

## JORDAN M. WHEELER

University of Nebraska - Lincoln  
Department of Educational Psychology  
Quantitative, Qualitative, and Psychometric Methods  
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### EDUCATION

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<b>Ph.D., Quantitative Methodology</b> University of Georgia Department of Educational Psychology	August 2019 - May 2023
<b>M.S., Mathematical Statistics</b> University of Nebraska - Omaha Department of Mathematical and Statistical Sciences	August 2017 - May 2019
<b>B.S., Mathematics</b> Nebraska Wesleyan University Department of Mathematics	August 2014 - May 2017

### ACADEMIC POSITIONS

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<b>University of Nebraska - Lincoln</b> Department of Educational Psychology <i>Assistant Professor, Quantitative and Psychometric Methods</i>	August 2023 - Present
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### RESEARCH INTERESTS

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psychometrics; topic models; process data; mixed-format assessments; item response theory; computerized adaptive testing

### PUBLICATIONS

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#### PEER REVIEWED JOURNAL ARTICLES

6. Flanigan, A. E., **Wheeler, J. M.**, Colliot, T., Lu, J., Kiewra, K. A. (2024). Typed Versus Handwritten Lecture Notes and College Student Achievement: A Meta-Analysis. *Educational Psychology Review* 36(3), 78.
5. **Wheeler, J. M.**, Cohen, A. S., & Wang, S. (2024). Comparison of Latent Semantic Analysis and Latent Dirichlet Allocation in Educational Measurement. *Journal of Educational and Behavioral Statistics*. 49(5), 848-874.
4. Mardones-Segovia, C. A., **Wheeler, J. M.**, Choi, H.-J., Wang, S., & Cohen, A. S. (2023). Model Selection for Latent Dirichlet Allocation in Assessment Data. *Psychological Test and Assessment Modeling*, 64(1), 3-35.
3. **Wheeler, J. M.**, Raczynski, K., Cohen, A. S., & Engelhard, G. (2022). Using Topic Models to Understand Rater-Mediated Writing Assessments. *The Journal of Experimental Education*. <https://doi.org/10.1080/00220973.2022.2130129>

2. **Wheeler, J. M.**, Engelhard, G., & Wang, J. (2022). Exploring Rater Accuracy Using Unfolding Models Combined with Topic Models: Incorporating Supervised Latent Dirichlet Allocation. *Measurement: Interdisciplinary Research and Perspectives*, 20(1), 34-46. <https://doi.org/10.1080/15366367.2021.1915094>
1. Hyo J.-E., Hulland J., **Wheeler, J. M.**, & Kim S.-H. (2021). Use of item response theory in marketing research. *American Journal of Educational Research and Reviews*, 6:87. <https://doi.org/10.28933/ajerr-2021-09-2609>

## BOOK CHAPTERS

2. Shermis, M. D., Cohen, A. S., & **Wheeler, J. M.** (in press). Test Administration and Scoring. In Cook, L. & Pitoniak, M. (Editors) *Educational Measurement* (5th edition).
1. **Wheeler, J. M.**, Wang, S & Cohen, A. S. (2024). Latent Dirichlet Allocation of Essays. In Shermis, M. & Wilson, J. (Editors) *The Routledge International Handbook of Automated Essay Evaluation* (2nd edition).

## CONFERENCE PROCEEDINGS (PEER REVIEWED)

6. **Wheeler, J. M.**, Xiong, J., Mardones, C., Choi, H.-J., & Cohen, A. S. (2022). An Investigation of Prior Specification on Parameter Recovery for Latent Dirichlet Allocation of Constructed-Response Items. In Wiberg, M., Molenaar, D., Gonzalez, J., Kim, J.-S., & Hwang, H. (Editors) *Quantitative Psychology: The 86th Annual Meeting of the Psychometric Society*.
5. Xiong, J., **Wheeler, J. M.**, Choi, H.-J., & Cohen, A. S. (2022). A Bi-Level Individualized Adaptive Learning Recommendation System Based on Topic Modeling. In Wiberg, M., Molenaar, D., Gonzalez, J., Kim, J.-S., & Hwang, H. (Editors) *Quantitative Psychology: The 86th Annual Meeting of the Psychometric Society*.
4. Mardones, C., Choi, H.-J., Hong, M., **Wheeler, J. M.**, & Cohen, A. S. (2022). Comparison of Estimation Algorithms for Latent Dirichlet Allocation. In Wiberg, M., Molenaar, D., Gonzalez, J., Kim, J.-S., & Hwang, H. (Editors) *Quantitative Psychology: The 86th Annual Meeting of the Psychometric Society*.
3. **Wheeler, J. M.**, Cohen, A. S., Xiong, J., Lee, J., & Choi, H.-J. (2021). Sample Size for Latent Dirichlet Allocation of Constructed-Response Items. In Wiberg, M., Böckenholt, U., Gonzalez, J., Molenaar, D. & Kim, J.-S. (Editors) *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society*.
2. Xiong, J., **Wheeler, J. M.**, Lee, J., Choi, H.-J., & Cohen, A. S. (2021). An Empirical Study of Developing Automated Scoring Engine using supervised Latent Dirichlet Allocation. In Wiberg, M., Böckenholt, U., Gonzalez, J., Molenaar, D. & Kim, J.-S. (Editors) *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society*.
1. Kim, S.-H., Duong, E., Mardones, C., Schellman, M., **Wheeler, J. M.**, Xiong, J., Zheng, G., Zor, S., & Cohen, A. S. (2021). Priors in Bayesian Estimation Under the Two-Parameter Logistic Model. In Wiberg, M., Böckenholt, U., Gonzalez, J., Molenaar, D. & Kim, J.-S. (Editors) *Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society*.

## MANUSCRIPTS CURRENTLY SUBMITTED TO JOURNALS

1. **Wheeler, J. M.**, Wang, S., Tan, Y., & Cohen, A. S. (under first round revision) Textual Data as Process Data: A New Scoring Procedure for Mixed-Format Assessments. *Journal of Educational Measurement*.

## MANUSCRIPTS IN PREPARATION

3. Bradshaw, L., Schellman, M., & **Wheeler, J. M.** (in preparation) A Caution in the Quest for Diagnostic Test-based Inferences.
2. **Wheeler, J. M.**, Engelhard, G., Wind, S. A. (in preparation) Revisiting the Rasch Model using Generalized

Linear Mixed Models: An Extension to Model Evaluation and Fit Statistics.

1. Xiong, J., Liu, Q., Wang, S., **Wheeler, J. M.**, & Cohen, A. S. (in preparation) Machine Learning - Assisted Psychometrics: Principles, Challenges, and Applications.

## GRANTS AND EXTERNAL SUPPORT

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### FUNDED GRANT SUPPORT

*Statistical Consultant* *Diagnostic Inventories of Cognition in Education* (2017-2023), Institute of Educational Sciences, Cognition and Student Learning: Goal 5 Measurement. PI: Laine P. Bradshaw

### GRANT PROPOSALS UNDER REVIEW

*Investigator* *Independent Review of Coordinated Screening and Progress Monitoring System* (2024-2025), The State of Florida Department of Education. PI: Maria E. Oliveri. (\$491,756)

### UNFUNDED GRANT PROPOSALS

*Investigator* *Independent Review of Coordinated Screening and Progress Monitoring System* (2024-2025), The State of Florida Department of Education. PI: Maria E. Oliveri. (\$491,756)

*Collaborator* *Impact of Parent Connectors on Student Engagement and Achievement* (2024-2027), Education Innovation and Research Early-phase Competition (CFDA 84.411C). PI: Jennifer Farley.

## PRESENTATIONS

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### INVITED PRESENTATIONS

6. **Wheeler, J. M.** (2023, November) *Using Latent Dirichlet Allocation for Automated Essay Scoring*. The College Board, Learning and Assessment Division, Virtual.
5. **Wheeler, J. M.** (2023, October) *Leveraging Process Data in Mixed-Format Assessments to Improve Ability Estimates: A Scoring Procedure using Topic Models*. CanAm Online Symposium, Virtual.
4. **Wheeler, J. M.** (2023, January) *A Scoring Procedure for Mixed-Format Assessments using Topic Models*. Department of Educational Psychology, University of Nebraska - Lincoln, Lincoln, NE.
3. **Wheeler, J. M.** (2021, November) *Structural Tradition: Explanatory Item Response Model*. Theories of Educational Measurement, Department of Educational Psychology, University of Georgia, Athens, GA.
2. **Wheeler, J. M.** (2021, October) *Introduction of Reliability for Assessments*. Classroom Assessments, Department of Educational Psychology, University of Georgia, Athens, GA.
1. Cohen, A. S., & **Wheeler, J. M.** (2021, February) *Topic Modeling of Answers to Constructed Response Tests*. Department of Psychology, University of Notre Dame, South Bend, IN.

### CONFERENCE PAPERS AND PRESENTATIONS

\* indicates supervisory role of a graduate student as co-authors

26. **Wheeler, J. M.**, Wang, J., & Engelhard, G. (2024, April) *Automated Rater Routing Algorithm for Essays using Unfolding Scale and Topic Models*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. Philadelphia, PA.

25. **Wheeler, J. M.**, Wang, S., & Cohen, A. S. (2024, April) *Latent Dirichlet Allocation of Essays*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. Philadelphia, PA.
24. Bradshaw, L. P., Schellman, M., Sachdeva, R., & **Wheeler, J. M.** (2024, April) *The Impact of Large-scale Diagnostic Classroom Assessment on Student Achievement*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. Philadelphia, PA.
23. Firoozi, T., Hellman, S., Klaus, Z., Lottridge, S., **Wheeler, J. M.**, Shermis, & Wilson, J. (2024, April) *Recent Innovations in Automated Scoring*. Coordinated Session presented at the Annual Meeting of the National Council on Measurement in Education. Philadelphia, PA.
22. **Wheeler, J. M.**, Bradshaw, L., & Schellman, M. (2023, April) *A Method for Annual Summative Determination Classification Consistency and Accuracy using a Diagnostic Assessment System*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. Chicago, IL.
21. **Wheeler, J. M.**, Wang, S., Tan, Y., & Cohen, A. S. (2022, April) *Textual Data as Process Data: A New Scoring Procedure for Mixed-Format Assessments*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. San Diego, CA.
20. Mardones, C., Choi, H.-J., **Wheeler, J. M.**, & Cohen, A. S. (2022, April) *Model Selection for Latent Dirichlet Allocation in Assessment Data: New Advances*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. San Diego, CA.
19. Xiong, J., **Wheeler, J. M.**, & Cohen, A. S. (2022, April) *Multi-task classification for constructed responses with the topic model and deep neural network*. Paper presented at the Annual Conference of the American Educational Research Association. San Diego, CA.
18. Englehard, G., Wind, S., & **Wheeler, J. M.** (2021, December) *Revisiting and Extending the Family of Rasch Models*. Paper presented at the Pacific Rim Objective Measurement Society Conference. Nanjing, China (Virtual).
17. **Wheeler, J. M.**, Xiong, J., Mardones, C., Choi, H.-J., & Cohen, A. S. (2021, July) *Impact of priors on parameter recovery for latent Dirichlet allocation*. Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
16. Xiong, J., **Wheeler, J. M.**, Choi, H.-J., & Cohen, A. S. (2021, July) *Individualized test preparation recommendation systems based on latent Dirichlet allocation*. Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
15. Xiong, J., **Wheeler, J. M.**, & Cohen, A. S. (2021, July) *Applications of machine learning in educational and psychological measurement*. Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
14. Mardones, C., Choi, H.-J., Hong, M., **Wheeler, J. M.**, & Cohen, A. S. (2021, July) *Comparison of estimation algorithms for latent Dirichlet allocation*. Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
13. **Wheeler, J. M.**, Wang, S., & Cohen, A. S. (2021, June) *Comparison of Latent Semantic Analysis and Latent Dirichlet Allocation*. Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
12. **Wheeler, J. M.**, Choi, H.-J., Cohen, A. S., Xiong, J., & Lee, J. (2021, June) *A Semi-Confirmatory Latent Dirichlet Allocation Topic Model*. Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
11. Raczynski, K., Choi, H.-J., **Wheeler, J. M.**, Shermis, M., Lottridge, S., Cohen, Y., & Cohen, A.S. (2021, June) *Using Artificial Intelligence for Constructed-Response Scoring: Some Practical Considerations*. Symposium presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).

10. Mardones, C., **Wheeler, J. M.**, Choi, H.-J., & Cohen, A. S. (2021, June) *Model Selection for Latent Dirichlet Allocation with Small Number of Topics*. Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
9. Lee, J., Xiong, J., **Wheeler, J. M.**, Choi H.-J., & Cohen, A. S. (2021, June) *Application of Multidimensional Mixture IRT and supervised-LDA for DIF in Mixed-Format Test*. Paper presented at the Annual Meeting of the National Council on Measurement in Education (Virtual).
8. **Wheeler, J. M.**, Engelhard, G. Jr., & Wang, J. (2021, April) *Exploring Rater Accuracy Using Unfolding Models Combined with Topic Models Incorporating Supervised Latent Dirichlet Allocation*. Paper presented at the Annual Conference of the American Educational Research Association (Virtual).
7. **Wheeler, J. M.**, Cohen, A. S., Xiong, J., Lee, J., & Choi, H.-J. (2020, July) *A Simulation Guide for Topic Models of Constructed-Response Items*. Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
6. Xiong, J., **Wheeler, J. M.**, Lee, J., Choi, H.-J., & Cohen, A. S. (2020, July) *An Empirical Study of Developing Automated Scoring Engine using supervised Latent Dirichlet Allocation*. Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
5. Kim, S.-H., Duong, E., Mardones, C., Schellman, M., **Wheeler, J. M.**, Xiong, J., Zheng, G., Zor, S., & Cohen, A. S. (2020, July) *Priors in Bayesian Estimation for the Two- and Three-Parameter Logistic Models* Paper presented at the International Meeting of the Psychometric Society (IMPS). College Park, MD (Virtual).
4. **Wheeler, J. M.**, & Cohen, A. S. (2020, April) *Comparison of Latent Semantic Analysis and Latent Dirichlet Allocation*. Paper accepted at the Annual Meeting of the National Council on Measurement in Education. San Francisco, CA (Conference Canceled).
3. **Wheeler, J. M.**, Cohen, A. S., Choi, H.-J., Lee, J., & Xiong, J. (2020, February) *Ninth Grade English Language Arts Constructed-Response Item: A Topic Model Analysis*. Poster presented at the College of Education Graduate Student Research Conference. Athens, GA.
2. Xiong, J., **Wheeler, J. M.**, Lee, J., Choi, H.-J., & Cohen, A. S. (2020, February) *An Empirical Study of Constructing Topic Structures Using Latent Dirichlet Allocation*. Poster presented at the College of Education Graduate Student Research Conference. Athens, GA.
1. Choi, H.-J., Xiong, J., Lai, S., Raczynski, K., **Wheeler, J. M.**, & Lee, J. (2019, October) *A New Method for Analyzing Students' Answers for Constructed Response Items: An Application of a Topic Model*. Paper presented at the Georgia Educational Research Association Annual Conference. Macon, GA.

## TECHNICAL REPORTS

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3. Bradshaw, L., Madison, M., Schellman, M., & **Wheeler, J. M.** (2022) *Navy Education Assessment System Technical Manual*. Technical Report. Pearson Education.
2. Bradshaw, L., Madison, M., Schellman, M., & **Wheeler, J. M.** (2022) *Innovative Assessment Demonstration Authority Comparability Analysis for Navy Education Assessment System*. Technical Report. Pearson Education.
1. Kwak, M., Xiong, J., Kim, S., **Wheeler, J. M.**, Lee, J., Choi, H.-J., & Cohen, A. S. (2019) *Georgia Center for Assessment Writing Assessment Analysis Summary Report*. Technical Report. Georgia Center for Assessment.

## TEACHING EXPERIENCE

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### Instructor of Record

*University of Nebraska-Lincoln, Department of Educational Psychology*

<b>EDPS 470/870:</b> Introduction to Educational and Psychological Measurement	Spring 2024
<b>EDPS 991B:</b> Bayesian Inference	Spring 2024
<b>EDPS 900D:</b> Survey Methods in Educational Research	Fall 2023, 2024

### Graduate Teaching Assistant

*University of Georgia, Department of Educational Psychology*

<b>ERSH 6600E:</b> Applied Educational Assessment	Spring 2022
<b>ERSH 8610:</b> Theories of Educational Measurement	Fall 2021

## SUPERVISION OF STUDENT RESEARCH

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### Doctoral Chair/Co-Chair

Matt Brooks, Developmental and Learning Sciences, Educational Psychology (In Progress)  
Canyon Skare, Quantitative, Qualitative, and Psychometric Methods, Educational Psychology (In Progress)

### Doctoral Committee Member

Sunhyoung Lee, Quantitative, Qualitative, and Psychometric Methods, Educational Psychology (In Progress)  
Ali Shull, Developmental and Learning Sciences, Educational Psychology (In Progress)  
Jared Noetzel, School Psychology, Educational Psychology (In Progress)

### Master Committee Member

Sarah Hammami, Quantitative, Qualitative, and Psychometric Methods, Educational Psychology (In Progress)

### Academic Advisory Committee Member

Xin Meng, Management, Business Administration (In Progress)

## RELEVANT WORK EXPERIENCE

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### Research Scientist and Psychometrician

Pearson Education  
School Assessment Solutions Division - Navvy Assessment System

May 2022 - August 2023

### Research Assistant

University of Georgia  
Department of Educational Psychology

August 2019 - June 2022

### Data Scientist

CATCH Intelligence  
Business Analytics and Data Science

January 2018 - May 2022

## SERVICE ACTIVITIES AND LEADERSHIP POSITIONS

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### JOURNAL REVIEWER

Educational Measurement: Issues and Practices	2021 - Present
Applied Measurement in Education	2023 - Present
Journal of Educational Measurement	2023 - Present

**LEADERSHIP****Graduate Researchers in Educational Psychology**

University of Georgia

Department of Educational Psychology

*Executive Board - Vice President*

June 2021 - June 2022

*Executive Board - Secretary*

June 2020 - June 2021

**PROFESSIONAL AFFILIATIONS**

Psychometric Society

2020 - Present

National Council on Measurement in Education

2020 - Present

American Educational Research Association

2020 - Present

*Rasch Measurement SIG*

2022 - Present

**HONORS AND AWARDS**

Owen Scott Emerging Scholar Award

May 2023

*University of Georgia, Department of Educational Psychology*

Outstanding Scholarship in Quantitative Methodology

May 2023

*University of Georgia, Department of Educational Psychology*

Outstanding Scholarship in Quantitative Methodology

May 2021

*University of Georgia, Department of Educational Psychology*

College of Education's Research Scholar Award (Fellowship)

August 2019 - May 2022

*University of Georgia, College of Education***MISCELLANEOUS****APPLICATION DEVELOPMENT****Wheeler, J. M.** (2020) Item Response Theory's Item Characteristic Curve Generator. *Shiny Application*.Retrieve: <http://159.65.226.102/shiny/SingleItemCharacteristicCurve/>**Wheeler, J. M.** (2019) NYSE Automated Generalized Autoregressive Conditional Heteroskedasticity Fore-casting. *Shiny Application*. Retrieve: <http://159.65.226.102/shiny/ForecastingApplication/>**SOFTWARE AND PROGRAMMING SKILLS**

R, Python, and SAS

Git, SQL, Microsoft Office, and LaTeX

JAGS, Stan, Mplus, OpenBUGS, WinBUGS, Facets, and BILOG-MG