



A Magical Moment Counting Tires: A Counterstory About Missed Opportunities

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**Carlos Nicolas Gómez Marchant, Alexandra R. Aguilar, Amy Rae Johnson,
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Anabel sighed as she turned the page of the test review Ms. Hidalgo passed out to the class. She read the problem to herself:

John was counting tires in the parking lot. There were 5 cars and 4 motorcycles. How many tires did John count in total?

Anabel paused and read the question again silently mouthing the words. She put her pencil down and thrust her hand in the air. She needed to know why John is counting tires. She pumped her arm in the air again, staring at Ms. Hidalgo. Trying one more time, she stretched her arm straight up, tiptoeing, lifting off her seat to raise her hand a little higher, and using her trick of not blinking until Ms. Hidalgo notices her.

“Ana, I’ll be right there. Remember that I expect to see some work on your paper before I help you.”

Anabel sank in her seat. She thought of all the old tires at her parents’ *taller*. She recalled how last weekend she was playing with her brother around the towers of two, three, and four tires. Her hands tingled remembering the feel of the smooth rubber as she counted in a singsong way: *tres, siete*, ten, twelve, *trece*. Her brother closely behind echoing the counts. *Tres, siete*, ten, twelve, *trece*.

“*Por dios, Anabel. ¡Tu vestido!*” Her mother yelled.

Anabel knew she was in trouble when her mother did her *pequeña oración*.

“*Anda a lavarte las manos.*”

Anabel recalled the grime from the tires on her hands and how pretty the streaks of black were on her dress.

Anabel recollected the cars she passed heading to her father’s office. A green car with one tire, the one missing a door with two back tires, the tiny white car with no tires her father insists he will fix one day. Then there was *Allende*, the purple car named after her mother’s favorite author. The car shines with four flat tires. Her father promised *Allende* will be fixed for her by the time she goes to college, “*porque la educación abre las puertas.*” Anabel walked by her father under a car with three tires. “*Todo bien mija?*” Anabel could feel his voice tickle her feet. She loved how his voice softly shakes the earth.

Anabel bent over as far as she could, but only her father’s boots could be seen like the Wicked Witch of the East under Dorothy’s house. She was home, though. “*Si todo bien*, just need to wash my hands.”

Anabel’s dad clicked his boots together as he spoke. “*Bien. La puerta está abierta.*” Laughing, Anabel skipped on. Anabel’s father felt the breeze that came with Anabel’s laugh.

“I’m not seeing any work Ana.” Ms. Hidalgo’s voice interrupted Anabel’s memory.

¹ This counterstory (Delgado, 1989; Martinez, 2020) is based on field notes (Oct. 19 & Nov. 1, 2022) from our collective’s ethnographic project working with upper elementary Latiné learners and their transition to middle school mathematics. We see counterstories as a creative endeavor helping us in exploring the experiences of Latiné learners’ mathematics and our own narratives of navigating the whiteness of schools (see e.g., Cordero-Siy & Gómez Marchant, 2023; Gómez Marchant & Cordero-Siy, 2022). This counterstory highlights the brilliance of Anabel (a composite character) and the missed opportunity there was to learn about her life and mathematics. The actions of silencing shown in the counterstory promote an assimilative education (Urrieta, 2004) or subtractive schooling (Valenzuela, 1999) where mathematics is emotionless and ahistorical. Consequently, the education system maintains the whiteness of mathematics (Battey & Leyva, 2016; Martin, 2020). Counterstories help us in acknowledging how whiteness is part of learning mathematics, but also push us to reflect and reimagine possible actions and futures in our mathematics classrooms.

“Yeah um why is John counting tires? How do I know how many tires the cars have?”

Ms. Hidalgo closed her eyes while rubbing the bridge of her nose. “Ana. It doesn’t matter. All cars have four tires. It’s practice for your upcoming STAAR test². You know what they want. What, Miguel?”

Anabel picked up her pencil and wrote $5 \times 4 + 4 \times 2$.

“Don’t forget your parenthesis.” Ms. Hidalgo said to Miguel.

Anabel squeezed in her parentheses between her already written numbers.

$$(5 \times 4) + (4 \times 2)$$

$$20 + 8$$

$$28$$

Anabel turned the page.

A seamstress used 9 buttons for one pair of jeans and 5 buttons on a shirt. If they made 3 shirts and 1 pair of jeans, how many buttons would they use in total?

Anabel thought of *Abuelita's* graceful hands sewing the buttons on her nighttime bunny. *Abuelita* would learn nursery rhymes while sewing from her *Abuelita* and was now teaching Anabel.

Los pollitos dicen pio, pio, pio

Cuando tienen hambre, cuando tienen frío.

La gallina busca—

“No.” Anabel stopped herself. “They don’t want my memories. I know what they want.”

$$9 \times 1 + 5 \times 3$$

Don’t forget your parentheses.

$$(9 \times 1) + (5 \times 3)$$

$$9 + 15$$

$$24$$

Turn the page.

$$7 \times 4 + 3 \times 2$$

Don’t forget your parentheses

$$(7 \times 4) + (3 \times 2)$$

$$28 + 6$$

$$33$$

Turn the page.

$$6 \times 8 + 10 \times 3$$

Parentheses

$$(6 \times 8) + (10 \times 3)$$

$$48 + 30$$

$$78$$

Turn the page.

Authors’ Note

The conversations leading to the construction of this story had us reflecting on word problems and the various ways they may contradict or overly simplify our lived experiences for the sake of completing computations. We hope this piece helps you reflect on word problems, the ways learners’ worlds are reflected in them, and how to embrace instances learners bring in their lived experiences and the nuances those experiences add to traditional school mathematics. When students like Anabel bravely choose to introduce their stories into the “hierarchical and value-laden” (Pais, 2011, p. 227) mathematics classroom, that bravery deserves to be honored. In all, we hope this counterstory “can open new windows into reality, showing us that there are possibilities for life other than the ones we live” (Delgado, 1989, p. 2414). We ask you to take a moment to reflect on what you notice, wonder, feel, reimagine, and choose to act on (see Rubel et al., 2022) after reading the counterstory.

² State of Texas Assessment of Academic Readiness (STAAR)

References

- Battey, D., & Leyva, L. A. (2016). A framework for understanding whiteness in mathematics education. *Journal of Urban Mathematics Education*, 9(2), 49-80.
- Cordero-Siy, E., & Gómez Marchant, C. N. (2023). You will not take us: A counterstory. *Journal for Theoretical & Marginal Mathematics Education*, 2(1), 1-24.
- Delgado, R. (1989). Storytelling for oppositionists and others: A plea for narrative. *Michigan Law Review*, 87(8), 2411-2441.
- Gómez Marchant, C. N., & Cordero-Siy, E. (2022). Were we supposed to bring flowers? A counter-story on distancing and disconnection while assimilating. *The Pen*, 7-9.
- Martin, D. B. (2020). Refusing systemic violence against Black children: Toward a Black liberatory mathematics education. In J. Davis & C. Jett (Eds.), *Critical race theory in mathematics education* (pp. 32-55). Routledge.
- Martinez, A. Y. (2020). *Counterstory: The rhetoric and writing of critical race theory*. National Council of Teachers of English.
- Pais, A. (2011). Criticisms and contradictions of ethnomathematics. *Educational Studies in Mathematics*, 76(2), 209-230.
- Rubel, L. H., Herbel-Eisenman, B., Peralta, L. M. Lim, V., Jiang, S., & Kahn, J. (2022). Intersectional feminism to reenvision mathematical literacies & precarity. *Research in Mathematics Education*, 24(2), 224-248, DOI: 10.1080/14794802.2022.2089908
- Urrieta, L. (2004). Dis-connections in “American” citizenship and the post/neo-colonial: People of Mexican descent and whitestream pedagogy and curriculum. *Theory and Research in Social Education*, 32(4), 433-458.
- Valenzuela, A. (1999). *Subtractive schooling: U.S.-Mexican youth and the politics of caring*. SUNY Press.
- Yosso, T. (2006). *Critical race counterstories along the Chicana/Chicano educational pipeline*. Routledge.



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