

EDUCATION

- Postdoctoral Fellow**, Center for Teaching & Learning, Yale University August, 2016
- Ph.D., Cognitive Psychology**, University of Pittsburgh August, 2016
Dissertation: Examining motivational shifts in middle school: What deepens science motivation and what attenuates its decline?
Committee: Christian Schunn, Kevin Crowley, Tim Nokes-Malach, Ming-Te Wang
- M.A., Experimental Psychology**, University of Massachusetts, Dartmouth, North Dartmouth, MA. 2011
- B.A.**, Psychology, Rhode Island College, Providence, RI. 2006
- B.A.**, Philosophy, Rhode Island College, Providence, RI. 2006

JOURNAL PUBLICATIONS

- Bathgate, M.E.**, & Schunn, C.D. (in press). Disentangling intensity from breadth of science interest. *Instructional Science*.
- Wardrip, P.S., Abramovich, S., **Bathgate, M.E.**, & Kim, Y.J. (in press). A school-based badging system and interest-based learning: An exploratory case study. *International Journal of Learning & Media*.
- Wardrip, P.S., Abramovich, S., Kim, Y.J. & **Bathgate, M.E.** (2016). Taking badges to school: A school-based badge system and its impact on participating teachers. *Computers & Education*.
- Bathgate, M.E.**, Crowell, A.J., Cannady, M., Dorph, R. & Schunn, C.D. (2015). The learning benefits of being willing and able to engage in scientific argumentation. *International Journal of Science Education*. DOI: 10.1080/09500693.2015.1045958
- Sha, L., Schunn, C.D., **Bathgate, M.E.**, & Ben-Eliyahu, A. (2015). Families support their children's success in science learning by influencing interest and self-efficacy. *Journal of Research in Science Teaching*. DOI: 10.1002/tea.21251
- Sha, L., Schunn, C.D., & **Bathgate, M.E.** (2015). Measuring choice to participate in optional science learning experiences during early adolescence. *Journal of Research in Science Teaching*, 52(5), 686-709. DOI: 10.1002/tea.21210
- Bathgate, M.E.**, Schunn, C.D., & Correnti, R. (2013). Children's motivation towards science across contexts, manner-of-interaction, and topic. *Science Education*, 98(2), 189-215.
- Bathgate, M.E.**, Sims-Knight, J.E., & Schunn, C.D. (2012). Thoughts on thinking: Engaging novice music students in metacognition. *Applied Cognitive Psychology*, 26(3), 403-409.
- Bathgate, M.E.** & Schunn, C.D. (in review). Key characteristics of science learning experiences: Influences of engagement and perceived success on science motivation and content learning.
- Bathgate, M.E.** & Schunn, C.D. (in review). Exploring motivational shifts in middle school: What deepens science utility value and what attenuates its decline?

- Sha, L., Schunn, C.D., & **Bathgate, M.E.** (in review). The roles of interest, self-efficacy, and effort regulation dispositions of self-regulated learning in predicting choice and engagement in science learning.
- Sha, L., Schunn, C.D., **Bathgate, M.E.**, & Ben-Eliyahu, A. (in review). Why do middle school students move towards or away from science? The role of motivation in activating science learning.
- Sha, L. Schunn, C.D., **Bathgate, M.E.**, & Ben-Eliyahu, A. (in review). The consequences of early choice preferences and engagement on the development of interest and self-efficacy in science.
- Bathgate, M.E.**, Stander, L.E., & Schunn, C.D. (in preparation). What do you mean by art?: Exploring middle-school students' perceptions and breadth of interest in art.
- Bathgate, M.E.** & Schunn, C.D. (in preparation). Collaborating across contexts: A case-study of a multi-cited, cross-discipline youth program.

BOOK CHAPTER

- Bathgate, M.E.**, & Schunn, C.D. (2013). Exploring and encouraging metacognitive awareness in novice music students. M. Stakelum (Ed.), *Developing the Musician*. UK: Ashgate.

ADDITIONAL PRESS

- Ballard, M. (2015). Children's responses to science across settings: An ISE research brief discussing **Bathgate**, Schunn, & Correnti, "Children's motivation towards science across contexts, manner of interaction, and topic." Retrieved from <http://relatingresearchtopractice.org/article/437>
- Moore, D. W., **Bathgate, M. E.**, Chung, J., & Cannady, M. A. (2013). Measuring and Evaluating Science Learning Activation. *Dimensions*, November/December 2013.
- Moore, D. W., **Bathgate, M. E.**, Chung, J., & Cannady, M. A. (2013). Technical report: Measuring activation and engagement. (Available from the Science Learning Activation Lab website http://www.activationlab.org/wp-content/resources/aera2013/aera_research/AERA_2013_0_1_ALES2011_TechReport.pdf).

GRANTS

- Badge Initiative Research Program, Research award from Covenant Foundation, Co-PI, May 2013 - July 2014, \$9,888
- Badge Initiative Research Program, Research award from Covenant Foundation, Co-PI, May 2012 - July 2013, \$5,288

ADVANCED STATISTICAL TRAINING & SOFTWARE KNOWLEDGE

- Experienced in the following analysis: Factor Analysis (EFA/CFA), ANOVA, Regression (e.g., Multiple, logistic, multinomial logistic), Hierarchical Linear Modeling (HLM), Item Response Theory (IRT)
- Statistical software knowledge in the following: SPSS, HLM 7.0, MPLUS, IRTPRO, Dedoose & advanced Excel use

MEASUREMENT DEVELOPMENT

I developed the following measures using cognitive interviews, refined them via pilot studies, and validated them through the use of exploratory factor analyses (EFA), confirmatory factor analyses (CFA), and item response-theory (IRT). I am now using these measures with a data set of roughly 3,000 middle and high school students in a longitudinal study. The measures were designed for use with adolescent learners in both in-school and out-of-school environments.

Science Learning Activation

- Includes motivational (Fascination, Values, Competency Beliefs) and scientific reasoning (Scientific Sensemaking) dimensions

Activation Engagement Survey

- Measuring learners' affective, behavioral, and cognitive engagement

Perceived Success

- Measures learners' perceptions of how well they performed on a given activity

NATIONAL & INTERNATIONAL CONFERENCE PRESENTATIONS

Bathgate, M.E. (April, 2016). *Forms of engagement during science learning that instill fascination in science*. Poster presented in structured symposium: *Critical science dispositions and skills that evolve in the middle school years* at the American Education Research Association (AERA) annual conference, Washington, DC.

Abramovich, S., Wardrip, P.S., **Bathgate, M.E.**, & Kim, Y.J. (April, 2014). *The maturation of a badge system to support interest based learning: A case study*. Presented at the symposium: *Innovating Education Practice through Digital Badges: Recent Research, Current Practices, and Future Directions* at the American Education Research Association (AERA) annual conference, Philadelphia, PA.

Bathgate, M.E., Tuninetti, A., & Schunn, C.D. (April, 2014). *Stepping-stones or Dead-ends: Understanding and Developing Learning Pathways Across Science Programs in an Urban Setting*. Paper presented at National Association for Research in Science Teaching (NARST), Pittsburgh, PA.

Bathgate, M.E., Crowell, A.J., Nagy-Catz, K., & Schunn, C.D. (June, 2013). Adolescent perceptions of purposes and risks of discourse impact middle school learning. Talk presented at the 43rd Jean Piaget Society annual meeting, Chicago, IL.

Moore, D.W., Chung, J., & **Bathgate, M.E.** (April, 2013). *The combined use of CFA and IRT improves the measurement of Science Learning Activation*. Poster presented in structured symposium: *Science Learning Activation: Positioning Youth for Persistent Success in Science Learning, Literacy, and Careers* at the American Education Research Association (AERA) annual conference, San-Francisco, CA.

Ben-Eliyahu, A. Sha, L., **Bathgate M.E.**, & Schunn, C.D. (April, 2013). *But what if I don't like science?: Gender differences in science engagement for youth*. Poster presented in structured symposium: *Science Learning Activation: Positioning Youth for Persistent Success in Science Learning, Literacy, and Careers* at the American Education Research Association (AERA) annual conference, San-Francisco, CA.

NATIONAL & INTERNATIONAL CONFERENCE PRESENTATIONS (Continued)

- Wardrip, P.S., Abramovich, S., **Bathgate, M.E.**, & Kim, Y.J. (April, 2013). *Power-ups and soft skills: An exploratory study of a school-based badging system*. Roundtable Symposium: Interventions in student learning, motivation, and behavior at the American Education Research Association (AERA) annual conference, San Francisco, CA.
- Abramovich, S., Wardrip, P.S., Higashi, R., & **Bathgate, M.E.** (March, 2013). *Gamification and learning: Does education need some 'stinking' badges?* Panel discussion at PAX-East. Boston, MA.
- Bathgate, M.E.**, Schunn, C.D., Sims-Knight, J. (September, 2012). "Because it makes me happy": *Investigating the motivation and learning strategies of adolescent musicians in less formal learning environments*. Poster presented at the SEMPRES conference in London September 15th, 2012.
- Bathgate, M.E.**, Schunn, C.D., Correnti, R., & Degol, J. (April, 2012). *Oceans vs. robots: Exploring the importance of topic effects in studying*. Poster presented in the structured symposium: *Activating Young Science Learners: Igniting Persistent Engagement in Science and Inquiry* at the American Education Research Association (AERA) annual conference, April, 2012.
- Sha, L., Schunn, C.D., & **Bathgate, M.E.** (April, 2012). *Activated science learners as self-regulated agents*. Poster presented in structured symposium: *Activating Young Science Learners: Igniting Persistent Engagement in Science and Inquiry* at the American Education Research Association (AERA) annual conference, April, 2012.
- Brahms, L., & **Bathgate, M.E.** (July, 2011). *Designing for museum-teacher communication: A consideration of epistemological and positional framing*. Poster presented at the 2011 Visitor Studies Association Conference (VSA).
- Bathgate, M.E.**, Brahms, L., Schunn, C., & Crowley, K. (June, 2011). *Capturing content and context effects on engagement with science learning*. Talk presented at the 41st Jean Piaget Society annual meeting.
- Dorph, R., Crowley, K., Schunn, C., Nagy-Catz, K., Lujan, V.B., Randol, S.M., Snow, J.Z., Werner-Avidon, M., **Bathgate, M.E.**, & Brahms, L. (April, 2011). *The Activated Science Learner: A theoretical framework for studying science learning opportunities for children*. Talk presented at the American Education Research Association (AERA) annual conference, April 12, 2011.
- Bathgate, M.E.**, Sims-Knight, J.E., & Schunn, C. (March, 2011). *Thoughts on thinking: Engaging novice music students in metacognition*. Poster presented at the Society for Education, Music and Psychology Research (SEMPRE), Reading, UK.

TEACHING EXPERIENCE

Instructor, Cognitive Psychology Lab	Fall, 2015
Teaching Assistant, Introduction to Cognitive Psychology, University of Pittsburgh	Spring, 2014
Guest Lecturer, Introduction to Cognitive Psychology University of Pittsburgh	Spring, 2014
Workshop presenter for New Teaching Assistant Orientation training (Topic: Testing & Grading), University of Pittsburgh.	Spring, 2013
Guest Lecturer, Cognitive Psychology, University of Pittsburgh	Fall, 2012
Guest Lecturer, Research Methods, University of Pittsburgh	Fall, 2012
Teaching Assistant, UMass, Dartmouth	
Statistics	Fall 2008, Fall 2009, Spring 2010
Perception	Spring 2009
Introduction to Psychology	Fall 2009
Research Methods	Fall 2008

MENTORSHIP & DIRECT INSTRUCTION

Tina Lui, Research Assistant, University of Pittsburgh	2012-2015
Emily Bareis, Research Assistant, University of Pittsburgh	2015
Heather Shafer, Research Assistant, University of Pittsburgh	2015
Lauren Stanler, Undergraduate Honor's Student, University of Pittsburgh, Thesis title: "What do you mean by art?: Exploring children's perception and breadth of interest towards art"	2013-2014
Amaro Tuninetti, Visiting Undergraduate Student, University of Virginia	2013-2014
Kathleen Chen, Research Assistant, University of Pittsburgh	2013-2014

AWARDS & SCHOLARSHIPS

Activation Lab Design Fellow , University of Pittsburgh	2013-2014
SEMPRE Conference Award , travel award from Society for Education, Music, and Psychology Research to present at the 40 th Anniversary Conference in London	2012
Teaching Assistant Scholarship , University of Massachusetts, Dartmouth	2008-2010
Thomas J. Howell Award , Philosophy Student of the Year	2008

JOURNAL REVIEWING

Science Education, Research in Science Education, International Journal of Science Education, National Association for Research in Science Teaching

DEPARTMENTAL SERVICE

Graduate Student Representative of the Cognitive Psychology department, University of Pittsburgh	2011-2012
Lab coordinator for Schunn & Nokes-Malach co-lab meetings	2011-2013
Secretary of the Philosophy Club, Rhode Island College. Co-initiated reorganization of the club in 2007.	2007-2008

DESIGN & EVALUATION WORK

- The Sprout Fund* 2013-2015
Assessed students' motivation towards STEAM across a range of informal programs throughout the Pittsburgh region; aided in designing a collaborative program to meet the needs of underserved youth
- Armory Center for the Arts* 2014-2015
In collaboration with the Lawrence Hall of Science at the University of California, Berkeley, I served an evaluation consultant examining the impact of an interdisciplinary art and science program on elementary students' motivation and engagement
- The Covenant Foundation* 2012-2014
Measured the impact of a middle-school badging initiative on students' motivation, choice, and identity
- Carnegie Museum of Art* 2010-2012
Designed and assessed the impact of a series of teacher-oriented workshops aimed at developing an interactive art museum exhibit