. (2017, July). *The Effect of an iPad-based Physics Curriculum on Preservice Teachers' Content Knowledge and Technology Self-efficacy*. Poster presentation at the American Association of Physics Teachers Summer Meeting. Cincinnati, OH.

\*Taylor, M., \*Diaz, R., **Menon, D.**, & Devadas, M. S. (2017, April). *Prospective teachers' understanding of the three-dimensional learning in a science lesson*. Poster presented at the Annual UTeach Conference, Austin, TX. (*Note*: this research poster was presented in a competitive category).

Chandrasekhar, M., **Menon, D.**, Kosztin, D., & Steinhoff, D. (2017, January). *Examining preservice teachers' technology self-efficacy: Impact of mobile technology-based physics curriculum*. Paper presented at the annual meeting of Association for Science Teacher Education, Des Moines, IA. \* *This paper was on the final selection list for the National Technology Leadership Initiative (NTLI) Award.*

Chandrasekhar, M., **Menon, D.**, Kosztin, D., & Steinhoff, D. (2016, July). *Using technology to increase student learning and teacher confidence*. Presentation at the American Association of Physics Teachers. Summer Meeting, Sacramento, CA.

**Menon, D.**, & Sadler, T. D. (2016, April). *Changes in preservice elementary teachers' science self-efficacy beliefs and its relation to science conceptual understandings in a science content course*. Paper presented at annual meeting of the National Association for Research on Science Teaching. Baltimore, MD.

Chandrasekhar, M., **Menon, D.**, Kosztin, D., & Steinhoff, D. (2016, April). *Impact of mobile technology based physics curriculum on preservice elementary teachers' technology self-efficacy*. Paper presented at annual meeting of the National Association for Research on Science Teaching. Baltimore, MD.

Chandrasekhar, M., **Menon, D.**, Kosztin, D., & Steinhoff, D. (2016, January) *Use of a curriculum app in teaching and learning*. Presentation at the American Association of Physics Teachers. Winter Meeting, New Orleans, LA.

**Menon, D.**, & Sadler, T. D. (2015, July). *Development of preservice elementary teachers' science self-efficacy beliefs and its relation to science conceptual understanding*. Presentation at American Association of Physics Teachers. Summer Meeting, College Park, MD.

Chandrasekhar, M., **Menon, D.**, Sadler, T. D., Kosztin, D., Hill, S., & Steinhoff, D. (2015, July). *Examining the affordances of a mobile-based physics curriculum for teaching and learning*. Presentation at the American Association of Physics Teachers. Summer Meeting, College Park, MD.

Sadler, T. D. Friedrichsen, P., Graham, K., Foulk, J., Tang, N., & **Menon, D.** (2015, April). *Socio-scientific issue based education for three-dimensional science learning: derivation of an instructional model*. Paper presented at annual meeting of the National Association for Research on Science Teaching. Chicago, IL.

**Menon, D.**, & Sadler, T. D. (2014, April). *Identifying the sources of self-efficacy in a science*

*content course for preservice elementary teachers.* Paper presented at annual meeting of the National Association for Research on Science Teaching. Pittsburgh, PA.

- Sadler, T. D., Romine, W. L., **Menon, D.**, Annetta, L., & Klosterman, M. L. (2014, April). *Impacts of gaming, teachers, and student interest on science learning associated with innovative biotechnology curricula.* Paper presented at annual meeting of the National Association for Research on Science Teaching. Pittsburgh, PA.
- Menon, D.** (2012, March). *Developing science faculty knowledge for teaching: Identifying gaps through critical review of the literature.* Paper presented at annual meeting of the National Association for Research on Science Teaching. Indianapolis, IN.
- Menon, D.**, Sinha, S., & Hanuscin, D. (2012, January). *Professional journals as a source of information about teaching NOS: An examination of articles published in Journal of College Science Teaching, 1996-2010.* Paper presented at the annual meeting of the Association for Science Teacher Education. Clearwater, FL.
- Menon, D.**, Hanuscin, D., & Baker, E. A. (2011, April). *From Professional Development to the Classroom: A Case Study of a 3<sup>rd</sup> Grade Teacher's Implementation of the Learning Cycle.* Paper presented at annual meeting of the National Association for Research on Science Teaching. Orlando, FL.
- Sinha, S., Siegel, M., **Menon, D.**, Promyod, N., Wissehr, C. F., & Halverson, K. (2011, April). *Equitable Written Science Assessments for English Language Learners: How Scaffolding Helps.* Poster presented at annual meeting of the National Association for Research on Science Teaching. Orlando, FL.
- Hanuscin, D., **Menon D.**, Lee, E. J., & Cite, S. (2011, January). *Developing PCK for teaching teachers through a mentored internship in teacher professional development.* Session presented at The Association for Science Teacher Education, International conference, Minneapolis, MN.
- Menon, D.**, Miskowiec, A., Taub, H., Wexler, C., & Hanuscin, D. (2011, January). *New Learning Strategies in the Instructional Lab for an Algebra-based Introductory Physics Course.* Session presented at *American Association of Physics Teachers.* Winter Meeting, Jacksonville, FL, Bull. Am. Phys. Soc.
- Menon, D.**, Hanuscin, D., & van Garderen, D. (2010, July). *QUEST: Quality Elementary Science Teaching.* Contributed poster at the 2010 Physics Education Research Conference. Portland, OR.
- Menon, D.**, Witzig, S., & Roberts, T. (2010, March). *Developing PCK for NOS: Making Instruction Explicit.* Paper presented at the annual meeting of the National Association for Research on Science Teaching.

## REGIONAL CONFERENCE PRESENTATIONS

(^Graduate Student, \*Undergraduate Student Collaborator)

\*Schaefer, P. G., McNeal, P. M., & **Menon, D.** & ^Al Shorman, D. A. (2022, March). *Measuring Student Conceptions of Earth Scientists as Integral to Understanding the Nature of Science: The Draw an Earth Scientist Test*. Research poster presented at the 57th Annual Meeting for Northeastern Section of Geological Society of America (GSA).

Haines, S., **Menon, D.**, Wieselmann, J., & Asim, S. (2021, September). *A Framework for Research on Science and Engineering Teaching Self Efficacy in Relation to Effectiveness and Retention*. Research presentation at the Mid-Atlantic Association of Science Teacher Education, Blowing Rock, NC.

^Ngugi, W. R., \*Mangano, J., & **Menon, D.** (2018, September). *Preservice secondary science teachers' reflective practice on a peer-teaching experience*. Presentation at the Regional Mid-Atlantic Association for Science Teacher Education. Harrisonburg, VA.

^Buettner, A., & **Menon, D.** (2018, September). *Sources of self-efficacy to support preservice teachers' science teacher identity*. Poster presentation at the Regional Mid-Atlantic Association for Science Teacher Education. Harrisonburg, VA.

\*Mangano, J., & **Menon, D.** (2018, September). Analysis of preservice elementary teachers' drawings to investigate science teacher beliefs. Poster presentation at the Regional Mid-Atlantic Association for Science Teacher Education. Harrisonburg, VA.

\*Conway, M., **Menon, D.**, Chandrashekhar, M., & Kosztin, D. (2017, September). Prospective teachers' science conceptual understanding and technology self-efficacy: Affordances of an iPad-based physics curriculum. Poster presented at the Regional Mid-Atlantic Association of Science Teacher Education, Prestonsburg, KY.

\*Da Silva, L. K., **Menon, D.**, & Devadas, M. S. (2017, September). Development of prospective science teachers' confidence to teach NGSS-based science lesson. Poster presented at the Regional Mid-Atlantic Association of Science Teacher Education. Prestonsburg, KY.

\*Buettner, A., & **Menon, D.** (2017, September). Development of prospective elementary teachers' identities to teach science. Poster presented at the Regional Mid-Atlantic Association of Science Teacher Education, Prestonsburg, KY.

Chandrasekhar, M., **Menon, D.**, & Kosztin, D. (2016, October). *The impact of Mobile Technologies in a preservice classroom*. Presentation at the Minneapolis Area Conference, National Science Teacher Association, Minneapolis, MN.

Chandrasekhar, M., **Menon, D.**, Kosztin, D., & Steinhoff, D. (2016, April). *Use of a curriculum app in teaching and learning*. Presentation at the Missouri Academy of Science, Jefferson City, MO.

**Menon, D.**, & Sadler, T. D. (2015, October). *Preservice Elementary Teachers' Science Self-Efficacy Beliefs and its Relation to Science Conceptual Understanding*. Presentation at

the Regional Mid-Atlantic Association for Science Teacher Education. Lore City, OH.

**Menon, D.** (2014, March). *Identifying the sources of self-efficacy in a science content course for preservice elementary teachers*. Presentation at 31<sup>st</sup> Annual Research & Creative Activities Forum. Columbia, MO.

**Menon, D.** (2013, November). *Barriers to developing physics faculty knowledge for teaching: Identifying gaps through critical review of the literature*. Presentation at the Annual Fall meeting of American Physical Society Prairie Section. Columbia, MO.

McCune, M., **Menon, D.**, Tarwater, K., & Owens, C. (2013, September). *The nuts and bolts of running a graduate student-led science outreach program*. Poster presented at the American Society for Biochemistry and Molecular Biology Outreach and Science Communication Career Symposium. Columbia, MO.

van Garderen, D., Hanuscin, D., **Menon, D.**, Hager, T., Smith, R., Davis, J., Lee, E. J., & Kohn, P. (2010, January). *Science for ALL: Designing instruction for diverse learners*. Annual conference of the University of Missouri Student Council for Exceptional Children: Columbia, MO.

Hanuscin, D., van Garderen, D., & **Menon, D.** (2009, October). *In QUEST of Quality Professional Development for K-6 Teachers in Science*. MU Science and Mathematics Research Colloquia.

#### **LOCAL CONFERENCE PRESENTATIONS (NON-REFEREED)**

(^Graduate Student, \*Undergraduate Student Collaborator)

Lee, K., **Menon, D.**, Williamson, M., Davis, M. (2022). How to Engage with Smartphone Simulations in Introductory Astronomy Courses. Poster presentation at the Physics and Astronomy Fall Summit. The University of Nebraska-Lincoln. Lincoln, NE.

\*Mangano, J., & **Menon, D.** (2020, April). Using reflective analysis to explore preservice elementary teachers' science teaching beliefs. Poster presented at the TU Research and Creativity Inquiry Online Forum, Towson University, Towson, MD.

\*Jackson, J., Overduin, J., & **Menon, D.** (2020, April). Superhero Physics as a Teaching Tool in Introductory Physics. Poster presented at the TU Research and Creativity Inquiry Online Forum, Towson University, Towson, MD.

^Ngugi, W. R., \*Mangano, J., & **Menon, D.**, & Devadas, M.S. (2019, April). Preservice science teachers' reflective practice on a peer teaching experience. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.

\*Mangano, J., & **Menon, D.** (2019, April). Using reflective analysis to explore preservice elementary teachers' science teaching beliefs. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.

\*Mangano, J., & **Menon, D.** (2018, April). Investigating changes in elementary preservice teachers' beliefs about science teaching. Poster presented at the TU Research and



Creativity Inquiry Forum, Towson University, Towson, MD.

- \*Buettner, A., & **Menon, D.** (2018, April). Development of prospective elementary teachers' science teaching self-efficacy. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.
- \*Ryan, K., \*Schrader, M., **Menon, D.**, & Devadas, M. S. (2018, April). Use of science and engineering practices in peer-student teaching: A video analysis. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.
- \*Taylor, M., \*Diaz, R., **Menon, D.**, & Devadas, M. S. (2017, April). Prospective teachers' understanding of the three-dimensional learning in a science lesson. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.
- \*Conway, M., **Menon, D.**, Chandrashekhar, M., & Kosztin, D. (2017, April). Prospective teachers' science conceptual understanding and technology self-efficacy: Affordances of an iPad-based physics curriculum. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.
- \*Da Silva, L. K., **Menon, D.**, & Devadas, M. S. (2017, April). Development of prospective science teachers' confidence to teach NGSS-based science lesson. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.
- \*Buettner, A., & **Menon, D.** (2017, April). Development of prospective elementary teachers' identities to teach science. Poster presented at the TU Research and Creativity Inquiry Forum, Towson University, Towson, MD.

## OTHER REPORTS

Wieselmann, J., Menon, D., Haines, S., & Asim, S. (2023, June). Research poster presented on Integrated STEM Efficacy: Year 1 Results. Noyce Summit. Washington, DC.

Dougherty, B. J., Sadler, T., **Menon, D.**, Oxford, J., & Darrough, R. (2014). *Mathematics Program Review: Ladue Public Schools*. Columbia, MO: ReSTEM Institute, University of Missouri, (40 pp.).

## TEACHING and ADVISING

### Graduate Course taught at University of Nebraska-Lincoln (UNL)

Objectives and Methods of Science Teaching: Elementary (TEAC 842A): Spring 2023 (*Science methods course for elementary in-service teachers with embedded STEM integrated components*)

Special Topics in Physics: Vectors (PHYS 892): Summer 2022 (Physics content course for secondary teachers in Masters program)

### Undergraduate Course taught at the University of Nebraska-Lincoln (UNL)

Teaching Science in the Elementary School (TEAC 315): Fall 2020, 2021, 2022, Spring, 2022 (*Science methods course for preservice teachers with embedded STEM integrated components*)

### **Graduate Student Advisement (UNL)**

#### Thesis Advisor

- Derek Cox (Beginning Fall 2021), Ph.D. Student in Science Education

#### Doctoral Committee Member

- Amy Sokoll Bauer, Ph.D. Candidate in Mathematics Education
- Katie Soto, Ph.D. Candidate in Mathematics Education
- Mohit Juneja, Ph.D. Student in Innovative Learning Technologies

#### Graduate Research Assistant

- Deef A. Al Shorman (Fall 2021- Summer 2022), Ph.D. Student in Innovative Learning Technologies

### **Undergraduate/Graduate Courses taught at Towson University (TU)**

Physical Science (PHSC 101): Fall 2015, 2018, 2019; Spring 2016, 2017, 2018, 2019 (*Specialized science content course for preservice elementary teachers*)

Teaching Science in Elementary School (SCIE 376): Fall 2018, 2019. (*Science methods course for preservice elementary teachers with embedded field-based teaching*)

Teaching Science in Early Childhood (SCIE 371): Fall 2015, Spring 2016, 2017, 2018, 2019 (*Science methods course (with a field component) for preservice early childhood teachers*)

### **Graduate/Undergraduate Student Advisement (TU)**

#### Thesis Advisor for Physics Education Master's Program

- Rosetta Ngugi (2019 – 2020), Graduated, Summer 2020.

#### Graduate Research Project Advisor

- Alissa Buettner (2018) (Master of Arts in Teaching Program)

#### Undergraduate Research Project Advisor

- Julie Mangano (Elementary and Special Ed.), 2018 – Spring 2020
- Allison Mellendick (Elementary Ed.), 2019 – Spring 2020
- Zarah Salas (Early Childhood Ed.), 2019 – Spring 2020
- Jasmine Jackson (Physics), 2019 – Spring 2020
- Emily Stricker (Secondary Ed./Chemistry), Spring 2020
- Kaitlyn Shaw (Physics), Spring 2020
- Madeline Taylor (Secondary Ed./Chemistry), 2016-2018
- Katherine Ryan (Mathematics), 2017-2018
- McKayla Schrader (Elementary Ed.), 2017-2018
- Alissa Buettner (Elementary Ed.), 2017-2018
- Matthew Conway (Physics), 2016-2017

- Lyvia Karoline Da Silva (Biology) 2016-2017
- Rosa Diaz (Secondary Ed.) 2016-2017
- Rachel Taylor (Secondary Ed./Mathematics), 2016-2017

### **Undergraduate courses taught at University of Missouri, Columbia (MU)**

*Instructor*, Teaching Science in the Secondary School: Philosophy, History, Scientific Inquiry, Curriculum, Assessment, and Technology III (LTC 4651), Fall 2014.

*Teaching Assistant*, College Physics I (Physics 1210), Department of Physics and Astronomy, Fall 2013, Spring 2013, Fall 2012, Summer 2012, Spring 2010, Spring 2009.

*Co-teaching/Teaching Assistant*, Exploring the principles of Physics (Physics 2330), Department of Physics and Astronomy, Spring 2012.

*Teaching Assistant*, Exploring the principles of Physics (Physics 2330), Department of Physics and Astronomy, Fall 2011, Fall 2009, Fall 2008, Fall 2007.

*Teaching Assistant*, University Physics I (Physics 2750), Department of Physics and Astronomy, Spring 2011, Spring 2008, Spring 2007.

*Invited Guest Lecture*, Teaching Science in Elementary school (TDP 4280), Spring 2010, Spring 2009.

*Substitute instructor* (Section II), Exploring the Principles of Physics (Physics 2330), Department of Physics and Astronomy, Fall 2008

### **K-12 TEACHING EXPERIENCE**

2002-2007 *Teacher* (Physics), High School, Grade 10, 11, 12. Shiv Jyoti Public School (Punjab, India)

2002-2003 *Teacher* (Science), Elementary School, Grades 4-5. Shiv Jyoti Public School (Punjab, India)

### **INVITED TALKS & PRESENTATIONS (\*Undergraduate Student)**

**Menon, D.** (2022, October). *NGSS in action: Zipline engineering*. Workshop at the Nebraska Physics and Astronomy Fall Summit. Fall meeting of American Association of Physics Teachers-Nebraska Section. The University of Nebraska-Lincoln. Lincoln, NE.

**Menon, D.** (2021, October). *Building and Testing Rockets*. Workshop at the Nebraska Physics and Astronomy Fall Summit. The University of Nebraska-Lincoln. Lincoln, NE.

Azam, S., & **Menon, D.** (2021, April). Faculty of Education Virtual Seminar, Memorial University of Newfoundland, St. John's, Canada.

**Menon, D.** (2020, January). *Preservice elementary teachers' science teaching self-efficacy and its relation to identity development*. Faculty Seminar, University of Nebraska-Lincoln, Lincoln, NE.

**Menon, D.** (2020, January). *How science works*. Faculty Seminar, University of Nebraska-Lincoln, Lincoln, NE.

Steinhoff, D., Kosztin, D., Chandrasekhar, M., & **Menon, D.**, (2019, April). *How is preservice teacher learning impacted by a mobile device curriculum? Invited session at the National Science Teacher Association National Conference*. St. Louis, MO.

\*This is a NARST-Sponsored session.

**Menon, D.** (2018, January). Presentation at the Focus-group session on *Faculty Development Research Committee (FDRC)* as a 2017 FDRC awardee. Towson University, Towson, MD.

**Menon, D.**, \*Talbert, R., & \*Diaz, R. (2017, April). *You're in for a shocking surprise!* Session presented under the theme: Inspiring middle school students through STEM education at Towson University (TU STEM Day!) (codirected by Honi Bamberger and Diana Cheng).

**Menon, D.** (2014, December). *Development of preservice elementary teachers' science self-efficacy beliefs and its relation to science conceptual understanding*. Faculty Seminar, Towson University, Towson, MD.

**Menon, D.**, & Walter, E. (2013, May). *Essential features of mixed-methods design*. Mathematics and Science Education Colloquium. University of Missouri.

**Menon, D.**, & Joanne, S. C. (2012, October). *Sharing our wisdom and expertise with burgeoning qualitative researchers*. Invitation to the Qualitative I class panel. University of Missouri.

Hanuscin, D., van Garderen, D., & **Menon, D.** (2009, October). *From idea to implementation: The QUEST for quality professional development*. Mathematics and Science Education Colloquium. University of Missouri.

#### **WORKSHOPS** (\*Undergraduate Student, ^Graduate Student, +High School)

**Menon, D.**, \*Mellendick, A., & \*Salas, Z. *Understanding static electricity using hands-on inquiry and graphical tools*. Workshop proposal accepted at the 2020 National Science Teacher Association. Boston, MA. (*Conference cancelled due to COVID-19*).

**Menon, D.**, & Devadas, M. S. (2019, June). *NGSS in Action: Building a Coherent 3-D Science Lesson*. Workshop conducted at Towson University. Towson, MD. (Student facilitators: \*Mangano, J.; ^Ngugi, W. R., \*Hondrogiannis, N., \*Langford, K., \*Krushinski, L., \*Brown, P., \*Kelani, H., +Turner, W., +Kumcheva, M., \*Fanua, L., +Hondrogiannis, C.).

**Menon, D.**, Devadas, M. S., \*Taylor, M., \*Bechdel, L., & ^Meola, A. (2017, October). *NGSS in Action: Building a Coherent 3-D Science Lesson*. Workshop conducted at the 2017 Baltimore NSTA Area Conference. Baltimore, MD.

Zhang, Y., Yiyao, C., **Menon, D.**, Zhang, J., & Knotts, G. (2013, August). Teaching Assistants Training Workshop. Workshop, Teaching Excellence Committee. Co-sponsored by Department of Physics and Astronomy and the Physics and Astronomy Graduate Student Association (PAGSA). University of Missouri.

Hanuscin, D., van Garderen, D., Hager, T., Arnone, E., **Menon, D.**, Lee, E. J., & Hill, T. (2012, March). *QUEST: Quality Elementary Science Teaching*. Session presented at the annual meeting of the National Science Teachers Association. Indianapolis, IN.

Hanuscin, D., van Garderen, D., **Menon, D.**, Lee, E., Cite, S., Sinha, S., Hill, T., & Presley, M. (2011, October). *Supporting Quality Elementary Science Teaching for ALL*. Session presented at the Science Teachers of Missouri annual conference. Columbia, MO.

Hanuscin, D., van Garderen, D., **Menon D.**, Hager, T., Smith, R., & Lee, E. J. (2010, October). *QUEST: Quality Elementary Science Teaching*. Session presented at the NSTA Area Conference on Science Education. Kansas City, MO.

Hanuscin, D., van Garderen, D., **Menon, D.**, Hager, T., Smith, R., Lee, E. J., & Davis, J. (2009, October). *QUEST: Quality Elementary Science Teaching*. Session presented at the annual meeting of the Science Teachers of Missouri. Jefferson City, MO.

#### **Research Talks (departmental level):**

Kolagani, M., & **Menon, D.** (July, 2019). In-service secondary teachers understanding of NGSS standards and energy-nanoscience concepts. Presentation at summer research student talk, Department of Physics, Astronomy & Geosciences, Towson University. MD.

Special Physics-Education Journal Club talk (2011). Crouch, C. H., Fagen, A. P., Callan, P., & Mazur, E (2004). Classroom demonstrations: Learning tools or entertainment? *American Journal of Physics*, 72 (6), 835-838. Co-sponsored by Physics and Astronomy Graduate Student Association (PAGSA) and the MU Science Education Center (MUSEC).

#### **PROFESSIONAL DEVELOPMENT WORKSHOP (Invited)**

2020 New Faculty Development Workshops. New faculty Development Program, University of Nebraska-Lincoln

2020 CEHS New Faculty Orientation, College of Education, University of Nebraska-Lincoln

2015 New Physics and Astronomy Faculty workshop. By American Association of Physics Teachers (AAPT), American Physical Society (APS), and the American Astronomical Society (Financial support by National Science Foundation). College Park, MD.

- 2015 Climate Literacy Workshop. MADE-CLEAR (Maryland and Delaware Climate Literacy Assessment and Research). (Financial support by National Science Foundation). Towson University, MD.

### **Professional Training and Seminars**

- 2021-2022 CEHS Scholarly Enhancement Research and Development Program, University of Nebraska-Lincoln.
- 2021 NSF CAREER Proposal Development Workshop, Office of Research and Economic Development (ORED), University of Nebraska-Lincoln.
- 2020-2021 Research Development Fellow Program (RDFP), Office of Research and Economic Development (ORED), University of Nebraska-Lincoln.
- 2020 NSF CAREER session, Office of Research and Economic Development (ORED), University of Nebraska-Lincoln.
- 2020 Summer Institute for Online Teaching (SIOT), Center for Transformative Teaching, University of Nebraska-Lincoln
- 2020 VigGrid Video Capture Essentials, University of Nebraska-Lincoln Events
- 2020 Canvas Basics, Center for Transformative Teaching, University of Nebraska-Lincoln
- 2020 DesignPLUS Basics Training, Center for Transformative Teaching, University of Nebraska-Lincoln
- 2020 NSF PERSIST Virtual Summer Workshop, PERSIST Group
- 2015 New Faculty Academic Orientation, Office of Technology Services, Towson University
- 2015 New Faculty Library Orientation, Office of Technology Services, Towson University
- 2015 New Faculty OTS Orientation, Blackboard Breakout Session (WedEx Session), Towson University
- 2015 New Faculty Orientation –Teaching Seminar. Office of Technology Services, Towson University
- 2015-2016 New Faculty Workshop, Jess and Mildred Fisher College of Science and Mathematics, Towson University

### **PROFESSIONAL SERVICES**

#### **Service for Journals:**

- 2016-2024 Editorial Board Member, *Journal of Science Teacher Education* (6 manuscripts/yr.)
- 2019 Reviewer, *International Journal of Science Education*
- 2019 Reviewer, *The Teacher Educator*
- 2018 Reviewer, *International Journal of Science and Mathematics Education*

- 2017, 2018 Reviewer, *Journal of Research in Science Teaching*
- 2016, 2018 Reviewer, *Science Education*
- 2016 Reviewer, *British Journal of Educational Technology*

**Service for Professional Organizations:**

- 2017 *Conference Proposal Reviewer*, National Science Teacher Association (NSTA) Area Conference, Baltimore, MD.
- 2015 *Conference Paper Reviewer*, Annual Meeting of the National Association for Research on Science Teaching (NARST), Baltimore, MD.
- 2013 *Conference Paper Reviewer*, Annual Meeting of the National Association for Research on Science Teaching (NARST), Rio Grande, Puerto Rico.
- 2012 *Conference Paper Reviewer*, Annual Meeting of the National Association for Research on Science Teaching (NARST), Indianapolis, IN.
- 2012 *Conference Paper Reviewer*, Annual Meeting of the Association for Science Teacher Education (ASTE). Clearwater, FL.
- 2012 *Session Organizer/Facilitator*, Cracker Barrel session for graduate students at American Association of Physics Teachers (AAPT) summer meeting 2012. Omaha, NE.
- 2004-2006 *Member*, Indian Association for Physics Teachers (IAPT), India

**Services for Organizations at University and Departmental Level:**

- 2021- *Member*, CEHS Scholarship Committee, University of Nebraska-Lincoln, NE.
- 2021- *Member*, TLTE Curriculum Committee, University of Nebraska-Lincoln, NE.
- 2018-2020 *Member*, International Planning Committee, Towson University, Towson, MD.
- 2018-2020 *Member*, Curriculum Committee, Towson University, Towson, MD.
- 2017-2020 *Member*, Diversity Committee, Towson University, Towson, MD.
- 2017-2020 *Department Representative*, Teaching Education Excellence Board (TEEB), Towson, MD.
- 2015-2020 *Member*, Science Education Group. Towson University, Towson, MD.

- 2013-2014 *Co-organizer*, Sandra K. Abell Conversations about College Science Teaching Series and *Member* of Planning Committee. University of Missouri, Columbia.
- 2013 *At-Large Representative*, Graduate Professional Council, University of Missouri, Columbia.
- 2008-2013 *Member*, Physics and Astronomy Graduate Student Association (PAGSA), Department of Physics and Astronomy.
- 2011-2012 *President*, Learning, Teaching and Curriculum Graduate Student Association (LTC-GSA), Curriculum and Instruction, University of Missouri.
- 2011-2012 *Member*, Student Conduct Committee, Sub-Committee assigned for representatives of Graduate Professional Council, University of Missouri.
- 2011-2012 *Member*, Public Outreach Committee, Sub-committee under Physics and Astronomy Graduate Student Association (PAGSA), Department of Physics and Astronomy.
- 2010-2012 *GPC Representative*, Graduate Professional Council, University of Missouri, Columbia
- 2010-2012 *Member*, Teaching Excellence Committee, Sub-committee under Physics and Astronomy Graduate Student Association (PAGSA), Department of Physics and Astronomy.
- 2009-2012 *Member*, Social Committee, Sub-committee under Physics and Astronomy Graduate Student Association (PAGSA), Department of Physics and Astronomy.
- 2010-2011 *Vice-President*, Learning, Teaching and Curriculum Graduate Student Association (LTC-GSA), Curriculum and Instruction, University of Missouri.
- 2009-2010 *Secretary*, Physics and Astronomy Graduate Student Association (PAGSA), Department of Physics and Astronomy.

### **Service for Community**

- August, 2022 *Presenter*, LPS Science Connector, hosted by University of Nebraska-Lincoln and Worlds of Connections SEPA.
- July 2022 *Workshop Presenter*, Eureka program of Girls Inc. of Lincoln. Engaged middle/high school girls from underrepresented populations in a STEM lesson.
- April 2018 *Science Fair Judge*, Lutherville Laboratory, Lutherville, Maryland. Evaluated elementary school students (4<sup>th</sup> and 5<sup>th</sup> grade) science fair projects.
- April, 2017 *Science Fair Judge*, Lutherville Laboratory, Lutherville, Maryland. Evaluated elementary school students (4<sup>th</sup> and 5<sup>th</sup> grade) science fair projects.



- March, 2013 *Science Fair Judge*, CCAA Science Fair at Jamestown C-1 School: Evaluated middle and high school students' science fair projects.
- 2012-2013 *Physics Advisor*, Smithton Middle School: Advised middle school students who were preparing to compete in 2012 and 2013 Missouri Science Olympiad (Regional) in the Optics, Electronics and Keep the Heat (Thermodynamics) events.

### **Service at School (India)**

- 2004-2006 *School coordinator*, Science Olympiad Foundation, Shiv Jyoti Public School (SJPS), Jalandhar, India.
- 2005 *Co-facilitator* (for high school division), District Science Fair held at the Shiv Jyoti Public School, Jalandhar, India.

### **INFORMAL SCIENCE EDUCATION AND OUTREACH ACTIVITIES**

- 2008- 2012 *Graduate Assistant/ Co-Facilitator*, MU QUEST Summer Science Academy for Kids.
- April, 2012 *Volunteer*, Optics Event, Missouri State Science Olympiad: Assisted in facilitation and evaluation of the optics event where students performed activities related to optics and answered the questions that followed.
- March, 2012 *Facilitator*, Columbia Area Gifted and Talented Parent Teacher Association's Summer Opportunities Night: Facilitated the promotion of MU QUEST Summer Academy for Kids (Project led by Dr. Deborah Hanuscin- PI, Delinda van Garderen – Co-PI).
- 2011-2012 Bio-Physics Outreach Group: *Physics of the Human Body* (Led by Dr. Gavin King & Dr. Deborah Hanuscin): Developed a lesson on Skeletal Muscles using 5E instructional model, involved in grant writing – role: graduate student researcher (Not-funded)
- 2010-2012 *Volunteer*, Arts & Science Fall Welcome: Our team performed physics demos at the booth of Department of Physics and Astronomy, University of Missouri.
- 2009, 2010, 2012 *Volunteer*, Mizzou Adventure in Graduate Education Event. Our team performed physics demos at the booth of Department of Physics and Astronomy.
- October, 2011 *Volunteer*, NSTA's 'Science Matters' Event at the annual meeting of Science Teachers of Missouri (STOM) and Missouri Environmental Education Association (MEEA). Lange Middle School, Columbia. MO. Our team facilitated hands-on activities designed for middle school students.

- April, 2011 *Volunteer*, Optics Event, Missouri State Science Olympiad: Assisted in facilitation and evaluation of the optics event where students performed activities related to optics and answered the questions that followed.
- April, 2011 *Volunteer*, Experimental Design Event, Missouri State Science Olympiad: Assisted in facilitation and evaluation of the event where students designed an investigation to race a car to a maximum distance using the materials provided.

### **PROFESSIONAL AFFILIATIONS (Past & Present)**

American Educational Research Association (AERA)  
National Association of Research in Science Teaching (NARST)  
Mid-Atlantic Association of Science Teacher Education (MA-ASTE)  
American Association of Physics Teachers, (AAPT)  
National Science Teachers Association (NSTA)  
Association for Science Teacher Education (ASTE)  
Physics Education Research Conference (PERC)  
Science Teachers of Missouri (STOM)  
Indian Association of Physics Teachers, (IAPT)