

## DENIS DUMAS

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 Department of Educational Psychology  
 Mary Frances Early College of Education, University of Georgia  
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*Updated: January 2026*

### **EDUCATION**

**PhD,** Human Development and Quantitative Methodology, University of Maryland, College Park, MD  
**2016** *Specialization:* Educational Psychology *Adviser:* Dr. Patricia A. Alexander

**MA,** Educational Measurement and Statistics, University of Maryland, College Park, MD  
**2015** *Adviser:* Dr. Gregory R. Hancock

**BA,** English, Education, Temple University, Philadelphia, PA  
**2010** *Research Supervisor:* Dr. Jennifer G. Cromley

### **ACADEMIC EMPLOYMENT**

**Associate Professor** *University of Georgia*  
**August 2022-present** Department of Educational Psychology

**Assistant Professor,** *University of Denver*  
**September 2017- July 2022** Department of Research Methods, Statistics, and Information Science

**Assistant Professor,** *Howard University*  
**August 2016-June 2017** Department of Human Development and Psychoeducational Studies

**Post-Doctoral Fellow** *American Educational Research Association*  
**December 2015-July 2016** Principal Investigator: Dr. Felice Levine

### **SCHOLARLY AWARDS AND HONORS**

Award	Awarder	Year
Renée Fleming NeuroArts Investigator Award	NeuroArts Blueprint Initiative	2025
Young Investigator Award for early career scientific contributions	The Society for the Neuroscience of Creativity	2024
David Berlyne Award for early career scholarship on the psychology of creativity	Society for the Psychology of Aesthetics, Creativity, and the Arts (Division 10 of the American Psychological Association)	2023
Most productive educational psychologists from 2015-2021 (#25 overall, #4 early career)	<i>Educational Psychology Review</i>	2022

Tanaka Award for best paper of the year in <i>Multivariate Behavioral Research Methods</i>	Society for Multivariate Experimental Psychology	2021
Postdoctoral Research Development Award	National Academy of Education/Spencer Foundation	2019
Deeper Learning Fellow	American Educational Research Association/William T. Grant Foundation	2016

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## EXTERNAL FUNDING AWARDS

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### External Funding Awards as Investigator

Dumas, D., Cubley, S., & Belay, M. *Flow States During Visual Arts Education: An Experience Sampling Study using Artificial Intelligence*. NeuroArts Blueprint Renée Fleming Investigator Award. 4/15/2025 (1 year; \$25,000)

Dumas, D., & McNeish, D. *Improving Fairness of Selection and Measurement with the ASVAB through Dynamic Measurement Modeling*. Awarded by the United States Navy Research Lab, NRL Code Number 5582. 6/1/2021 (1 year, \$360,000).

Acar, S., Dumas, D., & Organisciak, P. *Measuring Original Thinking in Elementary Students: A Computational Psychometric Approach*. Awarded by the U.S. Department of Education, IES (Institute of Education Sciences), Grant No R305A200199. 7/1/2019 (3 Years; \$964,081).

Dumas, D. & Lantz, B. *Latent Dimensionality of Driver Safety Data*. Funded by SambaSafety Corporation. 2/1/2019 (1 year; \$75,000).

Dumas, D. *Using Growth Trajectories to Understand Mathematics Instruction Intervention Effects in Early Childhood*. Awarded by the National Academy for Education/Spencer Foundation. 9/1/2018 (1 year; \$5,000).

Lantz, B. & Dumas, D. *Modeling Driver Safety Data with Item Response Theory*. Funded by SambaSafety Corporation. 11/1/2017 (1 year; \$80,000).

Dumas, D. *Understanding High-School Students' Opportunities for Deeper Learning*. Awarded by the William T. Grant Foundation. 9/1/2016 (1 year; \$20,000).

### External Funding Awards as Consulting Methodologist

Clements, D. H. & Sarama, J. *Integrated, Intelligent and Interactive Technologies Building Young Children's Math Along Learning Trajectories*. Awarded by the U.S. Department of Education, IES (Institute of Education Sciences), Grant No. R305A220102. 8/1/2022 — 7/31/2025. (3 years; \$1,999,991.14). Role: Methodologist.

Kantor, R., & Riley, K. *Quality Counts: Building Capacity to Research Quality in Colorado's Residency Preparation Programs*. Awarded by the U.S. Department of Education, IES (Institute of Education Sciences), Grant No. R305H170066. 7/1/2017 (2 years; \$400,000). Role: Methodologist

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Clements, D. H., Sarama, J., Baroody, A., J., & Purpura, D. *Evaluating the Efficacy of Learning Trajectories in Early Mathematics*. Awarded by the U.S. Department of Education, IES (Institute of Education Sciences), Grant No. R305A150243. 8/1/2015 (4 years; \$3,500,000). Role: Methodologist.

Clements, D. H. & Sarama, J. *Preschool-Elementary-Coherence Project*. Awarded by the Heising-Simons Foundation, Grant #2014-156 (through Stanford University, #60875796-118042). 1/1/15 (2 years; \$1,968,961). Role: Methodologist

Clements, D. H. & Sarama, J. *Math and Executive Function Project*. Awarded by the Heising-Simons Foundation, Grant #2014-156 (through Stanford University, #60875796-118042). 12/1/14 (2 years; \$114,136). Role: Methodologist

## **SCHOLARLY PUBLICATIONS**

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### **Books**

Dumas, D. (under contract). *Killing Creativity in School: Identifying the Forces that Deny, Distract, and Demotivate Students' Best Ideas*. Cambridge University Press.

### **Refereed Journal Articles**

(\* = graduate student or post-doc collaborator)

Dumas, D. (in press). Collaboration with generative artificial intelligence as a potential scaffold for the development of human creativity. *Educational Psychologist*.

Kako, N.\*, Rozenman, M., Dumas, D., & McRae, K. (in press). Individual differences in bottom-up and top-down emotion generation. *PLOS Mental Health*.

Dumas, D., Goecke, B., Kagan, S.\*, & Weiss, S. (2026). Zooming out on Education: Making valid psychological inferences from large-scale assessment data. *Educational Psychology Review*, 38(1), 2. <https://doi.org/10.1007/s10648-025-10110-7>

Primi, R., Beaty, R. E., Benedek, M., Dumas, D., Organisciak, P., Patterson, J. D., Calico, T., & Piacentini, M. (2026). AI-powered scoring for creative thinking: Methods and challenges in PISA assessment. *The Journal of Creative Behavior*, 60(1), e70082. <https://doi.org/10.1002/jocb.70082>

Dumas, D., Kim, Y.\* Carrera-Flores, M.\* Kagan, S.\* Acar, S., & Organisciak, P. (2025). Understanding elementary students' creativity as a trade-off between originality and task-appropriateness: A pareto optimization study. *Journal of Educational Psychology*. <https://doi.org/10.1037/edu0000982>

Dong, Y., & Dumas, D. (2025). Is a less-wrong model always more useful? Methodological considerations for using ant colony optimization in measure development. *Psychological Methods*. <https://doi.org/10.1037/met0000734>

Kim, Y.\* Dumas, D., Acar, S., & Organisciak, P. (2025). The innovative-adaptive model of the TTCT figural is invariant across ethnicity but not gender. *Gifted Child Quarterly*. <https://doi.org/10.1177/00169862251388487>

Dong, Y., & Dumas, D. (2025). Capturing developing constructs: Methodologies and validation practices of dynamic measurement. *Methods in Psychology*, 13, 100217. <https://doi.org/10.1016/j.metip.2025.100217>

Kim. Y.\*, & Dumas, D. (2025). Self-rated originality as a mediator that connects creative activities and AI-rated originality in divergent thinking. *Education Sciences*. 15(11), 1525. <https://doi.org/10.3390/educsci15111525>

Edelsbrunner, P., Tetzlaff, L., Bach, K., Dumas, D., Hofer, S., Köhler, C., Kozlova, Z., Moeller, Reinhold, F., Roberts, G., Sengewald, M., & Bichler, S. (2025). Beyond linear regression: Statistically modeling aptitude-treatment interactions and the differential effectiveness of educational interventions. *Learning and Individual Differences*, 124, 102812. <https://doi.org/10.1016/j.lindif.2025.102812>

Scherbakova, A.\*, Dumas, D., Kagan, S.\*, Vlaamster, T.\*, Acar, S., & Organisciak, P. (2025). Reversing the alternate uses task. *Thinking Skills and Creativity*, 58, 101915. <https://doi.org/10.1016/j.tsc.2025.101915>

Dumas, D., Greiff, S., & Wetzel, E. (2025). Ten guidelines for scoring psychological assessments using artificial intelligence. *European Journal of Psychological Assessment*, 41(3), 169–173. <https://doi.org/10.1027/1015-5759/a000904>

Kagan, S.\*, & Dumas, D., (2025). More creative activities, lower creative ability?: Exploring an unexpected PISA finding. *Journal of Creative Behavior*. 59(2), e70035. <https://doi.org/10.1002/jocb.70035>

Kagan, S.\*, Dumas, D., Acar, S., Organisciak, P., & Berthiaume, K.\* (2025). How creative is this child?: Student demographics affect how teachers rate creativity. *Journal of Experimental Education*. 1-23. <https://doi.org/10.1080/00220973.2025.2466161>

McNeish, D. & Dumas, D. (2025). Reliability representativeness: How well does coefficient alpha summarize reliability across the score distribution? *Behavior Research Methods* 57, 93. <https://doi.org/10.3758/s13428-025-02611-8>

Dumas, D. (2025). The development of creativity: from self-to socially-referenced. *The Journal of Creative Behavior*, 59(3), e1517. <https://doi.org/10.1002/jocb.1517>

Acar, S., Organisciak, P., & Dumas, D. (2025). Automated scoring of figural tests of creativity with computer vision. *Journal of Creative Behavior* 59(1), e677. <https://doi.org/10.1002/jocb.677>

Dumas, D., & Kaufman, J. C. (2024). Evaluation is creation: Self and social judgments of creativity across the Four-C model. *Educational Psychology Review*, 36(3), 107. <https://doi.org/10.1007/s10648-024-09947-1>

Dumas, D., Dong, Y., Kagan, S.\*, & Campbell, W.K., (2024). Exploring the creative personality: Using machine learning to predict quantity and quality of ideas in divergent thinking. *Creativity Research Journal*. <https://doi.org/10.1080/10400419.2024.2371725>

Dong, Y., Kushmakar, B.\*, Dumas, D. (2024). Criterion measures are not always continuous: Consequential validity ratio for binary logistic regression. *Journal of Experimental Education*. <https://doi.org/10.1080/00220973.2024.2369333>

Berthiaume, K.\*, Acar, S., & Dumas, D. (2024). “My brain said that...”: A qualitative study of sources of children’s creative ideas. *Creativity Research Journal*. <https://doi.org/10.1080/10400419.2024.2336739>

Scherbakova, A.\*, Dumas, D., Acar, S., & Berthiaume, K\*, Organisciak, P. (2024). Perception and performance of creativity and academic achievement among elementary school students: A normal mixture modeling study. *Journal of Creative Behavior*, 58(2), 245–261.  
<https://doi.org/10.1002/jocb.646>

Dumas, D., Forthmann, B., & Alexander, P. (2024). Using a model of domain learning to understand the development of creativity. *Educational Psychologist*, 59(3), 143–158.  
<https://doi.org/10.1080/00461520.2023.2291577>

Acar, S., Dumas, D., Organisciak, P., & Berthiaume, K\*. (2024). Measuring original thinking in elementary school: Development and validation of a computational psychometric approach. *Journal of Educational Psychology*, 116(6), 953–981. <https://doi.org/10.1037/edu0000844>

McNeish, D., Dumas, D., & Dong, Y. (2024). Promoting inclusive recruiting & selection into military training schools: Admission waivers vs. retesting. *Journal of Applied Psychology*, 109(3) 415-436.  
<https://doi.org/10.1037/apl0001147>

Dong, Y., Clements, D. H., Dumas, D., & Sarama, J. (2024). Classroom strategy diversity and early mathematical growth across intervention conditions. *Current Psychology*, 43 15908-15924.  
<https://doi.org/10.1007/s12144-023-05533-w>

Zielińska, A.\*, Organisciak, P., Dumas, D., & Karwowski, M. (2023). Lost in translation? Not for Large Language Models: Automated divergent thinking scoring performance translates to non-English contexts. *Thinking Skills and Creativity*, 50, 101414. <https://doi.org/10.1016/j.tsc.2023.101414>

Organisciak, P., Acar, S., Dumas, D., & Berthiaume, K\*. (2023). Beyond semantic distance: Automated scoring of divergent thinking greatly improves with large language models. *Thinking Skills and Creativity*, 49, 101356. <https://doi.org/10.1016/j.tsc.2023.101356>

Dinsmore, D., Fryer, L., & Dumas, D. (2023). A theoretical and metatheoretical reframing of the development of cognitive processing and learning. *Educational Psychology Review*, 35(66).  
<https://doi.org/10.1007/s10648-023-09789-3>

Dumas, D., & Edelsbrunner, P. (2023). How to make educational recommendations from correlational data using structural equation models. *Educational Psychology Review*, 35(48).  
<https://doi.org/10.1007/s10648-023-09770-0>

Dumas, D., Acar, S., Berthiaume, K.\*, Organisciak, P., Eby, D.\*, Grajzel, K.\*, Flemister, T.\*, Newman, M.\* & Carrera, M\*. (2023). What makes children's responses to creativity assessments difficult to judge reliably? *Journal of Creative Behavior*, 57(3), 419–438. <https://doi.org/10.1002/jocb.588>

Dong, D., Dumas, D., Day-Hess, C., Sarama, J., & Clements, D. (2023). Evaluating the consequential validity of the Research-based Early Mathematics Assessment. *Journal of Psychoeducational Assessment*, 41(5), 575-582. <https://doi.org/10.1177/07342829231165812>.

Haywood Stewart, S.\*, Drinane, J., Owen, J., & Dumas, D. (2023). Psychotherapy training via a task-based assessment of multicultural orientation: A pilot study. *Counselling and Psychotherapy Research*, 12629. <https://doi.org/10.1002/capr.12629>

Grajzel, K.\*, Acar, S., Dumas, D., Organisciak, P., & Berthiaume, K.\* (2023). Measuring flexibility: A text-mining approach. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1093343>

Organisciak, P., Newman, M.\* , Eby, D.\* , Acar, S., & Dumas, D. (2023). How do the kids speak? Improving educational use of text mining with child-directed language models. *Information and Learning Sciences*, 124(1) 25-47. <https://doi.org/10.1108/ILS-06-2022-0082>

McNeish, D., Bauer, D., Dumas, D., Clements, D.H., Cohen, J.R., Lin, W., Sarama, J., & Sheridan, M.A. (2023). Modeling individual differences in the timing of change onset and offset. *Psychological Methods*, 28(2), 401-421. <https://doi.org/10.1037/met0000407>

Dumas, D., Doherty, M., & Dong, Y.\* (2022). To map or not to map: Professional actors are capable of validly connecting extremely distant verbal analogues. *Psychology of Aesthetics, Creativity, and the Arts*. <https://doi.org/10.1037/aca0000502>

Forthmann, B. & Dumas, D. (2022). Quantity and quality in scientific productivity: The tilted funnel goes Bayesian. *Journal of Intelligence*, 10 (4). doi.org/10.3390/jintelligence10040095

McNeish, D., Harring, J., Dumas, D. (2022). A multilevel structured latent curve model for disaggregating student and school contributions to learning. *Statistical Methods and Applications*. <https://doi.org/10.1007/s10260-022-00667-w>

Grajzel, K.\*, Dumas, D., Acar, S. (2022). Are the verbal TTCT forms Actually Interchangeable? *Journal of Creative Behavior*, 56(4) 629-646. DOI: 10.5281/zendo.6323426

Dumas, D., Dong, Y.\* , & McNeish, D. (2022). ‘How fair is my test’: A ratio statistic to help represent consequential validity. *European Journal of Psychological Assessment*. DOI: 10.1027/1015-5759/a000724

Dong Y\*., Dumas, D., Clements, D., & Sarama, J. (2022). Formulating a trajectory deviance index for dynamic measurement modeling. *Journal of Experimental Education*, 91(2) 358-379. DOI: 10.1080/00220973.2022.2044280

McNeish, D., Dumas, D., Rice, N., Torre, D. (2022). Modeling time to maximum competency in medical students’ longitudinal tests. *Journal of the Royal Statistical Society: Series A*, 184(4), 2007-2034. DOI: 10.1111/rssa.12864

Acar, S., Berthiaume, K.\* , Grajzel, K.\* , Dumas, D., Flemister, T.\* (2022). Applying automated originality scoring to the verbal form of Torrance Tests of Creative Thinking. *Gifted Child Quarterly*. 67(1), 3-17. DOI: doi.org/10.1177/00169862211061874

Roberts, G. J., Dumas, D., & McNeish, D. (2022). Understanding the dynamics of reading intervention dosage response: A nonlinear meta-analysis of recent reading interventions. *Review of Educational Research*, 92(2) 209-248. <https://doi.org/10.3102/00346543211051423>

Dumas, D., Dong, Y.\* , Grajzel, K.\* , Forthmann, B., Doherty, M. (2022). Understanding ideational fluency as a survival process. *British Journal of Educational Psychology*, 92(2) 645-666. <https://doi.org/10.1111/bjep.12469>

Dumas, D., Dong, Y.\*, Doherty, M. (2021). The influence of creative expertise on the sensitivity and selectivity of analogical reasoning. *Mind, Brain, and Education*. 15(3), 239–249.  
<https://doi.org/10.1111/mbe.12287>

Dumas, D., Dong, Y.\* Leveling, M\*. (2021). The zone of proximal creativity: What dynamic assessment of divergent thinking reveals about students' latent class membership. *Contemporary Educational Psychology*, 67. <https://doi.org/10.1016/j.cedpsych.2021.102013>

Dong, Y.\*, Clements, D. H., Day-Hess, C. A., Sarama, J., & Dumas, D. (2021). Measuring early childhood mathematical cognition: Validating and equating two forms of the Research-based Early Mathematics Assessment. *Journal of Psychoeducational Assessment*, 39(8) 983-998.  
<https://doi.org/10.1177/07342829211037195>

Dumas, D., Organisciak, P., & Doherty, M. (2021). Measuring originality with human raters and text-mining models: A psychometric comparison of methods. *Psychology of Aesthetics, Creativity, and the Arts*, 15(4), 645-663. <https://doi.org/10.1037/aca0000319>

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., Doherty, M., & Organisciak, P. (2020). The psychology of professional and student actors: creativity, personality, and motivation. *PLoS: ONE*. 15(10)  
<https://doi.org/10.1371/journal.pone.0240728>

Dumas, D., Organisciak, P., Maio, S.\* & Doherty, M. (2020). Four text-mining methods for measuring elaboration. *Journal of Creative Behavior*, 55(2) 517-531. <https://doi.org/10.1002/jocb.471>

McNeish, D., & Dumas, D., (2020). A seasonal dynamic measurement model for summer learning loss. *Journal of the Royal Statistical Society: Series A*, 184(2). 616-642.  
<https://doi.org/10.1111/rssa.12634>

McNeish, D., Dumas, D., & Grimm, K. (2020). Estimating new quantities from longitudinal test scores to improve forecasts of future performance. *Multivariate Behavioral Research*, 55(6), 894-909.  
<https://doi.org/10.1080/00273171.2019.1691484>

Nguyen, M. H., Chang, C. Y., Kim, V., Gutierrez, R. A. E., Le, A., Dumas, D., & Teranishi, R. T. (2020). Asian Americans, admissions, and college choice: An empirical test of claims of harm used in federal investigations. *Educational Researcher*, 49(8), 579–594.  
<https://doi.org/10.3102/0013189X20933288>

Dong, Y\*, Clements, D., Sarama, J., Dumas, D., & Banse, H. (2020). Mathematics and executive function competencies in the context of interventions: A quantile regression analysis. *Journal of Experimental Education*. 10.1080/00220973.2020.1777070

Clements, D. H., Dumas, D., Dong, Y.\*, Banse, H. W., Sarama, J., & Day-Hess, C. A. (2020). Strategy diversity in early mathematics classrooms. *Contemporary Educational Psychology*, 60, 101834.  
<https://doi.org/10.1016/j.cedpsych.2019.101834>

Forthmann, B., Szardenings, C., Dumas, D., & Feist, G. J. (2020). Strict equal odds: A useful reference to study the relationship between quality and quantity of creative production. *Creativity Research Journal*. <https://doi.org/10.1080/10400419.2020.1827605>

Maio, S.\*, Dumas, D., Organisciak, P., & Runco, M. (2020). Is the reliability of objective originality scores confounded by elaboration? *Creativity Research Journal*. <https://doi.org/10.1080/10400419.2020.1818492>

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>

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 for different populations? A systematic review of measurement invariance across cultures, gender, and age. *Personality and Individual Differences*, 160, 109956. <https://doi.org/10.1016/j.paid.2020.109956>

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.

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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*.  
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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

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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/edu0000007>

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., & McNeish, D. (in press). Dynamic measurement. In S. Sinharay (Ed.), *Encyclopedia of Social Measurement, Second Edition*. Elsevier.

Dumas, D., Dong, Y., & Kim, Y.\* (in press). Balancing the efficiency-validity tradeoff: Consequential and cross-cultural considerations for scaling up the AI assessment of creativity in education. In R. Beghetto (Ed.), *Human Creativity x Generative AI in Education*. Oxford University Press.

Dumas, D. & Kagan, S.\* (2026). Five key cognitive attributes of highly creative individuals. In Z. Ivcevic (Ed.), *Creators: What Makes Individuals Creative?* Palgrave MacMillan.

Dumas, D., & Doherty, M. (2026). Learning in the arts. In R. Mayer, P. Alexander, & L. Fiorella (Eds.), *Handbook of Research on Learning and Instruction: Third Edition*. Routledge.

Grantham, T.C., Acar, S., Dumas, D., & Fox, S\*. (2025). Creativity in gifted education policy and

assessment: Equitable identification using the Measure of Original Thinking in Elementary Students (MOTES). In T. Kettler & J. Katz-Buonincontro (Eds.) *Oxford Handbook of Creativity and Education*. Oxford University Press.

<https://doi.org/10.1093/oxfordhb/9780197698181.013.0023>

Dumas, D., & Grajzel, K.\* (2024). Measuring up: Aligning creativity assessment with the *Standards*. In M. Runco & S. Acar (Eds.), *Handbook of Creativity Assessment*. Cheltenham, UK: Edward Elgar Publishing.

Dinsmore, D., & Dumas, D. (2022). The 4D model of expertise development. In A. O'Donnell (Ed.), *Oxford Handbook of Educational Psychology*. Oxford, UK: Oxford University Press.

<https://doi.org/10.1093/oxfordhb/9780199841332.013.15>

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: Second Edition*. New York, NY: Routledge.

### Commissioned White Papers

Dumas, D. (2024). How does creativity change as expertise develops? In T. Lubart & M. H. Hansen (Eds.) *Creativity in Education*. Research report commissioned by the BIC Corporate Foundation.

Dumas, D., McNeish, D., Dong, Y., & Duelberg, D. (2022). *Improving the Fairness of Coast Guard Recruitment with the ASVAB: A Dynamic Measurement Paradigm*. Commissioned by the United States Coast Guard.

### Manuscripts in Revision

Kagan, S.\*, Dumas, D., Kim, Y\*. (in revision). Revisiting educational assumptions: The surprising negative link between creative extracurricular activities and creative thinking in PISA 2022. *British Journal of Educational Psychology*.

Vlaamster, T.\*, Acar, S., Organisciack, P., Dumas, D., & Berthiaume, K.\*, (in revision). Psycholinguistics of divergent thinking prompts predict the originality of elementary students' responses. *Thinking Skills and Creativity*.

Weiss, S., Kapoor, H., Forthmann, B., Zielińska, A., Goecke, B., Dumas, D., Said-Metwaly, S., Urbaniak, J., Ivcevic, Z., Karwowski, M., Kaufman, J.C., & Barbot, B. (in revision). Mapping creativity in the PISA 2022 context questionnaire: An expert evaluation of content validity of the creativity self- and other-report scales. *Journal of Educational Psychology*.

### Manuscripts under Review

Kagan, S.\*, & Dumas, D. (under review). Evaluations of elementary students' creativity: A machine learning approach to understanding demographic, personality, and teaching belief predictors.

Acar, S., Berthiaume, K.\*, Kagan, S.\*, Dumas, D., & Organisciak, P. (under review). In praise of slow idea generation: Latency differentially predicts ideational quantity and quality.

Dong, Y., Baral, D.\*, Baral, K.\* & Dumas, D. Exploring psychological trade-offs: Developing and demonstrating an R Shiny app for Pareto optimization. (under review). *Preprint*  
DOI: [https://doi.org/10.31234/osf.io/gmh6a\\_v1](https://doi.org/10.31234/osf.io/gmh6a_v1)

Puryear, J., Lamb, K., Acar, S., Dumas, D., Mammadov, S., Rubenstein, L. (under review). The ether of creativity: Overlooked psychological insights and their implications for gifted education.

### INVITED TALKS

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Goecke, B. & Dumas, D. (2025, August). *Keeping Up with the Joneses: What Creativity Assessment Can Learn From, and Teach To, Other Domains of Testing*. Keynote talk conducted at the Hannover Creativity Assessment Workshop, Hannover, Germany.

Dumas, D. (2025, July). Creativity assessments as a tool to help teachers. In J. Kaufman (Discussant). *Intelligence and Creativity: From Historical Foundations to Digital Futures*. Symposium conducted at the Kaufman Family Research Conference, Lisbon, Portugal.

Dumas, D. (2025, May). *What I Learned About Creativity by Studying Actors*. Keynote talk presented at the Annual Creativity Conference at the University of Southern Oregon, Ashland, OR.

Dumas, D. (2025, April). *Studying Children's Creativity Using Pareto Optimization*. Talk presented at the Annual Mary Frances Early College of Education Research Day, Athens, GA.

Dumas, D. (2024, November). *Five Reasons Why Creativity is So Frickin' Hard*. Keynote talk presented at the annual meeting of the Florida Educational Research Association, Orlando, FL.

Dumas, D. (2024, July). *Psychometrics of Creativity: Past, Present, Future*. Keynote talk presented at the Conference for Psychometrics and Artificial Intelligence, Beijing Normal University, Beijing, China.

Dumas, D. (2024, June). *How to Use AI Safely and Effectively in K-12 Contexts*. Panel conducted at the National Science Foundation Innovative Technology Experience for Students and Teachers Professional Development Workshop, College of Engineering, University of Georgia, Athens, GA.

Dumas, D. (2024, April). *The Development of Creativity: From Self- to Socially-Referenced Ideas*. Talk presented at the Torrance Festival of Ideas hosted virtually at the University of Georgia, Athens, GA.

Dumas, D. (2024, April). *In Praise of “Incorrect” Answers*. Talk presented at the annual meeting of the Society for Neuroscience of Creativity, Toronto, ON.

Dumas, D. (2024, March). *Creative Children are Often Misunderstood in Schools: How AI Can Help*. Talk presented at the TEDx UGA event, Athens, GA.

Dumas, D. (2024, March). *We Need to Understand Rater Disagreement Before Training Supervised Machine Learning Models*. Talk presented at the monthly methodology colloquium in the Department of Human Development at Michigan State University, Lansing, MI.

Dumas, D. (2023, November). Using artificial intelligence to measure psychological attributes. In Quinn, S. (Organizer). *Artificial Intelligence in Education*. Panel conducted at the University of Georgia School of Computing Annual ‘Day of Computing’ Event. Athens, GA.

Acar, S., Organisciak, P., & Dumas, D. (2023, November). Applications of artificial intelligence to verbal and figural tests of creativity. In Rahimi, S. (Organizer). *Let’s Go Beyond the Brick: Innovative Assessments of Creativity*. Symposium conducted at the International Society for the Science of Creativity and Innovation, presented remotely via video link.

Dumas, D. (2023, October). *How Artificial Intelligence Can Improve Gifted Identification*. Talk presented at Missouri Department of Elementary & Secondary Education, Jefferson City, MO.

Dumas, D. (2023, September). *What Learning Curves Reveal About Medical Education*. Talk presented at University of Georgia / Augusta University Medical Education partnership monthly faculty scholarship meeting, Athens, GA.

Dumas, D. (2023, August). Six reasons why I love creativity research. In P. Tino (Chair), *Society for the Psychology of Aesthetics, Creativity, and the Arts Award Ceremony*. Talk presented at the annual meeting of the American Psychological Association, Washington, DC.

Dumas, D. (2023, June). Using a model of domain learning to understand the development of creativity. In T. Kettler (Organizer), *Creativity and Education Symposium*. Symposium hosted by Baylor University, Waco, TX.

Dumas, D. (2023, April). Artificial intelligence methods in gifted identification. In O. Desmet (Organizer), *Interdisciplinary Methods in Gifted Education and Creativity Research*. Panel presented at the annual meeting of the American Educational Research Association. Chicago, IL.

Dumas, D. (2023, March). Using learning curves to measure student potential. In P. Edelsbrunner (Organizer), *Modeling Individual Differences in Education*. Presented at the ETH Zürich Department of Humanities, Social, and Political Sciences. Zürich, Switzerland.

Dumas, D. (2022, November). How do I know if my test is fair? In M. Hines (Organizer), *Equity Issues in Gifted Education: Using Fresh, Dynamic Approaches to Making Real Change*. Panel presented at the annual meeting of the National Association for Gifted Children. Indianapolis, IN.

Grantham, T., Acar, S., Dumas, D., & Rysiew, J. (2022, November). *Finding ‘Missing’ Students for Gifted Education Programs: Can A Focus on Creativity in Policy and Assessment Overcome Blind Spots to*

*Equitable Identification?* Presented at the annual meeting of the Council for State Directions of Programs for the Gifted. Presented remotely via video link.

McNeish, D., Dumas, D., Dong, Y., & Duelberg, D. (2022, May). *Improving the Fairness of Coast Guard Recruitment with the ASVAB: A Dynamic Measurement Paradigm*. Presented to the United States Military Accession Personnel Monthly Briefing. Presented remotely via video link.

Dumas, D. (2022, January). *Measuring Original Thinking in Elementary School*. Presented to the Department of Educational Psychology at the University of Georgia. Athens, GA.

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*. 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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Note: \* = Graduate Student or Post-doc Collaborator

Kim, Y.\*, Dumas, D., Acar, S., & Organisciak, P. (April, 2026). *Innovative-Adaptive Model of TTCT Figural: Invariance Across Ethnicity, Not Gender*. Paper to be presented at the annual meeting of the National Council on Measurement in Education, Los Angeles, California.

Kagan, S.\* & Dumas, D. (April, 2026). *What Affects How Pre-service and In-service Teachers Rate Elementary Students' Creativity?: Demographic and Psychological Interactions*. Paper to be presented at the annual meeting of the American Educational Research Association, Los Angeles, California.

Kim, Y.\* & Dumas, D. (April, 2026). *Self-rated Originality as a Mediator that Connects Creative Activities and AI-rated Originality in Divergent Thinking*. Paper to be presented at the annual meeting of the American Educational Research Association, Los Angeles, California.

Kagan, S.\*, Dumas, D., & Kim, Y.\* (April, 2026). *The Surprising Negative Link Between Creative Extracurricular Activities and Creative Thinking in PISA 2022*. Paper to be presented at the annual meeting of the American Educational Research Association, Los Angeles, California.

Dumas, D., Acar, S., Organisciak, P., Kagan, S.\*, Kim, Y.\* & Carerra-Flores, M.\* (August, 2025). A trade-off in children's creativity: Balancing originality and task-appropriateness. In P. Edelsbrunner (Organizer), *Balancing Multiple Criteria to Improve Validity and Fairness in Educational Assessment*. Symposium to be conducted at the biannual meeting of the European Association for Research on Learning and Instruction (EARLI), Graz, Austria.

Dong, Y., & Dumas, D. (August, 2025). *Methodological considerations for using Ant Colony Optimization in measure development*. The annual meeting of the American Psychological Association, Denver, CO.

Scherbakova, A.\*, Dumas, D., Kagan, S.\* Vlaamster, T.\* Acar, S., & Organisciak, P. (May, 2025). *Reversing the Alternate Uses Task*. Paper presented at the Creativity Conference, University of Southern Oregon, Ashland, OR.

Kagan, S.\* Dumas, D., Acar, S., Organisciak, P., & Berthiaume, K.\* (April, 2025). *Differential prediction of teacher ratings of creativity based on student demographics*. Paper presented at the annual meeting of American Educational Research Association (AERA), Denver, CO.

Dong, Y., Baral, K.\* & Dumas, D. (April, 2025). *Criterion measures are not always continuous: Consequential validity ratio for logistic regression*. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

Dong, Y., & Dumas, D. (April, 2025). *Capturing developing constructs: Dynamic Measurement practices*. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

Dong, Y., Baral, K.\* & Dumas, D. (April, 2025). *Extending the use of Consequential Validity Ratio for binary criterion measures*. Paper presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.

Dong, Y., & Dumas, D. (April, 2025). *Validation practices for dynamic measurement*. Paper presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.

Dumas, D., Acar, S., Organisciak, P., Kim, Y.\*, Carrera-Flores, M.\* & Kagan, S.\* (March, 2025). A trade-off in children's creativity: Using Pareto optimization to balance originality and task-appropriateness. In R. Beaty (Chair), *AI Advances in Creativity Assessment*. Symposium conducted at the annual meeting of the Society of the Psychology of Aesthetics, Creativity, and the Arts (Division 10 of the APA), New Haven, CT.

Acar, S., Dumas, D., Kagan, S.\* Organisciak, P., Berthiaume, B.\* (March, 2025). *Slow vs. Fast Idea Generation: Latency Differentially Predicts Ideational Quantity and Quality*. Paper presented at the annual meeting of the Society of the Psychology of Aesthetics, Creativity, and the Arts (Division 10 of the APA), New Haven, CT.

Kagan, S.\* & Dumas, D. (March, 2025). *More creative activities, lower creative ability?: Exploring an unexpected finding in the PISA data*. Paper presented at the annual meeting of the Society of the Psychology of Aesthetics, Creativity, and the Arts (Division 10 of the APA), New Haven, CT.

Kim, Y.\* Dumas, D., Acar, S., & Organisciak, P. (March, 2025). *The Innovative-Adaptive Model of the TTCT Figural is Invariant Across Ethnicity but not Gender*. Paper presented at the annual meeting of the Society of the Psychology of Aesthetics, Creativity, and the Arts (Division 10 of the APA), New Haven, CT.

Organisciak, P., Acar, S., & Dumas, D. (November, 2024). *MOTES: A System for Measuring Creativity in Children*. Paper presented at the annual meeting of the National Association for Gifted Children, Seattle, WA.

Dumas, D. & Edelsbrunner, P. (August, 2024). Five research steps toward making reasonable recommendations for practice based on correlational data. In A. Martella & D. Robinson (Organizers), *Is Educational Psychology Moving Toward the Dark Side?* Symposium conducted at the annual meeting of the American Psychological Association, Seattle, WA.

Dumas, D., Scherbakova, A.\* Kagan, S.\* & Organisciak, P. (August, 2024). *Understanding Teacher Perceptions of Creativity: Combining Person- and Variable-Centered Approaches*. Paper presented at the annual meeting of the American Psychological Association, Seattle, WA.

Primi, R., Beaty, R., Patterson, J., Benedek, M., Paraboni, I., Dumas, D., Organisciak, P., Caliço, T., & Piacentini, M. (April, 2024). Beyond human raters: Using AI and NLP in PISA's creative thinking tests. In Avvisati, F. (Organizer). *Investing in Research and Development to Foster Innovation in PISA*. Symposium presented at the annual meeting of the National Council for Measurement in Education, Philadelphia, PA.

Scherbakova, A.\* & Dumas, D. (April, 2024). *Performance and Perception of Creativity and Academic Achievement in Elementary School Students: A Mixture Modeling Study*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Dumas, D., Forthmann, B., & Alexander, P. (April, 2024). *Using a Model of Domain Learning to Understand the Development of Creativity*. Poster presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Acar, S., Dumas, D., & Organisciak, P. (April, 2024). Extending automated scoring to the figural form of the Torrance Test of Creative thinking. In M. Meadows (Chair). *Creativity and Assessment*. Symposium presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Grajzel, K.\*, Dumas, D., & Acar, S. (April, 2024). *Are the Verbal TTCT Forms Actually Interchangeable?* Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Vlaamster, T.\*, Acar, S., Organisciak, P. & Dumas, D. (March, 2024). *Psycholinguistic Characteristics Predict Response Originality of Alternate Uses and Instances Prompts*. Paper presented at the APA Division 10 divisional meeting, Denton, TX.

Kagan, S.\*, Dumas, D., Acar, S., Organisciak, P., & Berthiaume, K. (March, 2024). *How Creative is This Child? Differential Prediction of Teacher Ratings of Creativity Based on Student Demographics*. Paper presented at the APA Division 10 divisional meeting, Denton, TX.

Dumas, D., Acar, S., & Organisciak, P. (March, 2024). *When Do Human Raters Disagree?: An Important Question to Ask Before Supervised Models are Trained*. Paper presented at the APA Division 10 divisional meeting, Denton, TX.

Dumas, D., Dong, Y., & McNeish, D. (August, 2023). *How Fair is My Test? A Ratio Coefficient to Help Represent Consequential Validity*. Poster presented at the Biennial meeting of the European Association for Research on Learning and Instruction, Thessaloniki, Greece.

Acar, S., Dumas, D., Organisciak, P. (August, 2023). Measuring original thinking in elementary school (MOTES): Development and validation evidence. In T. Lubart (Chair). *Breakthroughs in Creativity Measurement: Computer- and AI-based Testing and Scoring*. Paper presented at the Annual Meeting of the American Psychological Association, Washington, DC.

Dumas, D. (Discussant; April, 2023). *Classic and Novel Approaches in Creativity Assessment and Programming: Implications for Gifted Education*. Symposium presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Dumas, D., Dong, Y., & McNeish, D. (April, 2023). *How Fair is My Test?: A Ratio Coefficient to Help Represent Consequential Validity*. Poster presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Dong, Y., McNeish, D., & Dumas, D. (April, 2023). *Fairness and Consequential Validity of the ASVAB-Based Learning Capacity Scores*. Poster presented at the annual meeting of the National Council for Measurement in Education, Chicago, IL.

Acar, S., Dumas, D., & Organisciak, P. (2022, November). *Measuring Original Thinking in Elementary School (MOTES)?* In Jonathan Plucker (Chair), *Classic and Novel Approaches in Creativity Assessment and Programming: Implications for Gifted Education* [Symposium]. National Association for Gifted Children (NAGC) Annual Convention, November 17-21, Indianapolis, IN.

Dumas, D. (Discussant; April 2022). *Past, Present, and Future of Model Fit: Modern Solutions to Historical Challenges*. Symposium presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Dumas, D., & Dong, Y\*. (April, 2022). Observing students' zone of proximal creativity using a dynamic assessment procedure. In K. Berthiaume (Chair), *Innovations in Methodological Approaches in Creativity Assessments for Gifted Education*. Symposium presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Acar, S., Organisciak, P., Dumas, D., Berthiaume, K.\*, Flemister, C.\*, Grajzel, K.\*, Newman, M.\* & Eby, D\*. (April, 2022). Development of the Measure of Original Thinking in Elementary Students (MOTES): Preliminary evidence of computational psychometric properties. In K. Berthiaume (Chair), *Innovations in Methodological Approaches in Creativity Assessments for Gifted Education*. Symposium presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Grajzel, K.\* Dumas, D., Berthiaume, K.\*, Acar, S., & Organisciak, P. (April, 2022) Measuring flexibility: A text-mining approach. In K. Berthiaume (Chair), *Innovations in Methodological Approaches in Creativity Assessments for Gifted Education*. Symposium presented at the annual meeting of the American Educational Research Association, San Diego, CA

Dong, Y.\* & Dumas, D. (April, 2022). *Moving Past 'One Size Fits All': Developing a Trajectory Deviance Index for Dynamic Measurement Modeling*. Poster presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Grajzel, K.\* Dumas, D., & Berthiaume, K.\* (April, 2022). *Time Spent on Task Positively Predicts Creative Quality of Responses for Elementary Students*. Roundtable talk to be presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Dumas, D. (Discussant; August, 2021). *Looking for Growth: Modeling Learning Progress Data*. Symposium conducted at the Biennial Meeting of the European Association for Research on Learning and Instruction, Conducted Virtually.

Dumas, D., Organisciak, O., & Doherty, M. (June, 2021). *A Text-Mining Approach to Measuring Creativity*. Paper presented at the annual meeting of the National Council for Measurement in Education, Baltimore, MD.

Dong, Y.\* & Dumas, D. (2021, April). *Development of a Person-fit Statistic for Dynamic Measurement Modeling*, Paper presented at the annual meeting of the National Council for Measurement in Education, Baltimore, MD.

Dong, Y\*, Dumas, D., Clements, D. H., Sarama, J., Banse, H. W., & Day-Hess, C. A. (2021, April). *Measuring Strategic Diversity in Classrooms*, Paper presented at the annual meeting of the National Council for Measurement in Education, Baltimore, MD.

Dumas, D., McNeish, D., Roberts, G. J. (2021. April). *Conceptualizing a Nonlinear Meta-Analysis for Education Research*. AERA Annual Meeting, Virtual Presence.

Dumas, D, Dong, Y.\* & Doherty, M. (2021, April). *The influence of creative expertise on the sensitivity and selectivity of analogical reasoning*, AERA Annual Meeting, Virtual Presence.

Dong, Y. \*, Clements, D. H., Dumas, D., Sarama, J., Banse, H. W., & Day-Hess, C. A. (2021, April). *Classroom strategy diversity and student growth in early mathematics: A multigroup latent growth analysis*. AERA Annual Meeting, Virtual Presence.

Clements, D. H., Dumas, D., Dong, Y. \*, Banse, H. W., Sarama, J. & Day-Hess, C. A. (2021, April). *Exploring relations between classroom-level strategic diversity and achievement in early mathematics*. AERA Annual Meeting, Virtual Presence.

Dong, Y. \*, Clements, D. H., Sarama, J., Dumas, D., Banse, H. W., & Day-Hess, C. A. (2021, April). *Homogeneity of relations between mathematics and executive function competencies in the context of an intervention*. AERA Annual Meeting, Virtual Presence.

Dumas, D., Organisciak, O. Doherty, M. (September, 2020). *Text Mining in Educational Research: Demonstrating Language Models for Measuring Creativity*. Paper 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*. Paper 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*. 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 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 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 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 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 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 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 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

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**SOFTWARE**

Dong, Y., Baral, D.\*, Baral, K.\* & Dumas, D (2025). Pareto Optimization (PO) Run R Package and Shiny App [Computer software]. ShinyApps.io. <https://paretooptimization.shinyapps.io/Pareto/>

McNeish, D., & Dumas, D. (2024). RelRep: An R Package and Shiny App for Determining the Representativeness of Coefficients Alpha or Omega. [Computer Software] <https://dynamicfit.app/RelRep/>.

Organisciak, P., Dumas, D., Acar, S., & de Chantal, P. L. (2021-2024). Open Creativity Scoring [Computer software]. Denver, CO: University of Denver. <https://openscoring.du.edu>.

## **PSYCHOLOGICAL ASSESSMENTS**

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Acar, S., Dumas, D., Organisciak, P. Berthiaume, K. (2024) *Measure of Original Thinking in Elementary School (MOTES)*. University of North Texas. <https://motes.unt.edu/index.html>

Alexander, P. A., Dumas, D., Grossnickle, E. M., List, A., & Firetto, C. M. (2016). *Test of Relational Reasoning (TORR)*. APA PsycTests. <https://doi.org/10.1037/t51675-000>

## **WORKSHOPS CONDUCTED**

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Dumas, D., & McNeish, D. (August, 2025). *RelRep: Demonstrating a Shiny App for Reporting the Representativeness of Alpha or Omega Reliability*. Workshop to be taught at the biennial meeting of the European Association for Research on Learning and Instruction, Graz, Austria.

Dumas, D. (August, 2025). *The Measure of Original Thinking in Elementary Students: A Hands-On Demonstration*. Demonstration conducted at the Hannover Creativity Assessment Workshop, Hannover, Germany.

Dumas, D. (July, 2024). *Open Creativity Scoring: Freeware for Psychological Assessment*. Workshop taught at Beijing Normal University, Beijing, China.

Dumas, D., Organisciak, P., & Acar, S. (August, 2023). *A Demonstration and Tutorial of Open Creativity Scoring: Freeware for Educational Researchers*. Workshop taught at the biennial meeting of the European Association for Research on Learning and Instruction, Thessaloniki, Greece.

Dumas, D., Organisciak, P., & Acar, S. (April, 2023). *Measuring Children's Originality with an Open-Access Automated Platform*. Workshop taught at annual Creativity Research Conference, Ashland, OR.

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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Introductory Research Methods (Graduate Level) *University of Georgia*

Creativity Assessment (Graduate Level) *University of Georgia*

Creativity Theory (Graduate Level) *University of Georgia*

Psychology of Creativity (Undergraduate Level) *University of Georgia*

Item Response Theory (Graduate Level) *University of Denver*

Factor Analysis (Graduate Level) *University of Denver*

Introduction to Psychometric Theory (Graduate level) *University of Denver*

Human Learning (Graduate level) *Howard University*

Advanced Measurement and Evaluation (Graduate level) *Howard University*  
 Human Development (Undergraduate level) *University of Maryland, College Park*  
 4<sup>th</sup> Grade Summer Teacher *AmeriCorps*

## **EDITORIAL AND REVIEW EXPERIENCE**

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### **Associate Editor**

1. *Thinking Skills and Creativity* (2022-2024)
2. *Applied Cognitive Psychology* (2019-2022)

### **Guest Editor**

1. *Journal of Educational Psychology* (2025)

### **Current Editorial Board Member**

1. *Contemporary Educational Psychology*
2. *Journal of Creative Behavior*
3. *Journal of Educational Psychology*
4. *Thinking Skills and Creativity*

### **Former Editorial Board Membership**

1. *Review of Educational Research* (2019-2024)

### **Ad Hoc Reviewer**

1. *Educational Psychologist*
2. *Learning and Individual Differences*
3. *Educational Psychology Review*
4. *Learning and Instruction*
5. *Journal of Engineering Design*
6. *Creativity Research Journal*
7. *Psychology of Aesthetics, Creativity, and the Arts*
8. *British Journal of Educational Psychology*
9. *Child Development*

## **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

International Society for the Science of Creativity and Innovation