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Lin Yan

Curriculum Vitae

December, 2024
Arizona State University

EDUCATION

Ph.D., Learning, Literacies and Technology, Spring 2025, Arizona State University, Tempe, AZ, U.S.

Dissertation (Defending Spring 2025): *Examining the Effectiveness of the Equitable Classroom Discussion Intervention on Elementary Science Teachers' Discussion Practices: A Study of Changes and Evolution*

M.A., Educational Technology, 2014, Hanyang University, Seoul, South Korea.

Thesis: *The Effects of Thought-Provoking Questioning Strategies on the Quality of Argumentation and the Collaboration Load in Social Networking Service (SNS) Based Collaborative Learning*

B.A., Korean Language and Literacy, 2011, Shanghai International Studies University, Shanghai, China.

SPECIALIZATIONS

Learning Science, Science Education, Equity, Educational Technology

PUBLICATIONS

Peer-Reviewed Journal Articles

- [1] Yan, L., Firetto, C. M., Starrett, E., Kingsbury, J. S., Penkrot, T. A., & Hyatt, J.-P. K. (2023). Exploring supports or incentives to promote undergraduate students' use of cooperative study groups. *International Journal of Educational Research Open*, 4, 100252. <https://doi.org/10.1016/j.ijedro.2023.100252>
- [2] Firetto, C. M., Starrett, E., Montalbano, A. C., Yan, L., Penkrot, T. A., Kingsbury, J. S., & Hyatt, J.-P. K. (2023). The impact of effective study strategy use in an introductory anatomy and physiology class. *Frontiers in Education*, 8, 1161772. <https://doi.org/10.3389/feduc.2023.1161772>
- [3] Su, M., Ha, J., Pérez Cortés, L. E., Bernier, J., Yan, L., Nelson, B. C., Bowman, J., & Bowman, C. D. (2023). Understanding museum visitors' question-asking through a mobile app. *Educational Technology Research and Development*, 71(6), 2483-2506. <https://doi.org/10.1007/s11423-023-10265-6>

Peer-Reviewed Conference Proceedings

- [4] Bernier, J., Su, M., Yan, L., & Nelson, B. (2023, June). An analysis of the design and pedagogy of Dragonbox Algebra. In Blikstein, P., Van Aalst, J., Kizito, R., & Brennan, K. (Eds.), *Proceedings of the 17th International Conference of the Learning Sciences-ICLS 2023*, pp. 1873-1874. International Society of the Learning Sciences, Montréal, QC. <https://2023.isls.org/proceedings/>

- [5] Bernier, J., Cabrera, L., Figueroa, F., Ha, J., Kramarczuk, K., Mak, J., Su, M., Xin, Y., **Yan, L.**, Ketelhut, D. J., Nelson, B., & Terrell-Shockley, E. (2022, June). Accessible computational thinking in elementary science. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *Proceedings of the 16th International Conference of the Learning Sciences-ICLS 2022*, pp. 2024-2025. International Society of the Learning Sciences, Hiroshima, Japan. <https://2022.isls.org/proceedings/>
- [6] **Yan, L.**, & Kim, D. (2014, November). The effects of thought-provoking questioning strategies on the quality of argumentation and the collaboration load in social networking service (SNS) based collaborative learning. In *Proceeding of the International Conference of Educational Technology 2014 Meeting, 2014(2)*, pp. 105-105. International Conference of Educational Technology, Seoul, South Korea. <https://kiss.kstudy.com/Detail/Ar?key=3448847>

Manuscripts Under Review/Revision

- Mak, J., Xin, Y., **Yan, L.**, Kramarczuk, K., Figueroa, K., Nelson, B., Terrell-Shockley, E., Bernier, J. & Ketelhut, D. J. (Under Revision). Accessible computational thinking in elementary science: an aligning framework for teacher learning and implementation. *Journal of Technology and Teacher Education*.
- Bernier, J., Kramarczuk, K., Terrell Shockley, E., Figueroa, F., **Yan, L.**, Xin, Y., Mak, J., Su, M., Ketelhut, D. J., & Nelson, B. (Under Revision). Exploring culturally responsive teaching practices in computational thinking + science lesson planning. *Journal for STEM Education Research*.
- Firetto, C. M., Murphy, P. K., Starrett, E., Herman, E. A., Greene, J. A., Tang, Y., & **Yan, L.** (Under Revision). Exploring developmental differences in high-level comprehension for upper primary students: The roles of grade level and text genre. *Learning and Instruction*.
- Kramarczuk, K., Bernier, J., Mak, J., Figueroa, F., Terrell Shockley, E., Xin, Y., **Yan, L.**, Nelson, B., & Ketelhut, D. J. (Under Review). A matryoshka doll of elementary science teacher positionalities: Implications for computational thinking and culturally responsive professional development. *Journal of Science Education and Technology*.

Manuscripts In Preparation

- Yan, L.**, Xin, Y., Figueroa, F., Bernier, J., Terrell Shockley, E., Nelson, B., & Ketelhut, D. J. Practical strategies for culturally responsive teaching in computational thinking integrated elementary science lessons (working title). *Target Journal: Innovations in Science Teacher Education*.
- Firetto, C. M., **Yan L.**, Starrett E., Jaber L., Kingsbury, J. S., Penkrot, A. T., & Hyatt, J.-P. K. Examining undergraduate anatomy and physiology students' connection generation in collaborative online study groups (working title). *Targeted Journal: Journal of Computer Assisted Learning*.

Bernier, J., Heyer, N., Su, M., **Yan, L.**, Ha, J., Islam, R., Jordan, M., & Nelson, B. A design-based approach to playful algebra learning with Dragonbox Algebra (working title). *Target Journal: Digital Experiences in Mathematics Education*.

HONORS, AWARDS, AND FELLOWSHIPS

2025	LLT Research Grant Awards, ASU MLFTC	\$1000
2025	ASU Graduate College Graduate Research Support Program (GRSP)	\$2000
2024	GuARdians of Tomorrow. Brian Nelson, Diane Jass Ketelhut, Luis Perez Cortes, Jeremy Bernier, and Lin Yan . Second Place, Games in Development Division, Game Design Competition. European Conference on Game-based Learning (ECGBL), 2024. Denmark.	
2024	Graduate Student Government (GSG) Travel Funding	\$950
2024	Graduate College Travel Award	\$300
2024	University Graduate Fellowship (UGF) Award at ASU	\$2,720
2024	LLT Research Grant Awards, ASU MLFTC	\$200
2024	LLT Travel Funding, ASU MLFTC	\$950
2023	University Graduate Fellowship (UGF) Award at ASU	\$3,888
2023	LLT Research Grant Awards, ASU MLFTC	\$305
2023	LLT Travel Funding, ASU MLFTC	\$800
2022	University Graduate Fellowship (UGF) Award at ASU	\$3,577
2022	LLT Research Grant Awards, ASU MLFTC	\$260
2022	LLT Travel Funding, ASU MLFTC	\$130
2020	Tutor Award, Bergen Community College	\$100
2019	Bergen Foundation Scholarships	\$1,000
2018	Southpole Foundation Scholarships	\$1,000
2014	International Excellence Award, Hanyang University	\$1,500
2014	Test of Proficiency in Korean (TOPIK) Scholarships, Hanyang University	\$500
2013	Daewoong Pharm Foundation International Excellence Scholarships	\$3,000
2013	Korean Speech Contest Award Funded by Samsung Life Insurance Co., Ltd	\$3,500

GRANTS

As a Co-PI

- 2024 **Mary Lou Fulton Teachers College Internal Scholarship Grant: Funded**
Exploring Individual Differences in High-Level Comprehension and Equitable Talk for Upper Primary Students. Award: \$13,397. PI: Firetto, C. M., Co-PI: Starrett, E., & **Yan, L.**
- 2022 **Mary Lou Fulton Teachers College Internal Scholarship Grant: Funded**
Supporting teacher candidates' understanding of ethical educational assessments through equity-focused, small-group discussions. Award: \$14,949. PI: Firetto, C. M., Co-PI: Patton, L., Oliver, J., & **Yan, L.**

As Research Assistant

- 2025-2027 **National Science Foundation: Unfunded**
HSI Implementation and Evaluation Project: Adapting an Approach for Peer-Led Study Discussions (PLSDs) in Introductory Anatomy and Physiology. PI: Firetto, C. M., Co-PI: Hyatt, J.-P. K., Kingsbury, J., & Lopes, M.
- 2025-2028 **National Science Foundation: Unfunded**
GuARdians of the Future: Embodied Explorations and Modeling for Understanding Sustainability. PI: Pérez Cortés, L.E., Co-PI: Nelson, B., & Sanchez-Murillo, R.
- 2021-2025 **National Science Foundation: Funded**
Accessible Computational Thinking in Elementary Science Classes within and across Culturally and Linguistically Diverse Contexts. Award Nos.: 2101526, 2101039 Award Amounts: \$1,172,781, \$931,058 Principal Investigators: Diane Ketelhut (2101526), Brian Nelson (2101039) Co-PI: Ebony Schockley (2101526)
- 2021-2024 **Mary Lou Fulton Teachers College Internal Scholarship Grant: Funded**
Exploring active learning exercises in introductory anatomy and physiology courses. Award: \$7,787. PI: Firetto, C. M.
- 2021-2024 **Institute for Social Science Research at Arizona State University: Funded**
Leveraging collaborative in-class learning exercises (CICLES) to promote a deeper understanding of anatomy and physiology. Award: \$8,000. PI: Firetto, C. M., Co-PI: Hyatt, J.-P. K., Kingsbury, J., & Penkrot, T.

TEACHING EXPERIENCE

College Teaching Experience

- 2024 Spring **Course Instructor**, Mary Lou Fulton Teachers College, Arizona State University, Tempe, AZ.
- Teacher Education & Leadership (TEL) 318: Instructional Thought and Action: Assessment for Learning
- 2018 ~ 2021 **TESOL Professional Tutor**, English Language Resource Center, Bergen Community College, Paramus, NJ.
- ESL - 100-300, Writing, Speaking, Grammar
 - WRT – 101/201, Composition I & II
 - Special ESL Writing & Grammar (for deaf students)

In-service Teacher Training Experience

- 2023 Summer **Professional Development Facilitator**, Accessible Computational Thinking in Elementary Science Classes within and across Culturally and Linguistically Diverse Contexts Professional Development. Phoenix, AZ. Funded by National Science Foundation Award Nos.: 2101526, 2101039.

- Co-delivered and facilitated a second-year summer workshop for participating elementary science teachers focused on deepening their understanding of computational thinking (CT) and culturally responsive teaching (CRT). The workshop emphasized integrating these concepts into science lessons to better serve and engage diverse student populations in meaningful ways.

K-12 Student Teaching Experience

- 2022 ~ now **Volunteer Teacher**, Knox Gifted Academy (Elementary), Chandler, AZ.
- World Art Classes
 - Cultural Celebration Festival
- 2019 Summer **K-6 Korean / Chinese Teacher**, Han Moory Summer School, Closter, NJ.
- 2007 ~ 2010 **STEM Tutor**, LET'S NO.1 Tutor Center, Shanghai, China.
- Elementary Mathematics & Middle School Physics and Chemistry

CONFERENCE PRESENTATIONS

National and International Conference Presentations

- [1] **Yan, L.**, Bernier, J., Nelson, B.C., Islam, R., & Ha, J. (2025, April). *Every voice matters: Revising the equitable classroom discussion observation protocol to include all in science* [Poster Session]. American Educational Research Association 2025 Annual Meeting, Denver, CO.
- [2] Pérez Cortés, L. E., Nelson, B., Bernier, J., & **Yan, L.** (2025, April). *GuARdians of tomorrow: Enhancing middle school science with augmented reality experiences of climate change* [Roundtable Session]. American Educational Research Association 2025 Annual Meeting, Denver, CO.
- [3] Nelson, B., Perez Cortes, L., Ketelhut, D.J., Bernier, J. & **Yan, L.** (2025, April). *Designing for climate literacy with the ARISE framework: The GuARdians project* [Structured Poster Session]. American Educational Research Association 2025 Annual Meeting, Denver, CO.
- [4] Ha, J., Su, M., Jeong, S., **Yan, L.**, & Yoon, S. (2025, April). *Collaborative learning and student outcomes: evaluating a university chemistry course design with the ICAP framework* [Paper Session]. American Educational Research Association 2025 Annual Meeting, Denver, CO.
- [5] Figueroa, F., Coen, A., Ketelhut, D.J., Nelson, B., Kramarzucuk, K., Mak, J., **Yan, L.**, Xin, Y., Terrell Shockley, E., & Bernier, J. (2025, April). *Teacher self-efficacy implementing CT-infused elementary science lessons* [Roundtable Session]. American Educational Research Association 2025 Annual Meeting, Denver, CO.

- [6] **Yan, L.**, Xin, Y., Figueroa, F., Bernier, J., Terrell Shockley, E., Nelson, B., & Ketelhut, D.J. (2024, November). *Culturally responsive teaching strategies in computational thinking-infused science lessons on elementary level* [30 mins Presentation]. 2024 National Science Teaching Association (NSTA) National Conference on Science Education, New Orleans, LA.
- [7] Mak, J., Xin, Y., **Yan, L.**, Kramarczuk, K., Figueroa, K., Nelson, B., Terrell-Shockley, E., Bernier, J. & Ketelhut, D. J. (2024, September) *Accessible computational thinking in elementary science: An aligning framework for teacher learning and implementation* [Symposium Session]. Society for Information Technology & Teacher Education (SITE) Interactive Online 2024.
- [8] Figueroa, F., **Yan, L.**, Terrell Shockley, E., Mak, J., Bernier, J., Kramarczuk, K., Su, M., Nelson, B., & Ketelhut, D. (2024, July). *Using Computational Thinking as a Multimodal Tool for Multilingual Learners*. [Paper Session] Annual SIOP National Conference (Online Format).
- [9] **Yan, L.**, Bernier, J., Su, M., Islam, R., & Nelson, B. (2024, April). *Every voice matters: Designing an equitable classroom discussion observation protocol to engage all students* [Round Table Session]. American Educational Research Association 2024 Annual Meeting, Philadelphia, PA.
- [10] Firetto, C. M., **Yan, L.**, Starrett, E., Jaber, L., Kingsbury, J.S., Penkrot, T., & Hyatt, J.-P. K. (2024 April). *Examining undergraduate anatomy and physiology students' connection generation in collaborative online study groups* [Paper Session]. American Educational Research Association 2024 Annual Meeting, Philadelphia, PA.
- [11] Bernier, J., Heyer, N., Su, M., **Yan, L.**, Islam, R., Ha, J., Jordan, M., & Nelson, B. (2024, April). *A design-based approach to playful algebra learning with Dragonbox Algebra in play, motivation, and engagement in math learning* [Paper Session]. American Educational Research Association 2024 Annual Meeting, Philadelphia, PA.
- [12] Kramarczuk, K., Bernier, J., Figueroa, F., **Yan, L.**, Terrell Shockley, E., Coen, A., Su, M., Xin, Y., Nelson, B., & Ketelhut, D. J. (2024, April). *Elementary teachers' positional identities and dispositions towards culturally responsive computational thinking-integrated science* [Roundtable Session]. American Educational Research Association 2024 Annual Meeting, Philadelphia, PA.
- [13] Figueroa, F., Terrell Schockey, E., Nelson, B., **Yan, L.**, Xin, Y., Bernier, J. Mak, J., Kramarczuk, K., Su, M., & Ketelhut, D. (2024, February). *Computational Thinking (CT) for Multilingual Learners Using Multiple Meaning-Making Resources*. [Roundtable Session]. Second Language Acquisition and Teaching Student Association, Tucson, AZ.

- [14] Xin, Y., Su, M., Mak, J., Coen, A., Figueroa, F., Kramarczuk, K., Ketelhut, D. J., & **Yan, L.** (2024 April). *Two trajectories: elementary teachers' evolving understandings of culturally responsive and computational thinking infused science teaching* [Paper Session]. American Educational Research Association 2024 Annual Meeting, Philadelphia, PA.
- [15] Bernier, J., Kramarczuk, K., Terrell Shockley, E., Figueroa, F., **Yan, L.**, Xin, Y., Mak, J., Su, M., Ketelhut, D. J., & Nelson, B. (2024, March). *CT+CRT+science: Pathways to integration in elementary teachers' lesson plans* [Paper Session]. The 2024 Annual International Conference of the National Association for Research in Science Teaching (NARST), Online.
- [16] Firetto, C. M., Oliver, J., Patton, L., & **Yan, L.** (2023, August). *Supporting teacher candidates' equitable engagement in small-group discussions* [Poster Session]. American Psychological Association 2023 Annual Convention, Washington, D.C.
- [17] Figueroa, F., Terrell Shockley, E., **Yan, L.**, Ketelhut, D. J., & Nelson, B. (2023, June). *Supporting English learners and multilingual learners in science* [Paper Session]. The SIOP National Conference 2023, Online.
- [18] Mak, J., **Yan, L.**, Su, M., Kramarczuk, K., Terrell Shockley, E., & Ketelhut, D. J. (2023, April). *K-5 accessible, computational thinking-integrated science education: A conceptual framework* [Paper Session]. Annual International Conference of National Association for Research in Science Teaching (NARST), Chicago, IL.
- [19] Firetto, C. M., Starrett, E., **Yan, L.**, Hyatt, J.-P. K., & Penkrot, T. (2023, April). *Promoting collaborative study strategy use with biology undergraduate students* [Paper Session]. American Educational Research Association 2023 Annual Meeting, Chicago, IL.
- [20] Terrell Shockley, E., Figueroa, F., Su, M., **Yan, L.**, Kramarczuk, K., Xin, Y., Cabrera, L., Mak, J., Bernier, J., Ha, J., Nelson, B., & Ketelhut, D. J. (2023, March) *Making computational thinking accessible to multilingual learners in elementary science*. [Poster presentation]. TESOL 2023 International Convention & English Language Expo, Portland, OR.
- [21] Figueroa, F., Terrell Shockley, E., **Yan, L.**, Ketelhut, D. J., & Nelson, B. (2023, February) *Accessible computational thinking using culturally and linguistically diverse contexts* [Paper Session]. The 52nd Annual Conference of National Association for Bilingual Education, Online.
- [22] Figueroa, F., Terrell Shockley, E., **Yan, L.**, Ketelhut, D. J., & Nelson, B. (2022, July). *Accessible computational thinking (CT) in the elementary science classroom using a culturally and linguistically responsive context*. [Paper Presentation]. The SIOP National Conference 2022, Online. <https://www.savvas.com/index.cfm?locator=PS3z3z>

- [23] Su, M., Pérez Cortés, L. E., Ha, J., Nelson, B., Bowman, C., Bowman, J., Bernier, J. & **Yan, L.** (2022, April) *Understanding visitors' question-asking quality in science museums through a question-asking mobile app* [Poster Session]. American Educational Research Association 2022 Annual Meeting, San Diego, CA.
- [24] Kramarczuk, K., Cabrera, L., Ketelhut, D. J., Terrell-Shockley, E., Xin, Y., Mak, J., Nelson, B., Bernier, J., Ha, J., Su, M., **Yan, L.**, & Figueroa, F. (2022, January). *A professional development model for integrating computational thinking and culturally responsive teaching practices into elementary science practice* [Poster presentation]. ASTE Annual Conference 2022, Greenville, SC.

State and Local Conference Presentations

- [25] **Yan, L.**, Xin, Y., Figueroa, F., Bernier, J., Terrell Shockley, E., Nelson, B., Ketelhut, D. J. (2024, February). *Practical strategies for culturally responsive teaching in computational thinking integrated elementary science lesson* [Poster Session]. Arizona State University Mary Lou Fulton Teachers College 10th Annual Doctoral Council: Education Research Conference. Tempe, AZ.
- [26] **Yan, L.**, Bernier, J., Su, M., Islam, R., & Nelson, B. (2023, Feb) *Every voice matters: Creating an equitable classroom discussion protocol* [Poster Session]. Arizona State University Mary Lou Fulton Teachers College 9th Annual Doctoral Council: Education Research Conference. Tempe, AZ.
- [27] Bernier, J., **Yan, L.**, Su, M., Islam, R., & Nelson, B. (2023, Feb) *The play and experience of DragonBox Algebra* [Poster Session]. Arizona State University Mary Lou Fulton Teachers College 9th Annual Doctoral Council: Education Research Conference. Tempe, AZ.

RESEARCH EXPERIENCE

2021~present **Research Assistant**, Mary Lou Fulton Teachers College, Arizona State University, Tempe, AZ

Supervised by Dr. Carla M. Firetto

- Responsibilities include literature review, grant proposal writing, model development for equity-focused and small-group discussions, research design, coding scale designing, data collection, quantitative and qualitative data analysis, and academic article writing.

Supervised by Dr. Brian Nelson

Designing Equitable Learning, Teaching, and Assessments (DELTA) Lab

- Responsibilities include assisting in the professional development design, assessment design, grant annual report writing, connecting with partner school districts and teachers, data collection and analysis, various academic and practitioner articles writing, and mentoring new PhD students.

- 2016 ~ 2017 **Research Assistant / Instructional Designer**, Entropy Tech R&D Center, Seoul, South Korea.
- Designed “M Starter,” an educational application aimed at improving learners’ concentration, motivation, and time management for Megastudy Co. Ltd, the largest educational company in South Korea.
- 2015 ~ 2016 **Research Assistant / Instructional Designer**, The Gamdong Research Institute Spin-off (Certified by Ministry of Science and ICT), Seoul, South Korea.
- Conducted a literature review on the impact of K-12 teachers’ artistic expertise on fostering creativity in education, contributing to a broader understanding of creative pedagogical approaches.
 - Designed and created online teacher professional development courses in art and music, funded by the Deajeon Information & Culture Industry Promotion Agency.
 - Designed and developed mechanical engineering online courses for Korea University of Technology and Education.
- 2014 ~ 2015 **Research Assistant**, ASEAN Cyber University Project, Seoul, South Korea.
- Responsibility includes developing ACU e-learning course management self-evaluation tools and its guidelines by analyzing the ACU e-learning framework and high-performing examples of e-learning course management in ACU member states.
- 2012 ~ 2013 **Research Assistant**, Hanyang University, Seoul, South Korea.
- Brain Korea 21 (BK21) Emerging E-learning Research & Development. Responsibilities include reviewing the current situation and issues of e-learning systems and developing improvement strategies for existing e-learning systems.

ACADEMIC SERVICE

Academic and Professional Service

- 2024 Reviewer of *International Society of the Learning Sciences (ISLS)*
 2022 Associate Editor of *Current Issues in Education (CIE; ISSN 1099-839X)*

Program / Departmental Service

- 2022~present Student Representative on the doctoral program committee, ASU MLFTC
 2022~2023 Student Officer of Teachers College Doctoral Council, ASU MLFTC
 2015 International Student Mentor, Hanyang University, Seoul, South Korea
 2012 International Student Representative, Hanyang University, Seoul, South Korea

COMMUNITY SERVICE

- 2009 Expo 2010 Community English/Korean teacher, Shanghai, China

LANGUAGE SKILLS

Mandarin (Native proficiency), Shanghainese (Native proficiency), Korean (Native or bilingual proficiency), English (Native or bilingual proficiency)

WORKSHOPS AND PROFESSIONAL DEVELOPMENT SESSIONS

- 2024 Equity in K-12 STEM Education: Framing Decisions for the Future—
Research Considerations (Webinar), Sponsored by the PEERS Data Hub:
www.PeersDataHub.net
- 2024 Dissertation Writing Camp, funded by ASU Graduate Student and
Professional Association (GPSA)
- 2022 Summer Graduate Writing Camps, funded by GPSA

PROFESSIONAL MEMBERSHIPS

- American Educational Research Association (AERA)
- International Society of the Learning Sciences (ISLS)
- National Science Teaching Association (NSTA)
- National Association for Bilingual Education (NABE)
- Society for Information Technology & Teacher Education (SITE)
- The Association for Science Teacher Education
- The Korean Society of Educational Technology