JOSEPH A. COLANTONIO, Ph.D.

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CURRENT EMPLOYMENT

Postdoctoral Fellow, Graduate School of Education — August 2023 – *present*
Harvard University, Cambridge, MA
Principal Investigator: Elizabeth Bonawitz

EDUCATION

PhD in Psychology, Concentration in Cognition & Development — 2018 – 2023
Rutgers University, Newark, NJ USA
Committee: Elizabeth Bonawitz (*Advisor*), Garvin Brod, William Graves, Vanessa LoBue, Kimele Persaud
Thesis: *Bayesian Models of Children's Belief Revision, Pupillary-Surprise Response, and Executive Function When Generating Predictions in Science Learning*

M.A. in Psychology — 2018 - 2021
Rutgers University, Newark, NJ USA

Non-Matriculating Graduate Student in Psychology — 2016 - 2018
Rutgers University, Newark, NJ USA

B.A. in Applied Mathematics, *Summa Cum Laude* — 2012 - 2016
Minors in Physics & Psychology
Jointly awarded by Rutgers University and New Jersey Institute of Technology, Newark, NJ USA

FELLOWSHIPS & AWARDS

Dean's Dissertation Completion Fellowship — 2022 - 2023
Rutgers University-Newark

Graduate Liaison & Executive Board Member — 2020 - 2022
Psi Chi National Honor Society, Rutgers University-Newark

Graduate Research Fellowship Honorable Mention — 2020
National Science Foundation

Minority Biomedical Research Support Program — 2018 - 2020
National Institutes of Health

Graduate Student Diversity Travel Award — 2019
Cognitive Development Society

Graduate Student Travel Award — 2018, 2023
Society for Philosophy and Psychology

Post-Baccalaureate Research Experience Program Grant — 2016 - 2018
Rutgers University-Newark

Charles Pine Award - Mathematics & Physical Sciences — 2016
Rutgers University-Newark

Dean's List — 2012 - 2016
Rutgers University-Newark

Undergraduate Biomedical Research Support Grant — 2015 - 2016
National Institutes of Health

Dan and Lisa DiFilippo Endowed Scholarship — 2015 - 2016
Rutgers University-Newark

Phi Beta Kappa — 2015
Rutgers University-Newark

Garden State-Louis Stokes Alliance for Minority Participation — 2014
Rutgers University-Newark

Arthur B. Newman Honors College Scholarship — 2013 - 2016
Rutgers University-Newark

PUBLICATIONS & MANUSCRIPTS

*Capital **C** notes lead role in computational aspect (machine learning & modeling, web/app development, etc.)*
Asterisk (*) notes joint first-authorship & equal contribution

Accepted & Forthcoming

[C]**Colantonio, J.,** Bass, I., Rafetseder, E., Mackey, A., & Bonawitz, E. (2025, *accepted*). Computational Approaches Reveal Developmental Shifts in Exploratory Play. Preprint repository available at https://osf.io/agyju/?view_only=62c27a0372474e93a0f5a7c05ceaafb5**.**

Brod, G., Holstein, E., Weindorf, L., [C]**Colantonio, J.,** Bonawitz, E., & Theobald, M. (2025, accepted). Do it Yourself: Discerning the Effects of Self-Directed Activity on Concept Learning. Preprint repository available at https://osf.io/ktxdv/metadata/osf.

In Review

Holstein, E., Theobald, M., [C]**Colantonio, J.,** Bonawitz, E., & Brod, G. (*in review*). Does generating predictions promote complex, conceptual change?.

*Park, A., ***Colantonio, J.,** Reyes, L. D., Sharp, S., Bonawitz, E., & Mackey, A. (*in review*). Question asking practice fosters curiosity in young children.

Published

Bass, I., [C]**Colantonio, J.,** Aboody, R., Wong, M., Ullman, T., & Bonawitz, E. (2025). Children's sensitivity to automatic behavior relates to pedagogical reasoning and Theory of Mind. *Frontiers in Developmental Psychology*, *3*, 1574528.

[C]**Colantonio, J.,** Bascandziev, I., Theobald, M., Brod, G., & Bonawitz, E. (2024). Predicting Learning: Understanding the Role of Executive Functions in Children's Belief Revision Using Bayesian Models. *Topics in Cognitive Science*.

Theobald, M., [C]**Colantonio, J.,** Bascandziev, I., Bonawitz, E., & Brod, G. (2024). Do reflection prompts promote children's conflict monitoring and revision of misconceptions?. *Child Development*, *95*(4), e253-e269.

[C]**Colantonio, J.,** Bascandziev, I., Theobald, M., Brod, G., & Bonawitz, E. (2023). Seeing the Error in My "Bayes": A Quantified Degree of Belief Change Correlates with Children's Pupillary Surprise Responses Following Explicit Predictions. *Entropy*, *25*(2), 211.

[C]**Colantonio, J.,** Bascandziev, I., Theobald, M., Brod, G. and Bonawitz, E. (2022) Priors, Progressions, and Predictions in Science Learning: Theory-Based Bayesian Models of Children's Revising Beliefs of Water Displacement. *IEEE Transactions on Cognitive and Developmental Systems*.

***Colantonio, J.,** *Durkin, K., Caglar, L. R., Shafto, P., & Bonawitz, E. (2021). The intentional selection assumption. *Frontiers in psychology*, *12*, 569275.

Kominsky, J. F., Begus, K., Bass, I., **Colantonio, J.,** Leonard, J. A., Mackey, A. P., & Bonawitz, E. (2021). Organizing the methodological toolbox: Lessons learned from implementing developmental methods online. *Frontiers in Psychology*, *12*, 702710.

Persaud, K., Bass, I., **Colantonio, J.,** Macias, C., & Bonawitz, E. (2020). Opportunities and challenges integrating resource-rational analysis with developmental perspectives. *Behavioral and Brain Sciences*, *43*.

Refereed Conference Proceedings

*__Colantonio, J.,__ *Park, A., Reyes, L. D., Sharp, S., Koepp, A. E., Bonawitz, E., & Mackey, A. (2025). Question asking practice fosters curiosity in young children. [Paper, Talk]. American Educational Research Association (AERA), Denver, Colorado, USA.

Colantonio, J., & Bonawitz, E. (2018) Awesome play: Awe increases preschoolers exploration and discovery. In Kalish, C., Rau, M., Zhu, J., & Rogers, T.T. (Eds.) *Proceedings of the 40th Annual Conference of the Cognitive Science Society.* Madison, WI: Cognitive Science Society.

PRESENTATIONS

Invited Presentations & Lectures

Colantonio, J., Bascandziev, I., Theobald, M., Brod, G. and Bonawitz, E. "*Predictive Potentials & Explaining Events: Neural Correlates and Learning Mechanisms of Prediction and Explanation Prompts in Early Childhood Science Learning ,*" Invited Presentation for Laboratory for Developmental Studies Seminar. Psychology Department, Harvard University, Cambridge, MA. (March 4th, 2024)

Colantonio, J., Bascandziev, I., Theobald, M., Brod, G. and Bonawitz, E. "*The Power of Prediction: Understanding Children's Mental Models, Surprise, and Executive Function for Revision of Water Displacement Beliefs*," Invited Presentation for Laboratory for Developmental Studies Seminar. Psychology Department, Harvard University, Cambridge, MA. (March 6th, 2023)

Colantonio, J. Invited Guest Presentation for graduate course "*Behavioral Methods in Developmental Learning Research*". Harvard Graduate School of Education, Harvard University, Cambridge, MA. (April 6th, 2023)

Colantonio, J. Invited Guest Presentation for graduate course "*Behavioral Methods in Developmental Learning Research*". Harvard Graduate School of Education, Harvard University, Cambridge, MA. (March 9th, 2023)

Conference Talks

Colantonio, J., Park, A., Delgado Reyes, L., Sharp, S., Koepp, A. E., Bonawitz, E. and Mackey, A. (2025) "*Question asking practice fosters curiosity in young children.*," Session paper presented at the American Educational Research Association (AERA), Denver, Colorado, USA)

Colantonio, J., Park, A., Delgado Reyes, L., Sharp, S., Bonawitz, E. and Mackey, A. (2022) "*Science Training That Encourages Question Asking Increases Young Children's Valuation of New Information*," Symposium paper presented at the Association for Psychological Science, Illinois, USA.)

Colantonio, J., Bascandziev, I., Theobald, M., Brod, G. and Bonawitz, E. (2022) "*Theory-Based Bayesian Models of Elementary School Children's Belief Revision Pupillary Surprise during Science Learning,"* Symposium paper presented at the Cognitive Development Society, Wisconsin, USA.)

Colantonio, J., Bascandziev, I., Theobald, M., Brod, G. and Bonawitz, E. (2021) "*Theory-Based Bayesian Models of Elementary School Children's Pupillary Surprise*," Symposium paper presented at Society for Research in Child Development, Wisconsin, USA. Conference held virtually due to COVID-19)

Colantonio, J., Sharp, S., Mackey, A., and Bonawitz, E. (2021) "*Promoting Question Asking to Foster Curiosity: An Intervention Study,"* Symposium paper presented at Society for Research in Child Development, Wisconsin, USA. Conference held virtually due to COVID-19)

Colantonio, J., and Bonawitz, E. (2019) "*Affecting play: Awe increases preschooler's exploration and discovery*," Lightning Talk presented at the Curiosity, Explanation, Exploration Workshop, Princeton, New Jersey, USA.

Colantonio, J., Walden, Z., Dehrone, T., and Bonawitz, E. (2019) "*When Innovators Succeed: Empowerment Strategies Increase Preschoolers' Exploration*," Speed Talk presented at the Play and Learning Conference, Newark, USA.

Colantonio, J., and Bonawitz, E. (2019) "*Affecting play: Awe increases preschooler's exploration and discovery*," Talk presented at the Society for Research in Child Development, Baltimore, Maryland, USA.

Colantonio, J., and Bonawitz, E. (2018) "*Affecting play: Awe increases preschooler's exploration and discovery,"* Talk presented at the Society for Philosophy and Psychology, Ann Arbor, Michigan, USA.

K. Blacker, **Colantonio, J.,** LoBue, V., and Bonawitz, E. (2017) "*Reasoning about the process of illness transmission improves preschoolers' later avoidance of sick individuals*," Talk presented at the Society for Research in Child Development., Austin, Texas, USA.

Posters

Colantonio, J., Theobald, M., Bascandziev, I., Brod, G. and Bonawitz, E. (2023) "*The Power of Prediction: Understanding Children's Mental Models, Surprise, and Executive Function for Revision of Water Displacement Beliefs*," Poster session presented at the 49th Annual Meeting of the Society for Philosophy and Psychology, Pittsburgh, Pennsylvania, USA.

Colantonio, J., Bascandziev, I., Theobald, M., Brod, G. and Bonawitz, E. (2020) "*Modeling pupillary surprise response in elementary school children with theory-based Bayesian models*," Poster session presented at the 42nd Annual Conference of the Cognitive Science Society, Toronto, Canada. (Conference held virtually due to COVID-19)

Colantonio, J., Walden, Z., Dehrone, T., and Bonawitz, E. (2019) "*When Innovators Succeed: Empowerment Strategies Increase Preschoolers' Exploration*," Poster session presented at the 10th Biennial Meeting of the Cognitive Development Society, Kentucky, USA.

Colantonio, J., Walden, Z., Dehrone, T., and Bonawitz, E. (2018) "*When Innovators Succeed: Empowerment Strategies Increase Preschoolers' Exploration*," Poster session presented at the Guided Playful Workshop of the 41st Annual Conference of the Cognitive Science Society, Montreal, Canada.

Colantonio, J., and Bonawitz, E. (2018) "*Awesome play: Awe increases preschooler's exploration and discovery*," in Proceedings of the 40th Annual Conference of the Cognitive Science Society. Madison, Wisconsin, USA.

Durkin, K., **Colantonio, J.,** Caglar, L., Bonawitz, E., and Shafto, P. (2017) "*Why are these my options? Roles of social inferences in choice behavior*," Poster session presented at the 10th Biennial Meeting of the Cognitive Development Society, Portland, Oregon, USA.

Durkin, K., **Colantonio, J.,** Caglar, L., Bonawitz, E., and Shafto, P. (2017) "*Why are these my options? Roles of social inferences in choice behavior*," Poster session presented at the 43rd Annual Meeting of the Society for Philosophy and Psychology, Baltimore, Maryland, USA.

TEACHING EXPERIENCE

Teaching Fellow
Workshop: *Computational Cognitive Models of Learning and Development* — May 2023
Organizers: Elizabeth Bonawitz, Kimele Persaud, Tomer Ullman
Harvard University, Cambridge, MA

Teaching Fellow
M.A. Course: *Curiosity and Creativity in Learning and Development* — Fall 2021
Graduate School of Education, Harvard University, Cambridge, MA

Graduate Teaching Assistant
B.A. Courses: *Statistical Methods for the Cognitive and Behavioral Sciences, Research Methods for the Cognitive and Behavioral Sciences* — 2020 – 2022
Psychology Department, Rutgers-Newark

Course Coadjutant
B.A. Courses: *Developmental Psychology, Psychology of Language* — 2020 – 2021
Psychology Department, Rutgers-Newark

Peer-led Instructional Team Leader
B.A. Courses: *Calculus I, Calculus II, Linear Algebra, Computers & Programming I, Programming II* — 2015 – 2016
Garden State-Louis Stokes Alliance for Minority Participation, Rutgers-Newark

Undergraduate Teaching Apprentice
Precalculus — 2014
Mathematics Department, Rutgers-Newark

MENTORSHIP

***M** indicates through Minerva University Work Study*
***S** indicates stipend/scholarship awarded*
Names of current students in bold

Harvard University

Master's Students (Current & Alumni)

Chihuiye (Hedy) Chen	Jin (Jean) Li Lim	Yuhan Shi
Anna Taylor	Xi (Nadia) Wang	**Isminur Yilar**
Jenna Weinhofer	Yihan Shi	Iris Jeffries
Evelyn Li	Xiao (Zoe) Feng	Yiran Du

Full-Time Undergraduate Interns

Nina Baroin[S]	Jeeya Patel[S]	Divya Sundar[S]

Undergraduate Honors Thesis Students

Kate Fourie[M]

Undergraduate Research Assistants

Michael Sheehan[S] — Syeda Abeera Amir[M]
Damla Yesil — Oliwia Zawadzka[M]

Rutgers University-Newark

Undergraduate Honors Thesis Students

Umradha Shievkumar[S]

Undergraduate Research Assistants

Akshaya Sridharan	Bassem Rezkalla	Diksha Patel
Jazmin Carchi	Jillian Brandmaier	Leeza Camilo
Ludeline Jean	Naa Adei Kotey	Parthenia Bogdady
Sarah Hamoud	Srita Chintapalli	Yossy Montecinos

NEWS & SOCIAL MEDIA

Child Trends News Service - Positive Parenting News Network
The Power of Awe Sparks Learning 2020
Child & Family Blog
A New Idea For Early Learning In Pre-Schoolers: Inspire Them With Awe 2019

SKILLS & TOOLS

Programming Languages	Python, R, SQL, CSS, HTML, Javascript
Development Tools	Flask, Heroku Web Services, Jupyter/INotebooks
Computational Modeling	Bayesian Learning Models, Classification Tools, Markov Decision Models
Research Design & Analysis	OSF, SPSS, Qualtrics, Adobe Photoshop