

Creativity and Subjectivity: Two Researchers' Poetic Re-Presentations of Critical Student Perspectives of Mathematical Success

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Dismantling notions of objectivity in the qualitative research process necessitates engaging research subjectivity in meaningful and explicit ways. Poetic transcription methodology allows for an entry point into conversations around research subjectivity. In the context of a critical exploration into students' definitions of their own mathematical success, the poetic transcription results of two researchers are comparatively analyzed to highlight structural and thematic (mis)alignments in researchers' poetic interpretations of students' definitions of mathematical success. We emphasize both the scholarly value and uncertainty that the results of such a comparison produce and discuss how future work might build on these comparisons and on our understanding of what poetic transcription can bring to mathematics education.

Keywords: Methodology, Student Success, Subjectivity

Within qualitative research processes, researchers themselves are the “primary research instrument” (Corley, 2020, p. 1023). This positioning makes clear that researchers and their collection, framing, analysis, and presentation of qualitative data are deeply intertwined. One way this manifests is in recent academic discussions on how identity impacts mathematics education scholarship, and the acknowledgement that mathematics education is *not* culture-free nor is the knowledge it produces disjoint from socio-cultural and socio-political notions of power and oppression (Gutiérrez, 2013; Ladson-Billings, 1997; Martin et al. 2010).

By resting on the research axiom that neutrality is fundamentally nonexistent within qualitative mathematics education research, space is opened to explore ways to make explicit the discussion of subjectivity. Corley (2020) writes that “the goal for researchers should be to write in such a way that challenges mainstream knowledge claims and that values the subjective, contextual, relational nature of both reality and inquiry” (p. 1024). In this work, we aim toward this goal through comparatively analyzing the results produced by our independent engagement with poetic transcription methodology.

Poetic transcription draws from the literary tradition of a *found poem*, in which excerpts from existing written media are juxtaposed to create poetry with distilled meaning. In poetic transcription, participants' words from interview or focus group transcripts are pulled in such a way as to honor and reflect the participant's meaning and narrative style (Glesne, 2007). Prendergrast (2009) emphasizes that these poetic transcriptions are built from the participants' words but filtered and “re-presented” through the lens of the researcher by referring to these poems as “participant-voiced poems.” Via the artistic embodiment of experiential knowledge, poetic transcription can present nuances of qualitative data in a way that the quoting and analysis of traditional prose may not, particularly when viewed through a lens of feminist theory (Faulkner, 2018) and critical, justice-oriented qualitative research (Fernández-Giménez et al., 2019; Keith & Endsley, 2020).

Poetic transcription is utilized in meaningful ways in educational spheres (see, for example, Thunig & Jones, 2020; West & Bloomquist, 2015; Mercer-Mapstone et al., 2019; Vannini & Gladue, 2008). It has a particularly rich history in regards to re-presenting the narratives of Indigenous participants through its existence as an “embodied meaning-making practice that is consistent with more holistic Indigenous approaches to teaching and learning which engage the heart, mind, body, and spirit” (Madden et al., 2013, p. 215; see also Ambo, 2018; Thunig &

Jones, 2020). In mathematics education spaces specifically, poetic transcription has been used to understand the structure of students' mathematical thinking (Staats, 2008), interrogate the intersection of theological beliefs and beliefs about mathematics (Norton, 2001), and examine mathematical identity in the face of "low attainment" labels (Helme, 2022). The poems constructed in the context of this work centered around re-presenting narratives of mathematical success shared with us by three first-year undergraduate women students who also identified as first-generation students, Pell-grant eligible students, and/or women of color.

Poetic transcription as a methodology lends itself well to a critical exploration of marginalized students' experiences of mathematical success because it (a) promotes "evocative critique and resistance of the status quo" (Faulkner, 2018, p. 23) and (b) lends itself to "topics that lead into the affective experiential domain" (Prendergast, 2009, p. 546). Students' own conceptualizations of their mathematical success align with both attributes; centering students' voices in the defining of their own mathematical success both provides critique of traditional neoliberal measures through implicit or explicit misalignment (Tremaine, 2021), and student definitions and narratives of student success are deeply affective in that they are evidentially embodied and emotional (O'Shea & Delahunty, 2018).

The two authors of this work engaged independently in a parallel poetic transcription process using the transcript data from three participants, resulting in three pairs of poems. In an investigation into both the use of the methodology and how it allows for rich conversation regarding the student participants' experiences and definitions of mathematical success, we pose the following research question: In what ways do the poetic interpretations of two researchers, when constructed through a prescribed poetic transcription methodology, align and misalign, and what do these (mis)alignments teach us about this data analysis method?

Methods

The data used in this analysis are three sets of two poems, each set containing one poem constructed by Tremaine and one poem constructed by Hagman through the poetic transcription process depicted in *Figure 1*. As poetic transcription is inherently a creative process, there is no one *right* way to engage in this methodology— the methodology illustrated by *Figure 1* draws from the work of Prendergast (2009) and Glesne (1997), as well as Burdick (2011)'s notion of tandem poetic transcription, and is intended not as a definite guide to poetic transcription, but as a description of process undertaken by the authors. This particular method of poetic transcription consisted of three phases: Phase 1 (Initial Parsing of the Data), Phase 2 (Poetic Juxtaposition), and Phase 3 (Member Checking).

Poems were constructed using qualitative interview data from three participants- Ada, Isabel, and Kenzie- as collected and transcribed by the authors in January 2021. Ada, Isabel, and Kenzie are first-year, Pell-grant eligible women students and were asked in an interview context to (a) describe an experience in which they felt successful in mathematics and (b) define what *student success in mathematics* meant to them, with conversational room to elaborate on responses.

The analysis below, as it is preliminary, identifies themes in both meaning and style that align and misalign between the two researchers' poems. We then discuss the significance of this alignment and misalignment as it relates to poetic transcription as a methodology and in research more broadly, with the intent of bringing others into this conversation as this methodology (and what it means to do research) is continually refined.

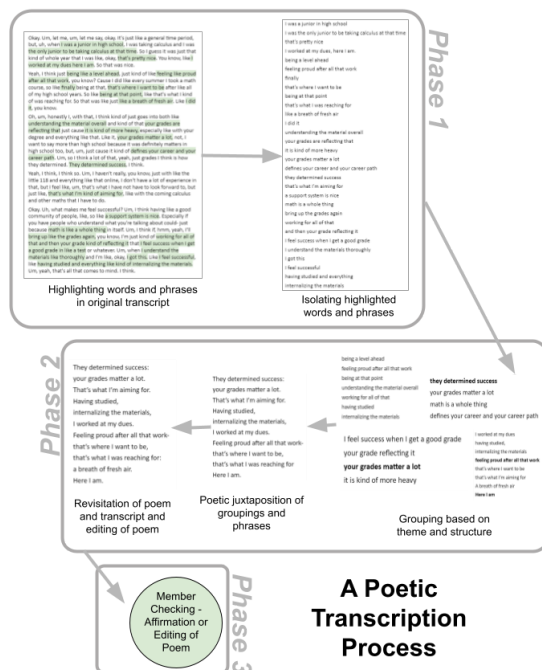


Figure 1. The poetic transcription process engaged in by both Tremaine and Hagman.

Analysis

In Table 1, we present the poems constructed by Tremaine and Hagman from each participant's data and invite the reader to contemplate what they tell us about the participants' definitions of mathematical success. We then follow the poems with a comparative analysis, diving more deeply into the analysis of Kenzie's poem and providing brief overviews of the others to account for succinctness in submission.

Table 1. Poems written by Tremaine and Hagman which draw from each participant's data.

Kenzie

Tremaine

They determine success:
your grades matter a lot.
That's what I'm aiming for.
Having studied,
internalizing the materials,
I worked at my dues.
Feeling proud after all that work-
that's where I want to be,
that's what I was reaching for:
a breath of fresh air.
Here I am.

Hagman

Every summer I took a math course,
that's what I was reaching for:
being a level ahead,
feeling proud,
like a breath of fresh air.
I did it.

Just grades is how they determine
success.
Your grades matter a lot.
It is heavy:
your degree,
your career,
your career path,

everything.	
Isabel	
<u>Tremaine</u> It's two different intelligences: being able to do well in school and being able to actually use what you've learned. Some people just enjoy doing math for the sake of math; I really enjoyed being able to know how much fabric to get. Being able to practically apply your math skills- this is what math was meant to be used for.	<u>Hagman</u> It's two different intelligences there: There's being able to do well in school and there's being able to actually use what you've learned in school. Some people just enjoy doing math for the sake of math... I really like it when I can use math to do something: I have math skills to know how much fabric to get. To be able to calculate how much fabric you need- it's successful because you're using it for something.
Ada	
<u>Tremaine</u> I've had a lot of struggles in math. I've also had a lot of successes. We all fail, we've all been there. I had to take a step back and be resilient; work around it; put in the effort; learn critical thinking; I could pull through. I know how to do this. Cross it off a checklist? That's not what college is. Further your education, get something positive out of the experience. I was still successful because I didn't give up.	<u>Hagman</u> I was killing it. Getting nineties on my tests, I did so good on their finals. Running home to my parents- bragging to my friends- Hey, look, look at my scores, hahaha. Grades are important, but at the end of the day I've learned from college that grades aren't everything. In a college math classroom, it's more about learning something and getting something out of it. I need to get something out of it and still care about my grade, but not let that grade define me as much. At the end of the day, it's not all about grades. Now it's like, okay, I'm growing up.

As the reader is no doubt aware of after reading the poems, the set contains a myriad of alignment and misalignment, both in phrase, theme, style, and structure. In each pair of poems, we see stylistic differences between the authors' poems which emphasize different aspects of the students' interviews: a key distinction we see is the use of more abstract descriptions of student success versus more concrete descriptions of moments of success. The impact of this stylistic difference varies by set of poems, with the least differences for Isabel and most for Ada. Here we analyze Kenzie's poems to exemplify these differences and provide brief additional analyses of Isabel's and Ada's poems.

We see that several phrases from Kenzie's transcript were poetically juxtaposed in both authors' poems, such as the highlighting of how "they determine success", as well Kenzie's "feeling proud" and experiencing "a breath of fresh air" upon achieving her goals. However, one can see thematically that Hagman attends more closely to Kenzie's concrete experiences that led to mathematical success (in this case, taking a math course every summer), while Tremaine utilized more abstract imagery to illustrate how Kenzie discussed her experience of success. The reader may have also noticed Hagman's use of two stanzas, versus the single stanza used by Tremaine. In Tremaine's poem, this "they" entity is presented as having more influence on Kenzie's own perspectives and experiences by nature of being a part of a unified poetic narrative; the two stanzas utilized by Hagman present this entity as something which Kenzie discusses but perhaps does not have as direct an influence on her own experiences, as the experience of working hard to get "a level ahead" in mathematics is separate from what "they" define success as. Further, Tremaine and Hagman both highlight structural parallelism in Kenzie's narrative; Tremaine juxtaposes "that's where I want to be / that's what I was reaching for" and Hagman juxtaposes "your degree / your career / your career path." Thematically, both center on Kenzie's hard work in mathematics as central to her definition of success, while simultaneously painting nuanced interpretations of her transcript via poetic style and structure.

We see similar phrase and structure (mis)alignments in Isabel's set of poems. Interestingly, lines 1-6 in both poems draw from the same components of the transcript. Hagman splits their poem into two stanzas, allowing for a clear distinction between the two intelligences alluded to by Isabel, while Tremaine maintains a single stanza, reinforcing continuity of the overall theme found in both poems of the exaltation of mathematical applications as a means of mathematical success. Meanwhile, the most notably different set of poems are those constructed from Ada's narrative. Both in theme and in phrase choices, these two poems paint two different (albeit complementary) pictures of Ada's ideas of success. Tremaine's poem focused on the imagery and action phrases Ada used to describe her perseverance, attributing this perseverance as immensely relevant to how she was describing success. Hagman attended more to Ada's concrete experiences in mathematics, including "getting nineties on her tests." Both authors emphasize in their poems the salience of Ada's acknowledgement that she "needed to get something out of [her mathematics courses]"—something more than a good grade—to feel successful. We are left pondering these differences in what they tell us about students' own definitions of student success, and welcome this as a discussion point during the presentation.

Discussion

The comparison of two researchers' results when engaging with poetic transcription methodology enables multiple perspectives on how these students defined their mathematical success. A multitude of poetic interpretations of the data provides opportunity for nuance that could not have been captured by a singular poem. Further, it makes space for discussion around

the ways in which participant data can be varyingly interpreted, necessarily incorporating discussion of the researchers' perspectives on data presentation. This is especially evident with the poetic interpretations present in Ada's poetry, in which each poem emphasizes differing components of her narrative of mathematical success. Glesne (1997) describes the creation of a *third voice* when engaging in poetic transcription—one which is constructed from both the participant's and researcher's experiences. Future work would more closely and critically interrogate our own *third voices*—how our experiences and identities as researchers, and what of the participant's own experience we drew from, enabled these two irreproducible poetic interpretations.

We also acknowledge the tensions brought forth in our experiences as researcher-poets; while poetic transcription offers an opportunity to work toward “healing wounds of scientific categorization and technological dehumanization” (Glesne, 1997, p. 214), it also maintains the hegemonic power of the researcher, and thus the potential to privilege perspectives that are already dominant in research spaces. In addition to explicit acknowledgement of this tension, other poet-researchers have illustrated ways in which to centralize participants' poetic voices in the process, either through researcher-participant co-construction of poetry (Levinson, 2020), tandem research poetry (Burdick, 2011), or with the researchers' own transcripts as data from which to engage in poetic transcription (Mercer-Mapstone et al., 2019). While not a possibility in the context of this study, future work with poetic transcription could entail comparison of multiple researchers' poetic interpretations with poetic interpretations written by the participants themselves to further highlight the subjective nature of research and deepen understanding of the research topic at hand.

We also find it important to emphasize the joy that engaging in this particular methodology brought to us as researchers; seldom is the researcher's experience of researching brought into academic discussion, but we find it particularly relevant here due to the inherent emotional nature of poetic transcription, and its evidenced potential to grow our own research practices (Romero, 2020). We find ourselves excited to discuss implications of the comparison of poetry and appreciative of the opportunity to deeply engage with our participants' perspectives in a poetic, artful way.

In addition, future work with this data will employ computational analysis to rigorously compare the poems, attending to differences in style, affect, and the use of concrete imagery (Kao & Jurafsky, 2012). This analysis will add to our understanding of the application of poetic analysis as a qualitative methodology for research in undergraduate math education, as well as the potential benefit of creating multiple poems by multiple authors to gain a richer analysis. In engaging in this comparison, we build upon prior scholarly work which challenges the notion of objectivity in mathematics education research and invite others to join the discussion of both the value of subjectivity and arts-based research to our field.

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