

CURRICULUM VITAE

CV SECTION 1: *EMPLOYMENT HISTORY/AWARDS*

Daniel J. Birmingham

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EDUCATION

- | | |
|------|--|
| 2013 | Ph.D. Curriculum, Teaching, and Education Policy, Michigan State University, East Lansing, MI. |
| 2006 | M.A. Elementary Education, University of Northern Colorado, Greeley, CO |
| 2003 | Post-baccalaureate Middle Grades Education, University of Northern Colorado, Greeley, CO. |
| 1998 | B.A. Political Economics, James Madison College, Michigan State University, East Lansing, MI. |

ACADEMIC POSITIONS

- | | |
|------------------|---|
| (2015 – present) | Assistant Professor, School of Education, Colorado State University |
| (2017 – present) | Program Chair, Education, Equity, & Transformation Ph.D., Colorado State University |
| (2013 – 2015) | Assistant Professor, School of Education, Loyola University Chicago |

OTHER POSITIONS

- | | |
|---------------|---|
| (2008 – 2011) | Teaching Assistant, School of Education, Michigan State University |
| (2009 – 2013) | Research Assistant, School of Education, Michigan State University |
| (2005 – 2008) | Middle School Science Teacher, Conrad Ball Middle School, Loveland, CO |
| (2007) | Upward Bound Instructor, Colorado State University, Fort Collins, CO |
| (2003 – 2005) | Middle School Science & Social Studies Teacher, University Schools, Greeley, CO |

CURRENT JOB DESCRIPTION

40% Teaching/Advising 35% Research 15% Service 10% Administration

HONORS AND AWARDS

- | | |
|------|---|
| 2014 | Outstanding Doctoral Research Award National Association for Research in Science Teaching (NARST), Pittsburgh, PA |
| 2013 | Graduate Student Completion Fellowship, Michigan State University, East Lansing, MI |
| 2012 | Summer Research Development Fellowship, Michigan State University, East Lansing, MI |
| 2011 | Outstanding Research Proposal, Cotterman Family Endowment for Education, East Lansing, MI |

CV SECTION 2: PUBLICATIONS/SCHOLARLY RECORD

PUBLISHED WORKS

- * Indicates publications with undergraduate or graduate students
Indicates publications with middle school or high school students

Books:

Timpson, W., B. Dunbar, G. Kimmel, B. Bruyere, P. Newman, H. Mizia, **D. Birmingham** & R. Harmon (2016) *147 Practical tips for teaching sustainability: Connecting the environment, the economy, and society*. Second Edition. Madison, WI: Atwood

Refereed Journal Articles:

Birmingham, D. & Calabrese Barton, A. (In Press). Science that matters: Teaching science with a commitment to community. *Science Scope*.

Calabrese Barton, A., Tan, E. & **Birmingham, D.** (2020). Re-thinking high leverage practices in justice-oriented ways. *Journal of Teacher Education*, 1-18.

* **Birmingham, D.**, Smetana, L., Rouleau, H. & Carlson, J. (2018). "I never thought of science as something like this": Incorporating an ecological perspective into science teacher learning. *Connected Science Learning*. <http://csl.nsta.org/2018/03/i-never-thought-of-science-as-something-like-this/>

Chang, A., Neugebauer, S & **Birmingham, D.** (2018). A critical race theory analysis of post-Ferguson critical incidents across ecological levels of academia. *Journal of Educational Controversy: An Interdisciplinary Journal of Ideas*. 12(1), <https://cedar.wvu.edu/jec/vol12/iss1/2>.

Birmingham, D., Calabrese Barton, A., McDaniel, A., Jones, J., Turner, C. & Rogers, A., (2017). "But the science we do here matters: Youth authored cases of consequential learning." *Science Education*. 101(5), 818-844.

* **Birmingham, D.**, Smetana, L. & Coleman, E. (2017). "From the beginning, I felt empowered": Altering elementary teacher candidates' identities and conceptions of science through authentic

inquiry participation. *Research in Science Education*. <https://doi.org/10.1007/s11165-017-9664-9>.

* Smetana, L., **Birmingham, D.**, Rouleau, H., Carlson, J., & Phillips, S. (2017). Cultural institutions as partners in initial elementary science teacher preparation. *Innovations in Science Teacher Education*. 2 (2). <http://innovations.theaste.org/publication/volume-2/issue-2-17/>

Gotwals, A. & **Birmingham, D.** (2015). Eliciting, identifying, interpreting and responding to students' ideas: Teacher candidates' growth in responsive teaching practices. *Research in Science Education*, 1-24.

Birmingham, D. & Calabrese Barton, A. (2014). Putting on a green carnival: Youth taking educated action on socioscientific issues. *Journal of Research in Science Teaching*, 51(3), 286-314.

Calabrese Barton, A. **Birmingham, D.** Sato, T., Tan, E. & Calabrese Barton, S. (2013). Youth as community science experts in green energy technologies. *Afterschool Matters*, 18, 25-32.

Birmingham, D., Pineda, B & Greenwalt, K. (2013). Undoing the divide: Teachers and teacher educators as multicitizens. *Teacher Education Quarterly*, 40 (1), 45-62.

Refereed Proceedings:

* Moraes, M., Folkstad, J. & **Birmingham, D.** (2019). Critical lens in learning analytics research: A systematic literature review. *Brazilian Symposium on Informatics in Education*.

Hagman, J., Basile, V., Birmingham, D., & Fosdick, B.K. (2018). Challenging the stigma of a small N: Experiences of students of color in Calculus I. *Proceedings of the 21st Annual Conference on Research in Undergraduate Mathematics Education*, (pp. 890-899). San Diego, CA.

Calabrese Barton, A., **Birmingham, D.** Tan, E. & Sato, T. (2014). Empowering under-represented middle school youth in engineering knowledge and productive identity work. *International Society of the Learning Sciences*.

Non-Refereed Journal Articles:

Calabrese Barton, A., Tan, E., **Birmingham, D.** & Turner, C. (2019). "How can we build on existing assets within a community?" Research Brief for the Center for the Advancement of Informal Science Education Broadening Participation Task Force. Retrieved from <http://informal-science.org/broadening-perspectives>.

Birmingham, D. (2016). Disorienting, fun or meaningful?: Looking beyond the boundaries of the museum. *Cultural Studies of Science Education*, 11(4), 953-958.

CONTRACTS & GRANTS

Externally Funded Projects as Investigator:

2015 **Birmingham, D.** (Supporting), Siller, T. (PI), Grant, “Preparing the Next Generation of Cross Disciplinary Trained STEM Teachers”, National Science Foundation, \$593,000, May, 2015 – current, Funded.

Internally Funded Awards:

2018 **Birmingham, D.** (PI), Grant, “Bridging Community and STEM Through Transformative Informal Learning Experiences”, TILT Service Learning Grant, Colorado State University, \$900, August, 2018 – June, 2018, Funded.

2017 Basile, V., **Birmingham, D.** (Co-PI), Gonzales, J., Aragon, A., Jennings, L., & Munoz, S.M. “Center for Racial Justice”, School of Education Grant supported by the College of Health and Human Sciences, \$25,000.

2016 **Birmingham, D.** (PI), Grant, “Bridging Community and STEM Through Transformative Informal Learning Experiences”, SOE Seed Grant, Colorado State University, \$5,000, September, 2016 – June 2016, Funded.

2015 **Birmingham, D.** (PI), Grant, “Bridging Community and STEM Through Transformative Informal Learning Experiences”, SOE Seed Grant, Colorado State University, \$9,000, September 2015 – June 2015, Funded.

2014 **Birmingham, D.** (PI), Grant, “Transferring Informal Learning Practices to School Science”, Summer Research Fellowship, Loyola University Chicago, \$6,000, May, 2014 – August, 2014, Funded.

2013 **Birmingham, D.** (PI). Grant, “Teaching Learning from girls’ informal science learning experiences”, Graduate Student Completion Fellowship, Michigan State University, \$6,000, August, 2012 – May, 2013, Funded.

2012 **Birmingham, D.** (PI), Grant, “Use of Common Assessment in Secondary Social Studies”, Summer Research Development Fellowship, Michigan State University, \$5,000, May 2012 – August, 2012, Funded.

Un-Funded Projects as PI or CoPI:

2018 **Birmingham, D.** (PI), Calabrese Barton, A. (Co-PI) & Tan, E. (Co-PI), Grant, “Partnering for Equitable and Consequential Teaching and Learning”, Spencer Foundation, \$996,145, October, 2018, Not Funded.

2017 **Birmingham, D.** (PI), Calabrese Barton, A. (Co-PI) & Tan, E. (Co-PI), Grant, "Partnering for Equitably Consequential Teaching and Learning", Spencer Foundation, \$895,000, October, 2017, Not Funded.

2016 Klein, J (PI), **Birmingham, D.** (Co-PI), Bruyere, B.(Co-PI), & Sample McMeeking, L (Co- PI), Grant, "Advancing Informal STEM Learning

for Underrepresented Communities through Digital Media and Youth-Facilitated Dialogues on Climate Change.", NSF AISL, \$2,849,752, October, 2016, Not Funded.

PAPERS PRESENTED/ SYMPOSIA/ INVITED LECTURES/ PROFESSIONAL MEETINGS/ WORKSHOPS

* Indicates presentation with undergraduate or graduate students

Refereed Conference Workshops:

* Calabrese Barton, A., **Birmingham, D.**, Tan, E., Sato, T., Nazar, C., Schenkel, K., O'Neill, T., & Greenberg, D. (2017, April). *Critical youth participatory research in science education*. Presented as a preconference workshop at the National Association for Research in Science Teaching annual conference, San Antonio, TX.

Refereed Symposium (Organizer):

Birmingham, D. (2015, April). *Learning as transformation: Examining how youth author new learning pathways/ecologies in science, engineering, and technology*. Presented at the American Education Research Association annual conference, Chicago, IL.

Invited Presentations:

Birmingham, D. (2016, October). *Exploring the use of story as a tool for teacher learning*. Presented at The Institute for Learning and Teaching (TILT) Research Luncheon series, Colorado State University, Fort Collins, CO.

Birmingham, D. (2011, June). *Place-based Education Leading to Civic Engagement*. Paper presented at Fellowship for Global Understanding Conference. Southwest University, Chongqing, China.

Refereed Presentations:

Birmingham, D. & Sato, T. (2019, April). *In search of humanizing science practices*. Presented at the National Association for Research in Science Teaching annual conference, Baltimore, MD.

* Schaumberg, C. & **Birmingham, D.** (2018, March). *Empowering youth within the community to engage in STEM activities*. Presented at the National Association for Research in Science Teaching annual conference, Atlanta, GA.

Hagman, J., Basile, V., **Birmingham, D.**, & Fosdick, B.K. (2018). Challenging the sigma of a small N: Experiences of students of color in Calculus I. *Paper presented at the 21st Annual Conference on Research in Undergraduate Mathematics Education*, San Diego, CA.

Birmingham, D. & Sato, T. (2017, April). "Hello Mr. B., this is your student Jonathan, the first one in the second row": *Youth using research to challenge systemic barriers in science*. Presented as part of a symposium at National Association for Research in Science Teaching annual conference, San Antonio, TX.

Birmingham D. & Smetana, L. (2017, April). *Challenging the formal and informal divide through an ecological approach to science teaching and learning*. Presented at the National Association for Research in Science Teaching annual conference, San Antonio, TX.

Birmingham, D. (2016, April). “*It is a way to make a difference*”: *Examining youth authored pathways into STEM within intersecting systems of oppression*. Presented as part of a structured poster session at the American Education Research Association annual conference, Washington D.C.

* Smetana, L., Carlson, J. & **Birmingham, D.** (2016, January). *Science Museums as Intentional Partners*. Presented at The Association for Science Teacher Education annual conference, Reno, NV.

Birmingham, D., Calabrese Barton, A. (2015, April). *Pathways to Consequential Learning and “Science that Matters”*. Presented as part of structured poster section at the American Education Research Association annual conference, Chicago, IL.

Birmingham, D. (2015, April). “*Looking through the kids perspectives made me change*”: *Teacher Learning from Youth Narratives*. Presented as part of structured poster section at the American Education Research Association annual conference, Chicago, IL.

Calabrese Barton, A., **Birmingham, D.** (2015, April). *Youth Pathways in Becoming Community Science Experts*. Presented as part of symposium on Learning as Transformation at the American Education Research Association annual conference, Chicago, IL.

* **Birmingham, D.,** Smetana, L. & Coleman, E. (2015, April). *Developing Science Identities: Exploring Influences in a Teacher Preparation Program*. Presented at the National Association for Research in Science Teaching annual conference, Chicago, IL.

Birmingham, D., Calabrese Barton, A. (2014, April). “*But the Science We Do Here Matters*”: *Youth Sharing Visions of Civic Engagement with Science*. Paper presented at National Association for Research in Science Teaching annual conference, Pittsburgh, PA.

Birmingham, D., Calabrese Barton, A. (2014, April). *Foregrounding Youth Narratives of Informal Science Learning: A Professional Development Model*. Paper presented at National Association for Research in Science Teaching annual conference, Pittsburgh, PA.

Birmingham, D., Calabrese Barton, A. (2013, May). *Teacher Learning from Stories of Youths’ Informal Learning Experiences*. Presented as part of structured poster section on Equity-in-practice in STEM education at the American Education Research Association annual conference, San Francisco, CA.

Birmingham, D., Calabrese Barton, A. (2013, April). *Learning from Stories of Youths’ Informal Learning Experiences*. Paper presented at 2013 National Association for Research in Science Teaching annual meeting, Rio Grande, Puerto Rico.

Birmingham, D., Calabrese Barton, A. (2012, April). *Putting on a Green Carnival; Using Critical Connection to Place to Reposition Science*. Presented as part of a symposium entitled Science Education for the Competent Outsider: What We Already Know and Do at the 2012 American Education Research Association annual meeting, Vancouver, B.C..

Birmingham, D., Calabrese Barton, A. (2012, March). *Community Science Experts; Putting Place at the Center*. Paper presented at 2012 National Association for Research in Science Teaching annual meeting, Indianapolis, IN.

Gotwals, G., & **Birmingham, D.** (2012, March) *Eliciting, Identifying, Interpreting and Responding to Students' Ideas: Teacher Candidates Growth in Formative-Assessment Practices*. Paper presented at 2012 National Association for Research in Science Teaching annual meeting, Indianapolis, IN.

Birmingham, D., Greenwalt, K., & Pineda, B. (2011, December). *Undoing the Divide; Teachers and Teacher Educators as Multicitizens*. Paper presented at 2011 College and University Faculty Association annual meeting, Washington D.C.

Birmingham, D. (2010, April). *Common Assessment or Common Exam*. Paper presented at 2010 American Education Research Association annual meeting, Denver, CO.

Richmond, G & **Birmingham, D.** (2009, April). *Professional Learning Communities, Teacher Change, and Student Achievement*. Paper presented at 2009 National Association for Research in Science Teaching annual meeting, Anaheim, CA.

Richmond, G., Passmore, C., Roth, K., Manokore, V., Xiang, L. Hvidsten, C., Hedman, R. & **Birmingham, D.** (2009, April). *Symposium: Exploring Pathways for Science Teacher Transformation: Evidence for the Role of Context, Community and Identity*. Presented at the 2009 National Association for Research in Science Teaching annual meeting, Anaheim, CA.

Birmingham, D., Garret, J., Missias, M. Kesler-Lund, A., Holohan, K., & Bruger, K (2009, February). *Finding Space in Content Expectations*. Presented at the 2009 Michigan Council for the Social Studies, Grand Rapids, MI.

COLLABORATIVE, INTERCOLLEGIATE & INTERDISCIPLINARY SCHOLARSHIP

I am the lead science education specialist on a project to focused on helping future STEM teachers bring dynamic and interdisciplinary learning experiences to their future students. The project includes faculty members from Colorado State University's Walter Scott Jr. College of Engineering as well as faculty at Texas A & M University. The work is supported by an NSF grant.

I acted as the principle investigator on two Lyle Spencer large grant applications which brought science education scholars together from three universities to think about equitable science education practices. While the grant has not yet been funded, we turned our application into an accepted publication in the Journal of Teacher Education and continue to work toward a funded project to investigate teaching practices.

CV SECTION 3: EVIDENCE OF TEACHING AND ADVISING EFFECTIVENESS

TEACHING

Courses Taught at Colorado State University:

* Indicates co-teaching 50%

Indicates course redesign

^ Service learning component

Year	Semester	Course Title	Credit Hours	Enrollment
2019	Spring	EDUC 715 – Critical Theory, Educational Equity, & Praxis #	3	13
2018	Fall	EDUC 713 – Teaching, Learning, & Professional Growth #	3	9
2018	Fall	EDUC 526 – Interdisciplinary Methods * ^	4	29
2018	Spring	EDUC 660 – Advanced Methods in Science and Math Teaching ^	3	10
2017	Fall	EDUC 526 – Interdisciplinary Methods * ^	4	27
2017	Fall	EDUC 651 – Multicultural & Special Populations	3	13
2017	Spring	EDUC 660 – Advanced Methods in Science and Math Teaching # ^	3	21
2017	Spring	EDUC 651 – Multicultural & Special Populations	3	20
2016	Fall	EDUC 526 – Interdisciplinary Methods * ^	4	28
2016	Spring	EDUC 460 – Science Methods ^	4	8
2015	Fall	EDUC 526 – Interdisciplinary Methods # ^	4	9
2015	Fall	EDUC 460 – Science Methods # ^	4	11

Student Course Surveys:

*** Course surveys changed across campus during the spring of 2019 and scores were not produced. Please see student comment below and course evaluation in appendix for course evaluation details.**

Year/Semester	Course Title	Course Rating	Instructor Rating
Spring 2019	EDUC 715 – Critical Theory, Educational Equity, & Praxis	n/a *	n/a *
Fall 2018	EDUC 713 – Teaching, Learning, & Professional Growth	4.86/5.0	5.0/5.0
Fall 2018	EDUC 526 – Interdisciplinary Methods	4.31/5.0	4.62/5.0
Spring 2018	EDUC 660 – Advanced Methods in Science and Math Teaching	5.0/5.0	5.0/5.0
Fall 2017	EDUC 526 – Interdisciplinary Methods	4.62/5.0	4.90/5.0
Fall 2017	EDUC 651 – Multicultural & Special Populations	4.0/5.0	4.33/5.0
Spring 2017	EDUC 660 – Advanced Methods in Science and Math Teaching	4.54/5.0	4.69/5.0
Spring 2017	EDUC 651 – Multicultural & Special Populations	3.93/5.0	3.71/5.0
Fall 2016	EDUC 526 – Interdisciplinary Methods	3.96/5.0	4.32/5.0
Spring 2016	EDUC 460 – Science Methods	4.14/5.0	4.42/5.0
Fall 2015	EDUC 526 – Interdisciplinary Methods	5.0/5.0	5.0/5.0

Fall 2015	EDUC 460 – Science Methods	3.22/5.0	3.90/5.0
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Peer evaluation of teaching:

Dr. Louise Jennings observed EDUC 713
 Dr. Derek Decker co-teacher for EDUC 526

Written Comments from Students:

EDUC 715 – Critical Theory, Educational Equity, & Praxis:

“This course has changed my thinking and has given me many concrete and valuable tools and practices which will enrich my research.”

EDUC 713 – Teaching, Learning, & Professional Growth:

“This is an amazing course. I like the way the course is organized. All reading materials are enlightening. The way instructor asked as to draw the article theme out is very interesting and challenging. Feedback from the instructor is very helpful and always in detail.”

EDUC 526 – Interdisciplinary Methods:

“Danny has been a fantastic professor! His insight and support is unending! He has such a love of teaching and learning – it would have been hard not to learn or feel inspired during class”

EDUC 660 – Advanced Methods in Science and Math Teaching:

“You have been the best professor I've had so far in this program. Let me explain. I struggle in this degree program about education with the fact that the professors here seem to not take their own advice. Their pedagogy is outdated and if we used the same in our lesson plans we would fail. You are the first professor to model by example. You are also the only professor who has seemed to care about students individually as opposed to their academic contributions being the primary measure of their worth. I'd take 3 more classes with you if they were offered. It's refreshing to see a professor put so much effort into the course. Your deep empathy and compassion for your students is obvious. One of my favorite classes of the program.”

EDUC 651 – Multicultural and Special Populations:

“An OUTSTANDING course with an OUTSTANDING professor! This was a marvelously difficult, sometimes painful, but truly enlightening course. Dr. Birmingham did a magnificent job! Seriously, I don't usually rate a course this high. This was one of the high points of my AE&T program.”

EDUC 460 – Science Teaching Methods:

“The level of expectation for this class was greater than I expected. You clearly cared about our success as teachers and pushed us to think deeply.”

ADVISING

Graduate Students:

Current Doctoral Advisees: 7

Chris Schaumberg (Successfully Passed Prelim Exam)
John Howe (Prelim Phase)
Sarah Van Etten
Sarah Matlock
Hsaio-Ching Lin (Co-advise with Dr. Antonette Aragon)
Manideep Tummalapudi (Co-advise with Dr. Chris Harper)
Yvette Lane-Newton (Co-advise with Dr. Vincent Basile)

Current Graduate Committee Memberships (excluding those chaired):

1 MA

8 Ph.D

Graduate Committee Membership for past 5 years (not including above):

2 MA

7 Ph.D.

CV SECTION 4: EVIDENCE OF OUTREACH/SERVICE/ENGAGEMENT

COMMITTEES

School/Department (Colorado State University, 2015 – present)

Chair, Education, Equity, & Transformation Ph.D. Specialization, 2017 - current
Member, Center for Race and Intersectional Studies for Educational Equity (RISE), 2015 - current
Member, School of Education Leadership Committee, 2017 – present
Chair, Graduate Student Travel Committee, School of Education, 2016-2018
Member, Mini-grant Committee, School of Education, 2016

School/Department (Loyola University Chicago 2013-2015)

Member (elected), School of Education Awards Committee, 2013-2015
Member, School and Community Partnership Committee, 2013-2015

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Membership in Professional Societies

American Educational Research Association (AERA)
National Association for Research in Science Teaching (NARST)
National Science Teachers Association (NSTA)

Grant Review Panels

Review Panel Member, National Science Foundation, Advancing Informal Science Learning Grant, Washington, D.C., 2019

Manuscript Refereeing

Peer review for the following scholarly journals:

Journal for Research in Science Teaching (JRST)

Science Education

Urban Education

Cultural Studies of Science Education

Elementary Education Journal

Conference Proposal Reviewer

American Educational Research Association (AERA)

National Association for Research in Science Teaching (NARST)

OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH

Special Service to the State/Community Related to Expertise

Member, CAISE (Center for the Advancement of Informal Science Education) Broadening Participation Task Force, National Science Foundation, Washington D.C., 2018

External Research Advisor, NSF Project “STEM Justice: Investigating a Model for Building Youth Science Capital”. The Science Museum of Minnesota, 2017 – present.

ENGAGEMENT

STEM Difference Makers – For the past three years, in partnership with the Boys and Girls Club of Larimer County, I have run a STEM (Science, Technology, Engineering, & Math) program for middle grades youth at a local Boys and Girls Club. To date, we have had more than one hundred youth ranging from grades 3-8 participate in our weekly program. The program aims to help youth connect STEM knowledge and practices with their community in powerful ways through designing and building innovations to address youth identified community issues. The program also aims to introduce youth (who are primarily youth of color from low income families) to STEM careers and pathways to college and beyond. The project has also included doctoral and undergraduate students from the School of Education to serve as mentors, teachers and researchers.

Engineering Brightness – I support and am engaged in research of this afterschool Engineering Club. The Club brings middle school and high school students from the Fort Collins area together to design and create lighting systems for people around the world who do not have access to the electricity grid. I am leading efforts to research the participation of females (who make up more than 50% of participants) in this program. We are trying to better understand how these young women become and stay interested in engineering. This research is vital to understanding and addressing disproportionately negative participation rates of females in engineering.