2024/08/27

PENG HE

College of Education, Washington State University
Cleveland Hall, Room 363
1155 College Ave., Pullman, WA 99164-2114
Office Phone: (509)335-7064
Email Address: peng.he@wsu.edu
ORCID iD; ResearchGate; Google Scholar; Twitter

ACADEMIC PREPARATIONS

Education

2012-2016	Ph.D., Curriculum and Instruction (in Chemistry), Northeast Normal University
2014-2016	Joint Doctoral Student Learning Abroad Program (Chinese Scholarship Council), Department of Learning and Instruction, University at Buffalo, State University of New York
2010-2012	M.Ed., Curriculum and Instruction (in Chemistry), Northeast Normal University
2006-2010	B.S., Chemistry, Northeast Normal University

Professional Positions

08/2024-present	*Scholarly Assistant Professor (70% Research; 20% Teaching; 10% Service)* Department of Teaching and Learning Washington State University, Pullman, WA
01/2023-08/2024	*Research Assistant Professor* Counseling, Educational Psychology & Special Education Michigan State University, East Lansing, MI
03/2019-12/2022	*Post-doc Research Associate & Visiting Professor* CREATE for STEM Institute Michigan State University, East Lansing, MI
03/2020-03/2021	*Professional learning facilitator* NGPBL: Next Generation Project-Based Learning Initiative CREATE for STEM Institute Michigan State University, East Lansing, MI
03/2019-12/2022	*Assistant Professor (Tenured, on-leave and remain Research & Mentoring serves)* College of Chemistry and Academic Institute of Teacher Education Northeast Normal University, Changchun, CN
07/2016-03/2019	*Assistant Professor (Tenured, Teaching, Research, and Serves)*

Institute of Chemical Education, College of Chemistry
Northeast Normal University, Changchun, CN

GRANTS AND FUNDING

Funded Projects

2022-2025	**PI,** *Developing and Testing a Learning Progression for Middle School Physical Science incorporating Disciplinary Core Ideas, Science and Engineering Practices, and Crosscutting Concepts.* Award ID: 2201068 ***National Science Foundation (DRK-12),*** $449,960
2017-2019	**PI,** *"U-G-S" Professional Learning Community Based Pre-service Chemistry Teacher Professional Development*. Award ID: NENU-421/131005031. Northeast Normal University, RMB 20,000.
2017-2019	**PI,** *Full-time Master of Education Pre-service Chemistry Teacher Professional Development under 3-PLC Model.* Award ID: NENU-17XQ008. Northeast Normal University, RMB 20,000.
2017-2020	**PI**, *The Evaluation System and Network Platform of Pre-service Teacher Practicum in Northeast Normal University.* Award ID: NENU-421/131005031 Northeast Normal University, RMB 100,000.

PUBLICATIONS

Journal Articles in Peer-review Journals (N = 16)

# Graduate student co-author; + Collaborate teacher co-author; * Corresponding author; ^ equal contribution

16. #Chi, M., Zheng, C., & **He, P.** (2024). Assessing high school students' chemical thinking: An instrument development and validation study. *Chemistry Education Research and Practices. https://doi.org/10.1039/D4RP00106K.* [SSCI, IF = 2.6]
15. Liu, R., # Liu, C., & * **He, P.** (2024). Chinese grades 1-9 students' views of the Nature of Science: Do they differ by grade level, gender and parents' occupation? *Science & Education.* 1-27. https://doi.org/10.1007/s11191-024-00519-x. [SSCI, IF = 2.8]
14. Li, T., * **He, P**., & #Peng, L. (2024). Measuring high school student engagement in science learning: an adaptation and validation study. International Journal of Science Education, 46(6), 524-547. https://doi.org/10.1080/09500693.2023.2248668 [SSCI, IF = 2.3]
13. * **He, P.**, Krajcik, J. & Schneider, B. (2023). Transforming standards into classrooms for knowledge-in-use: An effective and coherent project-based learning system. In Special Issue "Science Education Policy, Standards, and Teaching Materials". *Disciplinary and Interdisciplinary Science Education Research.* 5 (22): 1-23. *https://doi.org/10.1186/s43031-023-00088-z*
12. Huang, M. & * **He, P.** (2023). Pre-service science teachers' understanding of socio-scientific issues instruction through a co-design and co-teaching approach amidst the

COVID-19 pandemic. In *Special Issue: Sustainability and Citizenship: Integration of Socio-Scientific Issues in Science Education. Sustainability. 15*(10), 8211. https://doi.org/10.3390/su15108211. [SSCI, IF = 3.9]

11. Li, T., Reigh, E., ^ **He, P.,** & Adah Miller, E. (2023). Can we and should we use artificial intelligence for formative assessment in science? *Journal of Research in Science Teaching,60* (6): 1385–1389. https://doi.org/10.1002/tea.21867. [SSCI, IF = 4.6]
10. #Chi, M., Zheng, C., & **He, P.** (2023). Reframing chemical thinking using the lens of disciplinary essential questions and perspectives. *Science & Education***.** 1-26, https://doi.org/10.1007/s11191-023-00438-3. [SSCI, IF = 2.8]
9. * **He, P.,** Chen, I.-C., Touitou, I., Bartz, K., Schneider, B., & Krajcik, J. (2023). Predicting student science achievement using post-unit assessment performances in a coherent high school chemistry project-based learning system. *Journal of Research in Science Teaching,60*(4), 724- 760. https://doi.org/10.1002/tea.21815 [SSCI, IF = 4.6]
8. Zhai, X., **He, P**., & Krajcik, J. (2022). Applying machine learning to automatically assess scientific models. *Journal of Research in Science Teaching*, *59*(10), 1765–1794. https://doi.org/10.1002/tea.21773. [SSCI, IF = 4.6]
7. * **He, P.,** Zheng, C., & Li, T. (2022). Development and validation of an instrument for measuring Chinese chemistry teachers' perceived self-efficacy towards chemistry core competencies. *International Journal of Science and Mathematics Education. 20*(7),1337-1359. https://doi.org/10.1007/s10763-021-10216-8. [SSCI, IF = 2.2]
6. * **He, P.,** Zheng, C., & Li, T. (2022). High school students' conceptions of chemical equilibrium in aqueous solutions: Development and validation of a two-tier diagnostic instrument. *Journal of Baltic Science Education. 21*(3), 428-444. https://doi.org/10.33225/jbse/22.21.428. [SSCI, IF = 1.2]
5. * **He, P.,** Zheng, C., & Li, T. (2021). Development and validation of an instrument for measuring Chinese chemistry teachers' perceptions of pedagogical content knowledge for teaching chemistry core competencies. *Chemistry Education Research and Practice*, 22(2), 513-531. https://doi.org/10.1039/C9RP00286C. [SSCI, IF = 3.0]
4. Zheng, C., #Li, L., & **He, P.** (2019). The development, validation, and interpretation of a content coding map for analyzing chemistry lessons in Chinese secondary schools. *Chemistry Education Research and Practice*, 20, 246-257., http://dx.doi.org/ 10.1039/C8RP00085A. [SSCI, IF = 3.0]
3. Yang, Y., **He, P.,** & Liu, X. (2018). Validation of an instrument for measuring students' understanding of interdisciplinary science in grades 4-8 over multiple semesters: a Rasch measurement study. *International Journal of Science and Mathematics Education*, 16 (4), 639-654. https://doi.org/10.1007/s10763-017-9805-7. [SSCI, IF = 2.2]
2. **He, P.,** Liu, X., Zheng, C. & #Jia, M. (2016). Using Rasch measurement to validate an instrument for measuring the quality of classroom teaching in secondary chemistry

lessons. *Chemistry Education Research and Practice*, 17, 381-393. http://dx.doi.org/10.1039/C6RP00004E. [SSCI, IF = 3.0]

1. Zheng, C., Fu, L., & **He, P.** (2014). Development of an instrument for assessing the effectiveness of chemistry classroom teaching. *Journal of Science Education and Technology*, 23(2), 267-279. https://doi.org/10.1007/s10956-013-9459-3. [SSCI, IF = 4.0]

Peer-Review Book Chapters (N = 4)

4. **He, P.,** Shin, N., & Krajcik, J. (2024). Developing three-dimensional learning progressions of energy, interaction, and matter at middle school level: A design-based research. In Jin, H., Yan, D., & Krajcik, J. *Handbook of Research in Science Learning Progressions. DOI: 10.4324/9781003170785-14.*
3. **He, P.** Shin, N. Kaldaras L., & Krajcik, J. (2024). Integrating artificial intelligence into learning progression-based learning systems to support student knowledge-in-use: Opportunities and challenges. In Jin, H., Yan, D., & Krajcik, J. *Handbook of Research in Science Learning Progressions. DOI: 10.4324/9781003170785-31*.
2. **He, P.,** Shin, N., Zhai, X., & Krajcik, J. (in press). A design framework for integrating artificial intelligence to support teachers' timely use of knowledge-in-use assessments. In Zhai, X & Krajcik, J. *Uses of Artificial Intelligence in STEM Education*. Oxford University Press.
1. **He, P.**, Zhai, X., Shin, N., Krajcik, J. (2023). Applying Rasch measurement to assess knowledge-in-use in science education. In: Liu, X., Boone, W.J. (eds) *Advances in Applications of Rasch Measurement in Science Education.* Contemporary Trends and Issues in Science Education, vol 57. Springer, Cham. https://doi.org/10.1007/978-3-031-28776-3_13.

Journal Articles in Peer-Review Chinese Journals (N = 21)

The publications in Chinese can be accessed at www. cnki.net.
Graduate student; *Collaborate teacher

21. *Chen, C., #Li, K., *Liu, Y., & **He, P.** (2024). Project-based teaching of "coordination bonds" in high school chemistry: Uncovering the coordination compounds in human body health. [高中化学"探秘配合物"的项目式教学——揭秘人体生命健康中的配合物]. *Chinese Journal of Chemistry Education*. 45(09), 16-23. DOI: 10.13884/j.1003-3807hxjy.2023030077
20. *Liu, J., *Zhao, X., *Sun, C., & **He, P.** (2023). Project-based learning in lab experiment course: Life pain situation of "cross-color during mixed washing" as the driving questions. [以生活痛点为驱动性问题的项目式实验教学实践——深色和浅色衣物混洗串色]. *Chinese Journal of Chemistry Education*. *44*(12), 79-87. DOI: 10.13884/j.1003-3807hxjy.2022050035.

19. *Chen, C., #Li, K., *Liu, Y., & **He, P.** (2023). Project-based learning in high school chemistry classroom: Investigating properties of substances by exploring leavening agent, [高中化学“研究物质性质的方法和程序”项目式教学——探秘膨松剂]. *Chinese Journal of Chemistry Education*. *44*(9), 70-77. DOI: 10.13884/j.1003-3807hxjy.2022030156.
18. **He, P.** (2022). Designing chemistry learning performance goals based on curriculum standards: Theories, framework and case analysis. [基于课程标准的化学学习表现性目标设计：理论基础、设计框架与案例解析]. *Chinese Journal of Chemistry Education*. 43(13), 13-22. DOI: 10.13884/j.1003-3807hxjy.2021050004.
17. **He, P.** (2022). The design and practical strategies of driving questions in project-based learning——A case of “ionization and ionic reaction”. [项目式学习中驱动性问题的设计与实施策略——以“电离与离子反应”为例]. *Chinese Journal of Chemistry Education. 43* (5), 64-70. DOI: 10.13884/j.1003-3807hxjy.2021030064. This paper was reprinted by the Renmin University Reproduced Newspapers and Magazines Materials Database (2022.06).
16. *Yuan, X., Zheng, C., **He, P.,** & Shan, Y. (2022). The comparative study on the characteristics of novice and experienced junior high school chemistry teacher’s instruction behaviors [新手-熟手初中化学教师课堂教学行为特征的比较研究——以“酸和碱”单元教学为例]. *Chinese Journal of Chemistry Education*. *43*(3), 87-94. DOI: 10.13884/j.1003-3807hxjy.2021030237. [in Chinese].
15. *Yu, Z., **He, P.,** & Li, T. (2021). Developing and validating assessments for measuring scientific modeling proficiencies based on curriculum standards. [基于课程标准的科学建模能力试题开发与检验研究]. *Chinese Journal of Chemistry Education*, 42(9), 12-21. DOI: 10.13884/j.1003-3807hxjy.2021010135. This paper was reprinted by the Renmin University Reproduced Newspapers and Magazines Materials Database (2021.09).
14. #Jia, M., Zheng, C., & **He, P.,** *Yang, Y. (2019). Research and Reflection of PCK Development of Full-time Education Master in PLC Intervention Mode——The Research on the Reform of Cultivating Education Master in Northeast Normal University [PLC 干预模式下全日制专业学位教育硕士 PCK 发展研究与思考——基于东北师范大学教育硕士培养改革的研究]. *Theory and Practice of Education, 39*(6), 3-5. [in Chinese].
13. #Jia, M., Zheng, C., & **He, P.** (2019). Optimizing education mode of full-time chemistry Master of Education graduates [优化全日制化学教育硕士培养模式的探讨]. *Chinese Journal of Chemistry Education*, 40(2), 68-72. DOI: 10.13884/j.1003-3807hxjy.2018110120. [in Chinese].
12. #Jia, M., Zheng, C., **He, P.,** & #Yang, G. (2018). PLC-based PCK development of full-time Master of Education pre-service chemistry teachers: a case study of teaching practice on “ionic reaction” [PLC 干预模式下全日制专业学位教育硕士 PCK 发展研究与思

考——基于东北师范大学教育硕士培养改革的研究]. *Chinese Journal of Chemical Education*, 39(18).50-55. DOI: 10.13884/j.1003-3807hxjy.2018030155. [in Chinese].

11. Shou, X., **He, P.,** Chen M., & Hu, W. (2018). Log file analysis of exploration and understanding process: a case study of PISA (2012) problem solving test in Singapore, Japan, and Shanghai China. [基于教育数据挖掘的“探索和理解”问题解决过程研究——以 PISA(2012)新加坡、日本、中国上海 Log 数据为例]. *Modern Educational Technology*, 28(12). 41-47. DOI: 10.3969/j.issn.1009-8097.2018.12.006.
10. **He, P.,** & Zheng, C. (2018). Instrument development and validation for measuring students’ understanding of chemical core concepts using Rasch modeling theory. [基于 Rasch 模型的化学核心概念理解测量研究]. *Chinese Journal of Chemical Education*, 39(17).1-7. DOI: 10.13884/j.1003-3807hxjy.2017100087.
9. #Shan, Y., Zheng, C., & **He, P**. (2017). Experienced and novice chemistry teachers’ classroom interaction features on teaching “chemical bonds” [熟手-新手化学教师“化学键”课堂教学行为特征比较研究]. *Chinese Journal of Chemical Education*, 38(21).30-36. DOI: 10.13884/j.1003-3807hxjy.2016070115. [in Chinese].
8. *Sun, X., **He, P.,** & Zheng, C. (2016). Research on male-female chemistry teachers’ classroom interaction features [不同性别化学教师课堂教学行为特征的比较研究]. *Teaching Reference of Middle School Chemistry*, 13, 9-11. [in Chinese].
7. Zheng, C., Fu, L. & **He, P.** (2015). Research on evaluation of chemistry classroom teaching effectiveness [化学课堂教学有效性的评价研究]. *Chinese Journal of Chemical Education*, 36(19).1-4. DOI: 10.13884/j.1003-3807hxjy.2015050123. [in Chinese].
6. Zheng, C., Jia, M. & **He, P.** (2015). A comparative study on effectiveness of chemistry classroom teaching between well-designed lessons and ordinary lessons [优质课堂与常态课堂教学有效性的比较研究——以“原电池”教学为例]. *Modern Primary and Secondary Education*, 31(10), N/A. [in Chinese].
5. Li, J., Zheng, C. & **He, P.** (2015). The nature of science in next generation of science standards [美国《下一代科学教育标准》中的科学本质教育]. *Modern Primary and Secondary Education*, 31(08), 105-107. [in Chinese].
4. **He, P.** & Zheng C. (2015). Comparative study on effectiveness of chemistry classroom teaching between novice teachers and proficient teachers [新手-熟手教师化学课堂教学有效性比较研究——以“离子反应”为案例]. *Chinese Journal of Chemical Education*, 36(1),1-4. DOI: 10.13884/j.1003-3807hxjy.2013100090. [in Chinese].
3. **He, P.** & Zheng C. (2014). Comparison of classroom teaching behaviors and time of novice and expert chemistry teachers [新手-熟手化学教师课堂教学行为及其所用时间的比较研究]. *Chinese Journal of Chemical Education*, 35(17), 1-4. DOI: 10.13884/j.1003-3807hxjy.2013100089. [in Chinese].

2. **He, P.** & Zheng C. (2014). Analysis of chemistry classroom teaching behavior by CPUP model [化学课堂教学行为特征解析——基于课堂教学系统 CPUP 模型理论的案例分析]. *Chinese Journal of Chemical Education*. 35(05), 1-4. [in Chinese].
1. Zheng, C. & **He, P.** (2013). Several problems on discipline control of junior high school chemistry textbook. *Curriculum, Teaching Material and Method*, Special Issue.

The Authored Chapters in Textbooks/Books (Chinese)

2. He, P. (2018). Chapter 9 Chemistry teachers' professional development. In Zheng, C (Ed.). *Chemistry Curriculum and Teaching Theory*. Changchun: Northeast Normal University Press. (In Chinese), undergraduate method textbook.

1. He, P. (2013). Chapter 5 The Practice value of instruction behavior chain: the characterization and evaluation of classroom teaching behaviors. In Zheng, C. (Ed.). *A New Horizon of Classroom Teaching Behavior Research*. Changchun: Northeast Normal University Press. (In Chinese).

CONFERENCE & INVITED PRESENTATIONS

Peer - Reviewed Conference Proceeding

2. Li, T., Miller, E. A., & He, P. (2024). Culturally and linguistically "Blind" or Biased? Challenges for AI Assessment of Models with Multiple Language Students. In Lindgren, R., Asino, T. I., Kyza, E. A., Looi, C. K., Keifert, D. T., & Suárez, E. (Eds.), Proceedings of the 18th International Conference of the Learning Sciences - ICLS 2024 (pp. 1323-1326). International Society of the Learning Sciences. https://doi.org/10.22318/icls2024.806499.
1. Zeng, M., **He, P**., Shin, N., & Krajcik, J. (2023). Characterizing students' performances for interactive instructional decisions making to meet individual needs. In Blikstein, P., Van Aalst, J., Kizito, R., & Brennan, K. (Eds.), Proceedings of the 17th International Conference of the Learning Sciences - ICLS 2023 (pp. 1913-1914). International Society of the Learning Sciences. https://doi.org/10.22318/icls2023.267425.

Peer-Reviewed Conference Presentation/Poster (N = 42)

2024

43. He, P. Chu, Y., Yang, K., Shin, N., Tang, J., & Krajcik, J. (May 2024). *Using generative AI to automatically identify students' three-dimensional understanding in learning progression-based assessments.* Poster presented on the 2024 CREATE for STEM Mini-Conference. East Lansing, MI.

42. **He, P.,** Shin, N., & Krajcik, J. (March 2024). *Developing three-dimensional learning progressions of energy, interaction, and matter at middle school level: A design-based research.* Paper proposal submitted to the 97th NARST Annual International Conference, Denver, CO.

41. **He, P.,** Shin, N., & Krajcik, J. (March 2024). *Using Generative AI to Automatically Identify Students' Three-Dimensional Understanding in an NGSS-Aligned Learning Progression.* Paper proposal submitted to the 97th NARST Annual International Conference, Denver, CO.
40. Zeng, M., **He, P.,** Huang, M., Shin, N., Bowers, J., & Krajcik, J. (March 2024). *Developing a Three-Dimensional Learning Progression for the Thermal Energy at Middle School Science.* Paper proposal submitted to the 97th NARST Annual International Conference, Denver, CO.
39. Huang, M., **He, P.,** Zeng, M., Shin, N., Bowers, J., & Krajcik, J. (March 2024). *Developing a three-dimensional learning progression for the thermal energy at middle school science.* Paper proposal submitted to the 97th NARST Annual International Conference, Denver, CO.
38. He, X., Zhai, X., **He, P.,** & Latif, E., (March 2024). *Improving machine scoring performance with unbalanced training dataset.* Paper proposal submitted to the 97th NARST Annual International Conference, Denver, CO.
37. Morales, C., Lee, J., Eidin, E., **He, P.,** Bayer, I. (March 2024). *Measuring students 3D learning and transfer using NGSS-designed life science assessments.* Paper proposal submitted to the 97th NARST Annual International Conference, Denver, CO.
36. **He, P.,** Shin, N., Zeng, M., Nilsen, K., McKinney, D., Harris, C., He, X., Zhai, X., & Krajcik, J. (April 2024). *Integrating instructional strategies with automatic information of students' assessment performance to support teacher timely instructional decisions.* Paper submitted to the Annual Meeting of the American Educational Research Association, Philadelphia, PA.
35. **He, P.** Shin, N. Kaldaras L., & Krajcik, J. (April 2024). *Integrating artificial intelligence into learning progression to support student knowledge-in-use: Opportunities and challenges.* Paper proposal submitted to the Annual Meeting of the American Educational Research Association, Philadelphia, PA.
34. Shin, N., Nilsen, K., **He, P.,** He, X., & Krajcik, J. (April 2024). *Supporting teacher timely instructional decisions using Artificial Intelligence-assisted information to promote student science learning*. Paper submitted to the Annual Meeting of the American Educational Research Association, Philadelphia, PA.

2023

33. Krajcik, J. **He, P.** Shin, N., Zhai, X. (August 2023). *Using artificial intelligence to support teachers' use of instructional supports to improve students' useable knowledge: A conceptual framework.* Paper presented at the 2023 annual conference of the European Science Education Research Association, Cappadocia, Turkey.
32. **He, P.**, Shin, N., Huang, M., Zeng, M., Bowers, J., & Krajcik, J. (June, 2023). *Developing and testing a learning progression for middle school physical science incorporating disciplinary core ideas, science and engineering practices, and crosscutting concepts.* Poster Presentation at 2023 CADRE PI Meeting. Washington, DC.

31. **He, P.,** Shi, N., Nilsen, K., Amerman, H., & Krajcik, J. (April 2023). *Developing three-dimensional instructional strategies based on students' performance on classroom assessments.* Paper presented at the 2023 annual conference of National Association of Research in Science Teaching, Chicago, IL.
30. Zhang, Y., **He, P.**, & Li, T. (April 2023). *Diagnosing middle school students' scientific modeling: Cognitive diagnostic modeling approach.* Paper presented at the 2023 annual conference of National Association of Research in Science Teaching, Chicago, IL.
29. Wang, X., Li, T., **He, P.,** & Krajcik, J. (April 2023). *Investigating a learning progression for particle nature of matter from upper elementary through high school.* Paper presented at the 2023 annual conference of National Association of Research in Science Teaching, Chicago, IL.
28. **He, P**., Li, T., & Ma, W. (April 2023). *Applying cognitive diagnostic assessment to unpack high school students' knowledge-in-use in science education.* Paper presented at the 2023 annual conference of the American Educational Research Association, Chicago.
27. Zhang, Y., Li, T., & **He, P.** (April 2023). *Applying cognitive diagnosis model to assess middle school students' scientific explanations.* Paper presented at the 2023 annual conference of the American Educational Research Association, Chicago.
26. Amerman, H., Zhai, X., Latif, E., **He, P.,** Krajcik, J. (April 2023*). Does transformer deep learning yield more accurate sores on written explanations than traditional machine learning?* Paper presented at the 2023 annual conference of the American Educational Research Association, Chicago.
25. **He, P.,** Shin, N., Zhai, X., & Krajcik, J. (April 2023). *Guiding teacher use of artificial intelligence-based classroom assessment to improve instructional decisions: A conceptual framework.* Paper presented at the 2023 annual conference of the American Educational Research Association, Chicago.
24. Shin, N., **He, P.,** Nilsen, K., Amerman, H., Krajcik, J., & Zhai, X. (April 2023). *Design model for pedagogical content knowledge supports based on AI-automated scores.* Paper presented at the 2023 annual conference of the American Educational Research Association, Chicago.
23. **He, P.,** Shin, N., Amerman, H., Zhai, X., & Krajcik, J. (April 2023). *Designing and applying scoring rubrics for automatically scored knowledge-in-use assessment tasks for instructional decisions.* Paper presented at the 2023 annual conference of the American Educational Research Association, Chicago.
22. Zhai, X., He, X., Latif, E., **He., P.,** Krajcik, J., Yin, Y., Harris, C., Weiser, G. (April 2023). *Teacher interpretation of AI-augmented assessment reports.* Paper presented at the 2023 annual conference of the American Educational Research Association, Chicago.

2022

21. **He, P.** Shin, N., Zhai, X. & Krajcik, J. (May 2022). *Guiding teacher use of artificial intelligence-based knowledge-in-use assessment to improve instructional decisions: A*

conceptual framework. Presentation at the International Conference for AI-based Assessments in STEM Education, Athens, Georgia.

20. **He, P.,** Chen, I., & Krajcik, J. (April 2022). *Three-dimensional learning progression for supporting students' knowledge-in- use proficiency in high school project-based learning chemistry curriculum.* Paper presented at the 2022 annual conference of National Association of Research in Science Teaching, Vancouver, British Columbia.

2021

19. **He, P.,** Chen, I., Touitou, I., Maestral, S., & Krajcik, J. (April 2021). *Tracking the progress of high school students' modeling proficiencies across sequential project-based learning chemistry curriculum: A longitudinal study.* Paper presented at the 2021 annual conference of National Association of Research in Science Teaching, Virtual Conference.
18. Zeng, M., Chiu, M., **He, P.,** & Krajcik, J., (April 2021). *Investigating students' performance on explanations, developing and using model via the use of Next Generation Science Assessment (NGSA).* Paper presented at the 2021 annual conference of National Association of Research in Science Teaching, Virtual Conference.
17. Zhai, X., Yang, J., Li, T., **He, P.,** & Krajcik, J. (April 2021). *Applying machine learning to automatically evaluate student scientific modeling competence.* Paper presented at the 202` annual conference of National Association of Research in Science Teaching, Virtual Conference.
16. Shin, N., **He, P.,** Li, T., & Krajcik, J. (April 2021). *A three-dimensional integrated learning progression and aligned assessments to monitor middle school student proficiency of energy, modeling and cause and effect.* Paper presented at the 2021 annual conference of National Association of Research in Science Teaching, Virtual Conference.

2020

15. **He, P.,** Shin, N., Li, T. & Krajcik, J. (March 2020). *Developing an integrated learning progression and assessments to measure middle school student proficiency of energy.* Paper submitted to the 2020 annual conference of National Association of Research in Science Teaching, Portland, OR. Conference canceled
14. Li, T., **He, P.,** Shin, N., & Krajcik, J. (March 2020). *Creating authentic, three-dimensional classroom-based assessments for measuring middle school students' knowledge-in-use of energy.* Paper submitted to the 2020 Annual National Conference of the National Science Teachers Association (NSTA), Boston, MA. Conference canceled.
13. **He, P.,** Shin, N., & Krajcik, J. (March 2020). *Design 3D classroom-based assessments for measuring middle school students' knowledge-in-use of energy: A research-based systematic approach.* Session presented at 2020 annual meeting of the Michigan Science Teachers Association, Lansing, MI.

2019

12. **He, P.,** Li, T., Shin, N., & Krajcik, J. (May 2019). *Creating three-dimensional classroom-based assessments for measuring middle school students' knowledge-in-use of proficiencies of science.* Poster presented at the 2019 annual CREATE for STEM Mini-Conference, East Lansing, MI.

2018

11. Li, L., Zheng, C., & **He, P.** (2018). *The development, validation, and interpretation of a content coding map for analyzing chemistry lessons in Chinese secondary schools.* Paper presented at the 2018 annual conference of the National Chemistry Curriculum and Teaching Methodology, keynote speech, Chongqing, China.
10. Yang, Y., **He, P.,** Wu, Y., Liu, X., Gardella. J., & Li, S. (March 2018). *Effects of professional development on teacher knowledge, practice, and student learning of interdisciplinary science.* Paper presented at the 2018 annual conference of National Association of Research in Science Teaching, Atlanta, GA.

2016

9. **He, P.,** Zheng, C. & Liu, X. (November 2016). *Using many-facet multi-dimensional Rasch modeling to measure the progression of chemistry teacher teaching performance.* Paper presented at the 2016 annual conference of the National Chemistry Curriculum and Teaching Methodology, keynote speech, Wuhu, China. (In Chinese)
8. Yang, Y., **He, P.,** Liu, X., & Eades-Baird, M. (April 2016). *Validation of an instrument for measuring students' understanding of science in grades 4-8 over multiple semesters: A Rasch measurement study.* Paper presented at the 2016 annual conference of National Association of Research in Science Teaching, Baltimore, MD.

2015

7. **He, P.,** Zheng, C. & Liu, X. (Oct. 2015). *Developing an instrument to measure teachers' teaching performances on changes in matter.* Paper presented at the 2015 annual meeting of the East-Asian Association for Science Education (EASE) conference, Beijing, China.
6. **He, P.,** Liu, X., Zheng, C. & Xu, K. (Oct. 2015). *Development and application of a two-tier multiple-choice diagnostic instrument to identify grade 11-12 students' alternative conceptions of ionic equilibrium.* Paper presented at the 2015 annual meeting of the East-Asian Association for Science Education (EASE) conference, Beijing, China.
5. Yang, Y., **He, P.,** & Liu, X. (Oct. 2015). *Students' science achievements and variables of students, teachers, and parents: a structural equation modeling study.* Paper presented at the 2015 annual meeting of the East-Asian Association for Science Education (EASE) conference, Beijing, China.
4. **He, P.,** Zheng, C. & Liu, X. (April 2015). *Development of a coding system and instruments for assessing the quality of instructional behaviors in secondary chemistry classrooms.* Paper presented at the 2015 annual conference of National Association of Research in Science Teaching, Chicago, IL.

3. **He, P.,** Zheng, C. & Liu, X. (April 2015). *Using Rasch measurement to validate an instrument for evaluating classroom teaching in chemistry lessons.* Paper presented at the 2015 annual conference of National Association of Research in Science Teaching, Chicago, IL.

2013

2. **He, P.,** & Zheng, C. (November 2013). *Development of an instrument assessing for the practice quality of instruction behavior chains in chemistry classroom.* Paper presented at the 2013 annual conference of the National Chemistry Curriculum and Teaching Methodology, keynote speech, Wuhan, China. (In Chinese)

2012

1. Zheng, C., Fu, L. & **He, P.** (October 2012). *Development of an instrument assessing for effectiveness of primitive system of chemistry classroom teaching.* Paper presented at the International Conference of Science Education, Nanjing, China. (In Chinese).

Funded Project Research Experience

01/2023-present *Research Assistant Professor*
CREATE for STEM Institute in the College of Education
Michigan State University

- 3DLP: Developing and Testing a Learning Progression for Middle School Physical Science incorporating Disciplinary Core Ideas, Science and Engineering Practices, and Crosscutting Concepts. Award ID: 2201068, National Science Foundation (DRK-12), $449,960, 2022-2025. Dr. Peng He (PI).
- *PASTA: Collaborative Research: Supporting Instructional Decision Making: The Potential of An Automatically Scored Three-dimensional Assessment System (PASTA).* Award ID: 2101104, 2100964, 2101166, 2101112, National Science Foundation, $2,999,996 (UGA, $903,421; MSU, $ 890,000; UIC, $ 596,575; WestEd, $610,000), 2021-2025. Dr. Joseph Krajcik (PI).
- *Energy: Exploring Students' Progression in developing Quantitative Knowledge-in-Use about Energy. Award ID: R305A230401, Institute of Education Sciences,* $1,999,773, *2023-2027. Dr. Bob Geier (PI).*

Research Consultant (Research Design and Data Analysis)

- *Health in Our Hands:* Building and sustaining student engagement in genomic and environmental health sciences through a community-school partnership, National Institutes of Health, $1.2 millions, 2019-2024. Dr. Renee Bayer (PI)

03/2019-01/2023 *Post-doc Research Associate*
CREATE for STEM Institute in the College of Education
Michigan State University

- *PASTA: Collaborative Research: Supporting Instructional Decision Making: The Potential of An Automatically Scored Three-dimensional Assessment System (PASTA).* Award ID: 2101104, 2100964, 2101166, 2101112, National Science Foundation, $2,999,996 (UGA, $903,421; MSU, $ 890,000; UIC, $ 596,575; WestEd, $610,000). Joseph Krajcik (PI)
- *Equipping Middle School Teachers with Resources to Monitor the Progress of Their Students' Science Learning* (Chan-Zuckerberg Initiative 194933), $ 1.0 million, 2018-2020. Joseph Krajcik (PI), Jim Pellegrino (PI), Christopher Harris (PI)
- *PIRE: Crafting Engagement in Science Environments,* National Science Foundation (NSF), Award ID: OISE- 1545684, $3.6 million, 2013-2019. *Barbara Schneider* (PI), Joseph Krajcik (PI).

02/2014- 02/2016 *CSC-funded Visiting Ph.D. Student, Research Assistant*
Department of Learning and Instruction
University at Buffalo, State University of New York, Buffalo, NY

- *University at Buffalo/Buffalo Public Schools Interdisciplinary Science and Engineering Partnership,* National Science Foundation, $9.8 million, 2011-2016. *Dr. Xiufeng Liu (Co-PI).*

09/2010- 07/2016 *Ph.D. student, Research Assistant*
College of Chemistry
Northeast Normal University, Changchun, CN

- *Research on Promoting Teachers' Competency-based Classroom Teaching Ability, National Education Sciences Planning Program (General Category),* Grant No. BHA17031, 200,000 RMB, 2017-2020. Prof. Changlong Zheng (PI).
- *Research on Effective Classroom Teaching based on Students' Scientific Literacy,* National Education Sciences Planning Program (General Category), Grant No.100252, 30,000RMB, 2012-2015. Prof. Changlong Zheng (PI).

TEACHING PREPARATIONS

Certificates

2016	National Certificate for College/University Teaching (China)
2006	National Certificate for Secondary School Teaching (China)

Teaching Experiences (University)

Code	Course
Graduate at Washington State University (2024 Fall)	
TCH&LRN584	Research on Teaching Math & Science

Graduate at Michigan State University (2023 Fall)

TE991-002	Designing Learning Environments to Promote Useable Knowledge

Undergraduate at Northeast Normal University (2016-2019)

HXY605	Chemistry Experiments in Secondary School
HXY604	Micro-teaching
HXY501	Undergraduate thesis
1151742000836	Micro-teaching Mentoring
1151742000816	Inquiry-based Chemistry Experiments in Secondary School
1151742000806	Fundamental Practicum (I, II, III)
1151742015515	The History and Philosophy of Chemical Core Ideas
1151742000815	Chemistry Curriculum and Teaching Theory

Graduate at Northeast Normal University (2016-2019)

174000MX510	Chemistry Core Ideas and Methodology
174000MX611	Fundamental Practice
174000MX612	Research Practice
N/A	Chemistry Curriculum Development and Textbook Analysis

Teaching Experiences (K-12)

Period	Role	School
Sept 2012-Jan 2014	Field Instructor and Co-Chemistry Teacher	Experimental High School attached to Northeast Normal University, Jilin Province (Urban district)
Sept 2011-Nov 2011	Student Chemistry Teacher	Experimental High School attached to Northeast Normal University, Jilin Province (Urban district)
Mar 2011-May 2011	Student Chemistry Teacher	High School attached to Northeast Normal University, Jilin Province (Urban district)
Sept 2010-Jan 2011	Student Chemistry Teacher	Student Chemistry Teacher, Changchun NO.11 High School, Jilin Province (Urban district)
Sept 2009-Nov 2009	Student Chemistry Teacher	Lindian NO.4 Middle School, Heilongjiang Province (Rural district)
Mar 2009-May 2009	Student Chemistry Teacher	Changchun NO.1 Middle School, Jilin Province (Urban district)
Aug 2008-Sept 2008	Voluntary Chemistry Teacher	Nanping Central Middle School, Anhui Province (Rural district)

Keynote Presentations

07/10/2022	**Keynote:** Assessing Student Knowledge-in-Use in the Context of the U.S. Next Generation of Science Standards, presented at the 2nd Global Conference on International Education (GLOBE) **Host:** Beijing Normal University (N ~ 200)
11/22/2021	**Keynote**: NGSS-aligned Project-based Learning System: Curriculum, Assessment, and Instruction, and Professional Learning, presented at the National Conference of the Implementation of the New Basic Chemistry Education Curriculum Reform **Host:** Lead by Chinese Chemical Society, organized by Beijing Normal University, Xiamen Academy of Educational Science, and Chinese Journal of Chemical Education (N ~ 8000)
07/22/2020	**Keynote:** How to Assess Students' Core Competence? Lessons from the NGSS-aligned Assessment Projects. Presented at Teacher Education Reform Forum **Host:** Northeast Normal University (N ~ 7000)

Invited Presentations

03/30/2024	**Title:** Artificial Intelligence Empowered Science Classroom Teaching, Learning, and Assessment **Host:** Jiangnan University**,** (N ~ 40)
03/25/2024	**Title:** The US Project-Based Learning Environment: Design and Practice Research **Host:** The Center of Science Education Research**,** Beijing Educational Institute**,** (N ~ 80)
03/30/2023	**Title:** Next Generation Teaching and Learning with Artificial Intelligence **Host:** National Institute of Education, Nanyang Technological University (N ~ 20)
03/27/2023	**Title:** Next Generation Teaching and Learning with Artificial Intelligence **Host:** Mary Frances Early College of Education, University of Georgia (N ~ 30)
03/15/2023	**Title:** Core Competence Based Classroom Assessment in the New Era of Chinese Science Curriculum Reform **Host:** Guest Speaker at Doctoral Student Course, University of Georgia (N ~ 4)
03/08/2023	**Title:** Next Generation Teaching and Learning with Artificial Intelligence **Host:** University at Albany, SUNY (N ~ 30)
02/23/2023	**Title:** Guiding Teacher Use of Artificial Intelligence Based Knowledge-in-Use Assessment to Improve Instructional Decisions **Host:** International Visitor Leadership Program, US. Department of State
12/06/2022	**Title:** Science Education and Research in the US (N ~ 40) **Host:** College of Chemistry, Anhui Normal University

11/29/2022	**Title:** Standard-based "Instruction-Learning-Assessment" Aligned Project-based Learning in Secondary Chemistry Classrooms **Host:** Beijing Dongcheng District Teacher Research Institute (N ~ 50)
10/10/2022	**Title:** Project-based Learning Environment System in the Context of the U.S. Next Generation of Science Standards: Design Approach, Research, and Publication **Host:** Research Institute of Science Education, College of Education, Beijing Normal University; Editorial Board of Disciplinary and Interdisciplinary Science Education Research (N ~ 300)
07/06/2022	**Title:** Designing "Instruction-Learning-Assessment" Aligned Learning Goals for Middle School Chemistry Core Competency and Moral Education **Host:** Dalian Zhongshan District Teacher Professional Center (N ~ 40)
06/30/2021	**Title:** The Construction and Enactment of NGSS-aligned Project-based Learning System (N ~ 20) **Host:** Central China Normal University
06/05/2021	**Title:** Publishing Peer-Review Articles on International Educational Journals (N ~ 20) **Host:** Northeast Normal University
03/07/2021	**Title:** The Challenge and Solutions of NGSS-aligned Assessments: Lessons from Next Generation of Science Assessment (NGSA) Project **Host**: Guest Speaker at Doctoral Student Course, University of Georgia (N ~ 20)
10/02/2020	**Title:** Application of Rasch Modeling in Science Education **Host:** Sichuan Normal University (N ~ 10)
05/12/2020	**Title:** NGSS-aligned Curriculum, Assessment and Teacher Professional Learning in Project-Based Learning Environment. Beijing Normal University, virtual presentation. **Host:** Beijing Normal University (N ~ 100)
08/01/2018	**Title:** Teaching Chemistry in Secondary Schools: An Ontological Perspective **Host:** Changchun Education Bureau (Teacher professional learning program) (N ~ 100)

Design Materials & Products

Project: NGSA-Next Generation of Science Assessment
Role: Lead Assessment Designer
Product: Middle School Classroom Based Assessments
Online website: http://nextgenscienceassessment.org/task-portal/

Project: PIRE- Crafting Engagement in Science Environments
Role: Lead Curriculum Writer
Product: NGSS High School Chemistry Curriculum (Unit 1-4)

Online website: https://sites.google.com/a/msu.edu/pire-cese/file-cabinet/chemistry-resources

- Unit 1: Why do we feel colder when I am wet than when I am dry?
- Unit 2: Why can you eat some substances like table salt (NaCl) but their components (Sodium and Chlorine) are toxic?
- Unit 3: Why can we burn fuel to keep ourselves warm?
- Unit 4: What happened to my substance?

SERVICE

Editorial Board Member

2021-2025	*Journal of Science Teacher Education*
2022-2025	*Journal of Research in Science Teaching*
2023- present	*Frontier in Education, STEM Education*
2024- present	*International Journal of Science Education*
2024- present	*Disciplinary and Interdisciplinary Science Education Research*

Ad-Hoc Reviewer

Peer-reviewed Journals

Science Education (2022-)
Journal of Research in Science Teaching (2020-)
Journal of Teacher Education (2021-)
Computer & Education (2023-)
Science & Education (2024-)
International Journal of Science Education (2019-)
Journal of Science Education and Technology (2020-)
International Journal of Science and Mathematics Education (2016-)
Disciplinary and Interdisciplinary Science Education Research (2021-)
Chemistry Education Research and Practice (2016-)
Journal of Chemical Education (2019-)
Learning and Individual Differences (2024-)
Educational Assessment (2024-)
Chinese Journal of Chemical Education (2017-)
EURASIA Journal of Mathematics, Science and Technology Education (2017-2019)
Journal of Biological Education (2022)
Educational Measurement: Issues and Practice (2020)
Asia-Pacific Education Researcher (2018-2020)
International Journal for Lesson and Learning Studies (2022)
High Education Pedagogies (2022)
Professional Development in Education (2023)
International Journal of Research & Method in Education (2023)

Sustainability (2023)
Frontiers in Psychology (2024)

Book & Book Chapters
Uses and Challenges of Artificial Intelligence in STEM Education (2022-2023)
Advances in Applications of Rasch Measurement in Science Education (2022)
Handbook for Science Learning Progression Research (2022-2023)

Conferences
International Society of the Learning Sciences (ISLS, 2022-)
American Educational Research Association (2019-), Division C, Learning & Instruction, SIG, Cognition and Assessment, SIG, Science Teaching and Learning
National Association for Research in Science Teaching (2015, 2019-)

External Thesis/Dissertation Reviewer
Northeast Normal University (2016-2023)
Beijing Normal University (Beijing, 2022)
East China Normal University (Shanghai, 2021, 2022)
Central China Normal University (Wuhan, 2021,2022)
Shaanxi Normal University (Xian, 2017-2022)
Capital Normal University (2017-2022)
Taiyuan Normal College, (Taiyuan, 2021)
China West Normal University (Nanchong, 2021)
Anhui Normal University (2021)
Baoji University of Arts and Sciences (Baoji, 2021)
Shanxi Normal University (Taiyuan, 2020)

Grant Reviewers

2024	*European Research Council (ERC) (1 proposal)*
2024	*National Science Foundation (NSF): Panel 1 (8 proposals)*

National and Regional Service

2024-2027	*Inaugural Council Committee, Chinese Academy for Science Education Research*
2023-2025	*Conference Program Co-Chair- Strand 10: Curriculum and Assessment,* NARST Conference
2023-2025	*Treasurer,* NARST RIG: Asian and Pacific Islander Science Education Research (APISER)
2017-2019	*Committee Member & Secretary,* Jilin Provincial Chemical Education Association

University Service

Washington State University (2024-present)	
2024-present	Member, Math and Science PhD Committee
Northeast Normal University (2016-2022)	
2016-2019	Program Coordinator-*Master in Teaching* (Secondary Chemistry)
2016-2019	Assistant to the Director of the Institute of Chemical Education

Other Service

2022	Expert review panel for Thailand secondary school science curriculum
2022	M-STEP New Michigan K-12 science standards assessment item writer The Office of Educational Assessment and Accountability, *Michigan Department of Education*
2021	SageModeler Software designed by Concord and MSU (Simplified Chinese version translation)
2017-2018	Writing assistant for the lead writer of Curriculum Implementation for Unpacking Chinese High School Chemistry Curriculum Standards (2017), *Higher Education Press*
2017-2018	Writing assistant for the lead writer for Unpacking Chinese Compulsory Education Primary School Science Curriculum Standards (2017), *Higher Education Press*
2016-2017	Writing assistant for the lead writer for Chinese High School Chemistry Curriculum Standards (2017), *Chinese Ministry of Education*
2013-2014	Writing assistant for the lead writer for Chinese Compulsory Education Primary School Science Curriculum Standards (2017), *Chinese Ministry of Education*

PROFESSIONAL LEARNING SERVICE (K-12 TEACHERS)

Period	Duration, Program, and Funding	N	Role
Oct 2022	3-Day, professional learning conference for Michigan lead science teachers (Elementary, middle, and high level) for designing and implementing NGSS aligned classroom assessment *(Funded by Department of Counseling, Educational Psychology & Special Education, MSU)*	40	Lead PL facilitator
Aug 2022	1-Day, professional learning workshop for middle school science teacher (Detroit) for scoring NGSS aligned classroom assessment tasks *(Funded by NSF project-PASTA)*	6	Lead PL facilitator
Jun 2022	1-Day, professional learning workshop for middle school science teacher (Michigan and California lead teachers) for	6	Lead PL facilitator

	using NGSS aligned classroom assessment tasks *(Funded by NSF project-PASTA)*		
2020-2021	Across Academic Year, virtual professional learning workshop for high school chemistry teachers in Michigan school districts *(Funded by Next Generation Project-based Learning Initiative)*	20	Lead PL facilitator
2019-2020	Across Academic Year, professional learning workshop for Michigan (Detroit and southern Michigan districts) and California (Los Angeles and San Diego) participating teachers using PIRE chemistry curriculum Units *(Funded by NSF project-PIRE-CESE)*	40	Lead PL facilitator
Oct 2018	10-Day, professional development program for middle and high school backbone chemistry teachers in the "University-Government-School" community *(Funded by Northeast Normal University).*	100	Executive manager and course Lecturer
Aug 2018	10-Day, professional development program for middle school backbone chemistry teacher in Changchun city *(Funded by Changchun Educational Bureau)*	40	Course lecturer
Sep-Oct 2017	10-Day, "National Teacher Training Program 2017" for outstanding chemistry educational instructors and consultants *(Funded by Chinese Ministry of Education)*	100	Executive manager & Course lecturer
Sep-Oct 2013	10-Day, "National Teacher Training Program 2013" for outstanding chemistry educational instructors and consultants *(Funded by Chinese Ministry of Education)*	100	Executive manager
Sep-Oct 2013	10-Day, "National Teacher Training Program 2013" for improving excellent in-service chemistry teachers' teaching skills *(Funded by Chinese Ministry of Education)*	100	Executive manager
Nov-Dec 2012	10-Day, "National Teacher Training Program 2012" for outstanding chemistry educational instructors and consultants *(Funded by Chinese Ministry of Education)*	100	Executive manager
Oct-Nov 2012	10-Day, "National Teacher Training Program 2012" for free-tuition early career chemistry teachers *(Funded by Chinese Ministry of Education)*	100	Executive manager
Sep-Oct 2012	10-Day, "National Teacher Training Program 2012" for outstanding middle and high school chemistry teachers *(Funded by Chinese Ministry of Education)*	100	Executive Manager

MENTORING EXPERIENCE

Washington State University (2024-present)

- **Faculty Supervisor,** Graduates & Undergraduates (as Research assistants) at Washington State University

2024-present (1) 1 doctoral graduate student at Washington State University

Michigan State University (2019-2024)

- **Faculty Supervisor,** Graduates & Undergraduates (as Research assistants) at Michigan State University

2022-2023 (2)	1 doctoral graduate student at Michigan State University and 1 visiting doctoral graduate student from National Taiwan Normal University
2021-2022 (10)	10 undergraduates & graduates from Secondary Science Teacher Preparation program at College of Education
2019-2020 (6)	6 undergraduates from the College of Natural Science

Northeast Normal University (2016-2021)

- **Thesis Advisor,** Graduates at Northeast Normal University (Full-time in Teacher Preparation Program): 2021(6), 2020(3), 2019(3)
- **Thesis Advisor and Internship Mentor**, Graduates at Northeast Normal University (enrolled in Full-time Master's teacher preparation program): 2018(5), 2017(6)
- **Thesis Advisor**, Graduates at Northeast Normal University (In-service Teachers enrolled in Hybrid Master's teacher preparation program): 2021(6), 2020(5), 2019(6), 2018(4), 2017(6)

SELECTED AWARDS AND RECOGNITIONS

2024	The Inaugural 2024 NARST: Early Career Institute Scholar (Funded by NARST)
2023	Learning Analytics in STEM Education Research (LASER) Teaching Assistant, $1,500, Funded by NSF ECR: BCSER
2022	Learning Analytics in STEM Education Research (LASER) Scholarship, $1,500, Funded by NSF ECR: BCSER
2017	The Best Mentor Award for the third awardee on the 8th "Toshiba Cup-Science Normal University Students' Teaching Skill Innovation Competition of China Normal Universities", the Ministry of Education, China
2016	University Outstanding Dissertation Award, Northeast Normal University, China
2014-2016	Scholarship for joint doctoral student learning abroad program (2014-2016), $, 38,400, Funded by China Scholarship Council, China
2011	The University Graduate Teaching Skill Competition, 3rd Award on all subjects, and No.1 on science subjects, Northeast Normal University, China
2011	"Best Teaching Model" Award on the University Graduate Teaching Skill Competition, Northeast Normal University, China

2008	*University Third-class Scholarship (20%),* Northeast Normal University, China
2007, 2010	*University Second-class Scholarship (10%),* Northeast Normal University, China

PROFESSIONAL AFFILIATIONS

2019	National Science Teachers Association
2019 - present	American Educational Research Association
2015	East-Asian Association for Science Education
2015 - present	National Association for Research in Science Teaching

SOFTWARE SKILLS

SPSS, Mplus, Stata, Winstep, Conquest, R, HLM, LISREL, AMOS, Learning Analytics (Machine Learning)