

INGRID LU CAO

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EDUCATION

The University of Sydney

Ph. D., Learning Sciences

December 2020

M. A., Learning Sciences and Technology (Research)

November 2015

East China Normal University

B. S., Biology

June 2014

RESEARCH EXPERIENCE

Shanghai Jiao Tong University

Assistant Professor

Shanghai, China

September 2023 – Present

East China Normal University

Postdoctoral Fellow

Shanghai, China

January 2021– June 2023

REFEREED PAPERS IN JOURNALS

- Cao, L., & Zhang, J.* (2024). Exploring the use of productive failure to learn ecology in a virtual world: influence of self-efficacy and the use of learning strategies. *Interactive Learning Environments*, 1-19.
- Cao, L.*, Lai, P. K., & Yang, H. (2024). Using productive failure to learn genetics in a game-based environment. *Instructional Science*, 52, 309–340.
- Yang, H., Tsung, L., & Cao, L.* (2022). The use of communication strategies by second language learners of Chinese in a virtual reality learning environment. *SAGE Open*, 12(4).
- Cao, L. (2022). Three fundamental learning theories and educational game design (In Chinese). *Open Education Research*, 28(05), 29-38+92.
- Cao, L. (2021). Productive failure and the transfer of know ledge: theories, mechanisms and design principles (In Chinese). *Open Education Research*, 27(3), 4-14.
- Cao, L., Jacobson, M. J., Xu, G. (2017). An introduction of Computational Scientific Inquiry: Learn Scientific Inquiry in a 3D Immersive Virtual World with Agent-Based Models (In Chinese). *China Educational Technology*, (7), 33-41.

BOOK CHAPTERS

- Cao, L., & Chen, R. (2024). Secondary Education (High School) in China. In Z. Feng, Q. Wang, & N. Liu (Eds.), *Education in China and the World: National Development and Global Benchmarking* (pp. 137-210). Shanghai Jiao Tong University Press.

PAPERS PRESENTED AT CONFERENCES

- Cao, L., Jacobson, M. J., & Markauskaite, L., Lai, P. K. (2020). The use of productive

failure to learn genetics in a game-based environment. *2020 Annual Meeting of the American Educational Research Association*, Virtual meeting: AERA.

- Cao, L., Jacobson, M. J., & Markauskaite, L. (2017). The use of PBL virtual world to learn nutrition knowledge. *2017 Annual Meeting of the American Educational Research Association*, San Antonio, TX: AERA

PRESENTATION TALK

- Cao, L. (2024). Using game-based learning and productive failure to support secondary school biology teaching. Keynote Presentation at the *19th National Academic Conference on Biology Curriculum and Pedagogy in Higher Normal Universities*, Chaozhou, China.
- Cao, L. (2024). Teachers' epistemic agency by double stimulation: A cultural-historical perspective. Oral Presentation at the *2024 Annual Conference of the Learning Sciences Research Division, China Association of Higher Education*, Shanghai, China.

GRANTS

- Lead CI in 2025 Shanghai Jiao Tong University Humanities Young Talent Development Program: *Developing University Students' Transformative Agency in the Digital and Intelligence Era* (2025QN041, AU\$10000)
- Lead CI in 2023 Shanghai Education Sciences Research Early Career Program: *Developing Adolescents' Creative Thinking in Metaverse* (B2023001, AU\$12000)
- Lead CI in 2022 The 71st Surface Funding of China Postdoctoral Science Foundation: *Developing Creative Thinking for Middle School Students Using Productive Failure* (2022M711163, AU\$10000)

AWARDS

- 2024 Silver Dove Award for Education in China and the World (Chapter written by Lu Cao, first author), awarded by the Shanghai Municipal Foreign Propaganda Office, the highest award in the field of international communication in Shanghai.
- 2023 Encouragement Award in the Third Teaching Competition for Early Career Teachers, School of Education, Shanghai Jiao Tong University
- 2019 Postgraduate Research Support Scheme, The University of Sydney
- 2018 FASS Doctoral Research Travel Grant Scheme, The University of Sydney
- 2017 Thomas T. Roberts Fellowship, The University of Sydney

SOCIAL SERVICES

- 2024 – Present Class advisor for the National Excellence Program (Second Selection), Class of 2025, School of Education, Shanghai Jiao Tong University
- 2024 Assisted in organizing the Third Shanghai Forum for Education Excellence (SFEE 2024)
- 2024 Undergraduate admissions officer, Shanghai Jiao Tong University
- 2021 Participated in the bidding process for the development of the new edition of elementary school science textbooks in Shanghai (successfully won the bid)

REVIEW EXPERIENCE

- Invited to review journal articles for *International Journal of Applied Linguistics*, *Sage Open*, *Instructional Science*, *Journal of Computer Assisted Learning*, as well as conference papers for *ICLS* (International Conference of the Learning Sciences) and *CSCL* (International Conference on Computer-Supported Collaborative Learning).

TEACHING EXPERIENCE

- 2025 lecturer for *Research on Secondary School Biology Instructional Design and Implementation*, Faculty of Education, Shanghai Jiao Tong University
- 2024 lecturer for *Research on Secondary School Biology Curriculum and Textbook* Faculty of Education, Shanghai Jiao Tong University
- 2021 lecturer for *The Use of Educational Games to Support STEM Education*, Faculty of Education, East China Normal University
- 2021-2022 Visiting lecturer for *Research Methodologies in Educational Psychology* graduate course, Department of Educational Psychology, East China Normal University
- 2021-2022 Course outline developer and visiting lecturer for *Research of Biology Education and Academic Writing* graduate course, College of Teacher Education, East China Normal University

SOFTWARE DEVELOPMENTS

<i>Maliang</i>	2024
• An generative AI app that assists in children's creative painting. The app was developed using Dify and Python.	
<i>Wizards and Fairies</i>	2018
• A 3D video game for helping high school students to learn genetics and related mathematical knowledge. The video game was developed using Unity and C#.	
<i>Suwen</i>	2014-2015
• A 3D virtual world aims for helping secondary school students to learn how to design healthy meal plans. The 3D virtual world was developed using Unity and C#.	