

Research Journal Publications

Note: *Doctoral Candidate, **Teacher Collaborators. *** Undergraduate & Graduate Research Assistants

- Fedell, D. & Johnson, J. (In Review). Harnessing Momentum: An Autoethnographic Exploration of a Physics Teacher's Professional Development in Teaching SSI. Disciplinary and Interdisciplinary Science Education Research.
- Mathers, B., Marco-Bujosa, L., Kaufman, A., Sinni, N., Reinert, Q., Henneman, E., and Louis, E. (2025). Lessons Learned: Using Socioscientific Issues and Social Justice to Unsettle Environmental Science. *Contingencies: A Journal of Global Pedagogy*.
https://wp.nyu.edu/contingenciesjournal/spring-2025/mathers_marco_bujosa/
- Johnson, J., Varma, C., Henneman, E., & Louis, E. (2024). Making strides: Findings from an SSI focused STEM professional development project. *Uluslararası Eğitimde Mükemmellik Arayışı Dergisi*, 4(20), 115-141.
https://dergipark-org-tr.translate.goog/tr/pub/egitimdemukemmellik/issue/89021/1541176?_x_tr_sl=tr&_x_tr_tl=en&_x_tr_hl=en&_x_tr_pto=wapp
- Macalalag, A., *Kaufmann, A., *Van Meter, B., *Ricketts, A., *Liao, E., & *Ialacci, G. (2024). Socioscientific Issues: Promoting Science Teachers' Pedagogy on Social Justice. *Disciplinary and Interdisciplinary Science Education Research* 6 (28). DOI:
<https://doi.org/10.1186/s43031-024-00118-4>
- Macalalag, A. Z., Jr., Minken, Z., Feighan, K., Richardson, M., Marte, M., Ialacci, G., Van Meter, B., Sproul, K., & Kaufmann, A. (2024). Teachers' pedagogical content knowledge on socioscientific issues and social justice [Special Issue]. *Turkish Journal of Education*, 13(5), 484-507. <https://doi.org/10.19128/turje.1506293>
- Johnson, J., Mathers, B., Marco-Bujosa, L., & ***Ialacci, G. (2024). [Transforming STEM Instruction Through SocioScientific Issues Focused Professional Development](#). *International Journal on New Trends in Education and Their Implications*, 15(1).
- Marco-Bujosa, L., Mathers, B., Johnson, J., Araco, V., Richardson, G., Liang, L., Macalalag, A., (submitted January 2025). Talking STEM in the Hallways: An Exploration of Teacher Learning through Professional Development for Social Justice Science Issues. *Journal of Science Teacher Education*.
- Mathers, B., Johnson, J., Kaufmann, A., Sinni, N., Louis, E., & Henneman, E. (2024). Developing student agency through authentic application of SocioScientific issues in

STEM classrooms. *Turkish Journal of Education*, 13(5-Special Issue), 508-534.
<https://dergipark.org.tr/en/pub/turje/issue/82779/1507933>

Johnson, J., Macalalag, A., *Batie, R., *Dunphy, J., & ***Titus, S. (2022). *The Rise of STEM Education: Socioscientific Issues and STEM Learning*. In Tierney, R., Rizvi, F., & Ercikan, K. (Editors). *International Encyclopedia of Education*, 4th edition. Elsevier Science. ISBN: 9780128186305

Johnson, J., **Zielinski, M., Essary, J.N., Dean, K., Bartynski, K., & Macalalag, A. (2022). [Encouraging STEMpathy: A review of literature addressing STEM learning for students with special education services in inclusive learning environments](#). In A.Z. Macalalag, I. Sahin, J. Johnson, A. Bicer (Eds), *Internationalization of STEM Education* (pp. 1-40). ISTES Organization.

Johnson, J., Macalalag, A., Mathers-Lowery, B., and ***Ialacci, G. (2022). [We Strive: Initial Explorations of STEM Teachers' Successes and Challenges in Implementing Socioscientific Issues](#). *Pennsylvania Teacher Educator*, Fall 2022.

*Minken, Z., Macalalag, A. Z., Jr., *Clarke, A., Marco-Bujosa, L., & Rulli, C. (2021). Development of teachers' pedagogical content knowledge during lesson planning of socioscientific issues. *International Journal of Technology in Education*, 4(2), 113–165.
<https://doi.org/10.46328/ijte.50>

Johnson, J., Macalalag, A. Z., Jr., & *Dunphy, J. (2020). Incorporating socioscientific issues into a STEM education course: Exploring teacher use of argumentation in SSI and plans for classroom implementation. *Disciplinary and Interdisciplinary Science Education Research*, 2, Article 9. <https://doi.org/10.1186/s43031-020-00026-3>

*Minken, Z., Macalalag, A. Z., Jr., & Richardson, G. (2020). Developing teachers' intentions of incorporating socioscientific issues in lesson design. *Pennsylvania Teacher Educator*, 19, 85–100.
https://scholarworks.arcadia.edu/grad_works/1/?_ga=2.25906111.300966591.1630625610-715512614.1630625610

Macalalag, A. Z., Jr., Johnson, J., & ***Lai, M. (2020). How do we do this: Learning how to teach socioscientific issues. *Cultural Studies of Education*, 15, 389–413.
<https://doi.org/10.1007/s11422-019-09944-9>

Macalalag, A. Z., Jr., Johnson, J., & ***Lai, M. (2017). STEM education course: Enhancing K-12 teachers' cultural awareness through reflections of socioscientific issues. *Pennsylvania Teacher Educator*, 16, 76–92.

https://scholarworks.arcadia.edu/school_edu_faculty_work/4/?_ga=2.18034491.300966591.1630625610-715512614.1630625610

Research Conference Presentations

*Note: *Doctoral Candidate, **Teacher Collaborators. *** Undergraduate & Graduate Research Assistants*

Snyder, L., Fanega, D., Shamis, C., & Marco-Bujosa. (accepted, 2025). Instructional Design for Youth Empowerment in Science Education: Evidence-based Service and Feeding Philly. Annual Conference of the National Science Teacher Association, Philadelphia, Pennsylvania, March 26-29, 2025.

Macalalag, A. & **Kaufmann, A. (accepted, 2025). Empowering STEM Teachers: Professional Development on Socioscientific Issues and Social Justice. Annual Conference of the American Educational Research Association, Denver, Colorado, April 23-27, 2025.

Mathers, B., & Johnson, J.A. (2024). Developing student agency through authentic application of SocioScientific issues in STEM classrooms. Paper presented at the 4th International Conference on Science and Technology Education, Porto, Portugal, October 3-4, 2024.

Macalalag, A., ***Kaufmann, A., & ***Ricketts, A. (2024). [Socioscientific Issues: Teachers' perspectives on the successes and challenges of grades 6-12 students in social justice STEM education](#). Paper presented at the 4th International Conference on Science and Technology Education, Porto, Portugal, October 3-4, 2024.

Mathers, B. (2024). [Lessons Learned: Using Socioscientific Issues and Social Justice to Unsettle Environmental Science](#). Lightning Talk at the 2024 Association for Environmental Studies and Sciences Conference. Virtual, June 20-21, 2024.

***Ricketts, A., Johnson, J., & Macalalag, A. (2024). [Socioscientific Issues: Promoting STEM Teachers' Pedagogy on Social Justice](#). Poster presented at Penn State Behrend-Sigma Xi Undergraduate Research and Creative Accomplishment Conference in Erie, Pennsylvania, April 20, 2024.

*Minken, Z., Macalalag, A., Feighan, K., Richardson, M., & ***Ciotoli, G. (2024). [Why do we have to learn this? Teachers Make STEM Subjects Relevant to their Students](#). Annual Conference of the American Educational Research Association, Philadelphia, Pennsylvania, April 11-14, 2024.

Johnson, J., (2023) [Understanding STEM Through Integrated Contexts in Everyday Life \(USTRIVE\)](#). Honored Guest Session Speaker, 6th International Conference on Recent

Trends in Multi-Disciplinary Research (ICRTMDR- 23), Institute For Educational Research and Publication (IFERP), Istanbul, Turkey, November 11, 2023.

***Ialacci, G., & Johnson, J. (2023) [Making STEM concepts accessible and relevant to everyday life experiences of grades 6-12 students](#). Paper presented at Penn State Behrend-Sigma Xi Undergraduate Research and Creative Accomplishment Conference in Erie, Pennsylvania, April 22, 2023.

Richardson, G. M., Mathers, B., & ***Marti, M. (2023, March 28). [Addressing Systematic Inequities: Using a Social Justice Approach to Secondary STEM Instruction](#) [Paper Session] of the 2023 Association of Teacher Educators' Annual Meeting in Jacksonville, FL. United States.

Johnson, J., Macalalag, A., Roehrig, G., & Karisan, D. (2023). [STEM education: Current applications and future trends](#). Invited Panel at the 14th International Congress on New Trends in Education, Aydin, Turkey, September 3-6, 2023.

Johnson, J. , Mathers, B., & Marco-Bujosa, L. (2023). [Transforming STEM Instruction Through SocioScientific Issues Focused Professional Development](#). Paper presented at the 14th International Congress on New Trends in Education, Aydin, Turkey, September 3-6, 2023.

Macalalag, A.M., *Minken, Z., Feighan, K., & Richardsdosn, M. (2023). Socioscientific Issues (SSI): [Understanding STEM Through Integrated Contexts in Everyday Life](#). 14th International Congress on New Trends in Education, Aydin, Turkey, September 3-6, 2023.

Marco-Bujosa, L., Mathers-Lowery, B., Johnson, J., & Araco, T. (2023). [Talking STEM in the hallways: Professional development for engaging students in SSI and social justice](#). Paper submitted for the National Association for Research in Science Teaching Annual International Conference (Chicago, IL).

**Sandhaus, S. and **Snyder, L. (2023). [Feeding Philly: Addressing a SocioScientific Issue with Mutual Aid](#). Institute for Citizens and Scholars WW Teaching Fellowship Summer 2023 Convening, Philadelphia, PA, July 28th, 2023.

**Fedell, D. (2023). [New 3D Prints For High School Physics Investigations](#). Poster presented at the American Association of Physics Teachers 2023 Summer Meeting, Sacramento, California, July 15-19, 2023.

- **Fedell, D. (2023). [Making Physics Accessible: A Pedagogy for Engaging High School Students Using Socio-scientific Issues \(SSI\)](#). The American Association of Physics Teachers 2023 Summer Meeting, Sacramento, California, July 15-19, 2023.
- **Edmond-Pinckney, Anthony. (2023). Helping Flood Line Areas. 34th Annual National Service-Learning Conference, Nashville, Tennessee, April 2-5, 2023.
- **Kaminsky, Avigal. (2023). Incorporating Social Justice into STEAM Classrooms (USTRIVE). 34th Annual National Service-Learning Conference, Nashville, Tennessee, April 2-5, 2023.
- **Chan-Peter, S., Beech, M, Whetzel, J., and Gold, E. (2023). [Climate Change and Urban Heat Islands. Where is the Equity? Should everyone share the responsibility?](#) National Science Teachers Association annual conference, Atlanta, Georgia. March 22-25, 2023.
- Macalalag, A., Johnson, J., *Minken, Z., Mathers-Lowery, B., ***Liao, E., ***Marte, M. (2023). [Socioscientific Issues to Promote Discussions on Social Justice: Making STEM concepts accessible and relevant to everyday life experiences of grades 6-12 students](#). Hawaii International Conference on Education, Honolulu, Hawaii, January 3 - 6, 2023.
- ***Ialacci, G., & Johnson, J. (2022). [Development of STEM teachers' pedagogical content knowledge of SocioScientific Issues and SocioTransformative Constructivism](#). Illumination. April 20, 2022.
- Johnson, J., Macalalag, A., Mathers-Lowery, B., & ***Ialacci, G. (2022). We Strive: Enhancing Implementation of Socioscientific Issues in STEM Classrooms Through Professional Development. *The Pennsylvania Association of Colleges and Teacher (PAC-TE) Fall Conference*, October 26-28, 2022.
- Mathers, B. and Marco-Bujosa, L. (2022). USTRIVE: Incorporating SocioScientific Issues and Social Justice into Environmental Science. North American Association for Environmental Education Annual Conference. Tucson, AZ. October 12-15, 2022.
- Macalalag, A., Johnson, J. & Mathers-Lowery, B. (2022). Lesson Planning: A lens to teachers' successes and challenges of implementing components of socioscientific issues. National Association for Research in Science Teaching, Science and Technology Symposium, Recife, Brazil, July 2022.
- ***Ialacci, G., & Johnson, J. (2022). Development of STEM teachers' pedagogical content knowledge of SocioScientific Issues and SocioTransformative Constructivism Paper

presented at Penn State Behrend-Sigma Xi Undergraduate Research and Creative Accomplishment Conference in Erie, Pennsylvania, April 23, 2022.

*Minken, Z., & Macalalag, A. (2021) Evolution of STEM Teachers' Pedagogical Content Knowledge through Socioscientific Issues. Paper presented at International Conference on Science and Technology Education, October 7-8, Porto, Portugal.

**Bungard, D., & Macalalag, A. (2020). Socioscientific Issues (SSI): The Great GMO Debate. Conference of the Pennsylvania Association of Colleges and Teacher Educators (PAC-TE). Virtual. October 28 – 30, 2020.

Johnson, J., *Dunphy, J., & Macalalag, A. (2020). Teacher Understandings of Claims, Evidence, and Reasoning Within Socioscientific Issue Implementation. Conference on Academic Research in Education, Las Vegas, Nevada, February 24 – 25, 2020.

Macalalag, A., Ruppert, J., & Johnson, J. (2019). Symposium: Socioscientific Contexts and Curriculum Materials for K-18 Educators. Annual International Conference of the National Association for Research in Science Teaching, Baltimore, Maryland, March 31 – April 3, 2019.

Macalalag, A., *Dunphy, J., & Johnson, J. (2019). Discussion of a Socioscientific Issue: Helping Elementary Classroom Teachers Evaluate the Claims and Evidence on Internet-Based Reports Regarding the Missing Bees Phenomenon. Annual International Conference of the National Association for Research in Science Teaching, Baltimore, Maryland, March 31 – April 3, 2019.

Johnson, J., *Dunphy, J., & Macalalag, A. (2019). Teacher Understandings of Claims, Evidence and Reasoning Within Socioscientific Issue Implementation. Annual International Conference of the American Educational Research Association, Toronto, Canada, April 5 – 9, 2019.

Macalalag, A., Johnson, J., & ***Lai, M. (2018). STEM Graduate Course: Successes and Challenges of K-12 Teachers to Learn the Socioscientific Issues. Annual International Conference of the National Association for Research in Science Teaching, Atlanta, Georgia, March 10 - 13, 2018.

Macalalag, A., & Johnson, J. (2017). Enhancing K-12 Teachers' Cultural Awareness Through Reflections of Socioscientific Issues in STEM Education Course. Annual International Conference of the National Association for Research in Science Teaching, San Antonio, Texas, April 22-25, 2017.

Presentations

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**Fedell, D., Macalalag, A., Johnson, J. (2024). Call to Action: Leveraging Social Justice in STEM to Spark Student Engagement. Roundtable Discussion at the National Conference of the National Science Teachers Association, New Orleans, Louisiana, November 6-10, 2024.

**Fedell, D., Macalalag, A., Johnson, J. (2024). Call to Action: Science and Social Justice Behind Healthier School Meals. Workshop Session at the National Conference of the National Science Teachers Association, New Orleans, Louisiana, November 6-10, 2024.

Johnson, J. (2023). Understanding STEM Through Integrated Contexts in Everyday Life (*USTRIVE*). Invited Presentation at Texas Tech University, Lubbock, Texas, October 16, 2023.

Johnson, J. (2023). Understanding STEM Through Integrated Contexts in Everyday Life (*USTRIVE*). Invited Presentation at Mercyhurst University Center for Academic Excellence, Erie, PA, September 25, 2023.

Johnson, J. (2023). Understanding STEM Through Integrated Contexts in Everyday Life (*USTRIVE*). Invited Presentation at University of Southern Florida, Tampa, Florida, September 7, 2023.

Macalalag, A. & **Glenn, A. (2023) Socioscientific Issues and Social Justice Pedagogy in STEM Classrooms. Invited Presentation at Pennsylvania State University - Abington, October 27, 2023.

Invited Presentation. Macalalag, A. & Johnson, J. (2022). Socioscientific Issues- Journey to Understanding STEM Teaching through Integrated Contexts in Everyday Life (SSI-JUSTICE). Texas Tech University, Lubbock, Texas, U.S.A., October 17, 2022.

Invited Presentation. Macalalag, A. & Johnson, J. (2022). Socioscientific Issues- Journey to Understanding STEM Teaching through Integrated Contexts in Everyday Life (SSI-JUSTICE). University of South Florida, Tampa, Florida, U.S.A., September 8, 2022.

Invited Keynote Presentation. Macalalag, A. (2022). Socioscientific Issues- Journey to Understanding STEM Teaching through Integrated Contexts in Everyday Life

(SSI-JUSTICE). *[International Conference on Education in Mathematics, Science and Technology](https://www.2022.icemst.com/pages/12/keynote-special-session-speakers)*. Antalya, Turkey, March 25, 2022.
<https://www.2022.icemst.com/pages/12/keynote-special-session-speakers>

Invited Presentation. Johnson, J. (2022). USTRIVE: Incorporating SSI and sTc in STEM Classrooms. Voices from the Field Lecture Series, Edinboro University, Erie, Pennsylvania, March 24, 2022.