

William (Hank) Murrah

ASSOCIATE PROFESSOR

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Education

PH.D. EDUCATIONAL PSYCHOLOGY, UNIVERSITY OF VIRGINIA, 2010.

M.ED. COMMUNITY AND AGENCY COUNSELING, UNIVERSITY OF MONTEVALLO, 1998.

B.S. PSYCHOLOGY, UNIVERSITY OF MONTEVALLO, 1993.

Current Position

- **Associate Professor**, *Educational Research, Measurement, and Assessment Program, Educational Foundations, Leadership, & Technology*, **Auburn University**, 2021-present.
- **Assistant Professor**, *Educational Research, Measurement, and Assessment Program, Educational Foundations, Leadership, & Technology*, **Auburn University**, 2016-2021

Teaching

ERMA 7200 Basic Methods in Educational Research Redesigned to include information on the replication crisis. Fall 2016 (2), Summer 2021.

ERMA 7300 Design and Analysis I Redesigned course to include hands-on analytic activities using current research. Spring 2017 (2), Fall 2017 (2), Fall 2018, Fall 2019, Summer 2020, Fall 2020, Spring 2020, Summer 2020 (2).

ERMA 7310 Design and Analysis II Redesigned course to include just-in-time teaching practices and to give students the option of using SPSS or R as their primary statistical software. Spring 2018 (2), Spring 2019, Summer 2019, Fall 2019, Spring 2020, Fall 2020.

ERMA 8320 Design and Analysis III Redesigned course to include sections on missing data and multilevel modeling. Fall 2018.

ERMA 8240 Introduction to Structural Equation Modeling Redesigned the course to use Mplus software. Spring 2019, Spring 2020, Spring 2021.

ERMA 7970 Introduction to Multilevel Modeling Created a course in multilevel modeling emphasizing nested and longitudinal designs. Spring 2021.

ERMA 8350 Advanced Measurement Theory. Redesigned course to include modern test theory using R to provide students with cutting-edge methods for test development. Fall 2021.

OTHER CONTRIBUTIONS TO TEACHING

Murrah, W. M. R User Group. Led weekly R Users workshop. Fall 2021.

Murrah, W. M. R User Group. Led weekly R Users workshop. Summer 2021.

Murrah, W. M. R User Group. Led weekly R Users workshop. Spring 2021.

Pendola, A., & **Murrah, W. M.** *The Workflow of Data Analysis* QMER Works-in-Progress, Spring 2020.

Murrah, W. M. & Pendola, A., *Reading data into SPSS* QMER Works-in-Progress, Spring 2020.

Murrah, W. M. & Pendola, A. *Managing data in SPSS* QMER Works-in-Progress, Spring 2020.

Pendola, A. & **Murrah, W. M.** *Preparing for AERA* QMER Works-in-Progress, Summer 2019.

Murrah, W. M. & Pendola, A., *Introduction to QMER* QMER Works-in-Progress, Spring 2019.

Hulleman, C. S., **Murrah, W. M.**, & Kosovich, J. J., *Intervention Fidelity - Models, Methods, and Applications*, Invited workshop at Society for Research on Educational Effectiveness, Fall 2014.

Murrah, W. M., Confirmatory Factor Analysis and Scale Reliability, Statistical Programming Workshop, University of Virginia, January, 2016.

Murrah, W. M., Introduction to Multiple Imputation with the `mice` package, Statistical Programming Workshop, University of Virginia, October, 2015.

Murrah, W. M., Introduction to Multilevel Modeling, Statistical Programming Workshop, FOCAL Lab, University of Virginia, July, 2015.

Murrah, W. M., Introduction to Statistical Programming with R, Statistical Programming Workshop, University of Virginia, Spring, 2015.

Murrah, W. M., Introduction to Linear Models, University of Virginia, Curry Summer Undergraduate Research Program, Summer 2012.

Murrah, W. M., Introduction to Inferential Statistics, University of Virginia, Curry Summer Undergraduate Research Program, Summer 2011.

Child Development, co-instructor, University of Virginia, Spring 2008.

Child Development, teaching assistant, University of Virginia, 2006-2007.

Child Development, co-instructor, Hampton Roads Center, University of Virginia, Spring 2005.

GRANTS RECEIVED RELATED TO TEACHING

Auburn University National Alumni Council Grant *Educational Learning Community Improvement*. PI: Andrew Pendola. \$1,617. Grant to support QMER Workshop development and implementation.

Research

1. Lyons, K. D., Parks, A. G., Dadematthews, O. D., Zandieh, N. L., McHenry, P. A., Games, K. E., Goodlett, M. D., Murrah, W. M., Roper, J. A., & Sefton, J. M. (2021). Core and whole-body vibration exercise improve military foot march performance in novice trainees: A randomized controlled trial. *Military Medicine*.
2. Lyons, K. D., Parks, A. G., Dadematthews, O., Zandieh, N., McHenry, P., Games, K. E., Goodlett, M. D., Murrah, W., Roper, J., & Sefton, J. M. (2021). Core and whole body vibration exercise influences muscle sensitivity and posture during a military foot march. *International Journal of Environmental Research and Public Health*, 18(9), 4966. <https://doi.org/10.3390/ijerph18094966>
3. Neely, K., Zhang, Z., & Murrah, W. (2021). *Variability in motor control: Multilevel modeling reveals meaningful differences in force output*. 43, S41–S41.
4. Bacelar, M. F. B., Parma, J. O., Murrah, W., & Miller, M. (2021). *Meta-analysis of enhanced expectancies in motor learning*. 43, S27–S28.
5. Schmid, D., Blanton, R., White, T., Murrah, W., & Kneely, K. (2021). *Withdrawn behavior influences engagement in vigorous and moderate physical activity*. 43, S89–S89.
6. Frugé, A. D., Smith, K. S., Riviere, A. J., Tenpenny-Chigas, R., Demark-Wahnefried, W., Arthur, A. E., Murrah, W. M., Pol, W. J. van der, Jasper, S. L., Morrow, C. D., Arnold, R. D., & Braxton-Lloyd, K. (2021). A dietary intervention high in green leafy vegetables reduces oxidative DNA damage in adults at increased risk of colorectal cancer: Biological outcomes of the randomized controlled meat and three greens (m3g) feasibility trial. *Nutrients*, 13(4), 1220. <https://doi.org/10.3390/nu13041220>
7. Oldfather, T., Zabala, M., Goodlett, M., & Murrah, W. H. (2020). Knee valgus versus knee abduction angle: Comparative analysis of medial knee collapse definitions in female athletes. *Journal of Biomechanical Engineering*, 142(12). <https://doi.org/10.1115/1.4047549>
8. Chesser, S., Murrah, W. M., & Forbes, A., Sean. (2020). Impact of personality on choice of instructional delivery and students' performance. *American Journal of Distance Education*. <https://doi.org/10.1080/08923647.2019.1705116>
9. Murrah, W. M. (2020). Compound bias due to measurement error when comparing regression coefficients. *Educational and Psychological Measurement*, 80(3), 548–577. <https://doi.org/10.1177/0013164419874494>

10. Friesen, K. B., Barfield, J. W., Murrah, W. M., Dugas, J. R., Andrews, J. R., & Oliver, G. D. (2019). The association of upper-body kinematics and earned run average of national collegiate athletic association division I softball pitchers. *Journal of Strength and Conditioning, Publish Ahead of Print*. <https://doi.org/10.1519/jsc.0000000000003287>
11. Frugé, A., Smith, K., Riviere, A., Demark-Wahnefried, W., Arthur, A., Murrah, W., Morrow, C., Arnold, R., & Braxton-Lloyd, K. (2019). Primary outcomes of a randomized controlled crossover trial to explore the effects of a high chlorophyll dietary intervention to reduce colon cancer risk in adults: The Meat and Three Greens (M3G) Feasibility Trial. *Nutrients*. <https://doi.org/10.3390/nu11102349>
12. Brinkerhoff, S. A., Murrah, W. M., Hutchison, Z., Miller, M., & Roper, J. A. (2019). Words matter: Instructions dictate “self-selected” walking speed in young adults. *Gait & Posture*. <https://doi.org/10.1016/j.gaitpost.2019.07.379>
13. Brock, L., Murrah, W. M., Cottone, E. A., Mashburn, A. J., & Grissmer, W., David. (2018). An after-school intervention targeting executive function and visuospatial skills also improves classroom behavior. *International Journal of Behavioral Development*, 1–11. <https://doi.org/10.1177/0165025417738057>
14. Cameron, C. E., Cottone, E. A., Murrah, W. M., & Grissmer, D. W. (2016). How are motor skills linked to children’s school performance and academic achievement? *Child Development Perspectives*. <https://doi.org/10.1111/cdep.12168>
15. Murrah, W. M., Kosovich, J., & Hulleman, C. S. (2016). Treatment fidelity in studies of educational intervention. In G. Roberts, S. Vaughn, S. N. Beretvas, & V. Wong (Eds.), *Treatment fidelity in studies of educational intervention* (pp. 39–60). Routledge. <https://doi.org/10.4324/9781315734262>
16. Kim, H., Schmidt, K. M., Murrah, W. M., Cameron, C. E., & Grissmer, D. (2015). A rasch analysis of the KeyMath-3 diagnostic assessment. *Journal of Applied Measurement*, 16(4), 365–378. <https://pubmed.ncbi.nlm.nih.gov/26771566/>
17. Kim, H., Murrah, W. M., Cameron, C. E., Brock, L. L., Cottone, E. A., & Grissmer, D. (2015). Psychometric Properties of the Teacher-Reported Motor Skills Rating Scale. *Journal of Psychoeducational Assessment*, 33(7), 640–651. <https://doi.org/10.1177/0734282914551536>
18. Cameron, C. E., Brock, L. L., Murrah, W. M., Bell, L. H., Worzalla, S. L., Grissmer, D., & Morrison, F. J. (2012). Fine Motor Skills and Executive Function Both Contribute to Kindergarten Achievement. *Child Development*, 83(4), 1229–1244. <https://doi.org/10.1111/j.1467-8624.2012.01768.x>
19. Grissmer, D., Grimm, K. J., Aiyer, S. M., Murrah, W. M., & Steele, J. S. (2010). Fine motor skills and early comprehension of the world: Two new school readiness indicators. *Developmental Psychology*, 46(5), 1008. <https://doi.org/10.1037/a0020104>
20. Murrah, W. M. (2010). *Comparing Self-Regulatory and Early Academic Skills as Predictors of Later Math, Reading, and Science Elementary School Achievement* (Vols. 72–1) [PhD thesis, Dissertation Abstracts International]. <https://eric.ed.gov/?id=ED522253>

Grant Funding

PROPOSED FUNDING

Advancing Informal STEM Learning: Facilitating STEM Learning Pathways for Students Through a Systematic STEM Environment (SysSTEM-E). PI: Christine Schnittka. *National Science Foundation*. \$1,750,000. Projected Period: 2019–2024. Role: Co-PI.

Tools for Leaders: Advancing Team Effectiveness Through Leader Development. PI: Joellen Sefton. *Department of Defense*. \$1,086,000. Projected Period: 2019–2022. Role: Co-PI.

Performance Enhancement through Training Development: Implementation of Cognitive Task Analysis. PI: Joellen Sefton. *Department of Defense*. \$635,000. Projected Period: 2019–2022. Role: Co-PI.

How the Motor System Reflects Impulsivity and Inhibitory Control in Healthy Young Adults. PI: Kristina Neely. *Auburn University Intramural Grants Program*. \$20,600. Role: Co-PI.

PREVIOUS FUNDING

Removing Barriers to Success in Mathematics: An Integrative Expectancy-Value Intervention. PI: Chris Hulleman. *National Science Foundation*. Approximately \$1,500,000. Project Period: 9/01/2015 - 8/31/2019. Role: Senior Personnel/Methodologist.

Developmental Skills Linked to Math and Science Achievement: An Interdisciplinary Data-Intensive Approach to Identification and Improvement through Experimental Intervention. *National Science Foundation*. Approximately \$2,500,000. Project Period: 9/1/2013 - 8/31/2018. Role: Research Scientist/Methodologist.

Evaluation of Core Knowledge charter schools in Colorado. *Institute of Education Sciences*. Approximately \$4,900,000. Project Period: 07/01/2009 - 12/31/2015. Role: Research Scientist/Methodologist.

Efficacy of the WINGS after-school social and emotional learning (SEL) program. *Institute of Education Sciences*. Approximately \$2,700,000. Project Period: 09/01/2011 - 8/31/2015. Role: Research Scientist/Methodologist.

Math and science achievement gaps for minority and disadvantaged students: Developmental and environmental influences from nine months to 8th grade, *National Science Foundation*, 2008 - 2012 (\$952,710) Role: Co-Investigator/Methodologist

Improving fine motor skill development to promote mathematical ability, *Institute of Education Sciences*, 2009 - 2012 (\$462,765) Role: Primary Data Analyst

New kindergarten readiness indicators for math and science: Next steps in validation, communication and projecting policy impacts, *National Science Foundation*, 2010-2012 (\$297,653) Role: Co-investigator/Methodologist.

PROFESSIONAL ACTIVITIES

Editorial Board for *Interdisciplinary Education and Psychology*.

Reviewer for *Child Development*

Reviewer for *Journal of Abnormal Child Psychology*

Reviewer for *Early Childhood Research Quarterly*

Member, *American Statistical Association*

Member, *Society for Research in Child Development*

Member, *American Educational Research Association*

INVITED WORKSHOPS

SREE Workshop: Intervention Fidelity -Models, Methods, and Applications, Fall 2014

TRAININGS AND CONFERENCES ATTENDED

Intensive Longitudinal Methods, Statistical Horizons, October 23-24, 2015

Mediation, Moderation, and Conditional Process Analysis, Andrew F. Hayes, University of Virginia, June 4-5, 2015

Institute of Education Sciences Summer Research Training Institute: Cluster-Randomized Trials, Northwestern University, July 15-26, 2012

UseR! 2012, Vanderbilt University, June 11-15, 2012

Functional MRI in Clinical Research and Practice: Measurement, Design and Analysis, Carnegie Mellon University/University of Pittsburgh, June 13-17, 2011

Missing Data Workshop, University of Virginia, June 1-7, 2011

Society for Research in Child Development Conference, Montreal, March 31-April 3, 2011

Multi-Modal Neuroimaging Training, Martinos Medical Center, Boston, December 13-17, 2010

Conference on Human Development, New York, April 9-12, 2010