Amanda Kay Montoya

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Department of Psychology
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EDUCATION

PhD, Psychology, Quantitative
The Ohio State University, Columbus, OH   Projected: May 2018
Adviser: Andrew F. Hayes, PhD

M.S., Statistics
The Ohio State University, Columbus, OH   2016

M.A., Psychology, Quantitative
The Ohio State University, Columbus, OH   2016
Thesis: "Extending the Johnson-Neyman Procedure to Categorical Independent Variables:
Mathematical Derivations and Computational Tools"
Adviser: Andrew F. Hayes, PhD

B.S., Psychology, Minor: Mathematics
University of Washington, Seattle, WA   2013
Cum Laude, Departmental Honors
Thesis: "Increasing Interest in Computer Science through Group Work: A Goal Congruity Approach"
Adviser: Sapna Cheryan, PhD & Allison Master, PhD

RESEARCH INTERESTS

My research focuses on improving the ability of psychology researchers to answer their questions of interest using sound statistical methods and by developing easy-to-use tools to encourage researchers to use the most advanced methods available. I have focused my research on mediation, moderation, conditional process models, structural equation modeling, and measurement including factor analysis and item response theory. I am also interested in improving our ability to conduct meta-science by developing statistical methods in meta-analysis, and understanding the impact of research practices on our ability to create replicable science. Additionally, I have previous experience and hope to continue my research focused on understanding and ameliorating issues of inequity in education, particularly for women in science, technology, engineering, and mathematics.

PUBLICATIONS

Hayes, A. F., & **Montoya, A. K.** (2017). A tutorial on testing, visualizing, and probing an interaction involving a multicategorical variable in linear regression. *Communication Methods and Measures*, *11*(1), 1-30.

Cheryan, S., Ziegler, S., & **Montoya, A. K.**, Jiang, L. (2017). Why have women entered some STEM fields more than others? *Psychological Bulletin*, *143*(1), 1-35.

Montoya, A. K., & Hayes, A. F. (2017). Two-condition within-participant statistical mediation analysis: A path-analytic framework. *Psychological Methods*, *22*(1), 6-27.

Hayes, A. F., **Montoya, A. K.**, & Rockwood, N. J. (2017). The analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling. *Australasian Marketing Journal, 25*(1), 76 - 81.

Stojek, M. K., **Montoya, A. K.**, Drescher, C., Newberry, A., Sultan, Z., Williams, C. F., Pollock, N. K., & Davis, C. L. (2017). Fitness, sleep-disordered breathing, symptoms of depression, and cognition in inactive overweight children: Mediation models. *Public Health Reports, 132*(Supplement 2), 65S - 73S.

Dohle, S., & **Montoya, A. K.** (in press). The dark side of fluency: Fluent names increase drug dosing. *Journal of Experimental Psychology: Applied.*

Montoya, A. K. (in press). Probing moderation analysis in two-instance repeated-measures designs. *Multivariate Behavior Research* [Abstract].

Work In Progress

Tawa, J., & **Montoya, A. K.** (under review). White students physiological stress while operating non-White avatars and the moderating role of awareness of racial privilege.

Montoya, A. K. (under review). Moderation analysis in two-instance repeated-measures designs: Probing methods and multiple moderator models.

Montoya, A. K. & Jeon, M. (under review). MIMIC models for testing uniform and non-uniform differential item functioning as moderated mediation models.

Montoya, A. K., & Edwards, M. C. (in prep). Cautions on using model fit to choose number of factors in exploratory factor analysis.

BOOKS

Hayes, A. F., **Montoya, A. K.**, Preacher, K. J., & Page-Gould, E. (under contract). *Statistical mediation analysis: Within-subjects designs.* New York: The Guilford Press.

PRESENTATIONS

Peer-Reviewed Talks

Montoya, A. K., & Jeon, M. J. (2018, Apr). MIMIC models for uniform and non-uniform DIF as mediation and moderated mediation models. Presented at the 2018 AERA Annual Meeting, New York, NY.*

Montoya, A. K., & Edwards, M. C. (2017, Apr). Cautions on using model fit to choose number of factors in EFA. Presented at the 2017 Annual Meeting of the National Council on Measurement in Education, San Antonio, TX.

Montoya, A. K. (2016, Mar). Two condition within-subjects mediation: Power and type I error for methods of inference for the indirect effect. Presented at the Annual Meeting for the Southeastern Psychological Association, New Orleans, LA.

Montoya, A. K. (2016, Jan). Multiple mediator models for two-condition within-subjects designs: Esti-

mating and comparing indirect effects. Presented at the Annual Meeting of the Society for Personality and Social Psychology, San Diego, CA.

Stojek, M. M. K., Drescher, C., **Montoya, A. K.**, Newberry, A., Sultan, Z., Williams, C. F., Pollock, N. K., & Davis, C. L. (2015, Nov). Sleep-disordered breathing, depression symptoms, and cognition in overweight inactive children. Presented at Obesity Week 2015, Los Angeles, CA.

Hayes, A. F. & **Montoya, A. K.** (2015, May). Hacking PROCESS: Some advanced and undocumented applications in mediation and moderation. Presented at the 27th Annual Convention for the Association for Psychological Science, New York, NY.

Montoya, A. K., Master, A., & Cheryan, S. (2013, July). Working together to belong: Increasing women's feelings of fit in STEM through group work. Presented at the Annual Pacific Conference on Prejudice & Culture, Bellingham, WA.

Montoya, A. K., Master, A., & Cheryan, S. (2013, May). Using group work to recruit women to STEM: A goal congruity approach. Presented at the Annual UW Undergraduate Research Symposium, Seattle, WA.

Montoya, A. K., Master, A., & Cheryan, S. (2013, May). Using communal interactions to recruit women into STEM: A goal congruity perspective. Presented at the UCLA Psychology Undergraduate Research Conference, Los Angeles, CA.

Montoya, A. K., Ni, W., Pena, A., & Stillwell, E. (2013, Mar). Debunking stereotypes: Research on why the image of computer science matters. Presented at the Women in Science and Engineering Conference, Seattle, WA.

Colloquia

Montoya, A. K. (2017, Oct). The Society of Multivariate Experimental Psychology: A graduate student perspective. Quantitative Psychology Seminar, Ohio State University, Columbus, OH.

Montoya, A. K. (2017, Mar). Estimating and probing interactions in two instance repeated-measures designs. Methodological Colloquium Series, College of Education and Human Ecology, Ohio State University, Columbus, OH.

Montoya, A. K. (2016, Sep). Extending the Johnson-Neyman procedure to categorical independent variables. Quantitative Psychology Seminar, Ohio State University, Columbus, OH.

Montoya, A. K., & Hayes, A. F. (2016, Mar). Two condition within-subjects mediation: Power and type I error for methods of inference for the indirect effect. Quantitative Psychology Seminar, Ohio State University, Columbus, OH.

Montoya, A. K. & Hayes, A. F. (2015, Apr). Within-subjects mediation: A path-analytic approach. Quantitative Psychology Seminar, Ohio State University, Columbus, OH.

Poster Presentations

Montoya, A. K. (2018, Mar). Statistical power in mediation analysis for repeated measures designs. Presented at the Annual Meeting of the Society for Personality and Social Psychology, Atlanta, GA.*

Montoya, A. K. (2017, Oct). Probing moderation analysis in two-instance repeated-measures designs. Presented at the Society for Multivariate Experimental Psychology, Minneapolis, MN.

Montoya, A. K. (2017, May). Simple slopes and Johnson-Neyman probing methods extended to two-condition within-subject designs. Presented at the Annual Convention of the Association for Psychological Science, Boston, MA.

Montoya, A. K., & Hayes, A. F. (2015, May). Estimating and testing indirect effects in within-subject mediation analysis: A path-analytic framework. Presented at the Annual Convention of the Association for Psychological Science, New York, NY.

Montoya, A. K., Flaherty, B., & Cheryan, S. (2015, Feb). Collapsing conditions increases type I error: Changing analysis of multiple control conditions. Presented at the Annual Meeting of the Society for Personality and Social Psychology, Long Beach, CA.

Montoya, A. K., Master, A., & Cheryan, S., (2014, Feb). Communal goal fulfillment through group work: A new direction in recruiting women into computer science. Presented at the Annual Meeting of the Society for Personality and Social Psychology, Austin, TX.

Montoya, A. K., Master, A., & Cheryan S., (2013, May). Using group work to recruit women to STEM: A goal congruity approach. Presented at the 42nd Annual Department of Psychology Research Festival, Seattle, WA.

Stillwell, E., **Montoya, A. K.**, Master, A., & Cheryan, S., (2013, May). Perceptions of group work in STEM fields: Explaining womens disinterest in computer science. Presented at the Annual UW Undergraduate Research Symposium, Seattle, WA.

Montoya, A. K., Master, A., & Cheryan, S. (2013, Jan). Students' goal endorsement predicts perceived fit in STEM fields. Presented at the Annual Meeting of the Society for Personality and Social Science, New Orleans, LA.

Montoya, A. K., Master, A., & Cheryan, S. (2012, May). Perceptions of communal goals predict students' interest in STEM fields. Presented at the Annual UW Undergraduate Research Symposium, Seattle, WA.

*Future presentations which have already been accepted.

RESEARCH EXPERIENCE

National Science Foundation Graduate Research Fellow 2016 – Present
The Ohio State University, Columbus, OH Mechanisms and Contingencies Lab
Supervisor: Andrew F. Hayes, PhD

Graduate Research Fellow 2014 – 2016
The Ohio State University, Columbus, OH Mechanisms and Contingencies Lab
Supervisor: Andrew F. Hayes, PhD

Lab Manager 2013 – 2014
University of Washington, Seattle, WA Stereotypes, Identity, and Belonging Lab
Supervisor: Sapna Cheryan, PhD

Honors Student 2011 – 2013
University of Washington, Seattle, WA Stereotypes, Identity, and Belonging Lab
Supervisor: Allison Master, PhD

<div align="center">**FUNDING**</div>

Grants

Decision Sciences Collaborative, Small Research Grant, The Ohio State University   2017
Co-Investigator, *Numeracy-related responding to numeric self-report scales* ($2,260)

Sloan Foundation, Research Grant   2014
Co-Investigator, *What explains gender differences in computing? A critical review of
research on computing in the context of other STEM fields* ($45,987)

Fellowships

National Science Foundation, Graduate Research Fellowship,   2015
Modernizing Within-Subjects Mediation Analysis ($102,000)

The Ohio State Unviersity, Susan L. Huntington Dean's Distinguished University Fellowship   2014
($85,500)

Honors & Awards

Department of Psychology, The Ohio State University, Herbert Toops Research Award,   2017
Two-condition within-participant statistical mediation analysis: A path-analytic framework ($500)

Department of Psychology, The Ohio State University, Spring Graduate Research Forum, 1st Place,   2017
*Extending the Johnson-Neyman procedure to categorical independent variables: Mathematical
derivations and computational tools* ($500)

Association for Psychological Science, Student Caucus Volunteer/Travel Assistance Award ($200)   2017

Council of Graduate Students, The Ohio State University, Ray Travel Award ($1000)   2017

Council of Graduate Students, The Ohio State University, Ray Travel Award ($750)   2016

Society for Personality and Social Psychology, Graduate Travel Award ($500)   2016

Society for Personality and Social Psychology, Diversity Fund Graduate Travel Award ($500)   2016

Association for Psychological Science, Student Caucus Volunteer/Travel Assistance Award ($200)   2015

Society for Personality and Social Psychology, Diversity Fund Undergraduate Registration Award   2013
($340)

Department of Psychology, University of Washington, Guthrie Price for Best Empirical Paper,   2013
Increasing interest in computer science through group work: A goal congruity approach ($250)

University of Washington, Mary Gates Research Scholarship,   2013
*How increasing perceptions of communal goals in computer science can increase women's
interest* ($4,000)

University of Washington, Undergraduate Research Travel Conference Award ($650)   2013

TEACHING INTERESTS

I value critical thinking, development of practical skills, and the ability to translate from real-life research problems to statistical methods and back again. I aim to implement these values by using active learning strategies in my classroom, teaching multiple statistical programming languages, and focusing my teaching and student assessment on implementation and interpretation. I hope to teach introductory statistics courses at the graduate and undergraduate level, including ANOVA and regression, as well as specialized courses in Mediation, Moderation and Conditional Process Analysis, Nonparametric Statistics Using Resampling, or Generalized Linear and Mixed Models.

TEACHING EXPERIENCE

Invited Workshops

<u>Co-Instructor</u>, Mediation in Repeated Measures and Multilevel Designs,   2018
Annual Convention of the Association for Psychological Science, San Francisco, CA.*

<u>Co-Instructor</u>, Understanding PROCESS v3: New features, building, and editing models,   2018
Society for Personality and Social Psychology Annual Meeting, Atlanta, GA.*

<u>Instructor</u>, Mediation, Moderation, and Conditional Process Analysis I,   2018
Global School of Empirical Research Methods, Oslo, Norway.*

<u>Instructor</u>, Introduction to R through Mediation and Moderation,   2017
Department of Psychology, University of Washington, Seattle, WA.

<u>Instructor</u>, MEMORE: Mediation and Moderation in Repeated Measures Designs,   2017
Society for Personality and Social Psychology Annual Meeting, San Antonio, TX.

<u>Instructor</u>, Using MEMORE: Mediation in Two-Instance Repeated Measures Designs,   2017
Social Psychology Graduate Student Workshop Series, Columbus, OH.

<u>Instructor</u>, Conditional Process Analysis: Moderation of Mediation,   2016
Annual Meeting for the Southeastern Psychological Association, New Orleans, LA.

<u>Instructor</u>, Conditional Process Analysis: The Moderation of Mediation,   2016
University of San Francisco, San Francisco, CA.

<u>Course Assistant</u>, Statistical Mediation and Moderation,   2015
Instructor: Andrew F. Hayes, Statistical Horizons, Philadelphia, PA.

*Future presentations which have already been accepted.

Additional Teaching

<u>Guest Lecture</u>, Further Directions in Quantitative Psychology,   2017
Instructor: Leanne Stanley, The Ohio State University, Columbus, OH.

Guest Lecture, Error and Inference in Statistical Modeling,   2017
Instructor: Laura Little, University of Washington, Seattle, WA.

Tutor, Data Analysis in Psychology,   2016
Instructor: Joe Roberts, The Ohio State University, Columbus, OH.

Tutor, Quantitative and Statistical Methods in Psychology,   2015
Instructor: Joe Roberts, The Ohio State University, Columbus, OH.

Guest Lecture, Mediation and Moderation Analysis,   2015
Instructor: Andrew F. Hayes, The Ohio State University, Columbus, OH.

Teaching Assistant, Summer Challenge: Math Topics, Robinson Center for Young Scholars,   2014
Supervisor: Nancy Hertzog, University of Washington, Seattle, WA.

Teaching Assistant, Statistical Inference in Psychological Research,   2013
Instructor: Geoff Loftus, University of Washington, Seattle, WA.

Teaching Assistant, Introduction to Probability and Statistics in Psychology,   2013
Instructor: Geoff Loftus, University of Washington, Seattle, WA.

MEMBERSHIPS

American Psychological Association
Association for Psychological Science
Society for Personality and Social Psychology
Southeastern Psychological Association
American Statistical Association

JOURNAL REVIEWING

Behavioral Research Methods
Multivariate Behavioral Research
Communication Methods and Measures

COURSEWORK

Advanced Multivariable Calculus	Laboratory in Statistical Computation
Applied Bayesian Analysis	Linear Analysis
Applied Statistics I	Matrix Algebra
Applied Statistics II	Mediation, Moderation, and Conditional Process Analysis
Bayesian Statistics for Psychologists	Nonparametric Statistical Methods
Covariance Structure Models	Power Analysis
Differential Equations	Probability
Elements of Statistical Methods	Seminar in Advanced Quantitative Methods
Foundations of the Linear Model	Special Topics in Quantitative Psychology
Fundamentals of Factor Analysis	Statistical Consulting
Fundamentals of Item Response Theory	Statistical Inference in Psychological Research
Generalized Linear Models	Statistical Theory I & II
Introduction to Bayesian Statistics for Psychological Data	Statistics and Data Analysis
Introduction to Computational Statistics	Survey Sampling Methods
Introduction to Probability and Statistics in Psychology	Theory of Linear Models

SERVICE

Professional Associations

Conference Volunteer, *27th Annual Convention for the Association for Psychological Science*, Association for Psychological Science   2017

Poster Judge, *2017 Graduate Poster Award*, Society for Personality and Social Psychology   2017

Conference Volunteer, *Annual Meeting of the Society for Personality and Social Psychology*, Society for Personality and Social Psychology   2016

Conference Volunteer, *27th Annual Convention for the Association for Psychological Science*, Association for Psychological Science   2015

Ohio State University, Columbus, OH

Committee Member, Senior Vice President of Research Search Committee   2017 – Present

Committee Chair, Allocations Subcommittee of the Council on Student Affairs, University Senate   2017 – Present

Committee Member, Graduate Compensation and Benefits Committee, University Senate   2017 – Present

Committee Member, University Research Committee, University Senate   2017 – Present

Treasurer, Council of Graduate Students   2017 – Present

Committee Chair, Ray Travel Committee, Council of Graduate Students   2017 – Present

Committee Member, Organizations and Elections Committee, Council of Graduate Students   2017 – Present

Panel Member, University of Cincinnati McNair Scholars Visit, Office of Graduate Education   2017

Panel Member, Creating Pathways: Building Community and Engagement in Graduate and Professional Higher Education Affairs, Office of Student Life   2017

Panel Member, University of Illinois McNair Scholars Visit, Office of Graduate Education   2017

Moderator, Professional Development Panel, Hayes Graduate Research Forum, Council of Graduate Students   2017

Judge, Undergraduate Research Colloquium & Reception, Psychology Department   2017

Panel Member, Life at OSU, Office of Diversity and Inclusion   2016

Judge, Fall Student Poster Forum, Undergraduate Research Office   2016

Psychology Department Delegate, Council of Graduate Students   2016 – 2017

Committee Member, Hayes Graduate Research Forum Committee, Council of Graduate Students   2016 – Present

Panel Member, Getting Into Graduate School, Psychology Department   2016

Proctor, Hayes Graduate Research Forum, Council of Graduate Students   2016

Panel Member, Funding your Graduate Education, College of Arts and Sciences   2016

Panel Member, Money Matters: A Student Led Panel about Finding Money,   2016
Psychology Graduate Student Association

Proctor for Oral Presentations, Social and Behavioral Science, Hayes Graduate Research Forum   2016

Treasurer, Psychology Graduate Student Association   2015 – Present

Panel Member, How to Get Into Graduate School, Graduate and Professional Students   2015
Recruitment Initiative

Panel Member, Life at OSU, Office of Diversity and Inclusion   2015

Judge, Fall Student Poster Forum, Undergraduate Research Office   2015

Panel Member, Psychology Department Diversity Open House   2015

Panel Member, Applying to Graduate School in Psychology Workshop   2015

Panel Moderator, Life at OSU, Office of Diversity and Inclusion   2014