



(ES)² STEM Learning Lab

- Enhancing the Effectiveness of Socially Transformative STEM Education (ES)²

(ES)² STEM LEARNING LAB 2018-2019 PRODUCTIVITY REPORT

The (ES)² STEM Learning Lab 2018-2019 Productivity Report covers the period from September 1, 2018 through August 31, 2019. Although lab researchers engage in a broad range of research and teaching activities, the products included as measures of productivity are conference papers and peer-reviewed publications. Items included as measures of productivity are those which received some form of support (e.g. financial, intellectual, or logistical) from the STEM Learning Lab. This year the lab supported eight researchers: two undergraduate researchers, four graduate researchers and two faculty members.

The total number of conference presentations given this year was 18. Of these, eight presentations were given at national or international conferences and ten were given at local or regional conferences. Because some presentations were jointly authored, this number does not represent the total number of conference presentations that lab researchers can claim. Accounting for joint authorship, (ES)² STEM Learning Lab researchers can claim 20 total conference presentations. Table 1 provides a summary of conference presentations by lab researcher.

| | National & International Presentations | Local & Regional Presentations | Totals |
|---------------------------------------|--|--------------------------------|--------|
| Undergraduate Researchers (UR) | | | |
| 1. Bullard | 0 | 1 | |
| 2. Howard | 0 | 1 | |
| <i>Total UR Presentations</i> | 0 | 2 | 2 |
| Graduate Researchers (GR) | | | |
| 3. Cunningham | 2 | 1 | |
| 4. Evans | 1 | 0 | |
| 5. Hane | 2 | 1 | |
| 6. Jones | 0 | 2 | |
| <i>Total GR Presentations</i> | 5 | 4 | 9 |
| Faculty Researchers (FR) | | | |
| 7. Morton | 0 | 3 | |
| 8. Mutegi | 3 | 3 | |
| <i>Total FR Presentations</i> | 3 | 6 | 9 |
| <i>Total Lab Presentations</i> | 8 | 12 | 20 |

Table 1 - Summary of Conference Presentations by Lab Researcher

(ES)² STEM Learning Lab

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The total number of peer-reviewed manuscripts either submitted or published was 11.¹ Of these, seven manuscripts were submitted and four were published. Because some publications were jointly authored, this number does not represent the total number of publications that lab researchers can claim. Accounting for joint authorship, (ES)² STEM Learning Lab researchers can claim 14 total publications.

| | Submitted Manuscripts | Published Manuscripts | Totals |
|---------------------------------------|-----------------------|-----------------------|-----------|
| Undergraduate Researchers (UR) | | | |
| 1. Bullard | 0 | 0 | |
| 2. Howard | 0 | 0 | |
| <i>Total UR Presentations</i> | <i>0</i> | <i>0</i> | <i>0</i> |
| Graduate Researchers (GR) | | | |
| 3. Cunningham | 3 | 0 | |
| 4. Evans | 0 | 0 | |
| 5. Hane | 1 | 0 | |
| 6. Jones | 0 | 1 | |
| <i>Total GR Presentations</i> | <i>4</i> | <i>1</i> | <i>5</i> |
| Faculty Researchers (FR) | | | |
| 7. Morton | 1 | 3 | |
| 8. Mutegi | 3 | 2 | |
| <i>Total FR Presentations</i> | <i>4</i> | <i>5</i> | <i>9</i> |
| <i>Total Lab Presentations</i> | <i>8</i> | <i>6</i> | <i>14</i> |

¹ Submitted manuscripts are those that were “in review” or “in press” on August 31, 2019.

References for Publications and Presentations (September 1, 2018 – August 31, 2019)

Conference Presentations

National/International

1. Cunningham, R. (2019, May). *The promotion of self-loathing: Teaching Black children to hate their families, communities and themselves*. Paper presented at the annual meeting of the International Congress of Qualitative Inquiry, Urbana, IL.
2. Cunningham, R. (2019, May). *When nice White Ladies attack: The White female neoliberal assault on Black male K-12 educators*. Paper presented at the annual meeting of the International Congress of Qualitative Inquiry, Urbana, IL.
3. Evans, R. (2019, March). *Developing a methodology for intra-professional leadership in science: Investigating key areas of impact for high-functioning autism*. Paper presented at the SAHM 2019 Annual International Conference, Washington, DC.
4. Hane, H. (2018, October). *Bringing about equitable education through indigenous literacies*. Paper presented at First International Conference on Literacy, Culture, and Language Education (ICLCLE), Indiana University-Bloomington, IN.
5. Hane, H. (2018, October). *Indigenous people, Indigenous nature and non-Indigenous words: An investigation of the impact of learning s through colonizers' languages*. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
6. Mutegi, J. W., & Anderson, C. D. (2019, July). *Examining the self as teacher: Reflection exercises to support consideration of STEM teaching careers*. Poster presented at the annual Noyce Summit, Washington, DC.
7. Mutegi, J. W., Prime, G., Mensah F. M., Seiler, G. Seriki, V. D., Davis, J. L., Goings, R. B., Allen, K. M., Ellington, R. M., & Leonard, J. (2019, April). *Using race-visible pedagogy to disrupt persistent inequities in the STEM education of African American learners*. Symposium presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
8. Mutegi, J. W., & Smith-Mutegi, D. (2019, April). *A focus group study of high-achieving, underrepresented minority, secondary students' consideration of STEM teaching careers*. Paper presented at the annual meeting of the American Educational Research Association, Toronto, Canada.

Local/Regional

1. Bullard, C. (2019, April). *The science of Black hair*. Poster presented at the annual IUPUI Student Research and Engagement Day, Indianapolis, IN.
2. Cunningham, R. (2019, April). *When Nice White Ladies Attack: The White Female Neoliberal Assault on Black male K-12 educators*. Poster presented at the annual IUPUI Student Research and Engagement Day, Indianapolis, IN.
3. Hane, H. (2018, October). *Strategies to improve reading comprehension*. Paper presented at the annual conference of the Indiana Non-Public Educators' Association (INPEA), Indianapolis, IN.
4. Howard, L. (2019, April). *Examining the effectiveness of a community lecture on Black racial identity*. Poster presented at the annual IUPUI Student Research and Engagement Day, Indianapolis, IN.
5. Mutegi, J. W., & Gee, V. (2018, November). *Students' culture + NGSS = science success*. Paper presented at the annual regional meeting of the National Science Teachers Association, National Harbor, Washington, DC.
6. Mutegi, J. W., & Smith-Mutegi, D. (2018, October). *A study of underrepresented minority students' interests in STEM teaching careers*. Paper presented at the Midwest Robert Noyce Teacher Scholarship Program Conference, St. Louis, MO.
7. Mutegi, J. W., Sorge, B., Fore, G., & Gibau, G. S. (2018, October). *The role of racial microaggressions in disparity in STEM learning*. Paper presented at the annual regional meeting of the North Central - Association of Science Teacher Educators, Porter, IN.

8. Morton, C. H. & Mutegi, D. (2018, November). *Girls STEM Institute: Relevance and beyond: The role of a socially transformative approach to STEM Education*. Presentation at the ICTM Annual Conference, Indianapolis, IN.
9. Morton, C. H. & Harrison-Jones, W. (2018, October) *Girls STEM Institute: Transforming the lives of Black girls through STEM*. Presentation the Midwest Noyce Regional Conference, St. Louis, MO.
10. Morton, C. H., Smith-Mutegi, D., & Harrison-Jones, W. (2018, October). *Examining the impact of informal STEM learning on Black female's self-efficacy and career interests*. Paper presented at North Central-Association for Science Teacher Education, Porter, IN.

Peer Reviewed Publications

Submitted

1. Cunningham, R. (in review). Black male paraprofessionals in K-12 education: The solution to a problem or just making matters worse? *Journal of Career Development*.
2. Cunningham, R. (in review). A tale of two cities: An autoethnographic account of a Black male educator. *Critical Storytelling: Dismantling white supremacy one doctoral student at a time*.
3. Cunningham, R. (in review). When nice White ladies attack: The White female neoliberal assault on Black male K-12 educators. *Navigating Professional and Personal Crossroads of Race, gender, Sexuality and Resistance*. Leah Hollis (Ed.)
4. Mutegi, J. W., Sorge, B. H., Fore, G. A. & Gibau, G. S. (2019). A tale of two camps: A mixed methods investigation into racially disparate outcomes in a nanotechnology research experience. *Science Education*, 103, 1456-1477. doi: <https://doi.org/10.1002/sce.21548>
5. Mutegi, J. W. & Momanyi, L. O. (in review). Windows and mirrors: Three images of the US science curriculum as reflected through Kenya's Jua Kali. *Cultural Studies in Science Education*.
6. Gee, V. & Mutegi, J. W. (in press). The molecules that make me unique: Seventh graders explore atoms, molecules and compounds through a socially transformative curriculum. *Science Scope*.
7. Morton, C. H., Tate, Danielle, & Harrison-Jones, Winterbourne (in press). Black girls and mathematics learning. *Oxford Research Encyclopedia*.

Published

1. Morton, C. H. & Smith-Mutegi, D. (2018). Girls STEM Institute: Addressing equity through a holistic approach. *HAMTE Crossroads*, 8 (1), 7-10.
2. Morton, C.H., Smith-Mutegi, D. & Harrison-Jones, W. (2019). Rehumanizing mathematics through informal STEM learning. *Virginia Mathematics Teacher*,45(2), 16-20.
3. Mutegi, J. W., Phelps-Moultrie, J. A. & Pitts Bannister, V. R. (2018). The snare of systemic racism and other challenges confronting hip-hop based pedagogy. *Teachers College Record*, 120(11). (ISI Impact Factor .910; Rank 187/243)
4. Mutegi, J. W., Morton, C. H., & Etienne, L. (2019). Reconceptualizing science education for learners of African descent. In G. M. Prime (Ed.), *Centering Race in the STEM Education of African-American K-12 Learners* (pp. 71-93). New York: Peter Lang.