

# DENIS DUMAS

Assistant Professor  
Research Methods, Statistics, and Information Science  
University of Denver  
233 Katherine Ruffatto Hall, 1999 East Evans Ave. Denver, CO 80208  
denis.dumas@du.edu

*Updated:* September 2020

## EDUCATION

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| <b>PhD</b> | Human Development and Quantitative Methodology<br>University of Maryland, College Park, MD<br><i>Specialization:</i> Educational Psychology<br><i>Advisor:</i> Dr. Patricia A. Alexander | <b>2016</b> |
| <b>MA</b>  | Educational Measurement and Statistics<br>University of Maryland, College Park, MD<br><i>Advisor:</i> Dr. Gregory R. Hancock   | <b>2015</b> |
| <b>BA</b>  | English, Education<br>Temple University, Philadelphia, PA<br><i>Research Supervisor:</i> Dr. Jennifer G. Cromley<br><i>Magna cum laude</i>   | <b>2010</b> |

## ACADEMIC EMPLOYMENT

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|---------------------------------|--|----------------------------|
| <b>Assistant Professor</b>      | <i>University of Denver</i><br>Department of Research Methods, Statistics, and Information Science | September<br>2017- present |
| <b>Assistant Professor</b>      | <i>Howard University</i><br>Department of Human Development and Psychoeducational Studies          | August 2016-<br>June 2017  |
| <b>Post-Doctoral<br/>Fellow</b> | <i>American Educational Research Association</i><br>Principal Investigator: Dr. Felice Levine      | December<br>2015-July 2016 |

## EXTERNAL FUNDING AWARDS

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| <b>Funder</b>                         | <b>Project Title</b>   | <b>Role</b>               | <b>Total Award</b> | <b>Year Awarded</b> |
|---------------------------------------|--|---------------------------|--------------------|---------------------|
| Institute for<br>Educational Sciences | Measuring Original<br>Thinking in Elementary<br>School Students: A<br>Computational<br>Psychometric Approach | Principal<br>Investigator | \$964,081.00       | 2020                |

|  |   |   |  |      |
|--|---|---|--|------|
| National Academy of Education and Spencer Foundation | Using Growth Trajectories to Understand Mathematics Instruction Intervention Effects in Early Childhood | Principal Investigator  | \$5,000.00 (plus professional development funding) | 2019 |
| Institute for Educational Sciences                   | Evaluating the Efficacy of Learning Trajectories in Early Mathematics                                   | Psychometrician<br><i>PIs:</i> Douglas Clements, Julie Sarama | \$3,500,000.00                                     | 2017 |
| Institute for Educational Sciences                   | Quality Counts: Building Capacity to Research in Colorado's Residency Preparation Programs              | Psychometrician<br><i>PIs:</i> Karen Riley, Rebecca Kantor    | \$400,000.00                                       | 2017 |
| Hewlett Foundation                                   | Understanding High-School Students' Opportunities for Deeper Learning                                   | Principal Investigator  | \$20,000.00  | 2016 |
| Heising-Simons Foundation                            | Coherence of Preschool and Elementary Mathematics Instruction   | Psychometrician<br><i>PIs:</i> Douglas Clements, Julie Sarama | \$1,968,961.00                                     | 2014 |

#### **PENDING GRANT APPLICATIONS**

|  |   |                        |              |      |
|--|---|------------------------|--------------|------|
| Navy Research Laboratory                             | Modernizing Military Aptitude Testing: A Dynamic Measurement Approach           | Principal Investigator | \$498,000.00 | 2020 |
| National Academy of Education and Spencer Foundation | Gifted Identification of English Language Learners using Creativity Assessments | Principal Investigator | \$70,000.00  | 2020 |

#### **SCHOLARLY PUBLICATIONS**

##### **Refereed Journal Articles**

Dumas, D., Organisciak, P., Maio, S.\*, Doherty, M. (in press). Four text-mining methods for measuring elaboration. *Journal of Creative Behavior*.

Dumas, D., McNeish, D., & Greene, J. A. (2020). Dynamic measurement: A theoretical–psychometric paradigm for modern educational psychology. *Educational Psychologist*, 55(2), 88–105.  
<https://doi.org/10.1080/00461520.2020.1744150>

Dumas, D., Organisciak, P., Doherty, M. (2020). Measuring originality with human raters and text-mining models: A psychometric comparison of methods. *Psychology of Aesthetics, Creativity, and the Arts*.  
<https://doi.org/10.1037/aca0000319>

- Maio, S.\*, Dumas, D., Organisciak, P., & Runco, M. (2020). Is the reliability of objective originality scores confounded by elaboration? *Creativity Research Journal*.
- Forthmann, B., Leveling, M.\*, Dong, Y.\*, Dumas, D. (2020). Investigating the quantity-quality relationship in scientific creativity with quantile regression: An empirical test of the tilted funnel hypothesis. *Scientometrics*. <https://doi-org.du.idm.oclc.org/10.1007/s11192-020-03571-w>
- Nguyen, M.H., Chang, C., Kim, V., Gutierrez, R.A., Le, A., Dumas, D., & Teranishi, R. (2020). Asian Americans, admissions, college choice: An empirical test of claims of harm used in federal investigations. *Educational Researcher*.
- McNeish, D., Dumas, D., & Grimm, K. (2020). Estimating new quantities from longitudinal test scores to improve forecasts of future performance. *Multivariate Behavioral Research*. <https://doi.org/10.1080/00273171.2019.1691484>
- Dong, Y\*., Clements, D., Sarama, J., Dumas, D., Banse, H. (in press). Mathematics and executive function competencies in the context of interventions: A quantile regression analysis. *Journal of Experimental Education*. 10.1080/00220973.2020.1777070
- Forthmann, B., Szardenings, C., Dumas, D. (2020). On the conceptual overlap between the fluency contamination effect in divergent thinking scores and the chance view on scientific creativity. *Journal of Creative Behavior*. <https://doi.org/10.1002/jocb.445>
- Dong, Y.\*, & Dumas, D. (2020). Are personality measures valid across cultures?: A systematic review of the literature. *Personality and Individual Differences*.
- Clements, D., Sarama, J. Dumas, D., Dong, Y\*., Banse, H., Day-Hess, C. (2020). Strategy diversity in early mathematics classrooms. *Contemporary Educational Psychology*. DOI: 10.1080/00273171.2019.1691484
- Forthmann, B., Szardenings, C., Dumas, D. (2020). Testing the equal-odds theory in creativity research. *Psychology of Aesthetics, Creativity, and the Arts*. <https://doi.org/10.1037/aca0000294>
- Coleman, J.J., Dong, Y., Dumas, D., Owen, J., & Kopta, S.M. (2020). Longitudinal measurement invariance of the Behavioral Health Measure in a clinical sample. *Journal of Counseling Psychology*. <https://doi.org/10.1037/cou0000524>
- Dumas, D., McNeish, D., Sarama, J., & Clements, D. (2019). Pre-school mathematics intervention can significantly improve student learning trajectories through elementary school. *AERA Open*. <https://doi.org/10.1177%2F2332858419879446>
- Dumas, D., McNeish, D., Schreiber-Gregory, D., Durning, S., & Torre, D. (2019). Dynamic measurement in health professions education: Rationale, application, and possibilities. *Academic Medicine*. doi: 10.1097/ACM.0000000000002729
- Dumas, D., & Dong, Y\*. (2019). Development and calibration of the Student Opportunities for Deeper Learning Instrument. *Psychology in the Schools*. <https://doi.org/10.1002/pits.22292>

- McNeish, D. & Dumas, D. (2019). Scoring repeated standardized tests to estimate capacity, not just current ability. *Policy Insights from the Brain and Behavioral Sciences*. [invited paper]. <https://doi.org/10.1177/2372732219862578>
- Forthmann, B., Paek, S., Dumas, D., Barbot, B. Holling, H. (2019). Scrutinizing the basis of originality in divergent thinking tests: On the measurement precision of response frequencies. *British Journal of Educational Psychology*. doi: 10.1111/bjep.12325
- Jablansky, S., Alexander, P. A., Compton, V., Dumas, D. (2019). The development of relational reasoning in primary and secondary school students: A longitudinal analysis. *International Journal of Technology and Design Education*.
- Dumas, D. & Runco, M. (2018). Objectively scoring divergent thinking tests for originality: A re-analysis and extension. *Creativity Research Journal* 30(4), 439-450.
- Dumas, D., & Strickland, A\*. (2018). From book to bludgeon: A closer look at malevolent responses on the Alternate Uses Task. *Creativity Research Journal* 30(4), 466-468.
- Dumas, D., & McNeish, D. (2018). Increasing the consequential validity of reading assessment using dynamic measurement modeling. *Educational Researcher* 47(9), 612-614.
- Dumas, D. (2018). Understanding high-school students' perceptions of their learning opportunities: A doubly latent approach. *Frontiers in Education: Educational Psychology*. DOI: 10.3389/educ.2018.00076
- Dumas, D. (2018). Relational reasoning and divergent thinking: An examination of the threshold hypothesis using quantile regression. *Contemporary Educational Psychology*, 53, 1-196.
- Dumas, D., & Alexander, P.A. (2018). Assessing differential-item-functioning on the Test of Relational Reasoning. *Frontiers in Education: Testing and Applied Measurement*. <https://doi.org/10.3389/educ.2018.00014>
- Dumas, D., Torre, D.M., & Durning, S.J. (2018). Using relational reasoning strategies to help improve clinical reasoning practice. *Academic Medicine*. 93(5):709-714. doi: 10.1097/ACM.0000000000002114.
- McNeish, D., & Dumas, D. (2018). Calculating the conditional reliability of dynamic measurement modeling capacity estimates. *Journal of Educational Measurement* 55(4), 614-634.
- Dumas, D., & McNeish, D. (2017). Dynamic measurement modeling: Using nonlinear growth models to estimate student learning capacity. *Educational Researcher*, 46(6), 284-292. DOI: 10.3102/0013189X17725747
- McNeish, D., & Dumas, D. (2017). Non-linear growth models as psychometric models: A second-order growth curve model for measuring potential. *Multivariate Behavioral Research*, 52, 61-85. <https://doi.org/10.1080/00273171.2016.1253451>
- Dumas, D. (2017). Relational reasoning in science, medicine, and engineering. *Educational Psychology Review*. <http://doi.org/10.1007/s10648-016-9370-6>
- Dumas, D., Schmidt, L. C., & Alexander, P. A. (2016). Predicting creative problem solving in engineering design. *Thinking Skills and Creativity*, 21, 50-66. <http://doi.org/10.1016/j.tsc.2016.05.002>

- Dumas, D., & Alexander, P. A. (2016). Calibration of the Test of Relational Reasoning. *Psychological Assessment, 28*(10), 1303-1318. <http://doi.org/10.1037/pas0000267>
- Grossnickle, E. M., Dumas, D., Alexander, P. A., & Baggetta, P. (2016). Individual differences in the process of relational reasoning. *Learning and Instruction, 42*, 141-159. <http://doi.org/10.1016/j.learninstruc.2016.01.013>
- Dumas, D., & Dunbar, K. N. (2016). The creative stereotype effect. *PLOS ONE*. DOI: 10.1371/journal.pone.0142567
- Alexander, P. A., Jablansky, S., Singer, L. M., & Dumas, D. (2016). Relational reasoning: What we know and why it matters. *Policy Insights from the Behavioral and Brain Sciences, 3*(1), 36-44. <http://doi.org/10.1177/2372732215622029>
- McNeish, D., & Dumas, D. (2015). A second-order model for understanding potential [Abstract]. *Multivariate Behavioral Research, 50*(6), 727.
- Jablansky, S., Alexander, P.A., Dumas, D., & Compton, V. (2015). Development of relational reasoning in primary and secondary school students. *Journal of Educational Psychology, 108*(4), 592-608. <http://doi.org/10.1037/edu000007>
- Dumas, D., & Schmidt, L. (2015). Relational reasoning as predictor for engineering ideation success using TRIZ. *Journal of Engineering Design, 26*(3), 74-88
- Alexander, P. A., Dumas, D., Grossnickle, E. M., List, A., & Firetto, C. (2015). Measuring relational reasoning. *Journal of Experimental Education, 83*, 1-33.
- Dumas, D., Alexander, P.A., & Singer, L.M. (2015). Analyzing historical patterns, examining current trends, and forecasting change in the field of educational psychology: A cross-cultural perspective. *Knowledge Cultures, 3*, 7-23.
- Dumas, D., & Dunbar, K. N. (2014). Understanding fluency and originality: A latent variable perspective. *Thinking Skills and Creativity, 14*, 56-67.
- Dumas, D., Alexander, P. A., Baker, L. M., Jablansky, S., & Dunbar, K. N. (2014). Relational reasoning in medical education: Patterns in discourse and diagnosis. *Journal of Educational Psychology, 106*, 1021-1035. doi: 10.1037/a003677
- Dumas, D., Alexander, P. A., & Grossnickle, E. M. (2013). Relational reasoning and its manifestations in the educational context: A systematic review of the literature. *Educational Psychology Review, 25*, 391-427.
- Alexander, P. A., & the Disciplined Reading and Learning Research Laboratory. (2012). Reading into the future: Competence for the 21<sup>st</sup> century. *Educational Psychologist, 47*, 259-280.

### Chapters in Edited Volumes

- Dumas, D., & Dong, Y\*. (2020). Relational reasoning and thinking: Theory, measurement, and empirical findings In T. Good & M. McCaslin (Eds.) *Encyclopedia of Educational Psychology*. New York, NY: Routledge
- Dumas, D. (2020). Logic and reasoning. In M. Runco & S. R. Pritzker (Eds.), *Encyclopedia of Creativity*. San Diego, CA: Harcourt Brace & Company.
- Dumas, D., & Dong, Y\*. (2020). Focusing the relational lens on critical thinking: How can relational reasoning support critical and analytic thinking? In D. Fasko & F. Fair (Eds.) *Critical Thinking and Reasoning: Current Research, Theories, and Practice*. New York, NY: Hampton Press
- Dumas, D. (2019). Strategic processing within and across domains of learning. In D.L. Dinsmore, L.K. Fryer, M.M. Parkinson (Eds.) *Handbook of Strategies and Strategic Processing: Conceptualization, Intervention, Measurement, and Analysis*. New York, NY: Routledge
- Alexander, P. A., Grossnickle, E. M., Dumas, D., & Hattan, C. (2018). A retrospective and prospective examination of cognitive strategies and academic development: Where have we come in twenty-five years? In A. O'Donnell (Ed.), *Oxford Handbook of Educational Psychology*. Oxford, UK: Oxford University Press.
- Dinsmore, D., Grossnickle, E. M., & Dumas, D. (2017). Learning to study strategically. In R. Mayer & P.A. Alexander (Eds.), *Handbook of Research on Learning and Instruction*. New York, NY: Routledge.

### Manuscripts in Revision

- Dumas, D., Doherty, M., Organisciak, P. (in revision). The psychology of professional and student actors: creativity, personality, and motivation. *PLoS: ONE*.
- McNeish, D., Dumas, D., (in revision). A seasonal dynamic measurement model for summer learning loss. *Journal of the Royal Statistical Society: Series A*.
- Dumas, D., Dong, Y. \*, Doherty, M. (in revision). The influence of creative expertise on the sensitivity and selectivity of analogical reasoning. *Mind, Brain, and Education*.
- Roberts, G. J., Dumas, D., McNeish, D. (in revision). Understanding the dynamics of reading intervention dosage response: A nonlinear meta-analysis. *Review of Educational Research*

### Manuscripts under Review

- Forthmann, B., Szardenings, C., Dumas, D., & Feist, G. J. (under review). Strict equal odds: A useful reference to study the relationship between quality and quantity of creative production.
- Dong, Y\*., Clements, D., Dumas, D., Sarama, J., Banse, H., Day-Hess, C. (under review). Classroom strategy diversity and student growth in early mathematics: A multigroup latent growth analysis across intervention condition.

Note: \* = Graduate Student Collaborator

## **INVITED TALKS**

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- Dumas, D. (2020, April). Bending the curve: Using nonlinear growth trajectories to evaluate educational interventions. In Harmon, A. (Organizer), *National Academy of Education Early Career Invited Poster Session*. To be presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Dumas, D. (2019, April). Systematic differences in student opportunities for deeper learning across sex, language background, and ethnicity groups. In G. Wimberly (Organizer), *Excellence in Education Research: Early-Career Scholars and Their Work*. Presented at the annual meeting of the American Educational Research Association, Toronto, ON.
- Dumas, D. (2019, January). *A Dynamic Approach to Psychological and Educational Measurement*. Presented at Arizona State University Department of Psychology Invited Speaker Series (Quantitative Area). Tempe, AZ.
- Dumas, D. (2018, September). *Thinking Differently About Psychological Measurement: A Dynamic Approach*. Presented at Colorado State University Department of Psychology Invited Speaker Series. Fort Collins, CO.
- Dumas, D. (2018, April). Understanding high-school students' perceptions of their learning opportunities: A doubly latent approach. In G. Wimberly (Organizer), *Excellence in Education Research: Early-Career Scholars and Their Work*. Presented at the annual meeting of the American Educational Research Association, New York, NY.
- Dumas, D. (2017, April). Measuring student opportunities for deeper learning. In G. Wimberly (Organizer), *Excellence in Education Research: Early-Career Scholars and Their Work*. Presented at the annual meeting of the American Educational Research Association, San Antonio, TX.
- Dumas, D. (2017, February). *Dynamic Measurement Modeling: Using Nonlinear Growth Models to Measure Student Potential*. Talk given at the University of Denver College of Education, Denver, CO.
- Dumas, D. (2016, February). *Relational reasoning: Its Nature, Measurement, and Consequences*. Talk given at the Howard University School of Education, Washington, DC.
- Dumas, D. (2015, November). *Relational reasoning and creativity in medical education*. Talk given at the Utrecht University Faculty of Social Sciences, Utrecht, Netherlands.
- Dumas, D. (2014, May). *Creative problem solving: Process and product in engineering education*. Talk given at the 2014 Science and Technology Education for Sustainable Development International Conference, Washington, DC.

## **NATIONAL AND INTERNATIONAL PRESENTATIONS**

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- Dumas, D., Organisciak, O. Doherty, M. (September, 2020). *Text Mining in Educational Research: Demonstrating Language Models for Measuring Creativity*. To be presented at the European Association for Research on Learning and Instruction Methodology Special Interest Group Meeting, Vienna, Austria.

- Dumas, D., McNeish, D. (September, 2020). *Dynamic Measurement Modeling: Reliability, Consequential Validity, and Predictive Validity Evidence*. To be presented at the European Association for Research on Learning and Instruction Methodology Special Interest Group Meeting, Vienna, Austria.
- Dong, Y.\* & Dumas, D. (August, 2020). *Systematic review of measurement invariance in personality measures for different populations*. Paper to be presented at the annual meeting of the American Psychological Association, Washington, DC.
- Dumas, D., Organisciak, O. Doherty, M. (April, 2020). *A Computational Psychometric Approach to Measuring Creativity*. Paper to be presented at the annual meeting of the National Council for Measurement in Education, San Francisco, CA.
- Dumas, D. (April, 2020) Using text-mining models to quantify creative thinking. In M. Kuhfeld (Organizer). *Psychometric Considerations in the Measurement of Social-emotional Learning and School Climate*. Panel to be presented at the annual meeting of the National Council for Measurement in Education, San Francisco, CA
- Dumas, D., McNeish, D., Schreiber-Gregory, D., Durning, S., & Torre, D. (April, 2020). *Dynamic measurement in health professions education: Rationale, application, and possibilities*. Paper to be presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Dumas, D., McNeish, D., Sarama, J., & Clements, D. (April, 2020). *Pre-school mathematics intervention can significantly improve student learning trajectories through elementary school*. Paper to be presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Dumas, D. (April, 2020). Strategic thinking within and across domains of learning. In D. Dinsmore and L. Fryer (Organizers). *Investigating Strategies and Strategy Use: Where Do We Go From Here?* Poster to be presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Clements, D., Dumas, D., Dong, Y.\*, Sarama, J., Banse, H., Day-Hess, C. (April, 2020) *Strategy Diversity in Early Mathematics Classrooms*. Poster to be presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Dong, Y., Clements, D., Sarama, J., Dumas, D., Banse, H., Day-Hess, C. (April, 2020) *Mathematics and Executive Functioning Competencies in the Context of Interventions: A Quantile Regression Analysis*. Roundtable session to be presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- McNeish, D., Dumas, D.G., & Grimm, K.J. (October, 2019). *Estimating new quantities from longitudinal test scores to improve forecasts of future performance*. Paper presented at the 59<sup>th</sup> annual meeting of the Society for Multivariate Experimental Psychology (SMEP), Baltimore, MD, USA.
- Dong, Y.\*, Coleman, J.J.\*, Polser, G.\*, Porter, E.\*, Sinha, S.\*, Dumas, D., Owen, J. & Kopta, S. M\*. (2019, August). *Therapist effects in routine outcome monitoring: A doubly latent invariance test of the BHM-20*. Poster presented at the annual meeting of the American Psychological Association, Chicago, IL.
- Dumas, D., & Strickland, M. (July, 2019). *A closer look at malevolent responses on the alternate uses task*. Paper presented at the Annual Creativity Research Conference, Ashland, OR



- Dumas, D. & McNeish, D.M. (April, 2019). *Calculating the Conditional Reliability of Dynamic Measurement Model Capacity Estimates*. Paper presented at the annual meeting of the National Council for Measurement in Education, Toronto, ON.
- Dumas, D. & McNeish, D.M. (April, 2019). *Increasing the Consequential Validity of Reading Assessment Using Dynamic Measurement Modeling*. Paper presented at the annual meeting of the American Educational Research Association, Toronto, ON.
- Dumas, D. & Organisciak, P. (April, 2019) Relational reasoning underlies creativity: Evidence from a text-mining investigation. In L. Mason (Chair). *Pushing the Boundaries of Relational Reasoning in Research and Practice: Cross-National, Cross-Domain, and Cross-Age Explorations*. Symposium conducted at the annual meeting of the American Educational Research Association, Toronto, ON.
- McNeish, D. & Dumas, D. (September, 2018). *Dynamic Measurement Modeling: Using Nonlinear Growth Models to Estimate Learning Capacity*. Paper presented at the Frontiers in Educational Measurement Conference, Oslo, Norway.
- Peterson, E.M. & Dumas, D. (September, 2018). *Latent Factors of Mental Rotation Accuracy and Speed: An Item Response Theory Analysis*. Paper presented at the 7<sup>th</sup> International Conference on Spatial Cognition, Rome, Italy.
- Dumas, D. & McNeish, D.M. (2018, August). *Dynamic measurement modeling: Using nonlinear growth models to estimate student learning capacity*. Paper presented at the annual meeting of the American Psychological Association, San Francisco, CA.
- Dumas, D. (2018, August). *Relational reasoning and divergent thinking: An examination of the threshold hypothesis using quantile regression*. Paper presented at the annual meeting of the American Psychological Association, San Francisco, CA.
- Dumas, D. (2018, August). *Do you need to be smart to be creative?: An investigation of the threshold hypothesis with quantile regression*. Paper presented at the Annual Creativity Research Conference, Ashland, OR
- Dumas, D. (Discussant) (2018, April). *Methodological and practical considerations in multilevel models*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Dumas, D. (2018, April). *Relational reasoning and divergent thinking: An examination of the threshold hypothesis using quantile regression*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Dumas, D. & McNeish, D.M. (2018, March). *Dynamic measurement modeling: Using nonlinear growth models to estimate student learning capacity*. Paper presented at the annual meeting of the Society for Research on Educational Effectiveness, Washington, DC.
- Dumas, D. (2017, April). *Assessing differential item functioning on the test of relational reasoning*. Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.

- Dumas, D. & McNeish, D.M. (2017, April). *Can we measure student potential?* Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.
- McNeish, D.M. & Dumas, D. (2016, May). *Non-linear Growth Models as Measurement Models*. Paper presented at the annual Modern Modelling Methods conference, Storrs, CT.
- Dumas, D. (Chair) (2016, April). *The malleability of relational reasoning: Effects of direct or indirect interventions on learning processes and outcomes*. Symposium conducted at the annual meeting of the American Educational Research Association, Washington, DC.
- McNeish, D.M. & Dumas, D. (2015, October). *A second-order growth model for measuring potential*. Poster presented at the annual meeting of the Society for Multivariate Experimental Psychology, Los Angeles, CA.
- McNeish, D.M. & Dumas, D. (2015, September). *A second-order structured latent curve model for measuring potential*. Presentation delivered at the Third Annual Innovations in Latent Variable and Random Effects Modeling Conference, Minneapolis, MN.
- Grossnickle, E. M., Dumas, D., & Alexander, P. A. (2015, August). *Getting to the source: What contributes to relational reasoning performance?* Paper presented at the annual meeting of the European Association for Research on Learning and Instruction, Limassol, Cyprus.
- Dumas, D., & Schmidt, L. C. (2015, April). Relational reasoning in mechanical engineering. In G. M. Sinatra (Chair), *Relational reasoning in STEM domains: What empirical research can contribute to the national dialogue*. Symposium conducted at the annual meeting of the American Educational Research Association, Chicago, IL.
- Dumas, D., & Dunbar, K. N. (2015, April). *Understanding fluency and originality: A latent variable perspective*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Jablansky, S., Dumas, D., & Alexander, P.A. (2015, April). *Development of relational reasoning in primary and secondary school students*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Dumas, D. (Chair) (2015, April). *Computer science and engineering education in elementary and middle school*. Session held at the annual meeting of the American Educational Research Association, Chicago, IL.
- Dumas, D. (Chair) (2015, April). *Text difficulty, genre, and medium effects on reading*. Session held at the annual meeting of the American Educational Research Association, Chicago, IL.
- Dumas, D., & Dunbar, K. N. (2014, April). *Shift perspective, enhance creativity: Leveraging stereotypes to improve creative performance*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
- Dumas, D., Alexander, P. A., Baker, L. M, Jablansky, S., & Dunbar, K. N. (2014, April). *Evidencing relational reasoning in medical education: Reasoning patterns in discourse and diagnosis*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Dumas, D. (Chair), (2014, April). *Self-directed and external supports for student learning*. Session conducted at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Dumas, D., Grossnickle, E. M., & Alexander, P. A. (2013, April). *Relational reasoning and its manifestations in the educational Context: A systematic review of the literature*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Baggetta, P., Dumas, D., & Grossnickle, E. M. (2013, April). Deconstructing Relational Reasoning. In J. M. Kulikowich (Chair), *Exploring and leveraging relational thinking for academic performance*. Symposium conducted at the annual meeting of the American Educational Research Association, San Francisco, CA.

Cromley, J. G., Horvat, E. M., Perez, A. C., Agbenyega, E. T. B., Wills, T., Tanaka, J. C., Dumas, D., Raja, R., & Sheth, D. (2012, April). *Cognitive and motivational predictors of first-year biology grades*. Paper presented at the 2012 annual meeting of the American Educational Research Association, Vancouver, BC.

Cromley, J. G., Wills, T. W., Stephens, C. R., Dumas, D., Herring, M. H., Luciw-Dubas, U. A., Snyder-Hogan, L. E., Burton, D., & Mendelsohn, T. (2010, March). *A content analysis of images in biology and geoscience textbooks*. Paper presented at the 2010 annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

Note: \* = Graduate Student Collaborator

## **WORKSHOPS CONDUCTED**

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Dumas, D. & Hancock, G.R. (2018, August). *Introduction to Structural Equation Modeling*. Workshop conducted through the University of Denver Center for Professional Development.

Wimberly, G., Dumas, D., Merrin, G., Patterson, A. (2016, April). *Undergraduate student education research training workshop*. Workshop conducted at the annual meeting of the American Educational Research Association, Washington, DC.

List, A., Musu-Gillette, L. E., Singer, L., Dumas, D., & Lee, K. (2014, April). *Hands on stats: A guide to basic statistical analyses*. Workshop conducted at the 122<sup>nd</sup> annual meeting of the American Psychological Association, Washington, D.C.

## **TEACHING EXPERIENCE**

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Item Response Theory (Graduate Level; RMS 4922)  
*University of Denver*

Factor Analysis (Graduate Level; RMS 4939)  
*University of Denver*

Psychometric Theory (Graduate level; RMS 4921)  
*University of Denver*

Human Learning (Graduate level; HUDE 320);  
*Howard University*

Advanced Measurement and Evaluation (Graduate level; HUDE 225);  
*Howard University*

Human Development Across the Lifespan (Undergraduate level; EDHD320);  
*University of Maryland, College Park*

4<sup>th</sup> Grade Summer Teacher  
*Americorps*

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## **EDITORIAL AND REVIEW EXPERIENCE**

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### **Editorial Board Member**

1. *Review of Educational Research*
2. *Journal of Educational Psychology* (early career member)
3. *Contemporary Educational Psychology*

### **Ad Hoc Reviewer**

4. *Educational Psychologist*
5. *Learning and Individual Differences*
6. *Educational Psychology Review*
7. *Learning and Instruction*
8. *Creativity Research Journal*
9. *Journal of Engineering Design*
10. *Computers in Human Behavior*
11. *Thinking Skills and Creativity*
12. *Journal of Creative Behavior*

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## **COLLEGE AND DEPARTMENTAL SERVICE**

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|--|--------------|
| Morgridge College of Education White Fragility Discussion Group Leader                                   | Winter 2019  |
| Research Methods and Statistics Comprehensive Exam Development Committee,<br><i>University of Denver</i> | 2018-present |
| Sabbatical Review Committee, <i>Howard University</i>  | 2016-2017    |
| College of Education Assembly <i>University of Maryland</i>  | 2012-2013    |
| Human Development Graduate Student Organization, <i>University of Maryland</i>                           | 2011-2013    |

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## **PROFESSIONAL MEMBERSHIPS**

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American Educational Research Association, Divisions C/D  
American Psychological Association, Divisions 15/10/5  
National Council for Measurement in Education  
Society for Research on Educational Effectiveness