

Speaking into the silence: Using multilingual students' own words through poetic transcription to tell their stories within introductory college mathematics education

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As universities continue to become more multicultural, a growing body of literature recognizes the important role that language plays in students' undergraduate mathematics educational experiences (Hwang et al., 2021; Rios, 2023). For example, language mediates how students think, learn, make sense of the world, and socialize (Barwell, 2015). In addition, language, as it intersects with other social identities, positions people within social power hierarchies (Rios, 2023). Driven by these motivations, and within the context of a larger study examining 28 multilingual students' experiences in introductory mathematics, we explore the question: *What are the stories of multilingual students in introductory mathematics?*

We use poetic transcription (Glesne, 1997; Prendergast, 2009; Tremaine, 2022) to showcase the stories of multilingual students of color within these courses. Poetic transcription is an arts-based methodological tool that re-presents interviewees' words in the form of a poem; this allows the interviewee's own words to be used to tell their story while also bringing in space for the researcher's interpretation and analysis, which are used to decide how to present the interviewee's words. In this analysis, our focus is on how experiences of "silence" show up within these experiences, both of being silenced by others and how students use silence as a response for navigating the sociopolitical contexts of the classroom (Mills, 2006). Our results come in the form of poems from each of the six interviews involved in this analysis, chosen because of their discussion of silence. Here, we present an excerpt of one poem to illustrate the power of this methodology. This poem comes from Qamar (she/her), a Syrian refugee living in Saudi Arabia while enrolled as an international student at a large US university, and illustrates her experience of being silenced by multiple calculus instructors at various times.

When I asked that question
She muted me.
She asked, "Does anyone have any other questions?"
Yeah, I have my question,
but you muted me.
You just don't want to speak to me
You're muting me.
I'll stay silent.

On our poster, we will present all six poems in full, and highlight the ways in which silence acts as a navigational response and form of resistance for these multilingual students in undergraduate introductory math courses.

References

- Barwell, R. (2015). Tensions in teaching mathematics through a second language. *Language Issues: The ESOL Journal*, 26(1), 52-54.
- Glesne, C. (1997). That rare feeling: Re-presenting research through poetic transcription. *Qualitative Inquiry*, 3(2), pp. 202-221.
- Hwang, J., Castle, S. D., & Karunakaran, S. S. (2022). One is the Loneliest Number: Groupwork within Linguistically Diverse Classrooms. *PRIMUS*, 32(10), 1140-1152.
- Mills, J. (2006). Talking about silence: Gender and the construction of multilingual identities. *International Journal of Bilingualism*, 10(1), 1-16.
- Prendergast, M. (2009). "Poem is What?" Poetic inquiry in qualitative social science research. *International Review of Qualitative Research*, 1(4), pp. 541-568.
- Rios J. (2023). Language, Comfort Speaking, and Collaboration: A QuantCrit Analysis of Multilingual Students' Experiences in Introductory College Mathematics Courses. *International Journal of Research in Undergraduate Mathematics Education*.
- Tremaine, R. (2022). Opportunities and limitations of poetic transcription as a critical research methodology. In A. E. Lischka, E. B. Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), *Proceedings of the 44th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 511-515). Nashville, Tennessee.

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Intro

- As universities become more multicultural, language plays an increasingly important role in students' undergraduate mathematics educational experiences (Hwang et al., 2021; Rios, 2023)
- Language is both a resource that supports learning of mathematics, and is tied to power, how social interactions unfold, and who has access to speak and have their voices heard (Planas & Civil, 2013)

Methods

- Poetic transcription (Glesne, 1997) allowed us to use the students' own words to describe their experiences of silence in college math (Mills, 2006)
- Within the context of a larger study examining 28 multilingual students' experiences in introductory mathematics, we explore: *What are the stories of multilingual students in introductory mathematics?*

Discussion

- The theme of silence and being silenced was a salient part of how multilingual students of color described experiencing their introductory math courses
- Students described using silence in various ways to **navigate** their undergraduate mathematics classrooms, including navigating:
 - feeling uncomfortable speaking, feeling like their contributions were not listened to or valued, and feeling like they were treated differently than peers
- Students used silence as a form of **resistance** to empower their own voices, and discussed their **aspirations** related to using their voices
- These poems highlight the importance, from an instructor standpoint, of recognizing the role silence plays in navigating the classroom, along with the need to make the mathematics classroom more inclusive for multilingual students

Multilingual students of color experienced being silenced and using silence in ways that are interwoven with their linguistic, navigational, resistance, and aspirational capital (Yosso, 2005)



Scan to read more poems

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Nader

(he/him) is an international student from Iran. He is one of few international students at this school who started in Precalculus instead of Calculus.

I'm a silent person
most of the time.
I prefer to work myself.
Nader, do you have any questions?
Ask it,
don't be shy.

No,
I'm okay.
I can work on it—
I can figure it out myself.
It's really hard for me to start talking so much in the group.

I don't feel good when I ask a lot.
The students
-don't like-
when a student asks lots of questions.
When I want to explain complicated things,
people couldn't understand.
My English is not perfect.
I was talking to my classmates
I just said something very weird in Farsi.
No, no I mean, nah, sorry—
I just said nah—
it was no in Farsi—
She was just like,
What?
I said nothing.
It's hard to speak another language.

...Some part of it was bad
Some part of it was good...

When you talk to teacher
and you feel that teachers
-likes-
to communicate with you in class.
She let us to do whatever we want,
how we are comfortable to do things.
I have good communication with my teacher.
I think that makes it much easier.

My friends, they say,
Yeah, we were like you for the first year.
And we get through it.
I was able to get through it.
At the middle of the semester, I feel much better,
I feel more comfortable.
I've been working on it;
I think I might be ready by fall to talk with people
and communicate.