

Jeff Hoover

## Education

University of Kansas, Lawrence, KS

Ph.D. Educational Psychology, May 2022

- Dissertation: “Using Machine Learning to Identify Causes of Differential Item Functioning”
- Advisor: Bruce Frey
- Emphasis: Research, Evaluation, Measurement, and Statistics

Vanderbilt University, Nashville, TN

M.Ed. Clinical Psychological Assessment, May 2016

- Advisor: Susan Douglas

Lipscomb University, Nashville, TN

M.S. Psychology, August 2013

- Thesis: “Curbing the Defensive Reaction Associated with Obsessive Passion and Finding a Correlation between Personality Traits and Obsessive and Harmonious Passion”
- Advisor: Dale Alden

Lipscomb University, Nashville, TN

B.S. Mathematics, May 2011

- Senior Project: “Overlaying Virtual Mosaic Knot Diagrams”
- Advisor: Mark Miller
- Summa Cum Laude

## Employment

**Accessible Teaching, Learning and Assessment Systems (ATLAS)** 08/20/2018 - present

**University of Kansas**

Psychometrician 05/29/2022 - present

Psychometrician Associate 03/22/2020 - 05/28/2022

Graduate research assistant (GRA) 08/20/2018 - 03/22/2020

- Writing statistical coding for modeling data
- Conducting modeling research to support Dynamic Learning Maps
- Writing literature reviews and syntheses for manuscripts and grant proposals
- Contributing to R packages that support the operational work of ATLAS

**University of Kansas Medical Center** 08/15/2016 - 08/10/2018

Study and recruitment coordinator

- Coordinated participant recruitment from multiple clinics, databases, and community organizations

- Recruited participants, scheduled participant visits, coordinated study team appointments with participants, screened participants according to strict eligibility standards, assisted with baseline assessments, coordinated multiple arms of a clinical trial intervention, and maintained IRB information for site monitoring and IRB renewal
- Assisted lab members with their dissertation projects (e.g., manuscript preparation, recruitment, conceptualization), assisted students with proofreading and revisions on dissertation proposals and publications, and represented our lab on the Building Advisory Committee.

**Peabody Research Institute**  
**Vanderbilt University**

12/10/2014 - 12/13/2016

Meta-analysis coder

- Retrieved articles and studies, eligibility screening, and full text coding as a part of multiple meta-analysis projects
- Preparing coded study information to be analyzed and ensured the quality of the data contained in the database
- Recorded information pertinent to the research methodology used in the research studies, tracked progress for individual coding assignments, and queried authors for additional information

## **Publications**

Thompson, W. J., Nash, B., Clark, A. K., & **Hoover, J. C.** (2023). Using simulated retests to estimate the reliability of diagnostic assessment systems. *Journal of Educational Measurement*, xx(xx). doi: 10.1111/jedm.12359

**Hoover, J. C.** (2022). Neural networks. In B. B. Frey (Ed.) *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (2nd ed., Vol. 1, pp. 1055 - 1057). Thousand Oaks, CA: SAGE Publications, Inc. <https://dx.doi.org/10.4135/9781071812082.n385>

**Hoover, J. C.** (2022). Machine learning. In B. B. Frey (Ed.) *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (2nd ed., Vol. 1, pp. 842 - 847). Thousand Oaks, CA: SAGE Publications, Inc. <https://dx.doi.org/10.4135/9781071812082.n314>

**Hoover, J. C.** (2022). Adaptive designs in clinical trials. In B. B. Frey (Ed.) *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (2nd ed., Vol. 1, pp. 11 - 12). Thousand Oaks, CA: SAGE Publications, Inc. <https://dx.doi.org/10.4135/9781071812082.n11>

**Hoover, J. C.** (2022). Bayesian adaptive randomization design. In B. B. Frey (Ed.) *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* (2nd ed., Vol. 1, pp. 89 - 92). Thousand Oaks, CA: SAGE Publications, Inc. <https://dx.doi.org/10.4135/9781071812082.n41>

**Hoover, J. C.**, Alenazi, A. M., Alshehri, M. M., Alqahtani, B. A., Alothman, S., Sarmiento, C., Yahya, A., Rucker, J. L., & Kluding, P. M. (2021). Recruiting and retaining patients with breast cancer in exercise trials: A meta-analysis. *Translational Journal of the American College of Sports Medicine*, 6(1).

- Allothman, S., **Hoover, J. C.**, Alshehri, M. M., Alenazi, A. M., Wick, J., LeMaster, J., Rucker, J., & Kluding, P. M. (2020). Test-retest reliability of ActivPAL in measuring sedentary behavior and physical activity in people with type 2 diabetes. *Journal of Physical Activity & Health*, 17(11), 1134-1139. doi: 10.1123/jpah.2019-0506
- Alqahtani, B. A., Alenazi, A. M., **Hoover, J. C.**, Alshehri, M. M., Aglhamdi, M., Osailan, A., & Khunti, K. (2020). Incidence of stroke among Saudi population: A systematic review and meta-analysis. *Neurological Sciences*, 41, 3099-3104. doi: 10.1007/s10072-020-04520-4
- Alshehri, M. M., Alenazi, A. M., **Hoover, J. C.**, Allothman, S., Phadnis, M., Miles, J. M., Kluding, P., & Siengasukon, C. (2020). A comparison of diabetes self-care behavior in people with Type 2 Diabetes with and without clinical insomnia. *Acta Diabetologica*, 57(6), 651-659. doi: 10.1007/s00592-019-10470-y
- Alshehri, M. M., Alenazi, A. M., **Hoover, J. C.**, Allothman, S. A., Phadnis, M. A., Rucker, J. L., Befort, C. A., Miles, J. M., Kluding, P. M., Siengasukon, C.F. (2019). Effect of cognitive behavioral therapy for insomnia on insomnia symptoms for individuals with Type 2 Diabetes: Protocol for a pilot randomized controlled trial. *JMIR Res Protoc*, 8(12):e14647. doi: 10.2196/14647
- Alqahtani, B. A., Alshehri, M. M., **Hoover, J. C.**, & Alenazi, A. M. (2019). Prevalence of falls among older adults in the Gulf Cooperation Council Countries: A systematic review and meta-analysis. *Archives of Gerontology and Geriatrics*, 83, 169-174. doi: 10.1016/j.archger.2019.04.006
- Hoover, J. C.**, Allothman, S., Alenazi, A. M., Alshehri, M. M., Rucker, J., & Kluding, P. M. (2018). Recruitment for exercise or physical activity interventions: A protocol for systematic review. *BMJ Open*, 8(3):e019546. doi:10.1136/bmjopen-2017-019546
- Alenazi, A. M., Alshehri, M. M., **Hoover, J. C.**, Yabroudi, M. A., Kachanathu, S. J., & Liu, W. (2018). The effect of t'ai chi exercise on lipid profiles: A systematic review and meta-analysis of randomized clinical trials. *The Journal of Alternative and Complementary Medicine*, 24(3), 220-230.
- Hoover, J. C.** (2017). Using routines to improve diversity in higher education institutions. *InterActions: UCLA Journal of Education and Information*, 13(2). Retrieved from <http://escholarship.org/uc/item/7cs2t44d>

## Conference Presentations

- Hoover, J. C.**, Thompson, W. J., & Frey, B. B. (2023, April). Using machine learning to identify causes of differential item functioning in log-linear cognitive diagnosis models. Paper presented at the National Council on Measurement in Education Annual Meeting, Chicago, IL.
- Hoover, J. C.**, & Thompson, W. J. (2023, April). Evaluating the performance of person-fit detection methods in diagnostic classification models. Paper presented at the National Council on Measurement in Education Annual Meeting, Chicago, IL.
- Hoover, J. C.**, & Thompson, W. J. (2022, April). Modifying the M<sub>2</sub> statistic to handle missing data.

Paper presented at the National Council on Measurement in Education Annual Meeting, San Diego, CA.

**Hoover, J. C.**, Kobrin, J. L., Thompson, W. J., & Wang, W. (2022, April). Development and evaluation of a composite item-fit statistic for diagnostic classification models. Paper presented at the National Council on Measurement in Education Annual Meeting, San Diego, CA.

**Hoover, J. C.**, Thompson, W. J., Nash, B., & Kobrin, J. L. (2021, June). The I-SMART project: Empirical map validation. Paper presented at the National Council on Measurement in Education Annual Meeting, Baltimore, MD. (Virtual conference)

**Hoover, J. C.**, Thompson, W. J., Clark, A. K., & Nash, B. (2020, September). Diagnostic assessment: DIF detection from binary and aggregate mastery classifications. Paper presented at the National Council on Measurement in Education Annual Meeting, San Francisco, CA. (Conference cancelled)

Rocha, L., Niileksela, C., Frey, B., DeLuca, T., Simonsen, M., Lee, S., Garcia, A., & **Hoover, J.** (2020, June). *Online graduate student surveys: Engagement, Technology, and instructor behaviors*. Poster presented at the International Society for Technology in Education, Anaheim, CA.

Alshehri, M., Alenazi, A., Alothman, S., Alqahtani, B., **Hoover, J.**, Waitman, L., & Kluding, P. (2020, February). *The Prevalence and Association of Sleep Disorders with Osteoarthritis in Older Adults: A Retrospective Study*. Poster presented at the Combined Sections Meeting (CSM), Denver, CO.

**Hoover, J. C.**, Alenazi, A. M., Sarmiento, C., Alothman, S., Alshehri, M. M., Yahya, A., Rucker, J. L., Kluding, P. M. (2019, November). *Recruitment and Retention in Exercise or Physical Activity Studies Involving Patients with Breast Cancer*. Poster presented at the American Congress of Rehabilitation Medicine (ACRM) conference, Chicago, IL.

Alqahtani, B., Alshehri, M. M., **Hoover, J. C.**, & Aqeel Alenazi, A. M. (2019, November). *Alarming high prevalence of falls among older adults in the Arabian Gulf Cooperation Council Countries*. Poster presented at the American Congress of Rehabilitation Medicine (ACRM) conference, Chicago, IL.

Alenazi, A. M., Alshehri, M. M., **Hoover, J. C.**, Alothman, S., Yahya, A., Sarmiento, C., Rucker, J., & Kluding, P. M. (2019, January). *Factors related to successful recruitment and retention for exercise or physical activity interventions in people with arthritis: A systematic review and meta-analysis*. Poster presented at the Combined Sections Meeting (CSM), Washington D.C.

Alshehri, M. M., **Hoover, J. C.**, Alenazi, A. M., Alothman, S., Yahya, A., Sarmiento, C., Rucker, J., & Kluding, P. M. (2019, January). *Recruitment and retention in exercise or physical activity related studies in pain: A systematic analytical review*. Poster presented at the Combined Sections Meeting (CSM), Washington D.C.

- Alenazi, A. M., Alshehri, M. M., Allothman, S., **Hoover, J. C.**, Sharma, N., Rucker, J., Bindawas, S., & Kluding, P. M. (2018, October). *The Impact of Diabetes on Knee Pain Severity and Bilateral Knee Joint Involvement: Data from the Osteoarthritis Initiatives*. Poster presented at the Missouri Physical Therapy Association (MPTA), Kansas City, MO.
- Hoover, J. C.**, Yahya, A., Rucker, J. L., Pasnoor, M., & Kluding, P. M. (2018, August). *Exercise-related blood glucose drop in adults with Diabetic Peripheral Neuropathy*. Poster presented at the American Psychological Association (APA), San Francisco, CA.
- Alshehri, M. M., Alenazi, A. M., Alajam, R., Jiawei, D., Allothman, S., **Hoover, J. C.**, Rucker, J., Siengasukon, C. P., Perlis, M. L., & Kluding, P. (2018, June). *The impact of insomnia on A1c variability and glucose level in people with type 2 diabetes: A retrospective analysis*. Poster presented at the Associated Professional Sleep Societies, LLC, Baltimore, MD.
- Allothman, S., Alshehri, M. M., Alenazi, A. M., **Hoover, J. C.**, Rucker, J., Pasnoor, M., & Kluding, P. M. (2018, April). *Sedentary behavior relationship with physical function in people with Type 2 Diabetes*. Poster presented at the Kansas Physical Therapy Association (KPTA), Wichita, KS.
- Hoover, J. C.**, Yahya, A., Rucker, J. L., Pasnoor, M., & Kluding, P. M. (2018, April). *Exercise-related blood glucose change in adults with Type 2 Diabetes and Diabetic Peripheral Neuropathy*. Poster presented at the Kansas Physical Therapy Association (KPTA), Wichita, KS.
- Alenazi, A. M., Alshehri, M. M., **Hoover, J. C.**, Yabroudi, M., Kachanathu, S., Rucker, J., & Liu, W. (2018, February). *The effect of tai chi exercise on lipid profiles. A systematic review and meta-analysis of randomized clinical trials*. Platform presentation given at the Combined Sections Meeting (CSM), New Orleans, LA.
- Alenazi, A. M., Alshehri, M. M., **Hoover, J. C.**, Allothman, S., Sharma, N., Bindawas, S., & Kluding, P. M. (2018, February). *The relationship between diabetes and knee pain severity, unilateral or bilateral knee pain: Data from the Osteoarthritis Initiatives*. Poster presented at the Combined Sections Meeting (CSM), New Orleans, LA.
- Allothman, S., Alshehri, M. M., Alenazi, A. M., **Hoover, J. C.**, Rucker, J., Pasnoor, M., & Kluding, P. M. (2018, February). *Sedentary behavior relationship with physical function in people with Type 2 Diabetes*. Poster presented at the Combined Sections Meeting (CSM), New Orleans, LA.
- Alshehri, M. M., Alenazi, A. M., Alsouhibani, A., Obaidat, S., **Hoover, J. C.**, Allothman, S., & Kluding, P. M. (2018, February). *Visceral fat and neuropathic pain in people with Diabetic Peripheral Neuropathy*. Poster presented at the Combined Sections Meeting (CSM), New Orleans, LA.
- Alshehri, M. M., Alenazi, A. M., Allothman, S., **Hoover, J. C.**, Siengasukon, C., & Kluding, P. M. (2017, April). *Poor sleep quality in people with painful neuropathy*. Platform presentation given at the Kansas Physical Therapy Association (KPTA), Wichita, KS.
- Alshehri, M. M., Alenazi, A. M., Allothman, S., **Hoover, J. C.**, Siengasukon, C., & Kluding, P. M. (2017,

February). *Poor sleep quality in people with painful neuropathy*. Poster presented at the Combined Sections Meeting (CSM), San Antonio, TX.

**Hoover, J. C.** (2013, November). *Curbing the Defensive Reaction Associated with Obsessive Passion and Finding a Correlation between Personality Traits and Obsessive and Harmonious Passion*. Poster presented at the Tennessee Psychological Association (TPA), Nashville, TN.

## Invited presentations

**Hoover, J. C.** & Kingston, N. (2019, December). Using PPMC to check model fit in a random effects meta-analysis. *Educational Psychology Proseminar*, Lawrence, KS.

**Hoover, J. C.** & Thompson, W. J. (2019, October). DIF Calculation Methods. *Dynamic Learning Maps (DLM) Technical Advisory Committee Meeting*. Kansas City, MO.

**Hoover, J. C.** (2019, September). Recruitment and Retention in the Breast Cancer Population. *Educational Psychology Proseminar*, Lawrence, KS.

Waitman, L. R., Vreeman, D. J., **Hoover, J. C.**, & Kluding, P. M. (2018, February). Partnering with Informatics to Enhance Participant Recruitment for Trials. *American Physical Therapy Association Combined Sections Meeting (CSM)*, New Orleans, LA.

**Hoover, J. C.** (2017, March). How to increase recruitment. *University of Kansas Medical Center Student Interest Group in Rehabilitation Science (SIGRS) Lecture Series*, Kansas City, KS.

## Evaluation Reports

Niileksela, C. R., Frey, B. B., DeLuca, T. A., Summers Rocha, L., Garcia, A. M., & **Hoover, J. C.** (2020). Evaluation of the KU School of Education & Human Sciences Everspring Initiative: 6<sup>th</sup> Annual Report. Lawrence, KS: School Program Evaluation and Research (SPEaR).

Niileksela, C. R., Frey, B. B., DeLuca, T. A., Summers Rocha, L., Simonsen, M., Lee, S. W., Garcia, A. M., & **Hoover, J. C.** (2019). Evaluation of the KU School of Education Everspring Initiative: 5<sup>th</sup> Annual Report. Lawrence, KS: School Program Evaluation and Research (SPEaR).

## Technical Reports

Winters, P., Karvonen, M., D'Brot, J., **Hoover, J. C.**, & Warren, S. H. (2022). State accountability systems: Measuring & reporting academic growth for students with significant cognitive disabilities. The Council of Chief State School Officers. <https://learning.ccssso.org/state-accountability-systems-measuring-reporting-academic-growth-for-students-with-significant-cognitive-disabilities>

Thompson, W. J., & **Hoover, J. C.** (2021). Using propensity scores to evaluate changes in cross-year performance distributions (Technical Report No. 21-01). University of Kansas, Accessible Teaching, Learning, and Assessment Systems.

Clark, A. K., Kavitsky, E., **Hoover, J. C.**, & Karvonen, M. (2021). Summary of 2020-2021 student performance on DLM assessments (Project Brief No. 21-03). University of Kansas, Accessible Teaching, Learning, and Assessment Systems.

Clark, A. K., Kavitsky, E., & **Hoover, J.** (2021). Preliminary summary of 2020-2021 participation in DLM assessments (Project Brief No. 21-02). University of Kansas, Accessible Teaching, Learning, and Assessment Systems.

## **R Packages**

**Hoover, J. C.**, & Thompson, W. J. (2023). *dcm2*. R package version 1.0.2. <https://cran.r-project.org/web/packages/dcm2/index.html>

**Hoover, J. C.**, & Thompson, W. J. (2023). *tdcmStan*. R package version 2.0.0. <https://cran.r-project.org/web/packages/tdcmStan/index.html>

**Hoover, J. C.**, & Kingston, N. (2019). *metamodelfitr*. R package version 0.1.0. <https://github.com/jeffreychoover/metaModelFitR>

Thompson, W. J., Pablo, N., & **Hoover, J. C.** (2019). *Ratlas*. R package version 0.0.0.9000. <https://github.com/atlas-aai/ratlas>

## **Professional Affiliations**

American Educational Research Association, 2020 - present

National Council on Measurement in Education, 2019 - present

Supporter of the Cochrane Collaboration, 2017 - present

American Evaluation Association, 2019 - 2020

Society for Personality and Social Psychology, 2018 - 2019

International Society For Intelligence Research, 2018 - 2019

American Psychological Association (APA), 2012 - 2018

American Psychological Association of Graduate Students (APAGS), 2012 - 2013

## **Service**

Educational Psychology Faculty Search Committee, University of Kansas, 2022

Program student representative, University of Kansas, 2019-2020

Educational Psychology Faculty Search Committee, University of Kansas, 2018-2019

## **Reviewer**

Frontiers in Psychology: Personality and Social Psychology (2022-present)

American Educational Research Association annual meeting (2021-present)

National Council on Measurement in Education annual meeting (2020-present)

## **Honors and Awards**

University of Kansas School of Education Scholarship, 2019 - 2020

University of Kansas Chancellors Fellowship, 2018 - 2022

Lipscomb University Presidential Scholar, 2007 - 2011

Lipscomb University Provosts List, 2008 - 2011

Lipscomb University Deans List, 2007

## **Statistical Software Proficiency**

R

Excel

SPSS

## **Relevant Skills**

Advanced in R Markdown

Proficient in latex

Proficient in C# and Python

Proficient in Zotero

Proficient in EndNote