

“I’m Making This Math, Not Only Taking This Math”: Poetic Transcription of a Trans Student’s IO Calculus Experience

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Inquiry-oriented (IO) mathematics instruction holds promise for engaging undergraduate students in meaningful mathematics. Yet, recent research shows that this promise may not be realized equitably without careful attention to classroom norms and participation structures. IO instruction can reproduce existing hierarchies, privileging dominant voices and marginalizing others (Ellis & Alzaga Elizondo, 2023; Ernest et al., 2019; Reinholz et al., 2022). Our project explores what IO instruction can feel like when it creates a more affirming space, especially for students from historically excluded groups.

We use poetic transcription to share the experience of Mal (first author), a trans undergraduate student in an IO Calculus 2 course. Mal was a student in Kristen’s class, which used research-based IO materials on sequences and series (Vroom et al., 2025; Vroom & Davis, 2024; Vroom & Alzaga Elizondo, 2025). To address potential inequities, Kristen drew on Universal Design for Learning (Lambert, 2021, 2024; Vroom & Alzaga Elizondo, this issue). Mal participated in a reflective interview with Saúl, where they discussed both classroom experiences and research findings. Mal’s reflections felt especially resonant, offering insight into the IO experiences that engage students in meaningful mathematics *and* affirm their identities.

We chose poetic transcription to center Mal’s voice and emotional experience (Prendergast, 2009). Our work aligns with trans* methodology, attempting to “disrupt, disorder, and rupture” narratives of collegiate mathematics classrooms and cishegemonic research through a mix-gender research team including gender-nonconforming members (Jourian, 2017, p. 431). Like Rios et al. (2024), each team member created an individual poem by re-listening to the interview, selecting emotionally significant quotes, and juxtaposing them (Tremaine, 2022). Since each author created a poem, Mal’s voice transcended from transcript data into personal connections for each of us (Lather, 1991; Richardson & St. Pierre, 2005). We shared drafts, provided feedback, and created a line bank from excerpts. Prioritizing Mal’s preferences, we grouped lines by emergent themes and iteratively rearranged them to shape a cohesive emotional arc.

The final poem tells a hopeful story. It begins with Mal’s previous view of math: “Math is a more straightforward thing // It’s either right or wrong / No / You’re wrong // It just ends there / People shutting down.” It traces how their questions were dismissed and how identity shaped their experiences: “I would ask a question and I wouldn’t really get an answer // I am a visibly queer person / Is this why this is happening...?” But in the IO course, something shifted: “The environment very much set the tone that it is absolutely okay to ask questions // I have never doubted that I am not being heard.” Mal reflects on collaboration (“Working together, Not forced together”), how instruction recognized their whole self (“I am more than just the question I asked”), and growing mathematical agency (“I’m making this math / Not only taking this math”). The full poem illustrates that IO instruction can support belonging and joy in mathematics.

References

- Brown, S. (2018, February). E-IBL: An exploration of theoretical relationships between equity-oriented instruction and inquiry-based learning. In *Proceedings of the 21st Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1-15).
- Ellis, B., & Alzaga Elizondo, T. (2023). Exploring how status influences relational and participatory equity in inquiry-oriented small group interactions. *Proceedings of the 25th Annual Conference on Research in Undergraduate Mathematics Education*. Omaha, Nebraska.
- Ernest, J. B., Reinholz, D. L., & Shah, N. (2019). Hidden competence: Women's mathematical participation in public and private classroom spaces. *Educational Studies in Mathematics*, 102(2), 153-172.
- Johnson, E., Andrews-Larson, C., Keene, K., Melhuish, K., Keller, R., & Fortune, N. (2020). Inquiry and gender inequity in the undergraduate mathematics classroom. *Journal for Research in Mathematics Education*, 51(4), 504-516.
- Jourian, T. J. (2017). Trans* ing constructs: Towards a critical trans* methodology. *Tijdschrift voor Genderstudies*, 20(4), 415-434.
- Lambert, R. (2021). The magic is in the margins: UDL math. *Mathematics Teacher: Learning and Teaching PK-12*, 114(9), 660-669.
- Lambert, R. (2024). *Rethinking Disability and Mathematics: A UDL Math Classroom Guide for Grades K-8*. Corwin Press.
- Lather, P. (1991). Deconstructing/deconstructive inquiry: The politics of knowing and being known. *Educational Theory*, 41(2), 153-173. <https://doi.org/10.1111/j.1741-5446.1991.00153.x>
- Prendergast, M. (2009). "Poem is what?" Poetic inquiry in qualitative social science research. *International Review of Qualitative Research*, 1(4), 541-568.
- Reinholz, D., Johnson, E., Andrews-Larson, C., Stone-Johnstone, A., Smith, J., Mullins, B., Fortune, N., Keene, K., & Shah, N. (2022). When Active Learning Is Inequitable: Women's Participation Predicts Gender Inequities in Mathematical Performance. *Journal for Research in Mathematics Education*, 53(3), 204-226. <https://doi.org/10.5951/jresmetheduc-2020-0143>
- Richardson, L., & St. Pierre, E. A. (2005). Writing: A method of inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed, pp. 959-278). Sage Publications.
- Rios, J., Ellis Hagman, J., Tremaine, R., Fantin-Hardesty, K., Lutz, S., Medina, H., & Espinoza, K. (2024). "Stay Silent Situation": Using Multilingual Students' Own Words Through Poetic Transcription to Tell Their Stories of Introductory College Mathematics Education. *Journal for Theoretical & Marginal Mathematics Education*, 3(1), Article 0311. <https://doi.org/10.5281/zenodo.14397003>
- Tremaine, R. (2022). Opportunities and limitations of poetic transcription as a critical research methodology for mathematics education. *Proceedings of the forty-fourth annual meeting of the North-American chapter of the international group for the psychology of mathematics education*. Middle Tennessee State University.
- Vroom, K., & Alzaga Elizondo, T. (2025). Eliciting Students' Informal Ideas about Series: The Partial Sum Sequence Game. *Proceedings of the 27th Annual Conference on Research in Undergraduate Mathematics Education*. Alexandria, Virginia.

- Vroom, K., & Alzaga Elizondo, T. (in preparation). Redesigning inquiry-oriented calculus using Universal Design for Learning. *Proceedings of the 28th Annual Conference on Research in Undergraduate Mathematics Education*. Alexandria, Virginia.
- Vroom, K., & Davis, C. (2024). Conjecturing the divergence test for series: “Maybe they only win if they converge to zero”. *Proceedings of the forty-sixth annual meeting of the North-American chapter of the international group for the psychology of mathematics education*. Cleveland, Ohio.
- Vroom, K., Barbosa, J. S., & Lippert, A. (2025). How two undergraduates used examples and an Euler diagram for making and proving conjectures. *The Journal of Mathematical Behavior*, 79, 101259.