**HOPE ONYINYE AKAEZE**

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**EDUCATION**

**2020 Doctor of Philosophy, Measurement and Quantitative Methods**

Dissertation: Incorporating Differential Speed in Cognitive Diagnostic Models with Polytomous Attributes

Advisor: Dr. Kimberly S. Kelly.

Institution: Michigan State University.

**2011 M.Sc. Applied Statistics**

Area of Specialization: Applied Statistics.

Advisor: Dr. Yuehua Cui.

Institution: Michigan State University.

**2007 B.Sc. Statistics**

Area of Specialization: Statistics.

Advisor: Dr. Polycarp E. Chigbu.

Institution: University of Nigeria, Nsukka (UNN), Enugu State, Nigeria.

**PROFESSIONAL EXPERIENCE**

**08/2020 – present: Academic Specialist**, Office for Public Engagement and Scholarship

**03/2020 – 08/2020:** **Research Assistant**, Office for Public Engagement and Scholarship

**05/2018 – 08/2018:** **Research Assistant**, Office of Medical Education Research and Development (OMERAD), Michigan State University.

**01/2017 – 05/2017:** **Teaching Assistant**, Department of Counseling, Educational Psychology and Special Education, Michigan State University.

**01/2016 – 05/2020:** **Research Assistant**, Center for Statistical Training and Consulting, Michigan State University.

**08/2013 – 12/2015: Teaching Assistant**, Department of Counseling, Educational Psychology and Special Education, Michigan State University

**01/2013 – 05/2013:** **Adjunct Faculty**, Department of Mathematics and Statistics, Davenport University, Grand Rapids, Michigan.

**05/2011 – 12/2011:** **Teaching Assistant**, Department of Statistics and Probability, Michigan State University

**02/2011 – 03/2012: Research Aide**, Global Observatory for Ecosystem Services, Michigan State University.

**10/2008 – 02/2009:** **Graduate Assistant**,Department of Statistics, University of Nigeria, Nsukka, Enugu State, Nigeria, for National Youth Service (NYSC).

**04/2008 – 09/2008:** **Graduate Assistant**, Department of Mathematics and Computer Sciences, Benue State University, Benue State, for National Youth Service (NYSC).

**RESEARCH ACTIVITIES AND PUBLICATIONS \_\_\_\_\_\_**

***Peer-Reviewed Journal Publications***

**Akaeze, H. O.**, Wu, J. H.-C., Lawrence, F. R., & Weber, E. P. (2023). Validation of the Child Observation Record Advantage 1.5 assessment tool for preschool children: A multilevel bifactor modeling approach. *Journal of Psychoeducational Assessment*, 0(0). <https://doi.org/10.1177/07342829231158671>

**Akaeze, H. O.**, Lawrence, F. R., & Wu, J. H. C. (2023). Resolving dimensionality in a child assessment tool: An application of the multilevel bifactor model. *Educational and Psychological Measurement*, *83*(1), 93-115.

Kaldaras, L., **Akaeze, H. O.**, & Krajcik, J. (2021). A methodology for determining and validating latent factor dimensionality of complex multi-factor science constructs measuring knowledge-in-use. *Educational Assessment*, *26*(4), 241-263.

Kwiatkowski, C. C., **Akaeze, H.** **O.**, Ndlebe, I., Goodwin, N., Eagle, A. L., Moon, K., ... & Robison, A. J. (2021). Quantitative standardization of resident mouse behavior for studies of aggression and social defeat. *Neuropsychopharmacology*, *46*(9), 1584-1593.

Kaldaras, L., **Akaeze, H.** **O.**, & Krajcik, J. (2021). Developing and validating Next Generation Science Standards‐aligned learning progression to track three‐dimensional learning of electrical interactions in high school physical science. *Journal of Research in Science Teaching*, *58*(4), 589-618.

Custer, B. D., & **Akaeze, H. O**. (2019). A Typology of State Financial Aid Grant Programs Using Latent Class Analysis. *Research in Higher Education*, 1-31.

Chargo, N. J., Robison, C. I., **Akaeze, H. O.**, Baker, S. L., Toscano, M. J., Makagon, M. M., & Karcher, D. M. (2018). Keel bone differences in laying hens housed in enriched colony cages. *Poultry science*, *98*(2), 1031-1036.

Raykov, T., Marcoulides, G. A., & **Akaeze, H. O.** (2016). Comparing Between-and Within-Group Variances in a Two-Level Study: A Latent Variable Modeling Approach to Evaluating Their Relationship. *Educational and Psychological Measurement*.

***Peer-Reviewed Conference Papers***

**Akaeze, H. O.**, Lawrence, F. R., & Wu, J. H. C. (2023, April). Assessing Spatial Equity in Pre-K Interventions: A Tutorial on Geographically Weighted Regression. Paper to be presented at the 2023 American Educational Research Association Annual Meeting, Chicago, IL.

Chang, C., **Akaeze, H. O.** (2023, April). Predicting Medical Students' Specialty Choices Using Geographic Variables: Findings from Data Spanning 30 Years. Paper to be presented at the 2023 American Educational Research Association Annual Meeting, Chicago, IL.

**Akaeze, H. O.**, Lawrence, F. R., & Wu, J. H. C. (2022, April). Resolving Dimensionality in a Child Assessment Tool: An Application of the Multilevel Bifactor Model. Paper presented at the 2022 American Educational Research Association Annual Meeting, San Diego, CA.

Wu, J. H., Weber, E. P. & **Akaeze, H. O.** (November 7-12, 2022). *Better access to learning opportunities: Promoting equity through child opportunity index and data mapping*. [Part of a multi-paper session titled: Neighborhood-informed approaches to equity in child education and health interventions]. American Evaluation Association conference: (re)shaping evaluation together, New Orleans, LA, United States.

**Akaeze, H. O.**, Jackson-Elmoore, C., & Lawrence, F. (2016, October). *Using the proportional odds model to evaluate state legislators’ use of information sources in the U.S. policy process*.  Presented (oral and poster) at the Women in Statistics and Data Science conference, hosted by the American Statistical Association, Charlotte, NC.

***Papers under Review***

Kaldaras, Leonora, **Akaeze, H. O.**, Krajcik, Joseph. “Developing and Validating an NGSS-Aligned Construct Map for Chemical Bonding from the Energy and Force Perspective” (Under Review).*Journal of Research in Science Teaching.*

Wu, J. H., **Akaeze, H. O.**, Wilinski, B. & Morley, A. (Under Review). Covid-induced policy change in public pre-K: How did middle-income families respond? *Educational Policy*

**Akaeze, H. O.**, Miller, S. & Wu, J. H.(Under Review). Geographically Weighted Regression: A Spatial Lens for Assessing Equity in Educational Resources. *Methodological Innovations.*

Wu, J. H., **Akaeze, H. O.**, & Van Egeren, L. Tracking child development in preschool settings: The case of COR Advantage*. Dimensions of Early Childhood.*

Wu, J. H.*,* **Akaeze, H. O.** & Van Egeren, L. A. (Under Review). Effects of a State Preschool Program on the Kindergarten Readiness and Attendance of At-Risk Four-Year-Olds. *Early Childhood Research Quarterly.*

***Papers under Development***

**Akaeze, H. O.**, Chang, C. “Deflated Variance Inflation Factor: A New Approach for Collinearity Detection in Multiple Regression”.

Van Egeren, L., Wu, J. H., Yang, N., Prince, B., Stoddard, D. & **Akaeze, H. O. “**Out-of-school-time program effects on standardized test scores during early adolescence: A multi-level growth modeling approach”

Chang, C., Van Horn, M. L., & **Akaeze, H. O.** “The Cluster Effect on Robustness of the Parameter Estimation in Multilevel Regression Mixture Models: A Monte Carlo Study”

Jungen, C., Huebner, M., & **Akaeze, H. O.** “Analysis of sympathetic innervation and myocardial substrate in patients with ischemic cardiomyopathy”

**Akaeze, H. O**, Wu, J. H. “Assessing Spatial Equity in Pre-K Interventions: A Tutorial on Geographically Weighted Regression”.

Miller, S. R.**, Akaeze, H. O**, Wu, J. H. Assessing Equity in Pre-K Implementation through a Spatial Lens: A Case Study of Michigan’s Great Start Readiness Program”.

Kang, H. & **Akaeze, H. O.** Investigating the Sources of Race/Ethnicity Differential Item Functioning in Mathematical Literacy Focusing on Exposure to Formal Mathematics

***Technical Reports***

Wu, J. H., Weber, E. P., Herbowicz, T., Van Egeren, L. A., & **Akaeze, H. O.** Great Start Readiness Program (GSRP) State Evaluation 2019-20 Annual Report

Wu, J. H., **Akaeze, H. O.,** & Shereda, A. (2021) Michigan public preschools improve kindergarten readiness: Findings from the Michigan Great Start Readiness Program (GSRP). GSRP state evaluation fact sheet. East Lansing, MI: Michigan State University.

Wu, J. H., Weber, E. P., Van Egeren, L. A., & **Akaeze, H. O.** Great Start Readiness Program (GSRP) State Evaluation 2019-20 Annual Report

Wu, J. H., Weber, E. P., Van Egeren, L. A., & **Akaeze, H. O.** Great Start Readiness Program (GSRP) State Evaluation 2018-19 Annual Report.

***Funded Grants***

**Co-Investigator** (PI: Dillon, Laura) Center for Inclusive Computing Grant. October 1, 2021 – September 30, 2023. $60,000.

**PROFESSIONAL/ACADEMIC SERVICES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* **Editorial Advisory** – Glick, D., Cohen, A., & Chang, C. (Eds.). (2020). *Early warning systems and targeted interventions for student success in online courses*. IGI Global.
* **Reviewer** – Research in Higher Education 2022 – present
* **Workshop Mentor** – Mentor’s Moonlight Chat: Academic and Research Excellence (July 27, 2022).
* **Student Advising (committee member) –** Hui, Bronson (Doctoral dissertation, 2021). “A construct validation study of implicit and time sensitive vocabulary measures”.

**RESEARCH INTERESTS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_**

* Multilevel models
* Instrument construction in Education
* Meta-analysis
* Power analysis
* Quantile regression
* Experimental design
* Structural equation modeling
* Psychometric theory
* Multivariate data analysis
* Cognitive diagnostic modeling
* Response time modeling
* Item Response Theory
* Multidimensional IRT
* Categorical data analysis
* Longitudinal data analysis
* Latent variable modeling
* General/Generalized linear modeling
* Pre-school interventions
* Qualitative data analysis
* Spatial data analysis