

HOK CHIO (MARK) LAI

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Google Scholar profile: <https://scholar.google.com/citations?user=s2LhwXAAAAAJ>

Website: <https://quantscience.rbind.io>

EDUCATION

| | |
|---|-----------|
| Ph.D. in Educational Psychology <i>Texas A&M University, College Station, TX</i> | 2011–2015 |
| Bachelor of Social Science in Psychology <i>University of Macau, Macau</i> | 2007–2011 |

PROFESSIONAL APPOINTMENTS

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|--|-------------------|
| Assistant Professor (Tenure-Track) Department of Psychology, <i>University of Southern California</i> , Los Angeles, CA | 2018 Aug–Present |
| Assistant Professor (Tenure-Track) School of Education, <i>University of Cincinnati</i> , Cincinnati, OH | 2015 Aug–2018 Aug |

RESEARCH INTERESTS

Effect size calculation for multilevel data
Robust methods for multilevel modeling
Multilevel structural equation modeling
Growth modeling of complex longitudinal data
Measurement invariance and its impact on statistical modeling

GRANT ACTIVITY

Current Funding

National Science Foundation, Methodology, Measurement, and Statistics

2022 Aug 15–2027 July 31

"CAREER: Advancing Latent Variable Methods for Integrative Data Analysis" (PI Lai, \$400,001)

NIH/NIA, Research on Current Topics in Alzheimer's Disease and Its Related Dementias

2022 Apr 1–2027 Mar 31

"Inactivity, sedentary behavior, and the risk for Alzheimer's disease in middle aged to older adults" (PI Raichlen, \$3,422,710)

Role: Co-I

NIH/NICHD, Research on biopsychosocial factors of social connectedness and isolation on health, wellbeing, illness, and recovery

2021 Jun 1–2026 Jan 31

"Prenatal Social Connection and Disruption During the COVID-19 Pandemic: Effects on Maternal and Infant Health" (PI Saxbe, R01HD104801, \$2,079,921)

Role: Co-I

NIH/NIAAA, Epidemiology and Prevention in Alcohol Research

2021 May 1–2023 April 30

"Alcohol metabolism and disease risk in Asians: Examining the impact of personalized phenotypic/genotypic feedback and motivational processes on early drinking trajectories" (PI Luczak, R21AA028365, \$278,438)

Role: Co-I

Spencer Foundation

2021 Jan 1–2022 Dec 31

"The Impact of Ignoring Parameter Uncertainty on Sample-Size Planning for Cluster-Randomized and Multisite Randomized Trials" (PI Lai, \$49,796)

Department of Health and Human Services, Office of Population Affairs (Pregnancy Prevention Research Grants)

2020 Sep 30–2022 Sep 29

"Secondary Data Analysis of Effective TPP Programs: Setting, Youth Context, and Characteristics" (PI Clark, \$2,200,490)

Role: PI of Subcontract (\$149,049)

National Institutes of Health, Promoting Research on Music and Health: Fundamentals and Applications (R21)

2019 Sep 15–2022 Aug 31

"Music Training, Bilingualism and Executive Functioning" (PI Assal Habibi, \$247,500)

Role: Co-I

Prior Funding

Department of Defense, Army Research Institute

2020 Aug 7–2022 Aug 6

"Developing a Multidimensional Psychometric Framework on the Impact of Item Bias on Classification" (PI Lai, \$104,382)

McRel International

2018 Aug 1–2021 Jun 30

Evaluation of "Identity-Based Motivation Journey to Academic Success." (Original grant funded by Department of Education, Investing in Innovation Fund [i3] Development Grants, Co-PIs: Katie Anderson and Daphna Oyserman)

Role: PI (External Evaluator; Subaward \$176,418)

National Science Foundation, Research on Learning in Formal and Informal Setting

2019 July 15–2020 July 14

"Developing and Validating Early Assessments of College Readiness: Differential Effects for Underrepresented Groups, Optimal Timing of Assessments, and STEM-specific Indicators" (PI: Gregory Palardy)

Role: PI for subaward

Status: Funded (Subaward \$6,000)

University Research Council

AHSS Faculty Research and Scholarship Stipend Awards

2017

University of Cincinnati

"Impact of Measurement Bias on the Validity of Intervention Studies" (\$10,000)

Role: PI

Status: Funded

Vice President for Research Award

2016–2018

University of Cincinnati, \$30,500

PUBLICATIONS

(* indicates student author)

55. Mak, H. W., Lydon-Staley, D. M., Lunkenheimer, E., **Lai, M. H. C.**, & Fosco, G. M. (accepted, August 8, 2022). The roles of parents and friends in adolescent daily emotion dynamics. *Social Development*. Manuscript accepted for publication.
54. Raichlen, D. A., Klimentidis, Y. C., Sayre, M. K., Bharadwaj, P. K., **Lai, M. H. C.**, Wilcox, R. R., & Alexander G. E. (accepted, July 22, 2022). Leisure-time sedentary behaviors are differentially associated with all-cause dementia regardless of engagement in physical activity. *PNAS*. Manuscript accepted for publication.
53. Yu, B. C. L., Chio, F. H. N., Chan, K. K. Y., Mak, W. W. S., *Zhang, G., Vogel, D., & **Lai, M. H. C.** (accepted, July 16, 2022). Associations between public and self-stigma of help-seeking with help-seeking attitudes and intention: A meta-analytic structural equation modeling approach. *Journal of Counseling Psychology*. Manuscript accepted for publication.
52. **Lai, M. H. C.**, *Liu, Y., & *Tse, W. W. (2022). Adjusting for partial invariance in latent parameter estimation: Comparing forward specification search and approximate invariance methods. *Behavior Research Methods*, 54, 414–434. <https://doi.org/10.3758/s13428-021-01560-2>
51. **Lai, M. H. C.**, & *Zhang, Y. (2022). Classification accuracy of multidimensional tests: Quantifying the impact of noninvariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 29(4), 620–629. <https://doi.org/10.1080/10705511.2021.1977936>
50. *Liu, M., Yeghyan, N. S., & **Lai, M. H. C.** (2022). Appetitive food, aversive warning: Interaction effects of visual and verbal cues on psychophysiological and attitudinal responses to PSAs. *Media Psychology*. Advanced online publication. <https://doi.org/10.1080/15213269.2022.2082982>
49. Lopez, N. V., **Lai, M. H. C.**, Yang, C.-H., Dunton, G. F., Belcher, B. R. (2022). Associations of maternal and paternal parenting practices with children's fruit/vegetable intake and physical activity: Preliminary findings from an ecological momentary study. *JMIR Formative Research*, 6(8), e38326. <https://doi.org/10.2196/38326>
48. Wu, A. M. S., **Lai, M. H. C.**, Zhang, M., Yogo, M., Yu, S., & Mao, S., & Chen, J. H. (2022). Effects of psychological distress and coping resources on Internet gaming disorder: Comparison between Chinese and Japanese university students. *International Journal of Environmental Research and Public Health*, 19(5), 2951. <https://doi.org/10.3390/ijerph19052951>
47. *Zhang, Y., & **Lai, M. H. C.**, & Palardy, G. J. (2022). A Bayesian framework for establishing measurement invariance for observed test scores. *Psychological Methods*. Advance online publication. <https://doi.org/10.1037/met0000455>
46. Guo, Y., Dynia, J. M., & **Lai, M. H. C.** (2021). Early childhood special education teachers' self-efficacy: Links to children's literacy learning. *Early Childhood Research Quarterly*, 54(1), 153–163. <https://doi.org/10.1016/j.ecresq.2020.09.002>
45. *Hsiao, Y.-Y., Kwok, O., & **Lai, M. H. C.** (2021). Modeling measurement errors of the exogenous composites from congeneric measures in interaction models. *Structural Equation Modeling*, 28(2), 250–260. <https://doi.org/10.1080/10705511.2020.1782206>

44. Ji, Y.*, Luo, W., **Lai, M. H. C.**, Yoon, M., Chen, L.-S., & Kwok. (2021). Model-selection-based approaches to identifying the optimal number of factors in multilevel exploratory factor analysis. *Structural Equation Modeling*, 28(5), 763–777.
<https://doi.org/10.1080/10705511.2021.1916394>
43. **Lai, M. H. C.** (2021a). Adjusting for measurement noninvariance with alignment optimization in growth modeling. *Multivariate Behavioral Research*. Advance online publication. <https://doi.org/10.1080/00273171.2021.1941730>
42. **Lai, M. H. C.** (2021b). Bootstrap confidence interval for multilevel standardized effect size. *Multivariate Behavioral Research*, 56(4), 558–578.
<https://doi.org/10.1080/00273171.2020.1746902>
41. **Lai, M. H. C.** (2021c). Composite reliability of multilevel data: It's about observed scores and construct meanings. *Psychological Methods*, 26(1), 90–102.
<https://doi.org/10.1037/met0000287>
40. **Lai, M. H. C.**, & *Hsiao, Y.-Y. (2021). Two-stage path analysis with definition variables. *Psychological Methods*. Advance online publication. <https://doi.org/10.1037/met0000410>
39. Luo, W. & **Lai, M. H. C.** (2021). A weighted residual bootstrap method for multilevel modeling with sampling weights. *Journal of Behavioral Data Science*, 1(2), 89–118.
<https://doi.org/10.35566/jbds/v1n2/p6>
38. *Tilley, J. L., Huey, S. J., Jr., Farver, J. M., **Lai, M. H. C.**, & *Wang, C. X., & (2021). The immigrant paradox in the problem behaviors of youth in the United States: A meta-analysis. *Child Development*, 92(2), 502–516. <https://doi.org/10.1111/cdev.13542>
37. Zhao, A., Guo, Y., Sun, S., **Lai, M. H. C.**, Breit-Smith, A., & Li, M. (2021). The contributions of language skills and comprehension monitoring to Chinese reading comprehension: A longitudinal investigation. *Frontiers in Psychology*, 12.
<https://doi.org/10.3389/fpsyg.2021.625555>
36. *Atari, M., **Lai, M. H. C.**, & Dehghani, M. (2020). Sex differences in moral judgements across 67 countries. *Proceedings of the Royal Society B*, 287(1937).
<https://doi.org/10.1098/rspb.2020.1201>
35. Bae, C., & **Lai, M. H. C.** (2020). Opportunities to participate in science learning and student engagement: A mixed methods approach to examining person and context factors. *Journal of Educational Psychology*, 112(6), 1128–1153.
<https://doi.org/10.1037/edu0000410>
34. Li, N., Yong, J., Tsai, M.-H., **Lai, M. H. C.**, Lim, A. Y. Y., & Ackerman, J. M. (2020). Confidence is sexy and it can be trained: Examining male social confidence in initial, opposite-sex interactions. *Journal of Personality*, 88(6), 1235–1251. <https://doi.org/10.1111/jopy.12568>
33. Landmark, L. J., Ju, S., Greene, G., & **Lai, M. H. C.** (2020). Evaluating special educator and transition personnel knowledge and skills for working with diverse families and students during the transition process: Preliminary development and validation of an assessment instrument. *Journal of Vocational Rehabilitation*, 52, 317–331.
<https://doi.org/10.3233/JVR-201080>
32. Wu, A. M. S., **Lai, M. H. C.**, Lau, J. T. F., & Walden, D. L. (2020). Incidence of probable depression and its predictors among Chinese secondary school students. *International Journal of Mental Health and Addiction*, 18, 1652–1667. <https://doi.org/10.1007/s11469-020-00379-w>

31. **Lai, M. H. C.** (2019). The effect of omitting a crossed factor for balanced and unbalanced crossed-classified data. *Journal of Educational and Behavioral Statistics*, 48, 448–472. <https://10.3102/1076998619843168>
30. **Lai, M. H. C.**, Richardson, G. B., & Mak, H. W. (2019). Quantifying the impact of partial measurement invariance for addiction research. *Addictive Behaviors*, 94, 50–56. <https://doi.org/10.1016/j.addbeh.2018.11.029>
29. Nation, D. A., *Ho, J. K., Dutt, S., Han, S. D., & **Lai, M. H. C.** (2019). Neuropsychological decline improves prediction of dementia beyond AD biomarker and MCI diagnoses. *Journal of Alzheimer's Disease*, 69, 1171–1182. <https://doi.org/10.3233/JAD-180525>
28. *Chen, C.-C., Richardson, G. B., **Lai, M. H. C.**, Dai, C.-L., & Hays, D. (2018). Development and cross-cultural validity of a Brief Measure of Separation-Individuation. *Journal of Child and Family Studies*, 27, 2797–2810. <https://doi.org/10.1007/s10826-018-1140-2>
27. Chio, F. H. N., **Lai, M. H. C.**, & Mak, W. W. S. (2018). Development of Nonattachment Scale—Short Form (NAS-SF) using item response theory. *Mindfulness*, 9, 1299–1308. <https://doi.org/10.1007/s12671-017-0874-z>
26. *Hsiao, Y., & **Lai, M. H. C.** (2018). The impact of partial measurement invariance on testing moderation for single and multi-level data. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00740>
25. *Hsiao, Y., Kwok, O., & **Lai, M. H. C.** (2018). Evaluation of two methods for modeling measurement errors when testing interaction effects with observed composite scores. *Educational and Psychological Measurement*, 78, 181–202. <https://doi.org/10.1177/0013164416679877>
24. Kwok, O., **Lai, M. H. C.**, Tong, F., Lara-Alecio, R., Irby, B. J., Yoon, M., & Yeh, Y.-C. (2018). Analyzing complex longitudinal data in educational research: A demonstration with Project English Language and Literacy Acquisition (ELLA) data using xxM. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00790>
23. **Lai, M. H. C.**, Kwok, O., *Hsiao, Y., & Qian, C. (2018). Finite population correction for two-level hierarchical linear modeling. *Psychological Methods*, 23, 94–112. <https://doi.org/10.1037/met0000137>
22. Yoon, M., & **Lai, M. H. C.** (2018). Testing factorial invariance with unbalanced samples. *Structural Equation Modeling: A Multidisciplinary Journal*, 25, 201–213. <https://doi.org/10.1080/10705511.2017.1387859>
21. Clemens, N. H., Lai, M. H. C., Burke, M. D., & Wu, J. (2017). Interrelations of growth in letter naming and sound fluency in kindergarten and implications for subsequent reading fluency. *School Psychology Review*, 46, 272–287. <https://doi.org/10.17105/SPR-2017-0032.V46-3>
20. **Lai, M. H. C.**, & *Zhang, J. (2017). Evaluating fit indices for multivariate *t*-based structural equation modeling with data contamination. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.01286>
19. **Lai, M. H. C.**, Kwok, O., Yoon, M., & *Hsiao, Y. (2017). Understanding the impact of partial factorial invariance on selection accuracy: An R script. *Structural Equation Modeling: A Multidisciplinary Journal*, 24, 783–799. <https://doi.org/10.1080/10705511.2017.1318703>

18. Richardson, G. B., Dariotis, J. K., & **Lai, M. H. C.** (2017). From environment to mating competition and Super-K in a predominantly urban sample of young adults. *Evolutionary Psychology, 15*. <https://doi.org/10.1177/1474704916670165>
17. Richardson, G. B., Sanning, B. K., **Lai, M. H. C.**, Copping, L., Hardesty, P. H., & Kruger, D. J. (2017). On the psychometric study of human life history strategies: State of the science and evidence of two independent dimensions. *Evolutionary Psychology, 15*. <https://doi.org/10.1177/1474704916666840>
16. Wu, A. M. S., **Lai, M. H. C.**, Yu, S., Lau, J. T. F., & Lei, M.-w. (2017). Motives for Online Gaming Questionnaire: Its psychometric properties and correlation with Internet gaming disorder symptoms among Chinese people. *Journal of Behavioral Addictions, 6*, 11–20. <https://doi.org/10.1556/2006.6.2017.007>
15. Kim, M., Kwok, O., Yoon, M., Willson, V. L., & **Lai, M. H. C.** (2016). Specification search for identifying the correct mean trajectory in polynomial latent growth models. *Journal of Experimental Education, 84*, 307–329. <https://doi.org/10.1080/00220973.2014.984831>
14. **Lai, M. H. C.**, & Kwok, O. (2016). Estimating standardized effect sizes for two-and three-level partially nested data. *Multivariate Behavioral Research, 51*, 740–756. <https://doi.org/10.1080/00273171.2016.1231606>
13. McCord, C. E., Elliott, T. R., Berry, J. W., Underhill, A. T., Fine, P. R., & **Lai, M. H. C.** (2016). Trajectories of happiness five years following medical discharge for traumatic disability: Differences between insider and outsider perspectives. *Journal of Happiness Studies, 17*, 553–567. <https://doi.org/10.1007/s10902-014-9610-8>
12. Wu, A. M. S., & **Lai, M. H. C.**, Tong, K., & Yu, M. S. (2016). Psychological correlates of disordered gambling tendencies among Chinese high school and undergraduate students. *International Journal of Mental Health and Addiction, 14*, 322–336. <https://doi.org/10.1007/s11469-016-9632-z>
11. **Lai, M. H. C.** & Kwok, O. (2015). Examining the rule of thumb of not using multilevel modeling: The “design effect smaller than two rule”. *Journal of Experimental Education, 83*, 423–438. <https://doi.org/10.1080/00220973.2014.907229>
10. **Lai, M. H. C.**, Wu, A. M. S., & Tong, K. (2015). Validation of the Gambling Refusal Self-Efficacy Questionnaire for Chinese undergraduate students. *Journal of Gambling Studies, 31*, 243–256. <https://doi.org/10.1007/s10899-013-9412-7>
9. **Lai, M. H. C.** & Yoon, M. (2015). A modified comparative fit index for factorial invariance studies. *Structural Equation Modeling: A Multidisciplinary Journal, 22*, 236–248. <https://doi.org/10.1080/10705511.2014.935928>
8. Wu, A. M. S., **Lai, M. H. C.**, & Tong, K. (2015). Internet gambling among community adults and university students in Macao. *Journal of Gambling Studies, 31*, 643–657. <https://doi.org/10.1007/s10899-014-9451-8>
7. Hernandez, C. L., Elliott, T. R., Berry, J. W., Underhill, A. T., Fine, P. R., & **Lai, M. H. C.** (2014). Trajectories of life satisfaction: Five years after medical discharge for traumatically acquired disability. *Rehabilitation Psychology, 59*, 183–192. <https://doi.org/10.1037/a0035887>
6. **Lai, M. H. C.** & Kwok, O. (2014). Standardized mean differences in two-level cross-classified random effect models. *Journal of Educational and Behavioral Statistics, 39*, 282–302. <https://doi.org/10.3102/1076998614532950>

5. Wu, A. M. S., **Lai, M. H. C.**, & Chan, I. T. (2014). Coaching behaviors, satisfaction of needs, and intrinsic motivation among Chinese university athletes. *Journal of Applied Sport Psychology*, 26, 334–348. <https://doi.org/10.1080/10413200.2014.888107>
4. Wu, A. M. S., **Lai, M. H. C.**, & Tong, K. (2014). Gambling Disorder: Estimated prevalence rates and risk factors in Macao. *Psychology of Addictive Behaviors*, 28, 1190–1197. <https://doi.org/10.1037/a0037603>
3. **Lai, M. H. C.**, Ren, M. Y. W., Wu, A. M. S., & Hung, E. P. W. (2013). Motivation as mediator between national identity and intention to volunteer. *Journal of Community and Applied Social Psychology*, 23, 128–142. <https://doi.org/10.1002/casp.2108>
2. Wu, A. M. S., **Lai, M. H. C.**, Tong, K., & Tao, V. Y. K. (2013). Chinese attitudes, norms, behavioral control and gambling involvement in Macao. *Journal of Gambling Studies*, 29, 749–763. <https://doi.org/10.1007/s10899-012-9344-7>
1. Chu, Y., **Lai, M. H. C.**, Xu, Y., & Zhou, Y. (2012). Test review: Advanced Clinical Solutions for the WAIS-IV and WMS-IV. *Journal of Psychoeducational Assessment*, 30, 520–524. <https://doi.org/10.1177/0734282912442868>

BOOK CHAPTERS

2. **Lai, M. H. C.**, & Yoon, M. (2021). *Partial Factorial Invariance*. In B. B. Frey (Ed.), *The SAGE Encyclopedia of Research Design*.
1. **Lai, M. H. C.** & Tong, K. K. (2011). 媒體使用與評價 [Media usage and evaluation]. In F. M. Cheung, S. L. Wong, P. S. Wan, & V. Zheng (Eds.), *The new face of Macau: Ten years of development and changes* (pp. 285–308). Hong Kong, China: Hong Kong Institute of Asia-Pacific Studies, The Chinese University of Hong Kong.

CONFERENCE PRESENTATIONS

57. *Zhang, G., & **Lai, M. H. C.** (2022, July 11-15). *A systematic review of measurement invariance research of the CES-D across gender: calculation and report of effect size* [Oral presentation]. Annual Meeting of the Psychometric Society (IMPS), Bologna, Italy. https://www.psychometricsociety.org/sites/main/files/file-attachments/2022_imps_saag_v6.pdf
56. *Tse, W. W., & **Lai, M. H. C.** (2022, July 11-15). *Incorporating information from historical data for power analysis: A hybrid classical-Bayesian approach for multilevel studies* [Oral presentation]. Annual Meeting of the Psychometric Society (IMPS), Bologna, Italy. https://www.psychometricsociety.org/sites/main/files/file-attachments/2022_imps_saag_v6.pdf
55. *Zhang, Y., & **Lai, M. H. C.** (2022, July 11-15). *Bayesian region of measurement equivalence (ROME) approach with alignment* [Oral presentation]. Annual Meeting of the Psychometric Society (IMPS), Bologna, Italy. https://www.psychometricsociety.org/sites/main/files/file-attachments/2022_imps_saag_v6.pdf
54. *Tse, W. W., & **Lai, M. H. C.** (2022, June 27-29). *Incorporating Uncertainty in power analysis to more realistically determine sample size* [Workshop]. Meeting of the Society for the Improvement of Psychological Science (SIPS), Victoria, B. C., Canada.

<https://docs.google.com/document/d/1Rka3f0ZY9BBZVILZoVINrpyaJYeitpq1yKXBLukeMn9>

53. Zhang, Y., & **Lai, M. H. C.** (2022, April 21-26). *Evaluating standard error estimators and resampling method for multilevel models on small samples with heteroscedasticity and unbalanced cluster sizes* [Poster presentation]. AERA Annual Meeting, San Diego, CA, United States. <https://convention2.allacademic.com/one/aera/aera22>
52. Palardy, G. J., *Zhang, Y., & **Lai, M. H. C.** (2022, April 21-26). *Measurement invariance testing via the alignment method: Intersectional grouping and multiple cohorts* [oral presentation]. AERA Annual Meeting, San Diego, CA, United States. <https://convention2.allacademic.com/one/aera/aera22>
51. *Zhang, G., *Yue, H., & **Lai, M. H. C.** (2021, July 19-23). *A systematic review of measurement invariance research of the CES-D across gender* [Poster presentation]. Virtual conference of the Psychometric Society (IMPS) due to covid-19. https://www.psychometricsociety.org/sites/main/files/file-attachments/imps_2021_virtual_schedule.pdf
50. *Zhang, Y. & **Lai, M. H. C.** (2021, July 19-23). *Classification Accuracy of multidimensional tests: Quantifying the impact of noninvariance* [Oral presentation]. Virtual conference of the Psychometric Society (IMPS) due to covid-19. https://www.psychometricsociety.org/sites/main/files/file-attachments/imps_2021_virtual_schedule.pdf
49. *Tse, W. W. & **Lai, M. H. C.** (2021, July 19-23). *Incorporating uncertainty in design parameters: A hybrid classical-Bayesian power analysis approach for two-level cluster randomized trials* [Oral presentation]. Virtual conference of the Psychometric Society (IMPS) due to covid-19. https://www.psychometricsociety.org/sites/main/files/file-attachments/imps_2021_virtual_schedule.pdf
48. **Lai, M. H. C.**, Ji, F., & Chen, S. (2021, July 19-23). *Obtaining reliability for daily diary data using multilevel factor analysis* [Oral presentation]. Virtual conference of the Psychometric Society (IMPS) due to covid-19. https://www.psychometricsociety.org/sites/main/files/file-attachments/imps_2021_virtual_schedule.pdf
47. Lopez, N. V., **Lai, M. H. C.**, Yang C.-H., Dunton G. F., Belcher B. R. (2021, April 12-16). *Associations of maternal and paternal parenting practices with children's fruit/vegetable intake and physical activity* [oral presentation/research talk]. Society of Behavioral Medicine 2021. Virtual conference due to covid-19.
46. *Hsiao, Y., Kwok, O., & **Lai, M. H. C.** (2021, April 8-12). *Improving estimation accuracy of the interaction effects in models with composite scores* [Structured poster session]. AERA Annual Meeting, Orlando, FL, United States. <https://convention2.allacademic.com/one/aera/aera21>
45. **Lai, M. H. C.** & *Hsiao, Y. (2021, April 8-12). *Two-stage path analysis with definition variables: A general framework for modeling with categorical indicators* [Structured poster session]. AERA Annual Meeting, Orlando, FL, United States. <https://convention2.allacademic.com/one/aera/aera21>
44. Wen, L., & **Lai, M. H. C.** (2021, April 8-12). *A multilevel weighted bootstrap procedure to handle sampling weights* [Paper session]. AERA Annual Meeting, Orlando, FL, United States. <https://convention2.allacademic.com/one/aera/aera21>

43. **Lai, M. H. C.** (2020, July 14-17). *Multilevel bootstrap confidence intervals for standardized effect size* [Paper session]. Annual Meeting of the Psychometric Society (IMPS), College Park, MD, United States. https://www.psychometricsociety.org/sites/main/files/file-attachments/imps_2020_virtual_schedule_g1.pdf
42. *Tse, W. W. & **Lai, M. H. C.** (2020, July 14-17). *Measurement invariance for ordered categorical variables: The necessity of strict invariance for valid group comparisons* [Poster session]. Annual Meeting of the Psychometric Society (IMPS), College Park, MD, United States. https://www.psychometricsociety.org/sites/main/files/file-attachments/imps_2020_virtual_schedule_g1.pdf
41. *Zhang, Y. & **Lai, M. H. C.** (2020, July 14-17). *A Bayesian framework for establishing measurement invariance for observed test scores* [Poster session]. Annual Meeting of the Psychometric Society (IMPS), College Park, MD, United States. https://www.psychometricsociety.org/sites/main/files/file-attachments/imps_2020_virtual_schedule_g1.pdf
40. *Tse, W. W. & **Lai, M. H. C.** (2020, June 25-26). *Measurement invariance for ordered categorical variables: The necessity of strict invariance for valid group comparisons* [Conference Session]. A Meeting of Methodologies (AMOM), Vancouver, BC, Canada. http://www.sfu.ca/content/dam/sfu/psychology/research/mml/AMOM_2020_program.pdf
39. **Lai, M. H. C.** (2020, June). *Constructing bootstrap confidence intervals for standardized effect size in cluster-randomized trials* [Poster session]. Modern Modeling Methods Conference, Storrs, CT. https://modeling.uconn.edu/wp-content/uploads/sites/1188/2020/02/M3_2020_Preliminary_Schedule.pdf (Conference canceled)
38. *Tse, W. W., & **Lai, M. H. C.** (2020, June). *Path to valid means comparisons: The necessity of strict measurement invariance for ordered categorical variables* [Paper session]. Modern Modeling Methods Conference, Storrs, CT, United States. (Conference canceled)
37. *Zhang, Y., & **Lai, M. H. C.** (2020, June). *A Bayesian framework for establishing measurement invariance for observed test scores* [Poster session]. Modern Modeling Methods Conference, Storrs, CT, United States. (Conference canceled)
36. *Liu, Y., **Lai, M. H. C.**, & Kelcey, B. (2020, April 17 - 21). *Comparing multiple indicators multiple causes (MIMIC) and alignment method for investigating measurement invariance with respect to a continuous variable* [Paper Session]. AERA Annual Meeting San Francisco, CA, United States. <http://tinyurl.com/u5mhnmn> (Conference Canceled)
35. *Gold, A.I., **Lai, M. H. C.**, *Tureson, K., & Thames, A.D. (2020, February). *Analysis of educational bias of the Montreal Cognitive Assessment (MoCA) using differential item functioning* [Conference presentation]. Annual meeting of the International Neuropsychological Society, Denver, CO, United States. <https://www.the-ins.org/meetings/denver2020/>
34. Hsiao, Y., Kwok, O., & **Lai, M. H. C.** (2019, April). *Comparisons of reliability estimates for correcting measurement errors of the exogenous composites in interaction models*. Paper presented at the annual meeting of the American Educational Research Association, Toronto, ON.
33. Wu, A. M. S., **Lai, M. H. C.**, Yogo, M., & Yu, S. (2018, Nov). Being mindful or flexible? Investigation of associated factors with problematic online gaming among Asian university

- students. Paper presented at the International Congress of Behavioral Medicine, Santiago, Chile.
32. *Liu, Y. & **Lai, M. H. C.** (2018, July). *Examining Bayesian approaches for investigating measurement invariance across two groups*. Poster presented at the annual meeting of the Psychometric Society, New York, NY.
 31. Atari, M., Dehghani, M., Lai, M. H. C., & Graham, J. (2018, May). *Sex Differences in Moral Foundations: Evidence from 67 Countries*. Poster presented at the Association for Psychological Science Annual Convention, San Francisco, CA.
 30. Kwok, O., **Lai, M. H. C.**, Tong, F., Lara-Alecio, R., Irby, B. J., Yoon, M., & Yeh, Y. (2018, April). *Analyzing complex longitudinal data in educational research: A demonstration with the project English language and literacy acquisition (ELLA) data using xxM*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
 29. **Lai, M. H. C.** (2018, April). *Confidence interval for standardized effect size in cluster-randomized trials: Comparing analytic and bootstrap methods*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
 28. **Lai, M. H. C.** & Kwok, O. (2018, March). *Growth models for time-varying cumulative classroom/teacher effects*. Paper presented at the Texas Universities' Educational Statistics and Psychometrics Meeting, College Station, TX.
 27. **Lai, M. H. C.** & Kwok, O. (2018, March). *A Model for Time-Varying Cumulative Classroom/Teacher Effects on Students' Growth*. Paper presented at the Spring Conference of the Society for Research on Educational Effectiveness, Washington, DC.
 26. Wu, A. M. S., Lai, M. H. C., & Yu, S. (2017, September). *Psychological need satisfaction, gaming motives, and Internet gaming disorder*. Paper presented at the 31st Conference of the European Health Psychology Society, Padova, Italy.
 25. **Lai, M. H. C.**, & Zhang, J. (2017, April). *Evaluating fit-indexes for multivariate t-based structural equation modeling*. Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.
 24. **Lai, M. H. C.**, & Kwok, O. (2017, April). *Standardized mean difference for three-level partially nested data*. Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.
 23. **Lai, M. H. C.**, & Zhang, J. (2016, June). *The use of multivariate-t-based maximum likelihood for robust SEM*. Paper presented at the 4th Institute of Mathematical Statistics Asia Pacific Rim Meeting, Hong Kong.
 22. Yoon, M., & **Lai, M. H. C.** (2016, June). *Testing factorial invariance with severely unbalanced samples*. Paper presented at the 4th Institute of Mathematical Statistics Asia Pacific Rim Meeting, Hong Kong.
 21. Hsiao, Y. Y., Kwok, O., & **Lai, M. H. C.** (2016, April). *Modeling measurement error on interaction effect with items mean scores using structural equation modeling*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.
 20. **Lai, M. H. C.**, & Kwok, O. (2016, April). *Using design effects to determine the necessity of applying cross-classified random effects models*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

19. **Lai, M. H. C.**, & Kwok, O. (2016, March). *Design effects in cross-classified random effects models*. Paper presented at the Texas Universities' Educational Statistics and Psychometrics Meeting, College Station, TX.
18. Kwok, O., Yoon, M., **Lai, M. H. C.**, & Hsiao, Y. Y. (2015, July). *Partial measurement invariance then and now: Methodological aspects and practical implications*. Paper presented at the annual meeting of the Psychometric Society, Beijing, China.
17. **Lai, M. H. C.**, Kwok, O., Hsiao, Y. Y., & Cao, Q. (2015, April). *Finite population correction for two-level hierarchical linear modeling*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
16. Wu, A. M. S., **Lai, M. H. C.**, & Tong, K. K. (2015, April). *Gambling refusal self-efficacy, attitude, injunctive norm and youth gambling in Macao*. Paper presented in The Third Asia Pacific Conference on Gambling & Commercial Gaming Research, Beijing, China.
15. Lara-Alecio, R., Tong, F., Irby, B. J., Guerrero, C. L., Lopez, T., **Lai, M. H. C.**, & Jimenez, D. D. (2015, April). *Third grade bilingual teachers' pedagogical differences during ESL block in a randomized control trial study*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
14. **Lai, M. H. C.**, Kwok, O., Hsiao, Y. Y., & Cao, Q. (2015, March). *Finite population correction for two-level hierarchical linear modeling*. Paper presented at the Texas Universities' Educational Statistics and Psychometrics Meeting, Austin, TX.
13. **Lai, M. H. C.** (2014, November). *Bootstrap Confidence Intervals for Multilevel Effect Size*. Poster presented at the Conference "Advances in Multilevel Modeling for Educational Research", College Park, MD.
12. Cao, Q. & **Lai, M. H. C.** (2014, July). *Sensitivity of fit indices to test for cluster bias in multilevel data*. Paper presented at the 79th Annual Meeting of the Psychometric Society, Madison, WI.
11. Hsiao, Y. Y. & **Lai, M. H. C.** (2014, April). *The impact of partial measurement invariance on tests of moderation for single and multi-level data*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
10. **Lai, M. H. C.** & Kwok, O. (2014, April). *Standardized mean difference in partially nested data*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
9. **Lai, M. H. C.**, Tong, F., Yoon, M., Lara-Alecio, R., Irby, B. J., & Kwok, O. (2014, April). *Modeling cross-classified data with adequate within-subject variance-covariance structures: A lesson from the Project ELLA data*. Poster presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
8. Wu, A. M. S., **Lai, M. H. C.**, & Tong, K.-k. (2014, February). *Internet gambling: Participation and addiction in Macao*. Paper presented at the 5th International Gambling Conference (IGC2014), Auckland, New Zealand.
7. Wu, A. M. S., **Lai, M. H. C.**, & Tong, K. (2013, December). *Prevalence of gambling involvement and gambling disorder in Macao*. Paper presented at the Second Asia Pacific Conference on Gambling & Commercial Gaming Research (APCG2013), Kaohsiung, Taiwan.
6. **Lai, M. H. C.** & Kwok, O. (2013a, August). *Standardized mean difference in cross-classified random effect models*. Poster presented at the American Psychological Association annual convention, Honolulu, HI.

5. Wu, A. M. S., **Lai, M. H. C.**, Tong, K. K., & Tao, V. Y. K. (2013, July). *Application of the theory of planned behavior on gambling involvement among Chinese people*. Paper presented at the 13th European Congress of Psychology, Stockholm, Sweden.
4. **Lai, M. H. C.** & Kwok, O. (2013b, May). *The excuse of not using multilevel modeling: An investigation of the "design effect larger than two" rule*. Poster presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
3. **Lai, M. H. C.** (2013, April). *Comparing Pearl's partial coefficient test with the other global- and local-fit measures in SEM*. Paper presented at the Texas Universities' Educational Statistics and Psychometrics Meeting, Austin, TX.
2. **Lai, M. H. C.** (2012, February). *A review of the panoply of univariate and multivariate effect size choices*. Paper presented at the annual meeting of the Southwest Educational Research Association, New Orleans, LA.
1. **Lai, M. H. C.** & Tong, K. (2010, June). 澳門市民的媒體使用及對傳媒公信力的評價 [*Macao citizen's habit of using mass media and evaluation on media credibility*]. Paper presented at the Conference on Macau's Ten-Year Development, Macau, China.

INVITED PRESENTATIONS

Correcting for unreliability and partial invariance: A two-stage path analysis approach

Texas A&M University, TX

2022 Mar

Addressing Race/Ethnicity in Statistical Analyses and Interpreting Data

Mini-Summit, Best Practices for Addressing Racial and Ethnic Diversity in Research Studies: Real World Examples and Practical "How Tos,"

University of California at San Diego

2021 Oct

What to Do If Measurement Invariance Does Not Hold? Let's Look at the Practical Significance

University of Missouri

2021 Sep

Advancing Quantitative Science with Monte Carlo Simulation

Simulation Summer School, Psychology Postgraduate Affairs Group, the British Psychological Society

2021 June

Reliability of Composite Scores With Multilevel Data

Fordham University, NY

2021 May

Internal Consistency of Multilevel Data: Cluster Means, Centering, and Construct Meanings

Arizona State University, AZ

2020 Nov

Measurement Invariance Does Not Hold. Then What?

University of California at Davis, CA

2020 Mar

Advancing Quantitative Science with Monte Carlo Simulation

Texas A&M University, TX

2019 May

Using multilevel modeling with R

University of Macau, Macau SAR

2018 Dec

Multilevel modeling: Introduction and recent advances for behavioral research,

University of Macau, Macau SAR

2018 Dec

Introduction to Bayesian data analysis,

Texas A&M University, TX

2017 May

Practical understanding on application of structural equation modeling,

City University of Hong Kong, Hong Kong

2016 Jun

- A 2.5-hour workshop invited by the Hong Kong Society of Behavioral Health

DEPARTMENTAL TALKS

Can we trust test scores? A methodological discussion on the impact of measurement invariance

2017 Nov

- Presentation at Power Friday, University of Cincinnati, OH

Standardized mean difference in partially nested data

2016 Nov

- Presentation at the Data Analytics Showcase & Networking Event, University of Cincinnati, OH

Quantitative methods for interdisciplinary research

2016 April

- Presentation at the Best Practices in Research Meeting, University of Cincinnati, OH

Standardized mean difference in partially nested data

2015 Oct

- Research presentation at the Quantitative and Mixed Methods Research Methodologies (QMRM) Brown Bag, University of Cincinnati, OH

Doing Monte Carlo simulation studies with Mplus

2013 Jan & 2014 Jan

- Presentation at Texas A&M University, TX

HONORS AND AWARDS

Outstanding Reviewer

2020

Journal of Educational and Behavioral Statistics

American Educational Research Association, Division D

2019

Nominated for Early Career Award

Distinguished Honor Graduate

2015

College of Education and Human Development, Texas A&M University

Travel Award to present at the Conference "Advances in Multilevel Modeling for Educational Research" at University of Maryland

2014

The Society for Multivariate Experimental Psychology

Graduate Research Grant

2014

College of Education and Human Development, Texas A&M University, for the project "Bootstrap Confidence Intervals for Multilevel Effect Size"

Graduate Travel Grant

2013, 2014, & 2015

College of Education and Human Development, Texas A&M University

Outstanding Academic Paper Award

2011

University of Macau

Jorge Alvares Foundation Academic Prize

2011

University of Macau

Rector's Honor List

2011

University of Macau

TEACHING EXPERIENCE

University of Southern California, Los Angeles, CA

Instructor

PSYC 314L – Experimental Research Methods (Evaluation: 3.45 / 4)

PSYC 621L – Seminar in Quantitative Psychology (Multilevel Modeling) (Evaluation: 3.93 / 4)

PSYC 621L – Seminar in Quantitative Psychology (Bayesian Data Analysis) (Evaluation: 3.84 / 4)

PSYC 575L – Multilevel Modeling (Evaluation: 3.94 / 4)

PSYC 573L – Bayesian Data Analysis

University of Cincinnati, Cincinnati, OH

Instructor (Instructor evaluation: 4.61 / 5)

EDST 8087 – Multilevel Models for Educational Studies

EDST 8075 – Bayesian Data Analysis

EDST 7082 – Getting Started With Multilevel Modeling

EDST 7011 – Statistical Data Analysis II

EDST 7010 – Statistical Data Analysis I

Texas A&M University, College Station, TX

Teaching Assistant

EPSY 635 - Educational Statistics (Online)

EPSY 651 - Theory of Structural Equation Modeling

● Teaching Evaluation: 4.83 / 5.00

EPSY 652 - Hierarchical Linear Modeling

EPSY 653 - Advanced Structural Equation Modeling

MENTORING EXPERIENCE

Current Ph.D. Students, Committee Chair

Liu, Yuanfang, University of Cincinnati

Ozcan, Meltem, University of Southern California

Tse, Wing Yee (Winnie), University of Southern California

Zhang, Yichi, University of Southern California

Zhang, Gengrui (Jimmy), University of Southern California

Current Ph.D. Students, Committee Member

Arya, Pragya, University of Southern California

Bello, Mariel, University of Southern California

Byrd, Katie, University of Southern California

Christie, Nina, University of Southern California

Gold, Alaina, University of Southern California

Jhaveri, Nina, University of Southern California

Kennedy, Branden, University of Southern California

Lai, Xu, University of Southern California
 Zhang, Lin (Lynn), University of Southern California

Past Ph.D. Students, Committee Chair (Initial job placement)

Sunny, Cijy, University of Cincinnati (Lecturer [equivalent to Assistant Professor in US],
 Murdoch University, Murdoch, Western Australia)

Past Ph.D. Students, Committee Member

Atari, Mohammad, University of Southern California (Postdoctoral fellow, Harvard University,
 Cambridge, 2021)

Chen, Ching-Chen, University of Cincinnati

Ho, Jean, University of Southern California

Hoover, Joe, University of Southern California

Hsiao, Yu-Yu, Texas A&M University

Ji, Yuhong, Texas A&M University

Khaled, Mona, University of Southern California

O'Donnell, S. Casey, University of Southern California

Zhao, Mengtian (Jessica), University of Southern California

Past Master Students, Committee Member

McGee, Nathan, University of Cincinnati

COMPUTER SKILLS

| | |
|----------------|---|
| Statistics: | R, SAS, SPSS, Stata |
| SEM: | AMOS, LISREL, Mplus, R (lavaan, OpenMx, xxM) |
| Multilevel: | HLM, R (lme4, nlme, brms), SAS (PROC MIXED), SPSS (MIXED), Stata (xtmixed) |
| Psychometrics: | IRTPRO, R (ltm, mirt), WinSteps |
| Bayesian: | JAGS, Stan, WinBUGS |
| Others: | Ci3 CATI, C++, HTML & CSS, Julia, LaTeX, Linux, Markdown, Mathematica, Octave, Python, SQL, TeleForm, Visual Basic |

PROFESSIONAL SERVICE

Editorial Board/Consulting Editor

| | |
|--|--------------|
| Behavior Research Methods | 2020–Present |
| Journal of Behavioral Data Science | 2021 |
| Journal of Educational and Behavioral Statistics | 2021–Present |
| Psychological Methods | 2022–Present |

Ad Hoc Reviewer

Advances in Methods and Practices in Psychological Science
 Alcohol and Alcoholism

Asian American Journal of Psychology
 Assessment
 Behavior Research Methods
 Educational and Psychological Measurement
 Evaluation Review
 Evolutionary Psychology
 Frontiers in Psychology
 Journal of Consulting and Clinical Psychology
 Journal of Educational and Behavioral Statistics
 Journal of Experimental Education
 Journal of Mixed Methods Research
 Journal of Modern Applied Statistical Methods
 Journal of Personality
 Journal of School Psychology
 Multivariate Behavioral Research
 Psychological Methods
 Research Synthesis Methods
 Reviews of Educational Research
 School Psychology Review
 Sociological Methods & Research
 Structural Equation Modeling: A Multidisciplinary Journal

PROFESSIONAL MEMBERSHIPS

American Educational Research Association (Member; Chair for the multilevel SIG for 2020/2021)
 American Psychological Association Division 5 (Member)
 American Statistical Association (Member)
 Hong Kong Society of Behavioral Health (Advisor, Methodology Advisor Group)
 Psychometric Society (Member)
 Society for Research in Educational Effectiveness (Member)