D'Anna Pynes
Curriculum Vitae

Institute for Educational Initiatives
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Education

Ph.D. STEM Education, University of Texas at Austin
Advisors: Anthony J. Petrosino & Susan B. Empson

B. S. Applied Learning and Development, University of Texas at Austin

Previous Certifications

Texas Generalist, EC-4, 4-8

Texas English as a Second Language, Supplemental, EC-8

Professional Experience

University of Notre Dame, Institute for Educational Initiatives
Clinical Assistant Professor 2022-Present

University of Michigan, School of Education
Lab Manager, Advancing Critical Consciousness, Methods & Equity 2021-2022

University of Michigan, School of Education
Postdoctoral Research Fellow 2018-2021

University of Texas at Austin, College of Education
Graduate Research Assistant 2013-2018
Assistant Instructor Fall 2016

Region XIII, Teaching and Learning
Regional Elementary Science Specialist 2012-2013

Pflugerville ISD, Curriculum and Instruction
District Elementary Science Specialist 2011-2012

Pflugerville ISD, Highland Park Elementary
Classroom Teacher 2006-2011

Publications and Proceedings

Shaughnessy, M., Boerst, T., & Pynes, D. (2026). Leveraging simulated student interactions to learn about prospective teachers' formative assessment practice. *The Journal of Mathematical Behavior, 81*. https://doi.org/10.1016/j.jmathb.2025.101298

Goldin, S., Robinson, D. D., Shaughnessy, M., Garcia, N. M., Blunk, M., Pynes, D., & Mortimer, J. P. (2025). Beyond technical fixes: Reconsidering equity sticks and expanding notions of equitable teaching. *Urban Education*, *61*(4), 706-735.https://doi.org/10.1177/00420859251359261

Pynes, D., Kloser, M., Wagner, C., Szopiak, M., Wilsey, M., Svarovsky, G., & Trinter, C. (2024). Bridging theory and practice: A framework for STEM teacher leadership. *School Science and Mathematics*, 125(4), 330–344. https://doi.org/10.1111/ssm.12686

Robutti, O., Trouch, L., Cusi, A., Psycharis, G., Kumar, R., & Pynes, D. (2024). Tools and resources used/designed for teacher collaboration and resulting from teacher collaboration. To appear in H. Borko & D. Potari (Eds.) *Teachers of Mathematics Working and Learning in Collaborative Groups. New ICMI Study Series.* Springer, Cham. https://doi.org/10.1007/978-3-031-56488-8_5

Jacobs, V. R., Empson, S. B., Jessup, N., Dunning, A., Pynes, D., Krause, G., Franke, T. M. (2024). Profiles of teachers' expertise in professional noticing of children's mathematical thinking. *Journal of Mathematics Teacher Education, 27*(3), 295-324. https://doi.org/10.1007/s10857-022-09558-z

Jacobs, V. R., Empson, S. B., Case, J. M, Dunning, A., Jessup, N., Krause, G., Pynes, D. (2022). A new twist on fraction equations. *Mathematics Teacher: Learning and Teaching PK-12, 115*(12), 859-866. https://doi.org/10.5951/MTLT.2022.0105

Garcia, N., Shaughnessy, M., Blunk, M., Mortimer, J., Pynes, D., & Robinson, D. (2022, November). Exploring the impact of discussion-leading professional development on teachers' practice. In A. E. Lischka, E. B. Dyer, R. S. Jones, J. Lovett, J. Strayer, & S. Drown (Eds.), *Proceedings of the Forty-Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1380-1388). Middle Tennessee State University.*

Shaughnessy, M., Garcia, N., & Pynes. D. (2021). Recording student thinking in a mathematics discussion. *Mathematics Teacher: Learning and Teaching PK-12, 114*(12), 926-232. https://doi.org/10.5951/MTLT.2021.0117

Shaughnessy, M., Garcia, N., Mortimer, J., & Pynes, D. (2021, June). Challenges in improving and measuring mathematics discussion leading practice. In A.I. Sacristán, J.C. Cortés-Zavala &

P.M. Ruiz-Arias, (Eds.), *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Mexico* (pp. 1968-1969). https:/doi.org/10.51272/pmena.42.2020

Empson, S. B., Jacobs, V. R., Jessup, N., Hewitt, A., Pynes, D., Krause, G. (2020). Unit fractions as superheroes for fraction instruction. *Mathematics Teacher: Learning and Teaching PK-12, 113*(4), 278-286. https://doi.org/10.5951/MTLT.2018.0024

Pynes, D., Empson, S. B., Jacobs, V. (2020, February). Supporting teachers in self-facilitated collaborative inquiry. *Proceedings of the Interactional Commission on Mathematical Instruction (ICMI) Study 25: Teachers of mathematics working and learning in collaborative groups,* Lisbon, Portugal. Retrieved from https://www.mathunion.org/fileadmin/ICMI/ICMI%20studies/ICMI%20Study%2025/BaseProceedings4.24.2020_PageNumbers_FINAL.pdf

Boerst, T. A., Shaughnessy, M., DeFino, R., Blunk, M., Farmer, S. O., Pfaff, E., Pynes, D., (2020). Preparing teachers to formatively assess: Connecting the initial capabilities of preservice teachers with visions of teaching practice. In C. Martin, D. Polly, & R. Lambert (Eds.), *Handbook of Research on Formative Assessment in Pre-K through Elementary Classrooms* (pp. 89-116). https://doi.org/10.4018/978-1-7998-0323-2.ch005

Jacobs, V. R., Empson, S. B., Pynes, D., Hewitt, A., Jessup, N., & Krause, G., (2019). The responsive teaching in elementary mathematics (RTEM) project. In P. Sztajn & P. H. Wilson (Eds.), *Designing Professional Development for Mathematics Learning Trajectories.* (pp. 75-103). Teachers College Press. https://doi.org/10.65528/9780807777817-005

Pynes, D., Empson, S. B., & Jacobs, V. R. (2016, November). Teachers' self-facilitated inquiry in noticing children's thinking. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the Thirty-Eighth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (p. 439). Tucson, AZ: University of Arizona.

Krause, G., Empson, S. B., Pynes, D., & Jacobs, V. R. (2016, November). Teachers' knowledge of children's strategies for equal sharing. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), *Proceedings of the Thirty-Eighth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 466–473). Tucson, AZ: University of Arizona.

Mann, M. J. and Pynes, D. (2016). In our neighborhood: Who's been here? *Science & Children, 54*(2), 49-55.

Presentations

Pynes, D. (2026, June). Documenting student thinking in the CGI classroom. *Presentation at the Cognitively Guided Instruction Conference*, Phoenix, AZ.

Pynes, D. (2026, June). Connecting CGI story problems and number talks to advance student thinking. *Presentation at the Cognitively Guided Instruction Conference*, Phoenix, AZ.

Pynes, D., & Szopiak, M. (2026, April). Video annotations as professional learning tools: Examining content and form across annotator roles. *Paper presentation at the 2026 annual meeting of the American Educational Research Association*, Los Angeles, CA.

Pynes, D. (2025, November). Documenting student thinking. *Presentation at the Indiana Non-Public Educators' Conference*, Indianapolis, IN.

Pynes, D. (2024, March). Using story problems to teach fractions. *Presentation at the Excellence in Teaching Conference,* Notre Dame, IN.

Kloser, M., Özülkü, E., Wagner, C., Bullinger, S., Ostdiek, L., Malkani, A., Meuninck, A., Pynes, D. (2023, April). Qualitative cases of science teaching practice: Comparing instruction based on VAM ratings. *Presentation at the 96th Annual Conference of the National Association for Research in Science Teaching,* Chicago, IL.

Boerst, T., Shaughnessy, M., & Pynes, D. (2021, February). Learning mathematical knowledge for teaching in and from simulations. *Presentation at the 25th Annual Conference of the Association of Mathematics Teacher Education*.

Shaughnessy, M., Garcia, N., Mortimer, J., Pynes, D., & Ball, D. L. (2020, February). Practice-based professional development: Dilemmas in balancing pedagogies of enactment and pedagogies of investigation. *Presentation at the 24th Annual Conference of the Association of Mathematics Teacher Education*, Phoenix, AZ.

Pynes, D. (2019, June). Exploring children's thinking with colleagues. *Presentation at the 10th Cognitively Guided Instruction (CGI) National Conference*, Minneapolis, MN.

Pynes, D., Garcia, N., & Shaughnessy, M. (2019, June). Discussions: Learning from others' ideas. *Presentation at the 10th Cognitively Guided Instruction (CGI) National Conference*, Minneapolis, MN.

Garcia, N., Mortimer, J., Pfaff, E., Pynes, K., & Shaughnessy, M. (2019, April). Components of professional development that lead to change in teaching. *Presentation for the Research Conference of the 2019 Annual Meeting of the National Council of Teachers of Mathematics*, San Diego, CA.

Jessup, N., & Pynes, D. (2019, April). Teachers' Use of insider knowledge when noticing children's thinking. *Poster presentation for the Research Conference of the 2019 Annual Meeting of the National Council of Teachers of Mathematics*, San Diego, CA.

Empson, S. B., Jacobs, V. R., Krause, G., Pynes, K. D., Jessup, N., & Hewitt, A. (2018, April) An expanded view of the instructional practice of anticipating children's mathematical thinking. *Paper presentation at the 2018 annual meeting of the American Educational Research Association*, New York, NY.

Empson, S., Jacobs, V., Pynes, D., Krause, G., Jessup, N., & Hewitt, A. (2017, June). Using equations to develop children's fraction thinking. *Presentation at the 9th Cognitively Guided Instruction (CGI) National Conference*, Seattle, WA.

Hewitt, A., Jessup, N., Krause, G., Pynes, D., Jacobs, V., & Empson, S. (2017, June). The untapped power of unit fraction quantities for building children's fraction understanding. *Presentation at the 9th Cognitively Guided Instruction (CGI) National Conference*, Seattle, WA.

Empson, S. B., Jacobs, V., Krause, G., Jessup, N., Hewitt, A., & Pynes, D. (2017, April–May). Core practices in elementary school teaching: Anticipating and noticing children's mathematical thinking. *Roundtable paper presentation at the 2017 annual meeting of the American Educational Research Association*, San Antonio, TX.

Jacobs, V., Empson, S., Pynes, D., Hewitt, A., Jessup, N., & Krause, G. (2017, April–May). Prioritizing practice in professional development: Anticipating, noticing, and questioning children's mathematical thinking. In J. Richards (chair), Exploring varied approaches to supporting responsive teaching in science and mathematics. *Symposium presentation at the 2017 annual meeting of the American Educational Research Association*, San Antonio, TX.

Pynes, D., Krause, G., & Empson S. (2017, April). The power of unit-fraction quantities for building children's understanding. *Presentation at the annual meeting of the National Council of Teachers of Mathematics,* San Antonio, TX.

Mann, M. J. and Pynes, D. (2016, March). Using effective project-based learning in a third grade science classroom**.** *Paper presented at the Texas Academy of Science*, Junction, TX.

Krause, G., Pynes, D., & Empson S., (2015, June). Notating fractional relationships. *Presentation at the 8th Cognitively Guided Instruction (CGI) National Conference*, Lawndale, CA.

Jacobs, V. R., Empson, S. B., Krause, G., & Pynes, D. (2015, April). Responsive teaching with fractions. *Paper presentation for the Research Conference of the 2015 Annual Meeting of the National Council of Teachers of Mathematics*, Boston, MA.

Mann, M. J. and Pynes, D. (2013, November)**.** Who's been here: Overview of a PBL unit for third grade. *Presentation at the Conference for the Advancement of Science Teaching*, Houston, TX.

Invited Presentations

Pynes, D. (2026)**.** Building children's thinking: Research on understanding of rational numbers. *Teachers as Scholars Seminar*, Notre Dame, IN.

Media and Design Work

Pynes, D., Kirkland, P., & Rhinesmith, J. (2026). Building number sense in K-2 students. Collaboration to Refine and Enhance STEM Teaching (CREST). 5 sessions.

Pynes, D. (2025). Math Methods for STEM Teacher Leaders. Equivalence of 1-credit.

Wilsey, M., & Pynes, D. (2024). Assessment in STEM. Equivalence of 1-credit.

Empson, S. B., Jacobs, V., & Pynes, D. (2016). Online application for teachers' collaborative inquiry into children's mathematical thinking. 12 sessions.