Curriculum Vitae

Personal information

First name(s) / Surname(s) | **Dr Yuan–Ling (Linda) Liaw**

Professional e–mail | yuan–ling.liaw@iea–hamburg.de

Position / Organisation

Work experience

Dates | 02/2021 – Present

Occupation or position held | Senior Research Analyst

Main activities and responsibilities
- Lead the scaling work for IEA's ICCS 2027, ICILS 2023, and LSCE.
- Oversee quality control across scaling activities, from item analysis and calibration through reporting and documentation.
- Conduct cross–comparative research on TIMSS, PIRLS, ICCS, ICILS, and TALIS.
- Lead IRT workshops and provide psychometric consultancy.
- Author grant proposals, research papers, international and technical reports.

Name of employer | Stichting IEA Secretariaat Nederland. IEA Hamburg

Type of business or sector | Non–profit research organization

Dates | 09/2019 – 02/2021

Occupation or position held | Research Analyst

Main activities and responsibilities
- Led scaling analysis and item selection for several projects, including the SEACMEQ pilot study.
- Led scaling analysis for the Field Trial of the Life Skills and Citizenship Education (LSCE) study commissioned by UNICEF and the World Bank.

Name of employer | Stichting IEA Secretariaat Nederland. IEA Hamburg

Type of business or sector | Non–profit research organization

Dates | 09/2016 – 08/2019

Occupation or position held | Postdoctoral Research Fellow

Main activities and responsibilities
- Worked on the project ***Embracing heterogeneity in international surveys: Optimal test design and parameter estimation*** (funded by Norwegian Research Council FINNUT grant) with Drs. Leslie Rutkowski and David Rutkowski.
- Refined models for international educational measurement, including multistage adaptive testing and multigroup measurement invariance, using both empirical and simulation methods.
- Assisted in developing the ***Isasim*** R package for simulating large–scale assessment data.

Name of employer | Centre for Educational Measurement (CEMO), University of Oslo

Type of business or sector | Public University

Other Professional Activities

Academic Visits	• Visiting Scholar at Indiana University, Bloomington, USA (2018–2019)
Internships	• Summer Psychometric Intern at Pearson, Psychometric Services, San Antonio (2014)
Teaching Experience	• Instructor in *IRT Training Workshop* – ICCS 2027 NRC 4 meeting, September 2026, Santiago, Chile • Instructor in *Item Response Theory and Population Modeling in Large-scale Assessments* for Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN, September 2026, Dakar, Senegal • Instructor in *Item Response Theory and Population Modeling in Large-scale Assessments* – IEA IRC 2025 Pre-conference Workshop, with P. Baghaei & A. Christiansen, June 2025, Rome, Italy

Education and training

Dates	2010 – 2015
Title of qualification awarded	PhD in Measurement & Statistics
Principal subjects/occupational skills covered	**Dissertation:** When can Multidimensional Item Response Theory (MIRT) Models be a Solution for Differential Item Functioning (DIF)? A Monte Carlo Simulation Study. Committee: Elizabeth Sanders, Min Li, Deborah McCutchen, Catherine Taylor.
Name and type of organisation providing education and training	University of Washington – Seattle, WA, USA
Dates	2008 – 2010
Title of qualification awarded	M.Ed in Measurement & Statistics
Principal subjects/occupational skills covered	**Thesis**: Stability of Item Parameters in Equating Items. Graduate coursework in educational measurement, psychometrics, and statistics.
Name and type of organisation providing education and training	University of Washington – Seattle, WA, USA
Dates	2002 – 2006
Title of qualification awarded	B.S. in Psychology
Principal subjects/occupational skills covered	Undergraduate degree in Psychology.
Name and type of organisation providing education and training	National Taiwan University – Taipei, Taiwan

Personal skills and competences

Language	English, Mandarin (native)
Computer skills and competences	Advanced in R, SPSS, and Mplus. Document Preparation: LaTex, Microsoft Office.
Research interests	Large-scale assessment, latent variable modeling, cross-cultural measurement, data visualization.

Publications

Academic Publications

Kennedy, A. I., **Liaw, Y.–L.**, Kristensen, R. M., Strietholt, R., & Kjeldsen, C. C. (2026). *From Paper to Digital: Administration Mode and Response Rates in International Large–scale Surveys.* Center for Open Science. https://doi.org/10.35542/osf.io/bhz7u_v1

Liaw, Y.–L., Baghaei, P., Strietholt, R., Meinck, S., & Strello, A. (2025). Knowledge and willingness to act pro–environmentally. In *Environmental knowledge: Conceptualization and measurement* (pp. 31–56). Springer.

Rožman, M., **Liaw, Y.–L.**, & Chen, M. (2023). Factors related to students' psychological distress during COVID–19 disruption across countries. *Large–scale Assessments in Education*, *11*(1), 38.

Stancel–Piątak, A., **Liaw, Y.–L.**, Strietholt, R., & Koop, A. K. (2023). Prepared for distance learning? International evidence on the use and perception of information and communication technology by teachers. In *Global Perspectives on Education Research, Vol. II* (pp. 11–33). Routledge.

Rutkowski, L., **Liaw, Y.–L.**, Svetina, D., & Rutkowski, D. (2022). Multistage testing in heterogeneous populations: Some design and implementation considerations. *Applied Psychological Measurement*, *46*(6), 494–508.

Tijmstra, J., Bolsinova, M., **Liaw, Y.–L.**, Rutkowski, L., & Rutkowski, D. (2020). Sensitivity of the RMSD for detecting item–level misfit in low–performing countries. *Journal of Educational Measurement*, *57*(4), 566–583.

Svetina, D., **Liaw, Y.–L.**, Rutkowski, D., & Rutkowski, L. (2019). Routing strategies and optimizing design for multistage testing in international large–scale assessments. *Journal of Educational Measurement*, *56*(1), 192–213.

Rutkowski, D., Rutkowski, L., & **Liaw, Y.–L.** (2018). Measuring widening proficiency differences in international assessments: Are current approaches enough? *Educational Measurement: Issues and Practice*, *37*(4), 40–48.

Matta, T. H., Rutkowski, L., Rutkowski, D., & **Liaw, Y.–L.** (2018). Isasim: An R package for simulating large–scale assessment data. *Large–scale Assessments in Education*, *6*(1), 15.

Martinková, P., Drabinová, A., **Liaw, Y.–L.**, Sanders, E. A., McFarland, J. L., & Price, R. (2017). Checking equity: Why DIF analysis should be a routine part of developing conceptual assessments. *CBE–Life Sciences Education*, *16*(2), rm2.

Reports and Policy Briefs

Fraillon, J., **Liaw, Y.–L.**, & Strietholt, R. (2025). Student achievement in computer and information literacy and computational thinking. In J. Fraillon (Ed.), *An international perspective on digital literacy: Results from ICILS 2023* (pp. 105–118). Springer Nature Switzerland.

Liaw, Y.–L., Rožman, M., Fraillon, J., & Gonzalez, E. (2025). Scaling procedures for ICILS 2023 test items. In J. Fraillon (Ed.), *International Computer and Information Literacy Study 2023* (pp. 169–207). International Association for the Evaluation of Educational Achievement.

Strietholt, R., Fraillon, J., **Liaw, Y.–L.**, Meinck, S., & Wild, J. (2021). *Changes in digital learning during a pandemic: Findings from the ICILS Teacher Panel*. International Association for the Evaluation of Educational Achievement.

Selected Conference Presentations

Liaw, Y.–L., & Rožman, M. (2026, April). How students' computational thinking strategies and engagement guide an automated bus. Paper presented at the annual meeting of the National Council on Measurement in Education (NCME), Los Angeles, CA.

Liaw, Y.–L., & Kennedy, A. I. (2026, April). Too easy or too hard? Engagement in adaptive testing using process data. Paper presented at the annual meeting of the National Council on Measurement in Education (NCME), Los Angeles, CA.

Liaw, Y.–L., Rožman, M., Fraillon, J., & Duckworth, D. (2025, June). One trait or many? Exploring the dimensionality of CT assessments using ICILS 2023. Paper presented at the 11th International Research Conference (IEA IRC), Rome, Italy.

Botter, P., **Liaw, Y.–L.**, Svetina Valdivia, D., & Strietholt, R. (2025, June). Assessing the impact of empirical histogram root mean square deviation variants on differential item functioning detection in ICILS 2023. Paper presented at the 11th International Research Conference (IEA IRC), Rome, Italy.

Liaw, Y.–L., & Rožman, M. (2025, April). Refining computational thinking patterns and efficiency: A cross–country study from ICILS 2023. Paper presented at the annual meeting of the National Council on Measurement in Education (NCME), Denver, CO.

Liaw, Y.–L. (2024, July). Gender DIF and gender differences in civic outcomes over time. Paper presented at the International Test Commission (ITC) Conference, Granada, Spain.

Liaw, Y.–L., Drossel, K., Eickelmann, B., & Rožman, M. (2024, April). Using bifactor models to assess the dimensionality of information and computer literacy. Paper presented at the annual meeting of the National Council on Measurement in Education (NCME), Philadelphia, PA.

Liaw, Y.–L., & Strietholt, R. (2023, September). Dimensionality of TIMSS science assessment: Are subscale scores sufficiently distinct? Paper presented at FREMO 2023, Oslo, Norway.

Liaw, Y.–L., & Kennedy, A. I. (2023, June). Student engagement and quitting behavior under PIRLS group adaptive design. Paper presented at the 10th International Research Conference (IEA IRC), Dublin, Ireland.

Liaw, Y.–L. (2023, April). Modeling not–reached responses in the problem–solving and inquiry tasks of TIMSS 2019. Paper presented at the annual meeting of the National Council on Measurement in Education (NCME), Chicago, IL.

Liaw, Y.–L., Rutkowski, L., & Rutkowski, D. (2023, April). lsasim: An R package for simulating large–scale assessment data. Paper presented at the annual meeting of the National Council on Measurement in Education (NCME), Chicago, IL.

Liaw, Y.–L., Christiansen, A., & Strietholt, R. (2022, July). Measuring digital competence internationally: Exploring test dimensionality, position effect, and performance differences. Paper presented at the International Meeting of the Psychometric Society (IMPS), Bologna, Italy.

Liaw, Y.–L. (2022, April). Using timing information to understand international achievement performance in TIMSS 2019. Paper presented at the annual meeting of the National Council on Measurement in Education (NCME), San Diego, CA.