

**JOSEPH A. COLANTONIO, Ph.D.**[colantoniojoseph@gmail.com](mailto:colantoniojoseph@gmail.com)website: <https://colantoniolearn.github.io/><http://www.linkedin.com/in/josephcolantonio>**CURRENT EMPLOYMENT****Postdoctoral Fellow**, Graduate School of Education**Harvard University**, Cambridge, MA

Advisor: Elizabeth Bonawitz

August 2023  
– present**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**

Rutgers University, Newark, NJ USA

2018 - 2021

Non-Matriculating Graduate Student in Psychology

Rutgers University, Newark, NJ USA

2016 - 2018

**B.A. in Applied Mathematics, Summa Cum Laude**

Minors in Physics &amp; Psychology

Jointly awarded by Rutgers University and New Jersey Institute of Technology,  
Newark, NJ USA

2012 - 2016

**FELLOWSHIPS & AWARDS**

Dean's Dissertation Completion Fellowship

*Rutgers University-Newark*

2022 - 2023

Graduate Liaison &amp; Executive Board Member

*Psi Chi National Honor Society, Rutgers University-Newark*

2020 - 2022

Graduate Research Fellowship Honorable Mention

*National Science Foundation*

2020

Minority Biomedical Research Support Program

*National Institutes of Health*

2018 - 2020

Graduate Student Diversity Travel Award

*Cognitive Development Society*

2019

Graduate Student Travel Award

*Society for Philosophy and Psychology*

2018, 2023

Post-Baccalaureate Research Experience Program Grant

*Rutgers University-Newark*

2016 - 2018

Charles Pine Award - Mathematics &amp; Physical Sciences

*Rutgers University-Newark*

2016

Dean's List <i>Rutgers University-Newark</i>	2012 - 2016
Undergraduate Biomedical Research Support Grant <i>National Institutes of Health</i>	2015 - 2016
Dan and Lisa DiFilippo Endowed Scholarship <i>Rutgers University-Newark</i>	2015 - 2016
Phi Beta Kappa <i>Rutgers University-Newark</i>	2015
Garden State-Louis Stokes Alliance for Minority Participation <i>Rutgers University-Newark</i>	2014
Arthur B. Newman Honors College Scholarship <i>Rutgers University-Newark</i>	2013 - 2016

## PUBLICATIONS & MANUSCRIPTS

\* notes equal contribution

### In Review & In Prep

**Colantonio, J.**, Bass, I., Rafetseder, E., Mackey, A., & Bonawitz, E. (*in review*). Computational Approaches Reveal Developmental Shifts in Exploratory Play.

Brod, G., Holstein, E., Weindorf, L., **Colantonio, J.**, Bonawitz, E., & Theobald, M. (*in review*). Do it Yourself: Discerning the Effects of Self-Directed Activity on Concept Learning.

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

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

### Published & Forthcoming

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

**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., **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.

**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.

**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

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### 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 Coadjutor

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 Apprentices**

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<sup>S</sup>****Jeeya Patel<sup>S</sup>**Divya Sundar<sup>S</sup>**Undergraduate Honors Thesis Students**Kate Fourie<sup>M</sup>**Undergraduate Research Assistants**Michael Sheehan<sup>S</sup>Syeda Abeera Amir<sup>M</sup>

Damla Yesil

Oliwia Zawadzka<sup>M</sup>**Rutgers University-Newark****Undergraduate Honors Thesis Students**Umradha Shievkumar<sup>S</sup>**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

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### 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

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### *Programming Languages*

CSS, HTML, Javascript, LATEX, Python, R, SQL

### *Computational Modeling*

Bayesian Learning Models, Classification Tools, Markov Decision Models

### *Development Tools*

Adobe Photoshop, Docker, Flask, Git/Github, Heroku Web Services, Jupyter/INotebooks, Qualtrics

### *Research & Analysis*

OSF, SPSS