Professor Huann-Shyang Lin

A: Institute for Learning Sciences & Teacher Education
Level 4, 229 Elizabeth Street, Brisbane CBD, QLD, 4000
GPO Box 2587, BRISBANE, QLD, 4001
T: +61 7 3861-6271
E: huann.lin@acu.edu.au
O: https://orcid.org/0000-0001-9719-9252

Work history

Position	Organisation	Years
Professor	Institute for Learning Sciences & Teacher Education, Australian Catholic University	2019 - present
Chair Professor	National Sun Yat-sen University, Taiwan	2008 - present
President	National Hualien University of Education, Taiwan	2004 - 2008
Dean Department Chair Professor Associate Professor Lecturer	Department of Chemistry, National Kaohsiung Normal University, Taiwan	1992 - 2004
Teacher	Yuan-Lin Vocational High School, Taiwan	1976 - 1988

Education

Qualifications	Organisation	Completed
PhD	University of Minnesota, USA	1992
Master	University of Minnesota, USA	1990
Bachelor	National Taiwan Normal University	1976

Fields of educational expertise

- Science education

Expertise in qualitative, quantitative and mixed research design methodologies

- Quantitative and mixed method research

Research supervision fields

- STEM education, Scientific literacy

Funded research

Competitive grants

Years	Grants	Funding
2018-2021	Ministry of Science and Technology, Taiwan: Exploring the effectiveness of inquiry-based STEM curricular development and teaching practice.	NT$ 3,882,000
2016-2020	Ministry of Science and Technology, Taiwan: Survey of citizens' scientific literacy.	NT$ 11,180,000

Research consultancies

Years	Research
2019	Northern Illinois University, USA: Research project consultant.

Publications

Edited Books

佘曉清、林煥祥（主編） (2017). PISA 2015 台灣學生的表現. 台北市： 心理出版社.

Lin, H., Gilbert, J. K., & Lien, C. (Eds.). (2016). *Science education research and practice in East Asia: Trends and perspectives*. Taipei: Higher Education Publishing.

Books

林煥祥 (2012)：大眾科學普及用書-奈米科技通 (ISBN 978-957-41-9524-4). 國科會計畫編號：NSC 100-2511-S-110-004-MY3.

林煥祥 (2008)：台灣參加 PISA 2006 成果報告 (ISBN 978-957-41-5148-6). 國科會計畫編號：NSC 95-2522-S-026-002.

林煥祥（2007) : 智育理念與實踐. 載於教育部主編：德智體群美五育理念與實踐（頁 55-104. 台北：教育.

Book chapters

Chen, Y., Hong, Z., & Lin, H. (in press). Exploring Students' Scientific Competency Performance on PISA 2015 Paper-based Assessment and Computer-based Assessment. In L. Unsworth (Ed.). *Learning from viewing and creating animations in science education.*

陳雅君、林煥祥（2017). 台灣學生閱讀素養的表現. 載於佘曉清、林煥祥（主編， PISA 2015 台灣學生的表現（116-158 頁). 台北市： 心理出版社.

Articles

Chen, Y., Pan, Y., Hong, Z., Weng, X., & Lin, H. (2020). Exploring the pedagogical features of integrating essential competencies of scientific inquiry in classroom teaching. *Research in Science & Technological Education, 38*(2), 185-207. doi.org/10.1080/02635143.2019.1601075

Pan Y., Yang, K., Wilson, K., Hong, Z., & Lin, H. (2020). The impact of museum interpretation tour on visitors' engagement and post-visit conservation intentions and behaviours. *International Journal of Tourism Research*. DOI:10.1002/jtr.2358

Tsai, C., Lin, H., & Liu, S. (2020). The effect of pedagogical GAME model on students' PISA scientific competencies. *Journal of Computer Assisted Learning, 36*(3), 359-369DOI: 10.1111/jcal.12406.

Wang, H., Hong, Z., Lin, H., & Tsai, C. (2020). The relationships among adult sustainability attitudes, psychological well-being, nature relatedness, and interest in scientific issues. *Current Psychology,* 1-12.

Yang, K., Hong, Z., Lee, L., & Lin, H. (2020). Supportive conditions and mechanisms of teachers'. professional development on inquiry-based science teaching through a learning community. *Research in Science & Technological Education*. DOI: 10.1080/02635143.2020.1779051

Chen, Y., Pan, Y., Hong, Z., Weng, X., & Lin, H. (2019). Exploring the pedagogical features of integrating essential competencies of scientific inquiry in classroom teaching. *Research in Science & Technological Education*. doi.org/10.1080/02635143.2019.1601075

Chen, Y., Wilson, K., & Lin, H. (2019). Identifying the challenging characteristics of systems thinking encountered by undergraduate students in chemistry problem-solving of gas laws. *Chemistry Education Research and Practices, 20*, 594-605.

林淑楞、林煥祥. (2019). 偽科學信念與科學素養的共存與抗衡? －民眾參與科學和偽科學活動之探究. 教育科學研究期刊. 64(2), 69-97.

Liu, S., Lin, H., & Tsai, C. (2019). Ninth grade students' mental models of the marine environment and their implications for environmental science education in Taiwan. *Journal of Environmental Education*. DOI: 10.1080/00958964.2019.1633990

Liu, S., Lin, H., & Tsai, C. (2019). The effect of pedagogical GAME model on students' PISA scientific competencies. *Journal of Computer Assisted Learning*. DOI: 10.1111/jcal.12406

She, H.-C., Lin, H., & Huang, L. (2019). Reflections on and implications of the PISA 2015 performance of students in Taiwan: The role of epistemic beliefs about science in scientific literacy. *Journal of Research in Science Teaching, 56*(10), 1309-1340. DOI: 10.1002/tea.21553

Shieh, F., Lin, H., Liu, S., & Tsai, C. (2019). Effect of peer coaching on teachers' practice and their students' scientific competencies. *Research in Science Education*, 1-24.

Yang, K., Hong, Z., Lee, L., & Lin, H. (2019). Exploring the significant predictors of convergent and divergent scientific creativities. *Thinking Skills and Creativity, 31*, 252-261.

Jack, B. M., & Lin, H. (2018). Warning! Increases in interest without enjoyment may not be trend predictive of genuine interest in learning science. *International Journal of Educational Development, 62*, 136-147.

潘怡如、陳雅君、林煥祥. (2018). 以科學新聞融入教學提升中學生自我效能及論證能力之探討. 科學教育學刊，26(1)，71-96.

王薪惠、林煥祥、洪瑞兒. (2018). 臺灣公民科技素養、科學興趣及科學參與之探討. 教育科學研究期刊，63(4)，229-259.

Liu, S., & Lin, H. (2018). Envisioning preferred environmental futures: Exploring relationships between future-related views and environmental attitudes. *Environmental Education Research, 24*(1), 80-96. DOI: 10.1080/13504622.2016.1180504

Pan, Y. T., Yang, K. K., Hong, Z. R, & Lin, H. (2018). The effect of interest and engagement in learning science on adults' scientific competency and environmental action. *EURASIA Journal of Mathematics, Science and Technology Education, 14*(12), em1609.

Wang, H., Hong, Z., Liu, S., & Lin, H. (2018). The impact of socio-scientific issue discussions on student environmentalism. *EURASIA Journal of Mathematics, Science and Technology Education, 14*(12), em1624. doi.org/10.29333/ejmste/95134

Wang, H., Chen, H., Lin, H., & Hong, Z. (2017). The Effects of College Students' Positive Thinking, Learning Motivation and Self-regulation through a Self-reflection Intervention in Taiwan. *Higher Education Research & Development, 36*(1), 201-216. DOI: 10.1080/07294360.2016.1176999

Ho, T., Lin, H., Chen, C., & Lee, L. (2017). The development and evaluation of a tablet painting application for enhancing the artistic expression skills of students through reflection. *Computers & Education, 115*, 56-68.

Jack, B. M., Lee, L., Yang, K., & Lin, H. (2017). A science for citizenship model: Assessing the effects of benefits, risks, and trust for predicting students' interest in and understanding of science-related content. *Research in Science Education, 47*(5), 965-988. DOI:10.1007/s11165-016-9535-9

Jack, B. M., & Lin, H. (2017). Making learning interesting and its application to the science classroom. *Studies in Science Education, 53*(2), 137-164. DOI: 10.1080/03057267.2017.1305543

陳雅君、洪瑞兒、佘曉清、林煥祥. (2016). 臺灣學生科學素養與科教學者研究成果表現之發展趨勢探. 科學教育學刊，24(4), 333-354.

陳映孜、何曉琪、劉昆夏、林煥祥、鄭英耀. (2017). 從教師自編科學成就測驗之 Rasch 分析看教與學. 教育科學研究期刊，62(3)，1-23.

Wang, H., Chen, H., Lin, H., & Hong, Z. (2017). Longitudinal Study of Cooperation- driven SSIs Intervention on Promoting Students' Critical Thinking and Self-regulation in Learning Science. *International Journal of Science Education, 39*(15), 2002-2026. DOI: 10.1080/09500693.2017.1357087

Chen, H-T; Wang, H-H, Lu, Y.-Y., Lin, H-S., & Hong, Z. (2016). Using A Modified Argument-Driven Inquiry to Promote Elementary School Students' Engagement in Learning Science and Argumentation. *International Journal of Science Education, 38*(2), 170-191. DOI:10.1080/09500693.2015.1134849

Jack, B., She, H., & Lin, H. (2016). Effects of self-evaluated value and cognition on leisure science engagement. *International Journal of Science Education, Part B, 6*(4), 341- 354. DOI: 10.1080/21548455.2016.1222104

Lin, S., & Lin, H. (2016). Learning nanotechnology with texts and comics: The impacts on students of different achievement levels. *International Journal of Science Education, 38*(8). 1373-1391. DOI: 10.1080/09500693.2016.1191089

林煥祥. (2016). 制式科學教育的發展與省思. 科學研習（傳承、創新科學教育，科教館 60 周年館慶特刊，55(11)，18-19.
林煥祥. (2016). 超越紙筆之外- 談科學教育之評量. 科學研習（傳承、創新科學教育，科教館 60 周年館慶特刊，55(11)，33-40.
Yang, K., Lee, L., Hong, Z., & Lin, H. (2016). Investigation of effective teaching strategies for developing creative science thinking. *International Journal of Science Education, 38*(13), 2133-2151. DOI: 10.1080/09500693.2016.1230685
Yang, K., Lin, S., Hong, Z., & Lin, H. (2016). Exploring the assessment of and relationship between elementary students' scientific creativity and science inquiry. *Creativity Research Journal, 28*(1), 16-23. DOI: 10.1080/10400419.2016.1125270
Ho, T., & Lin, H. (2015). A web-based painting tool for enhancing student attitudes toward learning art creation. *Computers & Education, 89*, 32-41.
Ho, T., Lin, H., Chen, C., & Tsai, J. (2015). Development of a computer-based visualized quantitative learning system for playing violin vibrato. *British Journal of Educational Technology, 46*(1), 71-81. DOI: 10.1111/bjet.12124
Lin, S. F., Lin, H. S., Lee, L., & Yore, L. D. (2015). Are science comics a good medium for science communication? The case for public learning of nanotechnology. *International Journal of Science Education, Part B, 5*(3), 276-294.
Liu, S., & Lin, H. (2015). Exploring undergraduate students' mental models of the environment: Are they related to environmental affect and behaviour? *Journal of Environmental Education, 46*(1), 23-40.
楊桂瓊、陳雅君、洪瑞兒、林煥祥 (2015). 新興科技融入探究式教學的成效探討. 科學教育學刊，23(2)，111-127.
Yang, K., Hong, Z., Liu, M., & Lin, H. (2015). Exploring the role of visitors' self-identity in marine museum learning. *International Journal of Science Education, Part B: Communication and Public Engagement, 5*(4), 375-393.
林煥祥、洪振方. (2015). 早期的原子量制定. 台灣化學教育，7，1- 5.
Chen, H., Wang, H., Lin, H., Lawrenz, F., & Hong, Z. (2014). Longitudinal study of an after-school, inquiry-based science intervention on low-achieving children's affective perceptions of learning science. *International Journal of Science Education, 36*(13), 2133-2156.
林煥祥、洪振方. (2014). 早期的燃燒說. 台灣化學教育，3，1- 4.
Hong, Z., Lin, H., Chen, H., Wang, H., & Lin, C. (2014). The effects of aesthetic activities on improving at-risk family children's anxiety about learning science and positive thinking. *International Journal of Science Education, 36*(2), 216-243.
Jack, B., & Lin, H. (2014). Igniting and sustaining interest among students who have grown cold towards science. *Science Education, 98*(5), 792-814.
Jack, B., Lin, H., & Yore, L. (2014). The synergistic effect of affective factors on student learning outcomes. *Journal of Research in Science Teaching, 51*(8), 1084-1101.
Liu, S., & Lin, H. (2014). Primary teachers' beliefs about scientific creativity in the classroom context. *International Journal of Science Education, 36*(10), 1551-1667.
Liu, S., & Lin, H. (2014). Undergraduate students' ideas about nature and human-nature relationships: An empirical analysis of environmental worldviews. *Environmental Education Research, 20*(3), 412-429.
Liu, S., & Lin, H. (2014). Undergraduate students' science-related ideas as embedded in their environmental worldviews. *International Journal of Science and Mathematics Education, 12*(5), 1001-1021.
Gilbert, J., & Lin, H. (2013). How might adults learn about new science and technology? The case of nanoscience and nanotechnology. *International Journal of Science Education, Part B: Communication and Public Engagement, 3*(3), 267-292.
Hong, Z. & Lin, H. (2013). Boys' and girls' involvement in science learning and their self-efficacy in Taiwan. *International Journal of Psychology, 48*(3), 272-284.
Hong, Z., Lin, H., Wang, H., Chen, H., & Yang, K. (2013). Promoting and Scaffolding Elementary School Students' Attitudes toward Science and Argumentation through a Science and Society Intervention. *International Journal of Science Education, 35*(10), 1625-1648.
Lin, H., Hong, Z., & Chen, Y. (2013). Exploring the development of college students' situational interest in learning science. *International Journal of Science Education, 35(*13), 2152-2173.
Lin, H., Hong, Z., Yang, K. & Lee, S. (2013). The impact of collaborative reflections on teachers' inquiry teaching. *International Journal of Science Education, 35*(18), 3095-3116.
Lin, S., Lin, H., & Wu, Y. (2013). Validation and exploration of instruments for assessing public knowledge of and attitudes toward nanotechnology. *Journal of Science Education and Technology, 22*(4), 548-559.
Hong, Z. & Lin, H. (2012). Impacts of a book reading club intervention on enhancing parents' positive thinking. *Journal of Health Psychology, 17*(2), 273-284.

Hong, Z., Lin, H., & Lawrenz, F. (2012). Effects of an integrated science and societal implication intervention on promoting adolescent's positive thinking and emotional perceptions in learning science. *International Journal of Science Education, 34*(3), 329-352.
Hong, Z., Lin, H., Wang, H., Chen, H., & Yu, T. (2012). The Effects of Functional Group Counseling on Inspiring Low Achieving Students' Self-worth and Self-efficacy in Taiwan. *International Journal of Psychology, 47*(3), 179-191.
Juan, C., Chou, C., & Lin, H. (2012). Research on the Free Choice Cooperative Learning: Taking the Optical Fiber Circuit Measurement as the Problem-Solving Example. *Applied Mechanics and Materials*, 239-240, 247-250.
Lin, H., Hong, Z., & Huang, T. (2012). The role of emotional factors in building public scientific literacy and engagement with science. International Journal of Science Education, 34(1), 25-42.
Lin, H., Hong, Z. & Lawrenz, F. (2012). Promoting and scaffolding argumentation through reflective asynchronous discussions. *Computers & Education, 59*, 378-384.
Lin, H., Lawrenz, F., Lin, S., & Hong, Z. (2012). Relationships among affective factors and preferred engagement in science related activities. *Public Understanding of Science, 22*(8), 941-954.
Lin, E., Lin, H., & Chou, C. (2012). Development of Cloud Cooperative Learning Style Scales: Applying Cloud Computing Concept on Cloud Cooperative Learning of Information Science Education. *Computer Science & Service System*, 68-71.
楊桂瓊、林煥祥、洪瑞兒 (2012). 以論證活動探討國小學童論證能力和科學本質之表現. 科學教育學刊 20(2), 145-170.
Chen, J., Lin, H., Hsu, Y., & Lee, H. (2011). Data and claim: The refinement of science fair work through argumentation. *International Journal of Science Education, Part B: Communication and Public Engagement,1*(2), 147-164.
Hong, Z., & Lin, H. (2011). An investigation of students' personality traits and attitudes toward science. *International Journal of Science Education, 33*(7), 1001-1028.
Lin, H., Hong, Z., Chen, C. & Chou, C. (2011). The effect of integrating aesthetic understanding in reflective inquiry activities. *International Journal of Science Education, 33*(9), 1199-1217.
Lin, H., Hong, Z., Wang, H., & Lee, S. (2011). Using reflective peer assessment to promote students' conceptual understanding through asynchronous discussions. *Educational Technology & Society, 14*(3), 178-189.
李松濤、林煥祥、洪振方 (2010). 探究式教學對學童科學論證能力影響之研究. 科學教育學刊，18(2), 155-175.
楊淑萍、林煥祥 (2010). 由家庭經濟財及文化財探討我國學生在 PISA 科學、數學素養的表現. 科學教育學刊，18(6)，547-562.
Lin, H., Hong, Z., & Cheng, Y. (2009). The interplay of classroom learning environment and inquiry based activities. *International Journal of Science Education, 30*(4), 469-493.
紀惠英、林煥祥 (2009). 從 PISA 測驗結果看九年一貫課程成效與高中職學生成績的差異. 教育政策論壇, 12 (1)，1-39.
Hong, Z., Lin, H., & Lawrenz, F. (2008). Promoting single-parent children's attitudes toward science and science performance through extracurricular science intervention in Taiwan. *International Journal of Science Education, 30*(4), 469-493.
Hong, Z., Lin, H., & Veach, P. M. (2008). Effects of an Extracurricular Science Intervention on Science Performance, Self-Worth, Social Skills, and Sexist Attitudes of Taiwanese Adolescents from Single-Parent Families. *Sex Roles, 59*, 555-567.
Anderson, J., Lin, H., Treagust, D., Ross, S., & Yore, L. (2007). Using large-scale datasets for research in science and mathematics education: Programme for International Student Assessment (PISA). *International Journal of Science and Mathematics Education, 5*(4), 591-614.
Lee, S., & Lin, H. (2005). An exploratory study of science teachers' expectations for students' learning outcomes and their conceptions of science teaching. *Kaohsiung Normal University Journal, 18*, 321-343.
Lee, S., & Lin, H. (2005). Using argumentation to investigate science Teachers' teaching practices: The perspective of instructional decisions and justifications. *International Journal of Science and Mathematics Education,* 3, 429-461.
Lin, H., Lee, S., & Treagust, D. (2005). Chemistry teachers' estimation of their students' learning achievement. *Journal of Chemical Education, 82*, 1565-1569.
Lin, H., Chiu, H. L., Chou, C. Y. (2004). Student understanding of the nature of science and their problem-solving strategy. *International Journal of Science Education, 26*(1), 101-112.
Lawrenz, F., Hong, Z. R., Huffman, D., & Lin, H. (2003). Interest in Science: What is different for boys and girls? *CESI Science, 36*(1), 21-28.
Shu, Y. Y., Lai, T. L., Lin, H., Yang, T. C., & Chang, C. P. (2003). Study of factors affecting on the extraction efficiency of polycyclic aromatic hydrocarbons from soils using open-vessel focused microwave-assisted extraction. *Chemosphere, 52*, 1667-1676.

Chen, C. C., Lin, H., & Lin, M. L. (2002). Developing a two-tier diagnostic instrument to assess high school students' understanding- The formation of images by a plane mirror. *Proceedings of the National Science Council, R.O.C., Part D: Mathematics, Science, and Technology Education, 12*(3), 106-121.
Lin, H. S., & Chen, C. C. (2002). Promoting pre-service chemistry teachers' understanding about the nature of science through history. *Journal of Research in Science Teaching, 39*(9), 773-792.
Lin, H. S., Hung, J. Y., & Hung, S. C (2002). Using the history of science to promote students' problem solving ability. *International Journal of Science Education, 24*(5), 453-464.
Lin, H., Yang, T. C., Chiu, H. L., & Chou, C. Y. (2002). Students' difficulties in learning electrochemistry. *Proceedings of the National Science Council, R.O.C., Part D: Mathematics, Science, and Technology Education, 12*(3), 100-105.
Lin, H. S., & Chiu, H. L. (2000). Using computers to support a beginning teacher's professional development. *Journal of Science Education and Technology, 9*(4), 367-373.
Lin, H. S., Cheng, H. J., & Lawrenz, F. (2000). The assessment of students' and teachers' understanding of gas laws. *Journal of Chemical Education, 77*(2), 235-238.
Lin, H. S., & Lawrenz, F. (1999). Using time-series design in the assessment of teaching effectiveness. *Science Education, 83*(4), 409-422.
Lin, H. S. (1998). Enhancing college students' attitudes toward science through the history of science. *Proceedings of the National Science Council, R.O.C., Part D: Mathematics, Science, and Technology Education, 8*(2), 86-91.
Lin, H. S. (1998). The effectiveness of teaching chemistry through the history of science. *Journal of Chemical Education, 75*(10), 1326-1330.
Lin, H. S. (1996). Beginning teachers' and their student's conception of science teaching. *Proceedings of the National Science Council, R.O.C., Part D: Mathematics, Science, and Technology Education, 6*(1), 16-24.
林煥祥. (1996). 初任理化教師之教學成效評量. 科學教育學刊，4(2)，113-134.
Lin, H.S., Shiau, B. R., & Lawrenz, F. (1996). The effectiveness of teaching science with pictorial analogies. *Research in Science education, 26*(4), 495-511.
Lin, H. S., & Lawrenz, F. (1992). Teaching beliefs and practices: A survey of high school chemistry teaching beliefs and practices. *Journal of Chemical Education, 69*(11), 904-907.

Scholarly contributions and service

Editorial roles

Role	Publication	Dates
Editor-in-Chief	International Journal of Science and Mathematics Education	2013- present

Editorial board memberships

- International Journal of Science Education

Invited reviewer

- Chemistry Education Research and Practice
- Computers & Education
- Journal of Research in Science Teaching
- Educational Technology & Society
- Journal of Environmental Education
- International Journal of Science Education
- International Journal of Science and Mathematics Education
- International Journal of Environmental Research and Public Health
- Public Understanding of Science
- Research in Science & Technology Education
- Irish Educational Studies

Scholarly contribution

- Committee member, Ministry of Education Review Panel for Museum and Science Center Development. (2017-2020)
- General Education Consultant Committee member, National Ping Tung University. (2016-2020)
- General Education Consultant Committee member, National Ping Tung University of Science and Technology. (2016-2020)
- Research Award Evaluation Committee member, National Chang Hwa University of Education. (2016-2020)
- International book proposal reviewer, Springer. (2017-2019)
- Chief Evaluation Committee member, Higher Education Evaluation and Accreditation Council of Taiwan. (2006-2019)
- International oral examiner for PhD dissertation, Shaanxi Normal University, China. (2018)
- International reviewer for faculty member's promotion, Macau University. (2017)
- International oral examiner for PhD dissertation, Macau University. (2017)
- Evaluation Committee member, National Chung Cheng University Center for General Education. (2017)
- General Education Consultant Committee member, National Chung Hsing University. (2018)
- General Education Consultant Committee member, Kaohsiung Medical University. (2016-2017)
- Evaluation Committee member, National Chiao Tung University Institute of Education. (2016)
- Evaluation Committee member, National Taiwan Normal University Graduate Institute of Science Education. (2015)
- Review panel of outstanding journal article for the Journal of Research in Science Teaching. *Official journal of the National Association for the Research of Science Teaching, USA*. (2015)
- Committee member, Ministry of Education Study Abroad Review Panel. (2006-2009)
- Consultant committee member, National Science Council Department of Science Education. (2005-2007)
- Committee member, Ministry of Education Evaluation and Selection of High School Principals. (2004-2007)
- Committee member, Ministry of Education Science Education Consultant. (2001-2004)
- Research coordinator, National Science Council Department of Science Education. (2001-2004)

Awards

- Distinguished Contribution Award, Association for Science Education, Taiwan (2017)
- Appointed Researcher, Ministry of Science and Technology (2014-2017)
- Distinguished Contribution through Research Award, East-Asian Association for Science Education (2013)
- Outstanding Research Award, National Science Council, Taiwan (2011-2013)
- Outstanding Research Award, National Science Council, Taiwan (2003-2005)
- Outstanding Research Award, National Science Council, Taiwan (2000-2001)