CURRICULUM VITAE

Woei Hung
Professor, Graduate Director
Instructional Design & Technology
Department of Education, Health & Behavior Studies
Education Building Room 278
University of North Dakota
231 Centennial Drive STOP 7189
Grand Forks ND 58202-7189
TEL: (701) 777-3486
Email: woei.hung@und.edu

EDUCATION

University of Missouri-Columbia, Columbia, Missouri
2003 Ph.D.: Learning Technologies (Advisor: David H. Jonassen)

Lehigh University, Bethlehem, Pennsylvania 2001
MS: Educational Technology

Immaculata College, Immaculata, Pennsylvania
1995 MA: Music Therapy

Fu-Jen University, Taiwan, R.O.C. 1987
BA: Chinese Literature

PROFESSIONAL EXPERIENCE

University of North Dakota, Grand Forks, North Dakota
2014-Present Professor, Instructional Design & Technology
2007-2014 Associate Professor, Instructional Design & Technology

University of Arizona South, Sierra Vista, Arizona
2003-2007 Assistant Professor, Educational Psychology/Educational Technology

University of Missouri-Columbia, Columbia, Missouri
2002-2003 Teaching Assistant
2001-2002 Graduate Assistant (Coordinator of Globalization Initiatives)

Lehigh University, Bethlehem, Pennsylvania
1999-2001 Research Assistant

Delaware County Intermediate Unit, Media, Pennsylvania
1995-1996 Music Therapist

COURSES TAUGHT (2007-2025)

- IDT 500 Survey of Instructional Design
- IDT 510 Technology-Based Instruction: Applications and Methods
- IDT 520 Instructional Systems Analysis and Design
- IDT 525 Development, Implementation, and Evaluation of Instructional Materials
- IDT 530 Introduction to Computer-Based Instruction
- IDT 535 Advanced Computer-Based Instructional Development
- IDT 545 Instructional Simulations and Games
- IDT 550 Theories and Models of Instructional Design
- IDT 560 Instructional Design Consulting
- IDT 570 Human Performance Technology
- IDT 580 Introduction to Web-Based Instruction
- IDT 590 Special Topics in IDT (AI in Higher Education & eLearning)
- IDT 591 Readings in Instructional Design and Technology
- IDT 592 Research in Instructional Design and Technology
- IDT 593 Directed Studies in Instructional Design and Technology
- IDT 995 Scholarly Project
- IDT 997 Independent Study

PUBLICATIONS

Refereed Journal Articles

Islam, M. J, & **Hung, W.** (2025). Utilizing Immersive Virtual Reality (IVR) in Legal Education: Voice from Bangladesh. *The Journal of Applied Instructional Design, 14*(2). https://doi.org/10.59668/2222.21505

Murphy, M. P., & **Hung, W.** (2024). Using systems modeling to facilitate undergraduate physiology student learning and retention of difficult concepts. Advances in Physiology Education. DOI: 10.1152/advan.00020.2024

Murphy, M. P., & **Hung, W.** (2024). Using text mining to elucidate mental models of problem spaces for ill-structured problems. *TechTrends*. DOI: 10.1007/s11528-024-00951-4

Murphy, M. P., & **Hung, W.** (2024). Perceived benefit of active over passive strategies for pathophysiology learning and retention among physician assistant students. *The Journal of Physician Assistant Education, 35*(2), 182-186. DOI: 10.1097/JPA.0000000000000570

Tweeten, J., & **Hung, W.** (2023). Design-based research method in PBL/PjBL: A case in nursing education. Interdisciplinary Journal of Problem-based Learning, 17(2). https://doi.org/10.14434/ijpbl.v17i2.35901

Amida, A., **Hung, W.**, & Algarni, S. (2023). System Modeling: Exploring engineering students perceptions and learning outcomes. *Systems Research and Behavioral Science*. doi.org/10.1002/sres.2996

Murphy, M. P., & **Hung, W.** (2023). Exploring progressive mental model representation of core physiology concepts in physician assistant students through word frequency and association analyses. *Advances in Physiology Education*, *47*(4), p. 673-683. DOI: 10.1152/advan.00124.2022

Murphy, M.P., **Hung, W.** (2023). Systems Thinking and Modeling: From Butterfly Posture to Artificial Intelligence. *TechTrends*. https://doi.org/10.1007/s11528-023-00891-5

Hung, W. (2022). What can technology do for education. *European Journal of Technology and Business, 2*(December), 2-17.

Taylor, A. -D. & **Hung, W**. (2022). The effects of microlearning: A scoping study. *Educational Technology Research & Development, 70*, 363-395. https://doi.org/10.1007/s11423-022-10084-1

Tawfik, A. A., **Hung, W**., & Giabbanelli, P. J. (2020). Comparing How Different Inquiry-based Approaches Impact Learning Outcomes. *Interdisciplinary Journal of Problem- based Learning, 14*(1). https://doi.org/10.14434/ijpbl.v14i1.28624

Hung, W., Dolmans, D., & van Merrienboer, J. (2019). A review to identify key perspectives in PBL meta-analyses and reviews: Trends, gaps and future research directions. *Advances in Health Sciences Education, 24*(5), 943-957. doi: 10.1007/s10459-019-09945-x

Hung, W., & Sitthiworachart, J. (2019)**.** In-service teachers' conception of creativity and its relation with technology: A perspective from Thailand. *The Asia-Pacific Education Researcher*, 29(2), 137–146. https://doi.org/10.1007/s40299-019-00460-6

Ge, X., Turk, M., & **Hung, W**. (2019). Revisiting the Concept of Mindtools: Social and Motivational Perspectives. *Australasian Journal of Education Technology, 35(2)*. 39-51 doi: https://doi.org/10.14742/aje.

Pyle, E. K., & **Hung, W**. (2019). The role of subject presence type on student motivation in a PBL learning environment. *Advances in Health Sciences Education, 24*(4), 643-663. doi: 10.1007/s10459-019-09889-2

Holen, J., **Hung, W.,** & Gourneau, B. (2017). Does one-to-one technology really work: An evaluation through the lens of activity theory. *Computers in the Schools, 34*, 1-2, 24- 44, doi: 10.1080/07380569.2017.1281698.

Hung, W. (2016). All PBL starts here: The problems. *Interdisciplinary Journal of Problem-based Learning, 10*(2), doi.org:10.7771/1541-5015.1604.

Hung, W., Flom, E., Manu, J., & Mahmoud, E. (2015). A review of the instructional practices for promoting online learning communities. *Journal of Interactive Learning Research, 26(3)*, 229-252.

Hung, W. (2015). Cultivating creative problem solvers: The PBL style. *Asia Pacific Education Review, 16(2)*, 237-246. doi: 10.1007/s12564-015-9368-7.

Hung, W. (2014). Intrinsic and extrinsic intentional learning: The difference made by self-determination. *Australian Journal of Education, 58*(1), 50-58. DOI: 10.1177/0004944113517832

Lee, C. B., & **Hung, W.** (2014). Fostering intentional learning with technologies. *Australian*

Journal of Education, 58(1), 3-8. DOI: 10.1177/0004944113517795

Hung, **W**., Mehl, K., & Holen, J. B. (2013). The relationships between problem design and learning process in problem-based learning environments: Two cases. *The Asia- Pacific Education Researcher, 22*(4), 635-645. DOI 10.1007/s40299-013-0066-0.

Hung, **W**. (2013). Team-based complex problem solving: A collective cognition perspective. *Educational Technology Research & Development, 61*(3), 365-384. Doi: 10.1007/s11423-013-9296-3

Reeves, T. C., Lee, C. B., & **Hung, W.** (2013). Reflections on the scholarly contributions of Professor David H. Jonassen. *Computers & Education, 64*, 127-130. DOI: https://doi.org/10.1016/j.compedu.2012.12.013

Hung, **W**., & Loyens, S. M. M. (2012). Global development of problem-based learning: Adoption, adaptation, and advancement. *Interdisciplinary Journal of Problem-based Learning, 6*(1), 4-9. DOI: https://doi.org/10.7771/1541-5015.1309

Hung, **W**. (2011). Theory to reality: A few issues in implementing problem-based learning. *Educational Technology Research & Development, 59*(4), 529-552. DOI 10.1007/s11423-011-9198-1

O'Neill, G., & **Hung, W**. (2010). Seeing the landscape and the forest floor: Changes made to improve the connectivity of concepts in a problem-based learning curriculum. *Teaching in Higher Education, 15*(1), 15-27. DOI: 10.1080/13562510903488006

Goodnough, K., & **Hung, W**. (2009). Enhancing teacher pedagogical content knowledge in the context of elementary science. *Teaching Education, 20*(3), 229-242. DOI: 10.1080/10476210802578921

Hung, **W**. (2009). The 9-step process for designing PBL problems: Application of the 3C3R model. *Educational Research Review, 4*(2), 118-141. doi:10.1016/j.edurev.2008.12.001

Hung, **W**. (2008). Enhancing systems-thinking skills with modeling. *British Journal of Educational Technology, 39*(6), 1099-1120. doi:10.1111/j.1467-8535.2007.00791.x

Jonassen, D. H., & **Hung**, **W**. (2008). All problems are not equal: Implications for PBL. *Interdisciplinary Journal of Problem-Based Learning, 2*(2), 6-28. DOI: https://doi.org/10.7771/1541-5015.1080

Goodnough, K., & **Hung**, **W**. (2008). Engaging teachers' pedagogical content knowledge: Adopting a Nine-Step Problem-Based Learning model. *Interdisciplinary Journal of Problem-based Learning, 2*(2), 61-90. DOI: https://doi.org/10.7771/1541-5015.1082

Hung, **W**. & Jonassen, D. H. (2006). Conceptual understanding of causal reasoning in physics. *International Journal of Science Education, 28*(13), 1601-1621. DOI: 10.1080/09500690600560902

Jonassen, D. H., & **Hung, W**. (2006). Learning to troubleshoot: A new theory based design architecture. *Educational Psychology Review, 18*(1), 77-114. (AERA Division I Outstanding Publication Award winning paper) DOI: 10.1007/s10648-006-9001-8

Hung, W. (2006). The 3C3R model: A conceptual framework for designing problems in PBL. *Interdisciplinary Journal of Problem-based Learning, 1*(1), 55-77. (Mentee Award winning paper) DOI: https://doi.org/10.7771/1541-5015.1006

Cates, W. M., Bishop, M. J., & **Hung, W**. (2005). Characterization versus narration: Drama's

role in multimedia instructional software. *Journal of Educational Technology Systems, 33*(4), 437-460. DOI: https://doi-org.ezproxy.library.und.edu/10.2190/86AB-EKU4-UW54-KYGT

Non-Refereed Journal

Hung, W. (2013). Problem-based learning: A learning environment for enhancing learning transfer. In L. Kaiser, K. Kaminski, & J. Foley (Eds.), *Learning Transfer in Adult Education. New Directions for Adult and Continuing Education, 137*, 27-38.

Hung, **W**., & Holen, J. B. (2011). Problem-based learning: Preparing pre-service teachers for real world classroom challenges. *ERS Spectrum, 29*(3), 29-48.

Hung, W. (2004). Building learning communities by enhancing social presence: Implementing blended instructional delivery methods. In R. Klamma, M Rohde, & G. Stahl (Eds.), *Community-based learning: Explorations into theoretical grounds, empirical findings, and computer support*, pp. 81-86. Special issue in ACM SIG Group Bulletin.

Hung, W., Baily, J., & Jonassen, D. H. (2003). Exploring the tensions of problem-based learning: Insights from research. *New directions in teaching and learning*, 95, 13-23.

Book Chapter

Hung, W. & Archer, L. (2024). Lucas Bailey and Ellie Miller: Addressing Low Pass Rates among Student Pilots. In Ertmer, P., Glazewski, K., Koehler, A., & Stefaniak, J. (Eds.), *The ID casebook: Case studies in instructional design* (6th ed. pp. 81-93). New York: Routledge.

Hung, W. (2023). The other side of promise: Some precautions for technology-based education. Chapter in C. -Y. Leng & B. -L. Chua (Eds.), *Psychology and Pedagogy in Digital Education* (pp. 227-238). Spring Nature: Singapore.

Hung, W., & Murphy, M. P. (2021). Instructional models in course design. In Rudestam, K., Schoenholtz-Read, J., & Snowden, M. (Eds.), *The handbook of online learning* (pp. 278-303). Fielding University Press. ISBN 10: 1737943921

Dolmans, D., **Hung, W**., & Frambach, J. (2021). Problem-Based Learning: From Theoretical Principles to Different Shapes in Practice. In J. Dent, R. Harden, & D, Hunt (Eds.), *A practical guide for medical teachers* (6th ed.), pp. 155-162. London: Elsevier.

Hung, W., & Amida, A. (2020). Problem-Based Learning in College Science. In J. J. Mintzes and E. M. Walter, Eds. *Active learning in college science: The case for evidence-based practice* (pp. 325-339). Berlin, Germany: Springer Nature. ISBN 13: 978-3-030-33600-4

Hung, W. (2019). Problem design in PBL. In M. Moallem, W. Hung, & N. Dabbagh, (Eds.), *The Wiley handbook of Problem-based learning* (pp. 249-272). Hoboken, NJ: Wiley-Blackwell. ISBN 13: 978-1-119-17323-6

Hung, W., Moallem, M., & Dabbagh, N. (2019). Social foundations of Problem-based Learning. In M. Moallem, W. Hung, & N. Dabbagh (Eds.), *The Wiley handbook of Problem-based learning* (pp. 51-80). Hoboken, NJ: Wiley-Blackwell. ISBN 13: 978-1-119-17323-6

Goodnough, K., & **Hung, W**. (2017). Designing effective problems: Evaluation of 3C3R 9-

step design process. In T. Brush (Ed.), *Developing and supporting PBL practice: Research in K-12 and teacher education settings*. West Lafayette, IN: Purdue University Press.

Hung, W. (2015). Problem-based learning: Conception, practice, and future. In Y. H. Cho, I. S. Caleon, & M. Kapur (Eds.*), Authentic problem solving and learning in the 21st Century: P*erspectives from Singapore and beyond* (pp. 75-92). New York: Springer. ISBN 13: 978-981-287-521-1

Jonassen, D. H. & **Hung, W**. (2015). All problems are not equal: Implications of problem type, complexity, and structuredness. In A. Walker, H. Leary, C. Hmelo-Silver, & P. A. Ertmer (Eds.), *Essential readings in problem-based learning: Exploring and extending the legacy of Howard S. Barrows* (pp. 17-42). West Lafayette, IN: Purdue University Press. ISBN 13: 9781612493688

Hung, W. (2013). Conceptualizing problems in problem-based learning: Its role and cognitive tools. In J. M. Spector, B. B. Lockee, S. E. Smaldino, & M. Herring (Eds.), *Learning, Problem Solving, and Mind Tools: Essays in Honor of David H. Jonassen* (pp. 174-194). New York: Routledge. ISBN 13: 9781136277368

O'Neill, G., & **Hung, W**. (2010). Making strong learning connections: Students involvement in improving the interconnections of concepts in a PBL module. In T. Barrett & S. Moore (Eds.), *New approaches to problem-based learning: Revitalising your PBL practice in higher education* (pp. 110-131). New York: Routledge. ISBN 13: 9781136937682

Hung, W., & Van Eck, R. (2010). Aligning problem solving and gameplay: A model for future research and design. In Richard Van Eck (Ed.), *Interdisciplinary Models and Tools for Serious Games: Emerging Concepts and Future Directions* (pp. 227-263). Hershey, PA: IGI Global. ISBN 13: 9781615207206

Hung, W. (2009). Utilizing system modeling to enhance students' construction of problem representations in problem solving. In Blumschein, P., Hung, W., Jonassen, D. H., & Strobel, J. (Eds.), *Model-Based Approaches to Learning: Using Systems Models and Simulations to Improve Understanding and Problem Solving in Complex Domains* (pp. 41-57). Rotterdam, the Netherlands: Sense Publishers. ISBN 13: 9789087907099

Hung, W., & Blumschein, P. (2009). Afterword: Where do we go from here. In Blumschein, P., Hung, W., Jonassen, D. H., & Strobel, J. (Eds.), *Model-Based Approaches to Learning: Using Systems Models and Simulations to Improve Understanding and Problem Solving in Complex Domains* (pp. 319-329*)*. Rotterdam, the Netherlands: Sense Publishers. ISBN 13: 9789087907099

Hung, W., Jonassen, D. H., & Liu, R. (2008). Problem-based learning. In M. Spector, D. Merrill, J. van Merrienböer, & M. Driscoll (Eds.) *Handbook of research on educational communications and technology, (*pp. 485-506, 3rd ed.). New York: Erlbaum. ISBN 13: 9781135596910

Edited Book

Moallem, M., **Hung, W.,** & Dabbagh, N. (2019, Eds.). The *Wily Handbook of problem-based learning*. Hoboken, NJ: Wiley-Blackwell.

Blumschein, P., **Hung, W**., Jonassen, D. H., & Strobel, J. (2009, Eds.). *Model-Based*

Approaches to Learning: Using Systems Models and Simulations to Improve Understanding and Problem Solving in Complex Domains. (Modeling and Simulations for Learning and Instruction Series, Volume 4). Rotterdam, the Netherlands: Sense Publishers.

Special Issues of Journals (Guest Editor)

Lee, C. –B., & **Hung, W**. (2014, Eds.). Technologies for Intentional Learning: Bridging Research and Practice. *Australian Journal of Education, 58*(1).

Lee, C. –B., **Hung, W**., & Reeves, T. (2013, Eds.). Towards innovation in learning technologies research: Essays in honour of David Jonassen. *Computers and Education, 64*.

Hung, W., & Loyens, S. (2012, Eds.). International perspectives in Problem-based Learning. *Interdisciplinary Journal of Problem-based Learning, 6*(1).

Refereed Proceedings

Hosen, M.B., Chen, L. K., Chowdhury, S. H., Bosarge, E., Gong, N., **Hung, W**., Tomaso, B, & Zha S. (2025). Modeling Socially Constructed Knowledge Using Multimodal Machine Learning: A Case Study in K-12 AI Literacy Education Classroom. In: Cristea, A.I., Walker, E., Lu, Y., Santos, O.C., Isotani, S. (Eds) Artificial Intelligence in Education. AIED 2025. Communications in Computer and Information Science, vol 2591, 85-92. Springer, Cham. https://doi-org.ezproxy.library.und.edu/10.1007/978-3-031-99264-3_11

Hung, W. (2010). Problem design, implementation, and student learning in PBL: Two case studies. Global Learn Asia Pacific 2010 Conference.

Stroble, J., Wigley, E., Evans, N., & **Hung, W**. (2009, July). BUZZ-acoustical engineering methodologies to measure student engagement. Paper presented at the Research in Engineering Education Symposium 2009, Palm Cove, Queensland, Australia, July 20-23.

Jonassen, D. H., **Hung, W**., Strobel, J., Schmidt, M., & Cho, M. –H. (2004). Scaffolding causal reasoning. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon, & F. Herrera (Eds.), *Proceedings of the Sixth International Conference of the Learning Sciences* (pp. 610). Mahwah, NJ: Erlbaum.

Encyclopedia Entries

Hung, W. (2014). Problem-based learning. In D. C. Phillips (Ed.), *Encyclopedia of Educational Theory and Philosophy*. Thousand Oaks, CA: Sage.

Jonassen, D.H. & **Hung, W**. (2012). Problem solving. In N. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 2680-2683). New York: Springer-Verlag.

Jonassen, D.H. & **Hung, W**. (2012). Problem-based learning. In N. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 2687-2690). New York: Springer-Verlag.

Manuscript under review/revision/preparation

Zha, S., **Hung, W.,** Gong, N., Bosarge, E., & Eaton, R. (under revision). An investigation on

factors influencing teachers' AI classroom implementation. *Educational Technology Research & Development*.

Hung, W., Zha, S., Tomaso, B., Gong, N. (under review). One stone two birds: dual-function cognitive tool approach with AI. *British Journal of Educational Technology*.

Hung, W., & Trottier, J. (under revision). Learning by Teaching AI (LBT-AI): A Case of Using Teachable Machine as a Cognitive Tool. *Educational Technology Research & Development.*

Hung, W. (under review). Architecture of PBL Problem GenAI System: A Blueprint. *Educational Research for Policy and Practice*.

Hung, W., & Serva, M. (under review). Enhancement or Erosion of Intellectual Minds: A Survey of Higher Education Faculty's Relationship with AI. *Asia Pacific Journal of Education*.

PROFESSIONAL PRESENTATIONS

Hung, W. (accepted). Distributed cognition on steroids. Oral presentation in part of Panel "*The Design of Trust: From Cognitive Affordances to Learner Agency in AI-HCI*" at 2026 HCI (Human-Computer Interaction) International Conference, Montreal, Canada, July 29-31, 2026.

Hung, W., & Trottier, J. (accepted). *Learning by Teaching AI (LBT-AI): A case of using Teachable Machine as a cognitive tool*. Paper presentation proposal submitted to 2026 AERA Annual Meeting, Los Angelous, CA.

Hung, W., Zha, S., Tomaso, B., Gong, N. (2026, March). *One stone two birds: dual-function cognitive tool approach with AI*. Paper presentation at CEHD Research Conference, Grand Forks, ND, March 30, 2026.

Ahmed, P., **Hung, W.** (2026, February). *AI-Coached Legal Drafting Training: What We Learned from Student Experiments*. Short Format presentation at the 2026 UPCEA Digital Teaching & Learning Conference (DT&L), February 4 - 5, 2026.

Hung, W. (2025, November). *The Future of PBL and Active Methods in Education*. Panelist in a Panel Discussion moderated by U. Araujo at 2025 PAN PBL International Conference, Belo Horizonte, Brazil, October 29-November 1, 2025. (November 1)

Hung, W., & Trottier, J. (2025, October). *Learning by Teaching (LBT): A case of using AI as a cognitive tool*. Paper to be presented at 2025 PAN PBL International Conference, Belo Horizonte, Brazil, October 29-November 1, 2025. (October 31)

Hung, W. (2025, October). Panel Discussion Moderator: *Multi, Inter, and Transdisciplinary Learning: Characteristics and Challenges*. at 2025 PAN PBL International Conference, Belo Horizonte, Brazil, October 29-November 1, 2025. (October 31)

Hung, W. (2025, October). *Artificial Intelligence in Higher Education*. Panelist in a Panel Discussion moderated by M. Serva at 2025 PAN PBL International Conference, Belo Horizonte, Brazil, October 30, 2025. (October 30)

Murphy, M. P., & **Hung, W.** (accepted). *Facilitating mental model development of physiology core concepts through systems thinking and modeling*. Paper to be presented at AECT 2025 International Convention, Las Vagas, NV. October 20-24, 2025.

Islam, M., **Hung, W.**, Ahmed, Bansah, P. F., & Johur, T. (accepted). *A Survey of Law Students' Classroom Experiences on Multimedia-Based Visual Instructions: A Case of Bangladesh*. Paper to be presented at AECT 2025 International Convention, Las Vagas, NV. October 20-24, 2025.

Islam, M., **Hung, W.**, Ahmed, Bansah, P. F., & Johur, T. (accepted). *Faculty Efficacy and Technology Integration in the Legal Education in Bangladesh*. Paper to be presented at AECT 2025 International Convention, Las Vagas, NV. October 20-24, 2025.

Ahmed, P., **Hung, W.**, Bansah, P. T., Islam, M., Johur, T., Mustafa, E., & Islam, R. (accepted). *Honing Law Students' Legal Drafting Competency with an AI Personal Trainer: Does it Work?* Paper to be presented at AECT 2025 International Convention, Las Vagas, NV. October 20-24, 2025.

Olateru-Olagbegi, S., & **Hung, W.** (2025, April). *Investigations of the effects of microlearning in the workplace*. Roundtable presentation at AERA 2025 Annual Meeting, Denver, CO, April 23-27, 2025.

Hung, W., Zha, S., Tomaso, B., Gong, N. (2025, April). *One stone two birds: dual-function cognitive tool approach with AI in PjBL*. Paper presentation at AERA 2025 Annual Meeting, Denver, CO, April 23-27, 2025. (E provided in folder)

Hung, W., Morin, P. & Robinson, J. (2025, March). *Cultivating Indigenous Students' STEM Career Interest with Culturally Responsive Project-based Learning (CR-PjBL): The Tate Topa Tribal School Experience*. Paper presentation in 2025 ISK RIG Administrative Session: Reframing Science and Engineering: Teachers' strategies for indigenizing STEM education at NARST Annual International Conference, National Harbor, MD, March 23-26, 2025.(E provided in folder)

Olateru-Olagbegi, S., & **Hung, W.** (2024, October). *Investigations of the effects of microlearning in the workplace*. Poster presented at 2024 AECT International Convention 2024, Kansas City, MO October 20, 2024.

Islam, M. J., & **Hung, W.** (2024, October). *Utilizing immersive virtual reality (IVR) in legal education: Voice from Bangladesh*. Poster presented at 2024AECT International Convention 2024, Kansas City, MO October 20, 2024.

Hung, W. (2024, September). *Practical Guidance for Microlearning and UX/UI*. Presentation at Cirrus Learning & Development Expo, Sugar Lake Lodge, MN, September 17, 2024. (E provided in folder)

Tweeten, J., & **Hung, W. (**2024, April). *Design-based research method in PBL/PjBL: A case in nursing education*. Paper presented at a symposium "Research methodologies for studying PBL/PjBL" at AERA Annual Meeting, Philadelphia, April 11-14, 2024.

Hung, W., & Serva, M. (2023, October). *Threshold concepts network mapping using machine learning*. Paper presented at PANPBL 2023 international conference, Montevideo, Uruguay, October 5-7, 2023.

Murphy, M. & **Hung, W.** (2023, May). *Systems modeling facilitation of physiology threshold concept mental model development in graduate physician assistant students*. Paper presented at roundtable session at AERA Annual Virtual Meeting, May 5, 2022. (E provided in folder)

Murphy, M. & **Hung, W.** (2022, October). *Constructing system models to bolster physiology core threshold concept mental model accuracy*. Roundtable presentation at 2022 AECT

convention, Las Vegas, NV, October 24-28, 2022.

Hung, W. (2022, June). *The digital world of education*. Keynote for Code Camp 2022, Beder University College, Tirana, Albania, June 23, 2022.

Hung, W. (2022, June). *What can technology do for education*? Keynote for Technology in Education Track at 2022 International Conference on Innovation in Business and Technology. Beder University College, Tirana, Albania, June 10, 2022.

Murphy, M., & **Hung, W.** (2022, May). *Constructing System Models to Bolster Threshold Concept Mental Model Accuracy.* NDSU Teaching & Learning Conference, Fargo, ND, May 24, 2022.

Hung, W., Groskreutz, B. J., & Bump, H. (2022, April). *Is Virtual reality the future of STEM learning: Student perspective*. Paper presented at paper session (Simulations and Immersive Learning Experiences) at AERA Annual Meeting, San Diego, April 21-26, 2022.

Murphy, M. & **Hung, W.** (2022, April). *Perceived Benefit of Active Study Strategies Among Physician Assistant Students*. Paper presented at paper session (Experiential and Active Learning in Professions Education) at AERA Annual Meeting, San Diego, April 21-26, 2022.

Murphy, M. & **Hung, W.** (2022, April). *Using systems modeling in facilitating undergraduate integration of physiological concepts*. Poster presented (Using Systems for School and Instructional Improvement) at AERA Annual Meeting, San Diego, April 21-26, 2022.

Murphy, M. & **Hung, W.** (2022, April). *Ranked benefit of active study strategies among physician assistant students*. Paper presented at EHD Research Fair, UND, April 7, 2022.

Hung, W. Dolmans, D., & van Merrienboer, J. (2022, April). *Trends, gaps, & future research directions of PBL research*. Paper presented at EHD Research Fair, UND, April 7, 2022.

Murphy, M. & **Hung, W.** (2022, April). *Using Systems Modeling in Facilitating Undergraduate Integration of Physiological Concepts*. Poster presented at EHD Research Fair, UND, April 7, 2022.

Amida, A., **Hung, W.,** Yang, C. X., Ji, Y., & Algarni, S. (2022, April). *Exploring Students' Experience with the Use of System Modeling Instructional Strategy in Promoting Engineering Learning Outcomes*. Paper presented at poster session at AERA Annual Meeting, San Diego, April 21-26, 2022.

Taylor, A. & **Hung, W. (**2021, November). *The effects of microlearning: A scoping study.* Paper presented at 2021 AECT International (hybrid) Convention, November 2-6, Chicago.

Amida, A. & **Hung, W**. (2021, November). *Enhancing Engineering Students Conceptual Understanding and Problem-Solving Skills using System Modeling Instructional Approach.* Paper presented 2021 AECT International (hybrid) Convention, November 2-6, Chicago.

Hung, W., Moallem, M., & Dabbagh, N. (2021, August). *Socio-cultural Constructivist Learning Components in PBL*. Paper presented at the PBL 2020 International Conference, Aalborg, Demark, Postponed to August 17-19, 2021 due to COVID 19 pandemic.

Hung, W., Dolmans, D., & van Merrienboer, J. (2021, August). *Trends, gaps and future research directions of PBL research*. Paper presented at the PBL 2020 International Conference, Aalborg, Demark, Postponed to August 17-19, 2021 due to COVID 19 pandemic.

Taylor, A. -D. & **Hung, W**. (2021, April). *The effects of microlearning: A scoping study*. Paper presented at AERA 2021 annual meeting (Virtual, Roundtable), April 9-12, 2021).

Hung, W. (2020, November). Social-Cultural foundations of problem-based learning and implications for practices of PBL. Presentation in part of a Panel "*Invigorating Problem-based Learning (PBL) with Social and Cultural Considerations in Its Design and Research*" at Association for Educational Communications & Technology 2020 Virtual International Convention, November, 3-7, 2020.

Chua, B. L. & **Hung, W.** (2020, April). *Designing problems for problem-based learning: Perceptions for Singapore*. Paper presented at the AERA 2020 annual meeting, April 17-21, 2020, San Francisco**.**

Hung, W., Dolmans, D., & van Merrienboer, J. (2020, April). *A review to identify key perspectives in PBL meta-analyses and reviews: Trends, gaps and future research directions*. Paper presented in part of Symposium "Celebrating 50 Years of Problem-Based Learning: Past, Present and Future" at the AERA 2020 annual meeting, San Francisco, CA, April 17-21, 2020**.**

Amida, A., Algarni, S., & **Hung, W**. (2019, October). *Exploring the engineering freshman motivation using Pershing Performance Improvement Model: A case study*. Poster presented at Association for Educational Communication & Technology 2019 Convention, Las Vegas, NV, October 21-25, 2019.

Hung, W. (2019, May). *Transforming PBL with Technology for 21st Century Learning*. Keynote presented at FACiLiTATE 2019 PBL symposium: The Irish Enquiry/Problem Based Learning Network, Limerick, Ireland, May 17, 2019.

Hung, W. (2019, May). Doctoral Seminar at University College of Dublin, Dublin, Ireland, May 16, 2019.

Hung, W. (2019, May). *All learning starts here: The problem*. Seminar presented at the Maastricht University, Maastricht, the Netherlands, May 7, 2019.

Hung, W. (2019, March). *Problem solvers, explorers, and team players: How collaborative inquiry-based learning can help cultivate future-ready learners*. Seminar presented at National Institute of Education at the Nanyang Technological University, Singapore, March 26, 2019.

Amida, A., Yearwood, D., Chang, I., **Hung, W**., Algarni, S., & Lazar, V. (2018, October). *The Impact of Laboratory and Instructional Format on Student's Learning Outcome in an Electronic Circuit Course*. Paper presented at Association for Educational Communication & Technology 2018 Convention, Kansas City, MO, October 23-27, 2018.

Lazar, V., **Hung, W**., Amida, A., & Algarni, S. (2018, October). *The Use of Internet in the Academic Preparation of International Students*. Paper presented at Association for Educational Communication & Technology 2018 Convention. Kansas City, MO, October 23-27, 2018.

Mayaleeke, S., Amida, A., & **Hung, W.** (2018, October). *The Effects of CAI on Mathematics Performance of Students with Attention Deficit Hyperactivity Disorder (ADHD) in Nigeria*. Paper presented at Association for Educational Communication & Technology 2018 Convention, Kansa City, MO, October 23-27, 2018.

Algarni, S., **Hung, W.**, Amida, A., & Lazar, V. (2018, October). *Perceptions of High School*

Teachers of the Use of Mobile Phone Technologies in Saudi Arabia. Paper presented at Association for Educational Communication & Technology 2018 Convention, Kansa City, MO, October 23-27, 2018.

Pyle, E., & **Hung, W.** (2018, April). *The effects of subject presentation types in problem-based learning (PBL) problems on student motivation: A PBL implementation in speech language pathology*. Paper presented at AERA 2018 annual meeting, New York City, April 13 – 17, 2018.

Puhl, J., & **Hung, W**., & Sitthiworachart, J. (2018, February). *Exploring active learning strategies for procedural knowledge acquisition*. Paper presentation at PBL2018 International Conference in Santa Clara, CA, February 16-19, 2018.

Pyle, E., & **Hung, W**. (2018, February). *The Effects of subject presentation type on student motivation: A PBL implementation in speech-language pathology*. Paper presentation at PBL2018 International Conference in Santa Clara, CA, February 16-19, 2018.

Tawfik, A., **Hung, W**., Giabbanelli, P. J. (2018, February). *Comparing how different inquiry- based approaches impact learning outcomes*. Paper presentation at PBL2018 International Conference in Santa Clara, CA, February 16-19, 2018.

Hung, W. (2017, April). *Multi-dimensional problem difficulty scale: Evaluating problem difficulty.* Paper presented (Roundtable) at AERA 2017 annual meeting, San Antonio, April 27 – May 1, 2017.

Alotaibi, A., Caldwell, K. D. I., & **Hung, W.** (2016, October). Utilizing math game apps in the classroom. Poster presented at Association for Educational Communications & Technology 2016 Convention, Las Vegas, NV, October 17-21.

Caldwell, K. D. I., **Hung, W.,** & Alotaibi, A. (2016, October). What does it mean to be creative in teacher education programs in Western Canada? A phenomenological study. Paper presented at Association for Educational Communications & Technology 2016 Convention, Las Vegas, NV, October 17-21.

Hung, W. (2016, September). 3C3R PBL problem design model: 2nd generation. In Symposium: *The design and representation of ill-structured problems in PBL*. PBL 2016 International Conference, Sao Paulo, Brazil, September 8-10, 2016.

Hung, W., Holen, J. B., & Gourneau (2016, April). *Does 1:1 technology really work: An evaluation through the lens of activity theory*. Paper presented at AERA 2016 annual meeting, Washington DC, April 8-12, 2016.

Manu, J., & **Hung, W.** (2016, April). *Do in-service teachers teach in ways that they believe? A Ghanaian perspective*. Paper presented (Roundtable) at AERA 2016 annual meeting, Washington DC, April 8-12, 2016.

Caldwell, K., & **Hung, W.** (2016, April). *The Meaning of Creativity: A phenomenological study of secondary school teachers' perspectives in western Canada*. Paper presented at AERA 2016 annual meeting, Washington DC, April 8-12, 2016.

Hung, W. & Mahmoud, E. (2015, April). *Using concept mapping to enhance ELL students' reading comprehension*. Paper presented at AERA 2015 annual meeting, Chicago, IL, April 16-20, 2015.

Hung, W. (2014, October). *Cultivating creative problem solvers: The PBL style*. Paper presented at the 15th International Conference of Education Research, The Seoul National

University, Seoul, South Korea, October 15-17, 2014.

Hung, W. (2014, April). Knowledge Acquisition, Application, and Transfer in PBL by Design. In part of Symposium: *Arming Achilles' Heel: Instructional strategies and approaches for promoting knowledge acquisition in PBL*, organized by W. Hung & S. M. M. Loyens. Paper presented at AERA 2014 annual meeting, Philadelphia, PA, April 3-7.

Loyens, S. M.M., Schaap, L., **Hung, W**., & Pronk, S. (2013, April). *The concept map as a pedagogical alternative for problem-based tutorial meetings in fostering students' elaboration of knowledge.* Paper presented at AERA 2013 annual meeting, San Francisco, CA, April 26-May 1.

Hung, W., Ak, S., & Holen, J. (2013, April). *A Cross-Cultural Study of Problems Elements and Motivation in PBL: A Comparison of US and Turkish Pre-service Teachers*. Paper presented at AERA 2013 annual meeting, San Francisco, CA, April 26-May 1.

Hung, W., Ak, S., & Holen, J. (2013, April). *A Cross-Cultural Study of Problems and Motivation in PBL: US and Turkish Pre-service Teachers*. Paper presented at College of Education & Human Development 2013 Research Fair at University of North Dakota, Grand Forks, ND.

Hung, W., Flom, E., Manu, J., & Mahmoud, E. (2012, October). *Promoting Online Learning Communities: A Systematic Review of the Instructional Strategies and Tools*. Paper presented at AECT 2012 International Convention, Louisville, Kentucky, October 30-November 3, 2012.

Manu, J., & **Hung, W**. (2012, November). *International students and technology proficiency: Lessons from UND*. Roundtable presentation at AECT 2012 International Convention, Louisville, Kentucky, October 30-November 3, 2012.

Hung, W., & Syverson, S. (2012, April). *Scaffolding diagnostic reasoning skills of Emergency Medical Technicians (EMT): Cognitive apprenticeship emphasized simulation -based instruction*. Paper presented at 2012 AERA annual Meeting, Vancouver, Canada, April 13-17.

Ak, S., **Hung, W**., & Holen, J. B. (2012, April). *Problems and motivation in Problem-based Learning: A case study*. Paper presented at 2012 AERA annual Meeting, Vancouver, Canada, April 13-17.

Hung, W., Love, S., & Fu, H. (2012, April). *Enhancing Learning Effectiveness in Problem-based Learning: Can Problem Design Help*? Paper presented at 2012 AERA annual Meeting, Vancouver, Canada, April 13-17.

Ak, S., **Hung, W**., & Holen, J. B. (2011, December). *A cross-cultural study of problems and motivation in PBL: American and Turkish pre-service teachers*. Paper presented at 2011 World Education Research Association WERA Focal Meeting, Kaohsiung, Taiwan, December 16-18, 2011.

Hung, W. (2011, November). *The role of collective cognition in team-based complex problem solving*. Paper presented in Presidential Panel session: Complex Problem Solving: Status of the Field and Future Directions at AECT 2011 International Convention, Jacksonville, November 8-12.

Jackson, J., **Hung, W**., & Jensen, M. (2011, September). *"Knowing more, or knowing better (or*

not?): Assessing learning in guided inquiry classes." Presented at Reflecting On Teaching: An All-Campus Colloquium On The Scholarship Of Teaching & Learning (Sotl) Held In Conjunction With The ND General Education Council's Statewide Summit, Grand Forks, ND, September 30-October 1, 2011.

Syverson, S., & **Hung, W**. (2011, September). *An investigation on the effects of cognitive apprenticeship within a simulation-based learning environment on Emergency Medical Technician (EMT) students' development of diagnostic reasoning skills*. Poster presented at the National Association of EMS Educators annual conference (NAEMSE) (selected by Prehospital Care Research Forum at UCLA), Reno, NV September 13–18, 2011.

Hung, W., & Strobel, J. (2011, June). *Definition, conceptualization, and utilization: A review of research on concept mapping as a pedagogical mindtool*. Paper presented at ED-MEDIA 2011-World Conference on Educational Multimedia, Hypermedia & Telecommunications, Lisbon, Portugal, June 27-July 1.

Hung, W. (2011, April). *Assessing problem solving performance: From a collective cognition perspective*. Paper presented in symposium "Assessing Complex Problem Solving–Theories, Methods, and Tools" submitted to AERA 2011 Annual Meeting.

Hung, W. (2010, May). *Problem design, implementation, and student learning in PBL: Two case studies*. Paper presented at the Global Learn Asia Pacific 2010 Conference, Penang, Malaysia, May 17-20.

Hung, W. (2010, May). *PBL in action: Exploring the interrelationships between problem design, implementation, and student learning*. Roundtable presentation presented at AERA 2010 annual meeting, Denver, April 30-May 4.

Hung, W. (2010, February). *Problem-based learning (PBL): Cultivating problem solvers and lifelong learners*. Keynote speech presented at North Dakota Science Teachers Association (NDSTA) 2010 conference, Bismarck, February 26.

Stroble, J., Wigley, E., Evans, N., & **Hung, W**. (2009, July*). BUZZ-Acoustical engineering methodologies to measure student engagement*. Paper presented at the Research in Engineering Education Symposium 2009, Palm Cove, Queensland, Australia, July 20-23.

Holen, J., Gourneau, B., & **Hung, W**. (2009, May). *Supporting purpose-driven teaching at the University of North Dakota: A Teacher Education for the Future project report*. Paper presented at the 33rd Pacific Circle Consortium Conference, Taipei, Taiwan, May 25-29, 2009.

Hung, W. (2009, April). Theory and reality: A few issues in problem-based learning implementation and evaluation research. Paper presented at Symposium, AERA 2009 annual meeting, *Developing a shared global research agenda for problem-based learning: North American and European perspectives on the future of PBL research*, San Diego, April 13-17.

Goodnough, K., & **Hung, W**. (2008, March). *Enhancing science pedagogical content knowledge through designing PBL modules utilizing 3C3R Nine-Step design model*. Paper presented at the AERA 2007 annual meeting, March 24-28, 2008, New York.

Hung, W., Strobel, J., & Shaikh, K. (2007, October). *A critical review of research on concept mapping.*

6th Annual Beyond Boundaries Conference: Integrating Technology into Teaching & Learning, October 4 & 5, 2007, Grand Forks, ND.

Goodnough, K., & **Hung, W**. (2007, April). *Designing Effective Problems in Problem-Based Learning: Evaluating a Nine-Step Design Model*. Paper presented at AERA 2007 annual meeting, April, 9-13, Chicago.

Strobel, J., **Hung, W**., Shaikh, K. (2007, April). *A concept map is not a concept map: conceptualizations of concept mapping and its utilization.* Paper presented at AERA 2007 annual meeting, April, 9-13, Chicago.

Hung, W. (2006, April). *Application of 3C3R PBL Problem Design Model: A 9-step Design Process*. Paper presented at the AERA annual meeting, San Francisco.

Hung, W. (2005, October). *Drawing the big picture – essential skills: systems thinking and modeling*. Paper presented in the Learning by modeling Panel at the AECT annual conference, October 18-22, Orlando, FL.

Hung, W., & Alexander, D. (2005, October). *Learning to Troubleshoot – A Learning Environment for Troubleshooting Computer Networking Problems*. Paper presented at the AECT annual conference, October 18-22, Orlando, FL.

Hung, W. (2005, April). *Designing problems in PBL: A proposed model*. Paper presented at the AERA annual meeting, Montreal, Canada.

Jonassen, D., **Hung, W**., Strobel, J., Schmidt, M, & Cho, M. –H. (2004, June). *Scaffolding causal reasoning*. Poster session at the Sixth International Conference of the Learning Sciences, 2004, Santa Monica, CA.

Hung, W. (2004, April). *The role of causal reasoning methods in facilitating conceptual understanding of college students in physics*. Poster session at 2004 AERA Annual Meeting, April 12-16, San Diego.

Hung, W. (2004, April). *Teaching and learning problem solving: Utilizing system modeling as a cognitive tool for enhancing students' construction of problem representations in problem solving*. Paper presented at 2004 AERA Annual Meeting, April 12-16, San Diego.

Jonassen, D. H., Strobel, J., Hong, R. -Y., Oh, S., & **Hung, W**. (2002, November). *Building cognitive simulations with systems modeling tools*. Paper presented at the AECT annual conference, Dallas, TX.

Strobel, J., & **Hung, W**. (2002, November). *Applying cognitive flexibility theory in designing constructivist learning environments.* Paper presented at the AECT annual conference, Dallas, TX.

Strobel, J., & **Hung, W**. (2002, October*). Constructivist Learning Environments in Religion Studies*. Paper presented at the Annual Meeting of the American Academy of Religion, Toronto, Canada.

Cates, W. M., Bishop, M. J., & **Hung, W**. (2000, February). *Characterization versus narration: Empirical investigations of drama's role in multimedia instructional software*. Paper presented at the AECT annual conference, Long Beach, CA.

Tuscher, L. J., Liu, L. -P., & **Hung, W**. (1999, October). *Integration of narrowband (internet) and broadband (TV) satellite technologies for teaching and learning*. Paper presented at the AACE annual conference, Honolulu, HI.

WORKSHOPS

Hung, W. (2026, March). *AI tools for assisting teaching*. Professional Development Workshop for faculty at Valley City State University. Valley City, ND, March 25, 2026.

Hung, W. (2026, March). *Enhancing K-12 students' conceptual learning with AI: Two studies.* Professional Development Presentation for faculty at Valley City State University. Valley City, ND, March 25, 2026.

Hung, W. (2026, March). AI in research. *CEHD Professional Development session,* March 3, 2026. University of North Dakota.

Hung, W. (2025, June). *How to design effective culturally relevant problems for PjBL curriculum*. Professional Development Workshop for High school teachers, Lawrence, KS, June 28, 2025.

Hung, W., & Klemetsrud, B. (2025, June). Facilitating Culturally Responsive Project-based Learning Process**.** Professional Development Workshop for High school teachers, Lawrence, KS, June 27, 2025.

Hung, W. (2024, June). *How to design effective culturally relevant problems for PjBL curriculum*. Professional Development Workshop for High school teachers Belcourt, ND, June 5, 2024.

Hung, W., & Klemetsrud, B. (2024, June). Facilitating Culturally Responsive Project-based Learning Process**.** Professional Development Workshop for High school teachers, Belcourt, ND, June 4, 2024.

Hung, W. (2023, June). *How to facilitate student problem solving process in PjBL*. Professional Development Workshop for High school teachers in the state of Alabama.

Hung, W. (2023, June). *How to design effective culturally relevant problems for PjBL curriculum*. Professional Development Workshop for High school teachers in the state of Alabama.

Hung, W. (2023, March). *How to facilitate student problem solving process in PjBL*. Professional Development Workshop for Middle school teachers in Grand Forks School District, Grand Forks, ND.

Hung, W. (2023, March). *How to design effective culturally relevant problems for PjBL curriculum*. Professional Development Workshop for Middle school teachers in Grand Forks School District, Grand Forks, ND.

Hung, W. (2022, November). *Use of technology in research*. Beder University College, Tirana, Albania.

Hung, W. (2022, November). *Computer software in teaching and learning*. Beder University College, Tirana, Albania.

Hung, W. (2022, November). *Instructional design in cases of traditional and online tea*ching. Beder University College, Tirana, Albania.

Hung, W. (2022, November). *Use of technology in problem-based learning*. Beder University College, Tirana, Albania.

Hung, W. (2022, November). *Constructivist approach to instruction and its implementation in classes*. Beder University College, Tirana, Albania.

Hung, W. (2019, January). *How to facilitate student problem solving process in PjBL*. Professional Development Workshop for K-12 teachers and directors from Kazakhstan, Kyrgyzstan, and Tajikistan, Naryn, Kyrgyzstan.

Hung, W. (2019, January). *How to design effective culturally relevant problems for PjBL curriculum*. Professional Development Workshop for K-12 teachers and directors from Kazakhstan, Kyrgyzstan, and Tajikistan, Naryn, Kyrgyzstan.

Hung, W. (2018, December). *Facilitating student problem solving process in PjBL*. Professional Development Workshop for K-12 teachers and directors from Kazakhstan, Kyrgyzstan, and Tajikistan, Naryn, Kyrgyzstan.

Hung, W. (2018, December). *How to design effective culturally relevant problems for PjBL curriculum*. Professional Development Workshop for K-12 teachers and directors from Kazakhstan, Kyrgyzstan, and Tajikistan, Naryn, Kyrgyzstan.

Hung, W. (2018, November). *Facilitating student problem solving process in PBL & PjBL*. Professional Development Workshop for instructors and staff of the Education Improvement Programme at the University of Central Asia, Bishkek, Kyrgyzstan.

GRANTS & CONTRACTS

- 2025-2030 – Lead Evaluator for "NRT: Training Next Generation Resource Managers with Converging Technologies for Sustainable Uses of Water and Land" (NSF, $1,999,845 for 2025-2030, funded).
- 2024-2025 -- ND EPSCoR NSF Proposal Resubmission Grant ($9,000, funded)
- 2024 – PI for "Collaborative Research: Cultivating STEM Career Interest in Middle School Students Using AI-based Imagery Recognition with Unmanned Aircraft Systems (AIIRUAS)" (NSF, $997,259 for 2024-2027, not funded).
- 2023-2024 -- PI for "RAPID: DRL AI: Integrating Culturally Relevant Project-based AI-integrated Learning (CRPAIL) in high-school STEM classes" (NSF, $199,558, collaborative grant proposal, for 2023-2024, funded)
- 2023-2025 -- co-PI for "NSF Global Centers Track 2: Energy Sovereignty for Indigenous Peoples (ESIP)" (NSF, $249,998, for 2023-2025, funded)
- 2023-2026 -- co-PI for "RII Track-2 FEC: Sustainable Engineering Infrastructures and Solutions for Tribal Energy Sovereignty" (NSF ESPCoR Track II & White Paper, $4,000,000, for 2023-2028, funded)
- 2022 – PI for "iTEST: DTI: Cultivating STEM Career Interest in Middle School Students with Unmanned Aircraft Systems (UAS)" (NSF, $1,299,955, for 2023-2027, not funded)
- 2021 – PI for "iTEST: DTI: Cultivating STEM Career Interest in Middle School Students with Unmanned Aircraft Systems (UAS)" (NSF, $1,450,955, for 2022-2026, not funded)
- 2020—PI for "Cultivating STEM Career Interest in North Dakota Middle School Students with Unmanned Aircraft Systems (UAS)" (ND EPSCoR K-12 STEM Seed awards for faculty to collect preliminary data for the preparation of federal STEM proposals, $10,000, October 2020-May 2021, awarded)
- 2019--PI for "Community-based PBL using Unmanned Aircraft Systems (UAS) to Cultivate STEM Career Interest in North Dakota Middle School Students" (ND EPSCoR K-12 STEM Outreach grant, $5,999.99, October 2019-May 2020, awarded)
- 2019--PI for "Central Asia Educational Research Consortium" (Central Asia University Partnerships Program (UNICEN) Grants ($22,500, January 2020- June 2021, not funded)

- 2018--PI for "iTEST: Community-based PBL using Unmanned Aircraft Systems (UAS) to Cultivate STEM Career Interest in Middle School Students in Rural Areas" (National Science Foundation, $399,806, for 2019-2021, Not Funded)
- 2017--PI for "Practicing to Learn, Learning to Practice: An investigation of teachers' motivations and metacognition in adopting evidence-based best practices of communication facilitation skills in classrooms" (James S McDonnell Foundation, $1,510,567, Not Funded).
- 2015--Co-PI for "Engaged Student Learning: Design and Development, Level I: Project based Experience in Electrical and Chemical Engineering" (National Science Foundation, $599,998, Not Funded).
- 2015--UND EHD Research& Travel Mini-Grant (support trip to AERA 2015 annual meeting, Chicago, April 16 - 20, 2015, $500, awarded).
- 2014--Co-PI for "Bridging the Gap: Linking Undergraduate Chemical Engineering Students' Conceptual and Computational Understanding of Domain Knowledge with Case-based Learning and Systems Modeling" (National Science Foundation, $258,690, Not Funded).
- 2013--UND EHD Summer Professorship Grant "Promoting Online Learning Communities: A Systematic Review of the Instructional Strategies and Tools" (College of Education & Human Development, University of North Dakota, $3,500, 2013, awarded).
- 2013--UND EHD Research& Travel Mini-Grant (support trip to AERA 2013 annual meeting, San Francisco, April 26 - May 1, 2013, $750, awarded).
- 2011--PI for Transforming STEM Learning Grant Proposal "Integrated Multidisciplinary Problem-based Learning for Achieving Core Transformation (IMPACT) in Middle School STEM Education" (National Science Foundation, $465,538, for 2012-2014, Not Funded)
- 2011--UND EHD Travel Grant (support trip to Kaohsiung, Taiwan, World Educational Research Association Conference, 2011, December 16-18, $750, awarded)
- UND SSAC Travel Grant (support trip to Lisbon, Portugal, ED-MEDIA International Conference, 2011, June 27-July 1, $650, awarded)
- Co-PI for collaborative grant proposal "REESE: Assessing and Enhancing Problem Conceptualization In Engineering Education From High School To College Education" (National Science Foundation, $488,369, for 2011-2014, Not Funded)
- EHD Summer Professorship Grant "An exploratory Study on Group Processing in Problem-based Learning Environment" (College of Education & Human Development, University of North Dakota, $3,500, 2010, awarded).
- Co-PI for collaborative grant proposal "REESE: Development and Testing of Assessment Instruments for Problem Conceptualization in Engineering Education – High School to Undergraduate Education" (National Science Foundation, $401,954, for 2010-2013, not Funded)
- PI for grant proposal "Group Cognitive Processing in Problem-based Learning" (UND Faculty Research Seed Money Grant, $33,300, denied)
- UND EHD Research& Travel Mini-Grant (support trip to Pacific Circle Consortium conference in Taipei, May 25-29, 2009, $400, awarded).
- PI for grant proposal "Essential Skills Analysis for Unmanned Aircraft System Pilots" (UND

Faculty Research Seed Money Grant, $39,700, Not Funded)
- Co-PI for grant proposal "An Interactive Simulation Game to Promote Scientific Problem Solving in Middle School: An interactive simulation game and professional development materials to promote problem-based learning and science inquiry in middle schools" (Institute of Education Sciences, $1,441,118, 2009-2012, Not Funded)
- EHD Summer Professorship Grant "An investigation of the effectiveness of the 3C3R Problem Design Model" (College of Education & Human Development, University of North Dakota, $3,000, 2008, awarded).
- Co-PI in grant proposal "The Instructional Inquiry Support System (IISS)" (the Department of Education, Not Funded)

PROFESSIONAL ED/CONSULT ACTIVITIES

- 09/2021 – present Consultant for the development of "Troubleshooting" Course as part of The NASA Psyche Mission Innovation Toolkit grant (Arizona State University)
- 08/2009 – 12/2009 Consultant for a project "Learning and Engagement in Social Spaces: Development of an Acoustics-based Model of Measurement" (Purdue University)

AWARDS & HONORS

- 2026 – Arlys Netland Faculty Support Award ($1,000), CEHD, UND
- 2025 – Stanford-Elsevier World Top 2% Scientist
- 2025 – Dr. Clair T. Blikre Family Faculty Support Award ($1000), CEHD, UND
- 2019 – School of Health Science Education (SHE) Research Visits Scholarship, Maastricht University, the Netherlands
- 2018 – Fulbright U.S. Scholar to Kyrgyz Republic
- 2017 – Visiting Researcher under the Melting Pot Grant from King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand
- 2010 – The Reviewer of the Year Award from Interdisciplinary Journal of Problem-based Learning.
- 2009 – Selected to participate in US delegation for International Workshop and Symposium of Enhancing Project Based Learning in Engineering Education, Loughborough University, Leicestershire, UK.
- 2007 – Outstanding Publication Award from AERA Division I -- Education in the Professions (Learning to troubleshoot: A new theory-based design architecture. *Educational Psychology Review, 18*(1), 77-114.)
- 2006 – Junior Faculty Mentee Award from the Interdisciplinary Journal of Problem-based Learning (The 3C3R model: A conceptual framework for designing problems in PBL. *Interdisciplinary Journal of Problem-based Learning, 1*(1), 55-77.)
- 2006 – Wakonse Fellow (fellowship from University of Arizona)

SERVICE

Journal Editor

- *Co-editor for Interdisciplinary Journal of Problem-based Learning* (2018-present)

Editorial board member

- *Journal of Problem-based Learning in Higher Education* (invited, 2022-present)
- *Interdisciplinary Journal of Problem-Based Learning* (elected, 2008-2012; 2015-2018)
- *International Journal of Quantitative Research in Education* (2012-2015)

Manuscript reviewer (ongoing)

- Educational Research Review
- Educational Technology Research & Development
- Interdisciplinary Journal of Problem-Based Learning
- Computers & Education
- Learning & Instruction
- European Journal of Psychology of Education
- Advances in Health Sciences Education
- The Asia-Pacific Education Researcher
- Teaching & Teacher Education
- International Journal of Quantitative Research in Education
- Journal of Online Learning & Teaching
- Journal of Engineering Education
- Computers in Human Behaviors
- Educational Psychology

Conference/Grant Proposal Reviewer

- 2023 -- National Science Foundation AISL grant proposals reviewer
- 2020, 2022, 2023 -- Fulbright US Scholar grant proposals reviewer
- 2020 -- Fulbright US ETA proposals reviewers
- 2019, 2023 -- National Science Foundation iTEST grant proposals reviewer
- 2018 -- The Programme Council for Practice-oriented Research (PPO), the Netherlands Initiative for Education Research (NRO) of the Netherlands Organisation for Scientific Research (grant proposal reviewer)
- 2017 -- Singapore Ministry of education tertiary education research fund projects (grant proposal reviewer)
- 2010 -- The Israel Science Foundation (grant proposal reviewer)
- 2008 -- City University of New York Research Award Program (grant proposal reviewer)
- AERA Annual Meeting
- AECT International Convention
- Engineering Education Conference
- PAN-PBL International Conference

American Educational Research Association (AERA)

- 04/2016 – 05/2019 PBL SIG Program Chair
- 04/2008 – 05/2010 PBL SIG Chair

- 04/2005 – 04/2007 PBL SIG Communications Chair
- AERA Annual conference:
  - Division C proposals reviewer
  - PBL SIG proposals reviewer
  - PBL SIG paper presentation session chair
  - PBL SIG paper presentation session discussant

PANPBL Association of Problem-Based Learning and Active Learning Methodologies

- 11/2019 – 2021 Program Chair for Strand of "PBL and active learning in primary and secondary education" for PANPBL 2020/2021 conference.
- 06/2017 – present Treasurer
- 06/2017 – present Executive Board Member

Professional Membership

- American Educational Research Association (AERA)
- Association for Educational Communication and Technology (AECT)
- PANPBL Association of Problem-Based Learning and Active Learning Methodologies
- International Society of the Learning Sciences (ISLS)
- Association for the Advancement of Computing in Education (AACE)

University of North Dakota

- 08/2025 – present CEHD Promotion & Tenure Committee
- 09/2022 – 05/2023 Member of SBHE study group "*Programs of the future: digital Sciences*" for Envision 2035 Digitalization
- 08/2019 – 05/2025 EHD Promotion & Tenure Committee Member
- 08/2013 – present Graduate Director of Instructional Design & Technology program
- 08/2015—2020 T&L Doctoral Admission Committee Member
- 11/2015—05/2017 EHD College Technology Committee Member
- 08/2014 – 05/2015 Member of The EHD College Research Council
- 08/2015—05/2014 T&L Technology Committee Member
- 08/2014 – 12/2014 College Internal Review Committee member for the Kinesiology and Public Health Education (KPHE) undergraduate program
- 08/2011 – 08/2014 Presenter of "Group Dynamics" session for Medical School New Students Orientation
- 08/2011 – 05/2013 Teaching & Learning Doctoral Admission Committee member
- 08/2008 – 05/2013 Teaching & Learning Department Technology Committee
- 08/2012 – 05/2013 Teaching & Learning Department Appeals & Advisory committee member
- 09/2011 – 05/2012 College of EHD Tenure & Promotion Committee member
- 10/2009 – 05/2011 Undergraduate Student Learning Working Group (member)

- 08/2009–05/2010 College of EHD Technology Committee member