

# JOSEPH A. COLANTONIO II

Curriculum Vitae updated September 1<sup>st</sup>, 2024

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## EMPLOYMENT

**Postdoctoral Fellow**, Graduate School of Education

**Harvard University**, Cambridge, MA

August 2023 – present

Advisor: Elizabeth Bonawitz

## EDUCATION

**PhD in Psychology**, Concentration in Cognition

**Rutgers University**, Newark, NJ USA

Committee: Elizabeth Bonawitz (Advisor), Garvin Brod, William Graves, Vanessa LoBue, Kimele Persaud

2018 - 2023

*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 & 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 & 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 <i>Rutgers University-Newark</i>	2016 - 2018
Charles Pine Award - Mathematics & Physical Sciences <i>Rutgers University-Newark</i>	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*

### *Journal Articles*

**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*.

**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.

### ***In prep & Submitted***

Brod, G., Holstein, E., Weindorf, L., **Colantonio, J.**, Bonawitz, E., & Theobald, M. (*in prep*). 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 revision*). Question asking practice fosters curiosity in young children.

### ***Refereed Conference Proceedings***

**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**

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### ***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., 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.,** Bascandzief, 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., Bascandzief, 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.,** Bascandzief, 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

### **Teaching Fellow**

Workshop: <i>Computational Cognitive Models of Learning and Development</i>	May
Organizers: Elizabeth Bonawitz, Kimele Persaud, Tomer Ullman	2023
Harvard University, Cambridge, MA	

### **Teaching Fellow**

M.A. Course: <i>Curiosity and Creativity in Learning and Development</i>	Fall 2021
Graduate School of Education, Harvard University, Cambridge, MA	

### **Graduate Teaching Assistant**

B.A. Courses: <i>Statistical Methods for the Cognitive and Behavioral Sciences, Research Methods for the Cognitive and Behavioral Sciences</i>	2020 – 2022
Psychology Department, Rutgers-Newark	

### **Course Coadjutant**

B.A. Courses: <i>Developmental Psychology, Psychology of Language</i>	2020 – 2021
Psychology Department, Rutgers-Newark	

### **Peer-led Instructional Team Leader**

B.A. Courses: <i>Calculus I, Calculus II, Linear Algebra, Computers &amp; Programming I, Programming II</i>	2015 – 2016
Garden State-Louis Stokes Alliance for Minority Participation, Rutgers-Newark	

### **Undergraduate Teaching Apprentice**

Precalculus	2014
Mathematics Department, Rutgers-Newark	

## MENTORSHIP

### **Harvard University Graduate School of Education**

#### **Master’s Students**

Yiran Du, Evelyn Li, Iris Jeffries, Xiao (Zoe) Feng, Yihan Shi, Isminur Yilar

### **Undergraduate Honors Thesis Students**

Kate Fourie

### **Undergraduate Research Assistants**

Syeda Abeera Amir, Jeeya Patel, Michael Sheehan, Divya Sundar, Damla Yesil, Oliwia Zawadzka

## **Rutgers University-Newark**

### **Undergraduate Honors Thesis Students**

Umradha Shievkumar

### **Undergraduate Research Assistants**

Akshaya Sridharan, Aryanah Solano, 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**

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### **Programming**

Python, HTML, CSS, Javascript, LATEX, Github

### **Software**

Adobe Photoshop, SPSS, Qualtrics, Atom, Jupyter/INotebooks, Microsoft Office