

Curriculum Vitae

CHI-NING (NICK) CHANG

Assistant Professor
Research, Assessment & Evaluation Ph.D. Concentration
Department of Foundations of Education
School of Education
Virginia Commonwealth University

Email: changc10@vcu.edu
[LinkedIn Profile](#)
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[Google Scholar Citations](#)
[Twitter](#)

EDUCATION

- 2015 – 2020 **Ph.D., Texas A&M University**
Educational Psychology (Research, Measurement and Statistics Program)
- 2007 – 2009 **M.Ed., National Taiwan Normal University**
Department of Education (Sociology of Education Program)
- 2003 – 2007 **B.Ed., National Pingtung University of Education**
Department of Education (Curriculum and Instruction Program)

CERTIFICATES

- 2019 – 2020 **Texas A&M University**
Academy for Future Faculty
- 2019 **Massachusetts Institute of Technology**
Machine Learning: From Data to Decisions

RESEARCH INTERESTS

- ◆ Quantitative methodology (Multilevel Models, Structural Equation Modeling, Educational Measurement, & Program Evaluation)
- ◆ Mentoring in Higher Education
- ◆ STEM Graduate Education
- ◆ STEM Motivation

ACADEMIC APPOINTMENTS

- Aug. 2022 – Present **Assistant Professor**
Research, Assessment & Evaluation Ph.D. Concentration, Department of Foundations of Education, Virginia Commonwealth University

Mar. 2020 – **Assistant Research Professor**
Aug. 2022 Research Design and Analysis (RDA) Unit, Life Span Institute, University of Kansas (KU)

RESEARCH GRANTS & AWARDS

Research Grant (PI)

- 2020 – 2022 **National Science Foundation (NSF) COVID-19 RAPID Grant**
“RAPID: Collaborative research: electronic mentoring to address challenges in engineering graduate programs during the COVID-19 pandemic.” Research Project Funded by the Coronavirus Aid, Relief, and Economic Security (CARES) Act through NSF’s Division of Graduate Education (NSF-DGE-2031069, \$44,582). **PI: Chi-Ning Chang.**
- 2018 – 2020 **Education Research Grant**
“Modeling measurement errors for multilevel observational data in education: theory and application.” Funded by the Ministry of Education, Taiwan (\$32,000). **PI: Chi-Ning Chang.**
- 2019 **College of Education and Human Development Research Grant**
“Machine learning in education: theory and applications.” Funded by the College of Education and Human Development, Texas A&M University (\$1,132). **PI: Chi-Ning Chang.**
- 2018 **College of Education and Human Development Research Grant**
“A machine learning approach to uncovering the STEM pipeline from high school through college — evidence from national longitudinal data.” Funded by the College of Education and Human Development, Texas A&M University (\$845). **PI: Chi-Ning Chang.**

Research Grant (Statistician)

- 2019 – 2022 **Institute of Education Sciences (IES): National Center for Special Education Research (NCSER)**
“Project SCREEN: Validation of a free-access screening tool for K-12 educators to screen students with internalizing and externalizing behavior patterns” **Statistician: Chi-Ning Chang** (contribute 5% FTE in 2021 & 2022 at KU / examining psychometric properties under the multilevel data structure including IRT models, measurement invariance across groups, longitudinal measurement invariance, and predictive validity); PI: Kathleen Lane.

Awards

- 2020 **Distinguished Honor Graduate Award**
Awarded by College of Education and Human Development, Texas A&M University.
- 2015 – 2017 **Study Abroad Scholarship**
Award-winning proposal: “*Big data in education: educational database value-added application and policy analysis*,” Study Abroad Scholarship in Education, Taiwan (\$86,667).
- 2015 **Emerging Scholar Award**
Awarded by College of Education and Human Development, Texas A&M University.
- 2015 **Lechner Graduate Scholarship**
Awarded by College of Education and Human Development, Texas A&M University (\$2,500).
- 2010 – 2019 **Research Travel Funds**
Travels to conferences & workshops. Funded by Texas A&M University, University of California Berkeley, National Science Foundation, National Science Council (Taiwan), & National Taiwan Normal University (\$12,494 total).

RESEARCH PUBLICATIONS

Peer-Reviewed Research Articles (†student author)

23. **Chang, C. N.**, & Kwok, O. (2022). Partitioning variance for a within-level predictor in multilevel models. *Structural Equation Modeling: A Multidisciplinary Journal*.
<https://doi.org/10.1080/10705511.2022.2051175> [ISI 2021 impact factor: 6.181]
22. **Chang, C. N.**, †Chien, H. Y., & †Malagon-Palacios, L. (2022). College reopening and community spread of COVID-19 in the United States. *Public Health*, 204, 70-75.
<https://doi.org/10.1016/j.puhe.2022.01.001> [ISI 2021 impact factor: 4.984]
21. Saw, G. K., **Chang, C. N.**, & Lin, S. (2022). Gender disparities in remote teaching readiness and mental health problems among university faculty during the COVID-19 pandemic. *Educational and Developmental Psychologist*, 1-11.
<https://doi.org/10.1080/20590776.2022.2108697> [Indexed in Scopus]

20. Hutchison, J., Li, Z., **Chang, C. N.**, Hiripitiyage, Y., Wittman, M., & Sturm, B. (2022). Improving correlation of wastewater SARS-CoV-2 gene copy numbers with COVID-19 public health cases using readily available biomarkers. *FEMS Microbes*, 3, 1-8. <https://doi.org/10.1093/femsmc/xtac010>
19. **Chang, C. N.**, Saw, G. K., & †Malagon-Palacios, L (accepted in Mar. 2022). *Challenges of remote learning and mentoring among engineering students and faculty during the COVID-19 pandemic*. 2022 American Society for Engineering Education (ASEE) Annual Conference & Exposition, 1-10. (Peer review publish-to-present conference) [Engineering Index (EI)]
18. Zimmer, W. K., **Chang, C. N.**, Semma, B. M., & Fowler, D. (2022). Developing graduate writing habits and skills: establishing writing sessions with STEM graduate students. *College Teaching*, 70(2), 133-144. <https://doi.org/10.1080/87567555.2021.1909524> [Indexed in Scopus]
17. **Chang, C. N.**, Saw, G. K., †Lomeli-Carrillo, U., Romano, K., Zhi, M., & Culbertson, R. (2021). *Electronic mentoring during the COVID-19 pandemic: effects on engineering graduate students' academic, career, and mental health outcomes*. 2021 American Society for Engineering Education (ASEE) Annual Conference & Exposition, 1-18. <https://peer.asee.org/37018> (Peer review publish-to-present conference) [Engineering Index (EI)]
16. Gagne, J. R., Barker, K., **Chang, C. N.**, Nwadinobi, O. K., & Kwok, O. M. (2021). A multi-theoretical and multi-method family study approach to preschool inhibitory control: links to working memory, receptive vocabulary, behavioral maladjustment, and parent mental health in the context of temperament and executive functioning perspectives. *Frontiers in Psychology*, 12(703606), 1-13. <https://doi.org/10.3389/fpsyg.2021.703606> [ISI 2021 impact factor: 4.232]
15. Xie, L., **Chang, C. N.**, & Singh, S. (2021). Emotional intelligence, voice and flow: a team-level study of work teams. *Team Performance Management: An International Journal*, 27(7/8), 524-539. <https://doi.org/10.1108/TPM-12-2020-0110> [Emerging Sources Citation Index (ESCI)]
14. **Chang, C. N.**, Patterson, C. A., Vanderford, N. L., & Evans, T. M. (2021). Modeling individual development plans, mentoring support, and career preparedness relationships among Doctor of Philosophy (Ph. D.) trainees in the life sciences. *F1000Research*, 10(626), 1-10. <https://doi.org/10.12688/f1000research.53705.2> [Indexed in PubMed, PubMed Central, MEDLINE, Scopus, and Embase.]
13. **Chang, C. N.**, Patterson, C. A., Harmon, W. C., Fowler, D., & Arroyave, R. (2020). Intellectual community as a bridge of interdisciplinary graduate education in materials data science. *MRS Advances*, 5(7), 355-362. <https://doi.org/doi:10.1557/adv.2020.140> [Emerging Sources Citation Index (ESCI)]

12. †Denton, M., Borrego, M., **Chang, C. N.**, Arroyave, R., & Boklage, A. (2020). Non-academic career pathways for engineering doctoral students: an evaluation of an NSF research traineeship program. *2020 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, 1-18. <https://doi.org/10.18260/1-2--34996> (Peer review publish-to-present conference) [Engineering Index (EI)]
11. Patterson, C. A., **Chang, C. N.**, Pardo, M., Lavadia, C., Fowler, D., & Butler K. L. (2019). Transforming doctoral education: preparing multidimensional and adaptive scholars. *Studies in Graduate and Postdoctoral Education*, 11(1), 17-34. <https://doi.org/10.1108/SGPE-03-2019-0029> [Emerging Sources Citation Index (ESCI)]
10. **Chang, C. N.**, Patterson, C. A., Lavadia, C., Fowler, D., & Arroyave, R. (2019). Showcasing interdisciplinary capabilities: employers' perceptions on reflective ePortfolios. *2019 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, 1-19. <https://doi.org/10.18260/1-2--33264> (Peer review publish-to-present conference) [Engineering Index (EI)]
9. Saw, G. K., Brewington, S., Swagerty, B., **Chang, C. N.**, Culbertson, R. (2019). STEM out-of-school program: students' attitudes toward and career interests in mathematics and science. *International Journal of Evaluation and Research in Education*, 8(2), 356-362. <http://doi.org/10.11591/ijere.v8i2.18702> [Indexed in ERIC and Scopus]
8. Gagne, J. R., **Chang, C. N.**, Fang, H. A., Spann, C. A., & Kwok, O. (2019). A multi-method study of inhibitory control and behavior problems in preschoolers. *Infant and Child Development*, 28(1), 1-16. <https://doi.org/10.1002/icd.2115> [ISI 2021 impact factor: 1.776]
7. Saw, G. K., **Chang, C. N.**, & Chan, H. Y. (2018). Cross-sectional and longitudinal disparities in STEM career aspirations at the intersection of gender, race/ethnicity, and socioeconomic status. *Educational Researcher*, 47(8), 525-532. <https://doi.org/10.3102/0013189X18787818> [ISI 2021 impact factor: 6.386]
6. **Chang, C. N.**, Lavadia, C., Fowler, D., Allaire, D., & Arroyave, R. (2018). Assessing student interdisciplinarity: results from an interdisciplinary graduate program in science and engineering fields. *2018 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, 1-13. <https://doi.org/10.18260/1-2--29823> (Peer review publish-to-present conference) [Engineering Index (EI)]
5. Saw, G. K., & **Chang, C. N.** (2018). Cross-lagged models of mathematics achievement and motivational factors among Hispanic and non-Hispanic high school students. *Hispanic Journal of Behavioral Sciences*, 40(2), 240-256. <https://doi.org/10.1177/0739986318766511> [ISI 2021 impact factor: 1.033]
4. Arroyave, R., Shields, S., **Chang, C. N.**, Fowler, D., Malak, R., & Allaire, D. (2018). Interdisciplinary research on designing engineering material systems: results from a National Science Foundation workshop. *Journal of Mechanical Design*, 140 (11), 110801-

- 1 – 11080-9. <http://doi.org/10.1115/1.4041177> [ISI 2020 impact factor: 3.251]
3. Lavadia, C., **Chang, C. N.**, & Fowler, D. (2018). Student and faculty perspectives on the effectiveness of an interdisciplinary graduate engineering program. *2018 IEEE Frontiers in Education Conference (FIE)*, 1-7. <https://doi.org/10.1109/FIE.2018.8658375> [Engineering Index (EI)]
 2. **Chang, C. N.**, Semma, B., Fowler, D., & Arroyave, R. (2017). An interdisciplinary graduate education model for the materials engineering field. *2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, 1-14. <https://doi.org/10.18260/1-2--27578> (Peer review publish-to-present conference) [Engineering Index (EI)]
 1. **Chang, C. N.**, Pardo, M., Semma, B., Fowler, D., Arroyave, R., & Shamberger, P. J. (2017). Data-Enabled Discovery and Design of Energy Materials (D3EM): Structure of an interdisciplinary materials design graduate program. *MRS Advances*, 2(31-32), 1693-1698. <https://doi.org/10.1557/adv.2017.228> [Emerging Sources Citation Index (ESCI)]

Technical/Data Reports

- ◆ **Chang, C. N.**, Fleming, K., Storkel, H., et al. (2020). *Predicting the academic success of KU's undergraduate students: A machine learning classification and regression tree (CART) approach* (Institutional Research Report). Lawrence, KS: The University of Kansas.
- ◆ **Chang, C. N.**, Saw, G. K., Lomelí, U., & Zhi, M. (2020). *Electronic mentoring during the COVID-19 pandemic: A national survey of STEM faculty and students* (NREED Data Brief. No 3). Claremont, CA: Network for Research and Evaluation in Education.
- ◆ Saw, G. K., **Chang, C. N.**, Lomelí, U., & Zhi, M. (2020). *Gender disparities in remote learning during the COVID-19 pandemic: A national survey of STEM faculty and students* (NREED Data Brief. No 2). Claremont, CA: Network for Research and Evaluation in Education.
- ◆ Saw, G. K., **Chang, C. N.**, Lomelí, U., & Zhi, M. (2020). *Fall enrollment and delayed graduation among STEM students during the COVID-19 pandemic* (NREED Data Brief. No 1). Claremont, CA: Network for Research and Evaluation in Education.

Book Chapters

- ◆ Weiss, C. H. (1998). *Evaluation: Methods for studying programs & policies* 2nd edition (Wang, L. Y., Chang, S. C., Li, M. Y., Lin, F. Y., **Chang, C. N.**, and Hsieh, C. C., Trans. 2014 [in Chinese]). New Jersey: Prentice Hall.
- ◆ Peng, S. S. & **Chang, C. N.** (2012). *Preparing students for gainful employment: lessons from Taiwan college graduates surveys*. In Fernex, A. & Lima, L. (Eds.), *To be a student*

within Bologna process: New insights and studies outcomes. (ISBN: 978-2-7061-1659-9) (pp. 153-178). France: PUG.

- ♦ **Chang, C. N.** (2010). *Teachers at rural junior high schools in Taiwan [in Chinese]*. In Center for Teacher Education and Graduate Institute of Curriculum Studies at Tamkang University (Ed.), *Curriculum and Instruction of Disadvantaged Students*. (ISBN: 978-986-6717-57-4) (pp.91-106). Taipei: NTNU Press.

Invited Presentations

- ♦ Kwok, O. & **Chang, C. N.** (2022, Apr.). *Keynote Talk: Mean-Centering Lower-Level Predictors in Multi-Level Modeling (MLM): Revisiting an Old Question from a Different Perspective*. Educational Statisticians SIG Open Business Meeting. 2022 American Educational Research Association (AERA) Annual Meeting, San Diego, CA.
- ♦ **Chang, C. N.** (2022, Apr.). *When Measurement Error Meets Multilevel Modeling in Educational Research*. Virginia Commonwealth University.
- ♦ **Chang, C. N.** (2022, Mar.). *The importance of Quantitative Research to the Counseling Profession*. Governors State University.
- ♦ **Chang, C. N.** (2021, Nov.). *Educational inequality: The impacts of COVID-19 on America's students*. 2021 International Conference on Envisioning Education 2030: Educational Value, Reflection, and Action in the Era of Risk, Taiwan.
- ♦ Saw, G. K. & **Chang, C. N.** (2020, Dec.). *Patterns and outcomes of electronic mentoring among engineering graduate students during the COVID-19 pandemic*. COVID Information Commons: December 2020 COVID Research Lightning Talks.
- ♦ **Chang, C. N.** & Saw, G. K. (2020, Dec.). *Patterns and outcomes of electronic mentoring among engineering graduate students during the COVID-19 pandemic*. National Science Foundation EHR Core Research (ECR) PI meeting.
- ♦ **Chang, C. N.** & Saw, G. K. (2020, Nov.). *How e-mentoring affects engineering graduate students' academic, career, and mental health outcomes*. The American Society for Engineering Education (ASEE) Webinar on Supporting underrepresented engineering students in the of COVID-19.
- ♦ Saw, G. K. & **Chang, C. N.** (2020, Jun.). *COVID-19 pandemic challenges and impacts on STEM faculty and students: Findings from a national survey*. The Institute for Operations Research and the Management Sciences (INFORMS) Minority Issues Forum (MIF) COVID-19 Town Hall.
- ♦ **Chang, C. N.** (2019, Dec.). *Modeling motivational factors in STEM education research: Multilevel structural equation modeling and machine learning*. The University of Texas at San Antonio.

- ♦ **Chang, C. N.** (2019, Dec.). *Multilevel data and intraclass correlation*. The University of Memphis.
- ♦ **Chang, C. N.** (2019, Dec.). *Multilevel SEM and machine learning in educational research: development and application*. The University of Memphis.

Conference Presentations

- ♦ **Chang, C. N.**, Saw, G. K., & Malagon-Palacios, L (2022, Jun.). *Challenges of Remote Learning and Mentoring among Engineering Students and Faculty during the COVID-19 Pandemic*. Paper presented at the 2022 American Society for Engineering Education (ASEE) Annual Conference & Exposition, Sunday, June 26 – Wednesday, June 29, 2022, Minneapolis, MN.
- ♦ **Chang, C. N.**, Saw, G. K., Malagon-Palacios, L, & Culbertson, R. (2022, Apr.). *Mentor type, mentoring support, and STEM undergraduate student challenges during the COVID-19 pandemic*. Paper presented at the 2022 American Educational Research Association (AERA) Annual Meeting: Cultivating Equitable Education Systems for the 21st Century. Friday, April 22 –Monday, April 25, 2022, San Diego, CA.
- ♦ **Chang, C. N.**, Malagon-Palacios, L, & Chien, H.Y. (2022, Apr.). *Effect of college openings on county-level COVID-19 cases*. Paper presented at the 2022 American Educational Research Association (AERA) Annual Meeting: Cultivating Equitable Education Systems for the 21st Century. Friday, April 22 –Monday, April 25, 2022, San Diego, CA.
- ♦ **Chang, C. N.**, Patterson, C. A., Vanderford, N. L., & Evans, T. M. (2022, Apr.). *Individual Development Plans, Mentoring Support, and Career Preparedness among Ph.D. Trainees in the Life Sciences*. Paper presented at the 2022 American Educational Research Association (AERA) Annual Meeting: Cultivating Equitable Education Systems for the 21st Century. Friday, April 22 –Monday, April 25, 2022, San Diego, CA.
- ♦ **Chang, C. N.**, Saw, G. K., Lomeli-Carrillo, U., Romano, K., Zhi, M, & Culbertson, R. (2021, Jul.). *Electronic mentoring during the COVID-19 pandemic: effects on engineering graduate students' academic, career, and mental health outcomes*. Paper presented at the 2021 American Society for Engineering Education (ASEE) Annual Conference & Exposition. Monday, July 26 – Thursday, July 29, 2021. (Virtual Meeting)
- ♦ **Chang, C. N.**, & Saw, G. K. (2021, Apr.). *Individual development plan, mentoring support, and career optimism among STEM graduate students during the COVID-19 pandemic*. Paper presented at the 2021 American Educational Research Association (AERA) Annual Meeting: Accepting Educational Responsibility. Thursday, April 8 – Monday, April 12, 2021. (Virtual Meeting)
- ♦ **Chang, C. N.**, & Kwok, O. (2021, Apr.). *Modeling latent constructs for multilevel observational data in education: Multilevel modeling (MLM) versus multilevel structural*

- equation modeling*. Paper presented at the 2021 American Educational Research Association (AERA) Annual Meeting: Accepting Educational Responsibility. Thursday, April 8 – Monday, April 12, 2021. (Virtual Meeting)
- ♦ Saw, G. K., **Chang, C. N.**, & Hernandez, P. (2021, Apr.). *Disparities in mentoring experiences and academic/career outcomes of STEM undergraduates during the COVID-19 pandemic*. Paper presented at the 2021 National Association for Research in Science Teaching (NARST) Annual Meeting: Science Education, A Public Good for the Good of the Public? Wednesday, April 7 – Sunday, April 10, 2021. (Virtual Meeting)
 - ♦ **Chang, C. N.**, Lin, S., Kwok, O., & Saw, G. K. (2020, Apr.). *A machine learning approach to predicting STEM college major choice*. Paper presented at the 2020 American Educational Research Association (AERA) Annual Meeting: The Power and Possibilities for the Public Good When Researchers and Organizational Stakeholders Collaborate. Friday, April 17 – Tuesday, April 21, 2020 in San Francisco, CA. (Virtual Meeting)
 - ♦ **Chang, C. N.**, Patterson, C. A., Harmon, W. C., Fowler, D., & Arroyave, R. (2019, Dec). *Intellectual community as a bridge of interdisciplinary graduate education in materials data science*. Paper presented at the 2019 MRS Fall Meeting, Boston, MA.
 - ♦ **Chang, C. N.**, Patterson, C. A., Lavadia, C., Fowler, D., & Arroyave, R. (2019, Jun.). *Showcasing interdisciplinary capabilities: Employers' perceptions on reflective ePortfolios*. Paper presented at the 2019 American Society for Engineering Education (ASEE) Annual Conference & Exposition, Tampa, FL.
 - ♦ **Chang, C. N.**, Lavadia, C., Patterson, C. A., Fowler, D., & Arroyave, R. (2019, May). *What do employers value in a reflective ePortfolio?* Paper presented at the 2019 Transformational Teaching and Learning Conference (TTLC), College Station, TX.
 - ♦ Patterson, C. A., Lavadia, C., **Chang, C. N.**, Fowler, D., & Arroyave, R. (2019, May). *Intellectual community as a bridge of interdisciplinary education*. Paper presented at the 2019 Transformational Teaching and Learning Conference (TTLC), College Station, TX.
 - ♦ **Chang, C. N.**, Lavadia, C., Fowler, D., Allaire, D., & Arroyave, R. (2019, Apr.). *A multidimensional approach to evaluating the students' research interdisciplinarity*. Paper presented at the 2019 American Educational Research Association (AERA) Annual Meeting: Leveraging Education Research in a "Post-Truth" Era: Multimodal Narratives to Democratize Evidence. Friday, April 5 – Tuesday, April 9, 2019 in Toronto, Canada.
 - ♦ Patterson, C. A., Lavadia, C., **Chang, C. N.**, Fowler, D., & Butler K. L. (2019, Feb.). *A case study: Answering the call to provide transformative doctoral education*. Paper presented at the 2019 Conference of Southern Graduate Schools, Knoxville, TN.
 - ♦ Patterson, C. A., Lavadia, C., **Chang, C. N.**, Fowler, D., & Butler K. L. (2019, Jan.). *Transformative learning theory: The foundation to innovative doctoral education*. Paper presented at the 2019 Lilly Conference on Evidence-Based Teaching & Learning, Austin,

TX.

- ◆ Pardo, M., Fowler, D., Lavadia, C., & **Chang, C. N.** (2018, Nov.). *Learning to navigate a new transformative doctoral education model*. Paper presented at the 2018 International Society for the Scholarship of Teaching and Learning, Bergen, Norway.
- ◆ Lavadia, C., **Chang, C. N.**, & Fowler, D. (2018, Oct.). *Student and faculty perspectives on the effectiveness of an interdisciplinary graduate engineering program*. Paper presented at the 2018 IEEE Frontiers in Education Conference (FIE), San Jose, CA.
- ◆ Early, N., **Chang, C. N.**, & Wickersham, T. (2018, Jul.). *The relationship between agriculture background and student's perception of self in an animal science department*. Paper presented at the 2018 American Society of Animal Science (ASAS) and the Canadian Society of Animal Science (CSAS) Annual Meeting, Vancouver, British Columbia, Canada.
- ◆ **Chang, C. N.**, Lavadia, C., Fowler, D., Allaire, D., & Arroyave, R. (2018, Jun.). *Assessing student interdisciplinarity: results from an interdisciplinary graduate program in science and engineering fields*. Paper presented at the 2018 American Society for Engineering Education (ASEE) Annual Conference & Exposition, Salt Lake City, UT.
- ◆ Gagne, J. R., **Chang, C. N.**, & Kwok, O. (2018, March). *A comprehensive, multi-method investigation of preschool inhibitory control and behavioral maladjustment*. Paper presented at the 2018 Society for Research in Human Development Meeting, Plano, TX.
- ◆ **Chang, C. N.**, Semma, B., Fowler, D., Arroyave, R. (2017, June). *An interdisciplinary graduate education model for the materials engineering field*. Paper presented at the 2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition, Columbus, OH.
- ◆ **Chang, C. N.**, Pardo, M., Semma, B., Fowler, D., Arroyave, R., Shamberger, P. J. (2016, Nov.). *Data-Enabled Discovery and Design of Energy Materials (D3EM): Structure of an interdisciplinary materials design graduate program*. Paper presented at the 2016 Materials Research Society (MRS) Annual Fall Meeting, Boston, MA.
- ◆ Wang, L. Y., **Chang, C. N.**, & Chiang, S. C. (2014, Sept.). *Network-based recommendation game for increasing the response rate of web survey on higher education*. Paper presented at the 2014 European Conference on Educational Research (ECER/EERA): The Past, the Future and Present of Educational Research in Europe. Monday, September 1 – Friday, September 5, Porto, Portugal.
- ◆ **Chang, C. N.** & Wang, L. Y. (2014, Sept.). *The Influence of family and school factors on student achievement in rural Taiwan*. Paper presented at the 2014 European Conference on Educational Research (ECER/EERA): The Past, the Future and Present of Educational Research in Europe. Monday, September 1 – Friday, September 5, Porto, Portugal.
- ◆ Li, M. Y., Wang, L. Y. & **Chang, C. N.** (2013, Apr.). *Does marketization bring in better teacher quality in Taiwan?* Paper presented at the 2013 American Educational Research

Association (AERA) Annual Meeting: Education and Poverty: Theory, Research, Policy and Praxis. Friday, April 26 – Wednesday, May 1, 2013 in San Francisco, CA.

- ♦ **Chang, C. N.** (2013, Apr.). *High tuition fees, high living costs: The relationship among college costs, part-time work, and academic involvement*. Paper presented at the 2013 Chinese American Educational Research and Development Association (CAERDA) Annual Meeting: Poverty, Social Justice, and Education in a Global Context. Friday, April 26 – Saturday, April 27, 2013 in San Francisco, CA.
- ♦ **Chang, C. N.**, Wang, L. Y. & Chen, W. L. (2012, Apr.). *Effect of changes of learning environment on student achievement and academic self-concept*. Paper presented at the 2012 American Educational Research Association (AERA) Annual Meeting: Non Satis Scire: To Know Is Not Enough. Friday, April 13 – Tuesday, April 17, 2012 in Vancouver, British Columbia, Canada.
- ♦ Wang, L. Y., **Chang, C. N.**, & Saw, G. K. (2011, Apr.). *Effect of fish-pond-composition on students' math achievement*. Paper presented at the 2011 American Educational Research Association (AERA) Annual Meeting: Inciting the Social Imagination: Education Research for the Public Good. Friday, April 8 – Tuesday, April 12, 2011. New Orleans, LA.
- ♦ **Chang, C. N.** & Wang, L. Y. (2010, Apr.). *Rurality and inequality in education*. Paper presented at the 2010 Chinese American Educational Research and Development Association (CAERDA) International Conference: Conducting and Applying Educational Research to Improve Teaching and Learning. 29 – 30, April, 2010. Denver, CO.
- ♦ Saw, G. K. & **Chang, C. N.** (2010, Apr.). *Counterfactual models of teacher effects: The effects of teacher education on student academic performance*. Paper presented at the 2010 American Educational Research Association (AERA) Annual Meeting: Understanding Complex Ecologies in a Changing World. April 30- May 4, 2010. Denver, CO.
- ♦ Saw, G. K. & **Chang, C. N.** (2009, Aug.). *Effects of teacher preparation on student achievement in Taiwan*. Paper presented at the 2009 Annual Meeting of North American Chinese Sociologists Association, San Francisco, CA.

TEACHING EXPERIENCE

Graduate Courses

Instructor at Virginia Commonwealth University

Fall 2022 EDUS 662: Educational Measurement and Evaluation

Teaching Assistant at Texas A&M University

Fall 2019 EPSY 653 Advanced Structural Equation Modeling

Summer 2019	EPSY 652 Theory of Multilevel Modeling
Spring 2019	EPSY 651 Structural Equation Modeling
Fall 2017	EPSY 653 Advanced Structural Equation Modeling

Professional Workshops

Instructor at the University of Kansas

Fall 2021	Latent Growth Modeling
Apr. 2021, Jan. 2022	Bayesian Structural Time Series Models
Apr. 2020	Machine Learning in Education: A Classification and Regression Trees (CART) Approach

Instructor at Claremont Graduate University

Apr. 2022	Structural Equation Modeling (SEM)
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Instructor at Texas Evaluation Network (TEN)

(TEN is an Affiliate of the American Evaluation Association)

Aug. 2019	Multilevel Structural Equation Modeling (Teaching Evaluation: 4.6/5.0)
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Instructor at the University of Texas at San Antonio

Apr. 2019	Research & Evaluation Methods (REM) Spring 2019 Workshop Series: Multilevel Structural Equation Modeling (MSEM) (Teaching Evaluation: 4.6/5.0)
Feb. 2018	Workshop on Using Mplus: Factor Analysis, Path Modeling, and Structural Equation Modeling (SEM)

Instructor at Texas A&M University

Nov. 2019	Peer Mentoring for Interdisciplinary STEM Graduate Program
Jul. 2019	Career Preparation Summer Workshop
May 2019	R workshop: Getting Started with the Tidyverse
Oct. 2018	Peer Mentoring for Interdisciplinary STEM Graduate Program
Oct. 2017	Peer Mentoring for Interdisciplinary STEM Graduate Program
Feb. 2017	Creating an Individual Development Plan (IDP) - Advancing Interdisciplinary STEM Graduate Education in Energy and Sustainability Disciplines
Sep. 2016	Social Network Visualization

Instructor in Taiwan

May 2018	Academic Publishing
Feb. – Jun. 2015	Data Visualization in Education

Jul. – Sep. 2013 Improving the Use of Survey Data in Decision Making of Higher Education
2010 – 2015 Institutional Research Analysis and Online Data Analysis System

Teaching Assistant in Taiwan

2011 – 2014 Intensive Quantitative Methods Workshop: Factor Analysis, HLM, and SEM

Facilitator at Texas A&M University

Sep. 2018 Online Workshop – Career Success and Your Individual Development Plan
Spring 2018 – Spring 2020 D3EM Student Writing Feedback Group and ePortfolio Feedback Session
2016 – 2020 D3EM Student Learning Community
2015 – 2020 D3EM Faculty Community of Scholars

Supervision/Mentoring of Student Research

2022 – Present Camilla Justus-Smith (Research, Assessment & Evaluation Ph.D. Concentration, VCU; Research Graduate Assistant)
2020 – 2022 Laura Malagon-Palacios (Applied Behavioral Science and Psychology, KU; Research Assistant)
2021 – 2022 Daryl Hesse (Clinical Child Psychology Program, KU; NIH F31 Research Application)
2021 – 2022 Ryan Willard (Counseling Psychology Program, KU; Dissertation)

PROFESSIONAL SERVICES

National Service

2021 NSF panelist / Grant Proposal Reviewer (STEM Education)

Ad Hoc Journal Reviewer

Jul. 2022 – Present AERA Open
Jan. – Feb. 2022 Journal for STEM Education Research
Oct. 2021 – Present International Journal of STEM Education
Aug. 2021 – Aug. 2022 eLife
Jun. – Jul. 2021 Journal of School Psychology
Apr. – May 2021 Studies in Graduate and Postdoctoral Education

Nov. 2020 – Present	Child and Adolescent Psychiatry and Mental Health
Feb.– Mar. 2019	American Educational Research Journal
Dec. 2018 – Jan. 2019	Science Education
Nov. – Dec. 2018	Teacher College Record
Sep. – Oct. 2018	Journal of Engineering Education
Aug. – Sep. 2018	Educational Researcher
Mar. – Apr. 2018	Journal of Latinos and Education
Apr. – May 2017	Journal of Educational Psychology

Conference Service

Jul. 2021	Moderator, American Society for Engineering Education (ASEE)
Jul. 2020	Discussant, Research & Evaluation Symposium at the University of Texas at San Antonio
Nov. 2017 – Mar. 2022	Reviewer, American Society for Engineering Education (ASEE)
Sep. – Oct. 2017	Reviewer, American Educational Research Association (AERA)

Consultant for Statistics and Grant Proposal Development

Mar. 2020 – Aug. 2022	Research Design and Analysis (RDA), Life Span Institute, University of Kansas
Fall 2017 – Fall 2019	Educational Research and Evaluation Lab (EREL), Texas A&M University

Dissertation Committee

2021 – 2022	Ryan Willard (Doctoral Program in Counseling Psychology, KU)
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