

## CHI CHANG (DAWN)

Department of Individual, Family, and Community Education  
Simpson Hall  
University of New Mexico  
Albuquerque, NM 87131

### ACADEMIC APPOINTMENT

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**University of New Mexico** Research Assistant Professor **Sep, 2016 – present**  
Department of Individual, Family, and Community Education

### EDUCATION

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**Michigan State University** **2016**  
– Ph.D., Measurement & Quantitative Methods

**Michigan State University** **2016**  
– M.S., Biostatistics

**National Chengchi University, Taipei, Taiwan** **2008**  
– M.A., Educational Administration & Policy

**National Kaohsiung Normal University, Kaohsiung, Taiwan** **2004**  
– B.A., Educational Psychology and Counseling, with dual minors in Elementary and Secondary School Teacher Education

### GRANTS

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#### Funded

Co-Investigator (PI: A. Pelosi, and B. Biancucci) *Development and Testing of a Novel Canine Annuloplasty Ring for Mitral Valve Repair*. Cavalier King Charles Spaniels Charitable Trust (ACKCS), Inc. February 2014 – February 2015. \$12,851.

Co-Investigator (PI: R. Black, K. Chou, M. Millerick-May, W. Powers) *Estimation of Health Impacts of Livestock Production*. Animal Agriculture Initiative. July 2010 – December 2011. \$46,606.

#### Submitted and Under Review

Co-Investigator (PI: A. Pelosi, and D. Wilson) *Development and Validation of a Canine DysphORiA Scale (DORA scale)*. Morris Animal Foundation. \$10,476. Submitted March 2016.

## JOURNAL PUBLICATIONS

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- Zheng, B., Warschauer, M., Lin, C.-H., & **Chang, C.** (2016). Learning in one-to-one laptop environments: A meta-analysis and research synthesis. *Review of Educational Research*. doi:10.3102/0034654316628645.
- Raykov, T., Marcoulides, G. A., & **Chang, C.** (2016). Examining population heterogeneity in finite mixture settings using latent variable modeling. *Structural Equation Modeling: A Multidisciplinary Journal*. DOI: 10.1080/10705511.2015.1103193
- Raykov, T., Marcoulides, G. A., Lee, C.-L., & **Chang, C.** (2013). Studying differential item functioning via latent variable modeling: A note on a multiple testing procedure. *Educational and Psychological Measurement*, 73(5), 898-908.
- Raykov, T., Marcoulides, G. A., Lee, C.-L., & **Chang, C.** (2013). A commentary on the relationship between model fit and saturated path models in structural equation modeling applications. *Educational and Psychological Measurement*. 73(6), 1054-1068.
- Zheng, G. Y., Liu, Y. W., **Chang, C.**, Jen, C. T., Yen, W. C., & Lin, T. H. (2005). Female students' sense of convenience of campus space in NKNU. *Journal of South Geographic*, 8, 105-125.

## PEER-REVIEWED CONFERENCE PAPERS

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- Li, T., Jackson-Elmoore, C., Akaeze, H., **Chang, C.**, & Lawrence, F. (2016). *Modeling changes in legislators' information source usage in the policy process*. Paper presented at the Annual Meeting of the American Political Science Association, Philadelphia, PA (September, 2016).
- Chang, C.**, Jackson-Elmoore, C., Li, T., Akaeze, H., & Lawrence, F. (2016). *Information source usage by American state legislators*. Paper presented at the Annual Conference of the European Political Science Association, Brussels, Belgium (June, 2016).
- Chang, C.** (2016). *Nonparametric multilevel latent class analysis: A comparative study of teachers' beliefs about teaching and learning in 24 countries*. Paper presented at the Annual Conference of the Modern Modeling Methods Conference, Storrs, CT (May, 2016).
- Chang, C.**, Maier, K. S., Houang, R. T., Van Egeren, L., & Wu, H.-J. (2016). *Multilevel latent class analysis (MLCA) as an alternative method for program evaluation: An application using data from the Michigan 21st Century Community Learning Centers Grant Program*. Paper presented at the Annual Conference of the American Educational Research Association, Washington, DC (April, 2016).
- Zheng, B., **Chang, C.**, & Chen, C.-H. (2016). *A meta-analysis of one-to-one computing on academic achievements*. Paper will be presented at the Annual Conference of American Educational Research Association, Washington, DC (April, 2016).
- Chang, C.** (2015). *Sensitivity analysis for multivalued treatment effect: An example of a*

*cross-country study of teacher participation and job satisfaction*. Paper presented at the 2015 Biannual Meeting of the Society for Research on Educational Effectiveness, Washington, DC (March, 2015).

**Chang, C.,** Houang, R. T., & Maier, K. S. (2015). *The power analysis for two-level hierarchical models with treatment at cluster level in non-randomized design*.

Paper presented at the Annual Conference of American Educational Research Association, Chicago, IL (April, 2015).

**Chang, C.,** & Mao, L. (2014). *The effect of termination criteria on cognitive diagnostic computerized adaptive testing*. Paper presented at National Council on Measurement in Education 2014 Annual Meeting, Philadelphia, PA (April, 2014).

Kao, S.-C., Zara, T., Woo, A., & **Chang, C.** (2013). *Analysis of ability changes for repeating examinees using latent growth curve models*. Paper presented at The 2<sup>nd</sup> Annual Conference on the Statistical Detection of Potential Test Fraud, Madison, WI (October, 2013).

Cheng, C., & **Chang, C.** (2013). *The relationship among gender, culture and math abilities: A perspective from mediation analysis*. Paper presented at AERA Division D, San Francisco, CA. (April, 2013).

Tong, B., & **Chang, C.** (2013). *An investigation of factors affecting students' mathematics growth*. Paper presented to 2013 NCME Graduate Student Issues Committee (GSIC) Research Session, San Francisco, CA (April, 2013).

**Chang, C.** & Tong, B. (2013). *How professional development can do better for teachers, and who needs it? The implications from hierarchical logistic regression analysis and latent class analysis*. Paper presented at the 2013 Biannual Meeting of the Society for Research on Educational Effectiveness, Washington, DC (March, 2013).

**Chang, C.** (2012). *A longitudinal study of class size and mathematics achievement among immigrant and non-immigrant groups*. Paper presented at the 120<sup>th</sup> Annual Conference of the American Psychological Association, Orlando, FL (August, 2012).

Jani, V., **Chang, C.,** Hussain, S., Kassab, M., Fitzsimmons, B.-F., Zaidat, O. (2012a). *The triglyceride: High-density lipoprotein-cholesterol ratio in prediction of development of atherosclerotic disease process*. Paper presented at the 64<sup>th</sup> Annual Meeting of the American Academy of Neurology, New Orleans, LA (April, 2012).

Jani, V., **Chang, C.,** Hussain, S., Kassab, M., Fitzsimmons, B.-F., Zaidat, O. (2012b). *Association of inflammatory markers in vascular death: A retrospective overview*. Paper presented at the 64<sup>th</sup> Annual Meeting of the American Academy of Neurology, New Orleans, LA (April, 2012).

**Chang, C.** & Maier, K. S. (2012). *Power analysis for two-level hierarchical models with propensity score applied to different levels*. Paper presented at the 2012 Biannual Meeting of the Society of Research on Educational Effectiveness, Washington, DC. (March, 2012).

- Chang, C.** (2011). *Teacher's beliefs, attitudes, and professional development: A cross-country analysis using multilevel modeling*. Paper presented at the Annual Meeting of the International Meeting of the Psychometric Society, Hong Kong. (July, 2011).
- Chang, C.** (2011). *Tendency, decision-making processes, and satisfaction of international students in Taiwan*. Paper presented at the Annual Meeting of the Comparative and International Education Society, Montreal, Canada (May, 2011).
- Steward, R. J., **Chang, C.**, Chen, T., & Tong, B. (2010a). *In search of optimal levels of counseling competence: A study of counselor trainees' backgrounds on skill acquisition*. Paper presented at the Annual Meeting of the American Psychology Association, Division 45, Ann Arbor, MI (June, 2010).
- Steward, R. J., **Chang, C.**, Chen, T., & Tong, B. (2010b). *Predicting exceptional status among counselor trainees with origins beyond the USA*. Paper presented at the Annual Meeting of the American Psychology Association, Division 17 Great Lake Conference, Akron, OH (April, 2010).
- Steward, R. J., **Chang, C.**, Ali, K., Riojas, P., Chen, H., & Neal, S. (2010). *Identifying predictors of high school ranking: An exploratory study of the influence of school, student and district*. Paper presented at the Annual Meeting of the American Psychology Association, Division 17 Great Lake Conference, Akron, OH (April, 2010).
- Chang, C.** (2007). *A comparison study of Chinese as a Second Language policies in China and Taiwan*. Hawaii International Conference on Education, Honolulu, Hawaii (January, 2007).
- Chang, C.** (2006). *A comparison study of attracting international students policies in USA, Japan, France, Germany, and Australia*. National Chi-Nan University, Nantou, Taiwan (August, 2006).

## **TECHNICAL REPORTS & OTHER PUBLICATIONS**

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### ***Technical Reports***

- Chang, C.** (2015). *Project Writing III Statistical Report*. East Lansing, MI: The Center for Statistical Training and Consulting.
- Chang, C.** (2014). *Project Writing II Wave II Statistical Report*. East Lansing, MI: The Center for Statistical Training and Consulting.
- Chang, C.** (2014). *Project Writing II Wave I Statistical Report*. East Lansing, MI: The Center for Statistical Training and Consulting.

### ***Newsletter***

- Chang, C.** (2008). *Prepare Teaching Chinese as a Second Language (TCSL) Teachers to Work Abroad*. No. 293. Retrieved from [http://epaper.edu.tw/old/epaper.aspx?period\\_num=293](http://epaper.edu.tw/old/epaper.aspx?period_num=293)

***Press Releases***

- Chang, C.** (2008). Certified Teaching Chinese as a Second Language (TCSL) Teachers Recruitment for Indiana and Michigan [Press release]. Retrieved from <http://ws.moe.edu.tw/001/Upload/1/refile/6643/10364/abd0cb95-21ec-4c8c-bafa-a891973e55bb.pdf>. [in Chinese]
- Chang, C.** (2008). Certified Teaching Chinese as a Second Language (TCSL) Teachers Recruitment for Michigan and Ohio [Press release]. Retrieved from [http://depart.moe.edu.tw/ED2500/News\\_Content.aspx?n=7EE69A276CA727DC&sms=3146F7AB2B7E0B2F&s=11EBD5DC691B53CF](http://depart.moe.edu.tw/ED2500/News_Content.aspx?n=7EE69A276CA727DC&sms=3146F7AB2B7E0B2F&s=11EBD5DC691B53CF) [in Chinese]
- Chang, C.** (2008). Certified Teaching Chinese as a Second Language (TCSL) Teachers Recruitment for AP Chinese course in Midwest USA [Press release]. Retrieved from [http://www.edu.tw/bicer/news.aspx?news\\_sn=1861](http://www.edu.tw/bicer/news.aspx?news_sn=1861) [in Chinese]
- Chang, C.** (2007) Certified Mathematics, Science, and TCSL Teachers Recruitment for Clark District in Nevada [Press release]. Retrieved from <http://ws.moe.edu.tw/001/Upload/1/refile/6643/10367/3b01cb19-b863-414b-8763-0aa4ea793c4b.pdf> [in Chinese]

**PROFESSIONAL EXPERIENCE**

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| <b>Statistical Consultant</b>  | <b>2012, 2014-2016</b> |
| The Center for Statistical Training and Consulting (CSTAT), Michigan State University, East Lansing, MI  |                        |
| <ul style="list-style-type: none"> <li>• Provide advice and services for clients' statistical queries regarding research design, instrument development, statistical method selection, data analysis, data management, programming, interpretation of results, and statistical modeling.</li> <li>• Conduct advanced statistical analyses, wrote technical report, and presented to clients.</li> <li>• Assisted 26 professors, 10 post-doc/research staffs, 49 graduate students, and 1 professional school student.</li> <li>• Assisted 16 grant-supported projects.</li> <li>• Drafted 3 grant proposals, including sections on research design, power analysis, and statistical analysis.</li> </ul> |                        |
| <b>Research Assistant</b>  | <b>2010-2011</b>       |
| The Center for Mathematics and Science Education Research, Michigan State University, East Lansing, MI   |                        |
| Project: Promoting Rigorous Outcomes in Mathematics and Science Education (PROM/SE)  |                        |

**Research Assistant** **2009-2010**

Department of Physical Medicine & Rehabilitation, Michigan State University, East Lansing, MI

Project: Project Excellence

**Staff** **2007-2009**

Bureau of International Cultural and Educational Relations, Ministry of Education, Taiwan

Projects:

- Test of Chinese as a Foreign Language (TOCFL)
- The Certification Examination for Proficiency in Teaching Chinese as a Second/Foreign Language
- Educational Services for International Organizations and Bilateral Consultant Meetings
- Chinese Learning /Teaching Programs

**Research Assistant**, National Chengchi University, Taipei, Taiwan **2006-2007**

Project: Effectiveness of Token Economy and Reinforces: A PEM Approach of Meta-Analysis for Single-Subject Experiments

**Research Assistant** National Chengchi University, Taipei, Taiwan **2005-2006**

Project: The Effect Size of Antecedents and Correlates of Creativity: A Meta-Analysis

**Research Assistant**, National Kaohsiung Normal University, Kaohsiung, Taiwan **2003-2004**

Project: A Study of Life Education and Family Socioeconomic Status

## **LECTURING, TEACHING & MENTORING**

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### **Lecturing and Teaching (Teaching Assistant)**

*Department of Counseling, Educational Psychology, and Special Education, Michigan State University*

- CEP 920: Instrument Construction in Education
- CEP 921: Psychometric Theory I
- CEP 932: Quantitative Methods in Educational Research I
- CEP 933: Quantitative Methods in Educational Research II
- CEP 934: Multivariate Data Analysis I

*Department of Education, National Chengchi University, Taiwan*

- Time Series Analysis Applied in Education
- Behavior Modification
- School Architecture and Equipment

**Mentoring***Doctoral Practicum Paper Committees, Michigan State University*

Akaeze, Hope O (2016). *Sensitivity of multicollinearity-induced bias to outcome-covariate relationship.*

Kim, Sewon (2016). *A comparison of sequential and stratified two-stage sampling designs for populations with the unknown distribution of sampling units.*

Li, Tenglong (2015). *Applying H-H and H-T estimators to propensity score analysis.*

**PROFESSIONAL SERVICE**

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**Journal Reviewer***Journal of Teacher Education**Structural Equation Modeling: A Multidisciplinary Journal***Assistant Editor***Journal of Education Research* (vol.136.), TaiwanSpecial Issue: *Educational Environment: Space and Human Right***Conference Coordinator***International Conference on Creativity and Innovation Education***ACCREDITATIONS & TRAINING**

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**Coursera Certificates**

- Programming for Everybody (Getting Started with Python) **2016**
- Pattern Discovery in Data Mining **2015**

**Grant-related Workshops**

- Broader Impacts in Grant Proposal Development **2016**
- NIH Funding for Non-Medical Projects **2015**
- Advanced NIH R01 Grant Writing **2015**
- NSF Grant Writing Workshop **2015**

**Diplomat Qualification**, Ministry of Education, Taiwan **2009****National Civil Service Exam**, Educational Administration track, PR99 in 3,300 participants **2005****Student Teacher Teaching Certificate** **2004**

- Secondary Education Teaching Preparation Program in Composite Activity, adjudicated by the Ministry of Education, Taiwan.
- Primary Education Teaching Preparation Program, adjudicated by the Ministry of Education, Taiwan

## **REPertoire OF RESEARCH METHODS**

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- Multivariate Data Analysis
- Multilevel Models
- Instrument Construction in Education
- Psychometric Theory
- Item Response Theory
- Multidimensional Item Response Theory
- Categorical Data Analysis
- Advanced Measurement
- Longitudinal Data Analysis
- Latent Variable Modeling
- Causal Inference
- Meta-Analysis
- Bayesian data analysis
- Statistical Computing
- Clinical Trials
- Duration and Severity Analysis
- Biostatistics Models in Genomic Analysis
- Time Series Analysis in Educational Research
- Missing Data
- Power Analysis & Sample Size Planning
- Survey Research
- Experimental Design

## REFERENCES

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### **Kimberly S. Maier, Ph.D.**

Associate Professor, Measurement & Quantitative Methods,  
College of Education  
Faculty Fellow & Assistant Dean,  
The Graduate School  
Michigan State University  
620 Farm Lane, Rm 451  
East Lansing, MI 48824-1024  
Office Phone: [\(517\) 355-8538](tel:(517)355-8538)  
Email: [kmaier@msu.edu](mailto:kmaier@msu.edu)  
Web: <http://kmaier.wiki.educ.msu.edu>

### **Tenko Raykov, Ph.D.**

Professor, Measurement & Quantitative Methods, College of Education  
Michigan State University  
443A Erickson Hall  
East Lansing, MI 48864, USA  
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Email: [raykov@msu.edu](mailto:raykov@msu.edu)  
Web: <https://www.msu.edu/~raykov/>

### **Joseph Gardiner, Ph.D.**

Professor, Department of Epidemiology and Biostatistics,  
College of Human Medicine  
Michigan State University  
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East Lansing, MI 48864, USA  
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Email: [gardine3@msu.edu](mailto:gardine3@msu.edu)  
Web: <http://www.epi.msu.edu/faculty/gardiner/>

### **Steven J. Pierce, Ph.D.**

Associate Director  
Center for Statistical Training & Consulting (CSTAT)  
Michigan State University  
Giltner Hall  
293 Farm Lane, Room 178  
East Lansing, MI 48824  
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Web: [www.cstat.msu.edu](http://www.cstat.msu.edu)