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A Publication of Dual Language Education of New Mexico

Soleado

Promising Practices from the Field

Our Legacy, Their Future— Dual Language Education of New Mexico Supporting Multilingual Learners



In recognition of La Cosecha 2023, Fuente Press is proud to provide you with our winter issue of Soleado featuring articles from Dual Language Education of New Mexico's (DLeNM) staff.

DLeNM is a grass-roots educational non-profit organization serving the professional and informational needs of New Mexican communities that wish to develop, refine, and/or implement dual language education programs.

In 1995, the New Mexico Department of Education funded five pilot dual language programs. In 1996, teachers from Dolores Gonzales Elementary School, in Albuquerque, New Mexico, organized the first La Cosecha Dual Language Conference to network and share identified best practices. As the increase in demand for dual language collaborations around best practices and strategies grew, the vision of Dual Language Education of New Mexico was born. DLeNM was founded by dual language teachers—Gilberto Lobo, Barbara Gabaldón, Dair Obenshain, and David Rogers, and was officially incorporated in 2001 as an educational non-profit organization.

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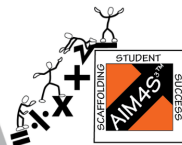
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DLeNM is committed to supporting schools and districts in meeting the social, emotional, and academic needs of our multilingual learners. As a non-profit founded by teachers and administrators, DLeNM understands the unique needs of students, families, and educators in diverse linguistic and cultural settings.



Honoring My Story—Following in Grandma’s Footsteps

by Loretta Booker—Project Coordinator, Dual Language Education of New Mexico

Bilingual education in our state of New Mexico, and across the country, has a long and complex history. From the initial policies, such as the Bilingual Policy Statement (1967), written by Henry Pascual (Valenzuela & Sandoval, *Soleado*, Winter 2022) to the approval of the New Mexico Indian Education Act of 1972 and the Bilingual Multicultural Education Act of 1973, I feel like we in New Mexico have made, and continue to make, great strides in pursuing greater access to high-quality, bilingual education programs for our children.

What is interesting for me to think about, however, is how I am personally connected to the evolution of bilingual education programming in our state—directly as a student and educator and indirectly as the granddaughter of one of the first, formal, bilingual educators with the Santa Fe Public School District. Let me start by introducing myself. My name is Loretta Booker and I am the newest member of the Dual Language Education of New Mexico staff, having previously served as a teacher and administrator for 18 years with the Santa Fe Public School District.

I am also “Nueva Mexicana”, self-defined as a person whose family has deep generational roots in the land known as New Mexico, more specifically, Santa Fé—first called Oga Po’geh (White Shell Water Place) by its original Tewa inhabitants, later named La Villa Real de la Santa Fé de San Francisco de Asís by Spain, and now most commonly known as simply, Santa Fe. My family’s heritage language is Spanish, being that this was the first language of both my maternal and paternal grandparents. However, the Spanish spoken by Nuevo Mexicanos of generations before me was very different from other dialects that are

spoken throughout the world. According to a New York Times article (April 9, 2023), Northern New Mexican Spanish is “the oldest Spanish dialect in the country....that today exists nowhere else on earth” and unfortunately, it is dying.

During the time of the arrival of the “Americans” to the southwest, English quickly became the language of power. Children entering American schools were chastised for speaking their home

language. Therefore, many people of that generation chose not to teach their children their language, and as a result, a language shift occurred. This language shift from heritage language use to English-only occurred in my family.

My grandparents were raised speaking Spanish in their homes but chose to use English as the primary language of communication with their children, which, unbeknownst to them at the time, would cause a multi-generational impact of language loss. Both of my parents have a moderate understanding of Spanish and can speak some, but not

to the level that their parents’ generation did. In turn, my parents, like many of their generation, raised their children in an English-dominant home where we were only able to hear Spanish from Grandma and Grandpa as they spoke to each other, and occasionally if they spoke *Spanglish* to us. Otherwise, it was English, English, English.

This being said, I wonder if you’ll find it as ironic as I do that my paternal grandmother, Rosalie Roibal (affectionately called Grandma Lia), was one of Santa Fe Public School’s first official bilingual educators, beginning her career as a third-grade bilingual teacher in 1968. Questions



The author, Loretta Booker, with Grandma Lia, who inspired her to become a bilingual teacher.

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in my head swirled around how she ended up becoming a *bilingual* teacher when she and my grandpa chose not to teach my dad and his siblings Spanish. How did she get into education having been discriminated against and punished for speaking Spanish in school? How did she use our New Mexican dialect of Spanish to teach in a formal bilingual education setting? How has bilingual education changed since that time? I had to interview her!

Grandma Lia was born in 1931 and grew up in the small village of San Ysidro, New Mexico, which is located approximately 65 miles southwest of Santa Fe near the Pueblos of Jemez and Zia, where she started school as an eight-year-old. She attended school in San Ysidro, Bernalillo and later graduated high school from the Loretto Academy in Santa Fe in 1950. I came to learn (R. Roibal, personal conversation, date August 18, 2023) that while she was working as a clerk at JCPenney®, she got wind of a new federal program which would pay for her to go to college to become a teacher while she worked as a teacher's aide. By 1968, she had received her bachelor's degree from the College of Santa Fe, majoring in English, minoring in elementary education, and began her teaching career.

At that time, the Santa Fe Public School District was in the beginning stages of bilingual program implementation and development. Grandma recollects that this was in response to a concern from local Hispanics that their culture was fading and the language was not being used. When Grandma was ready to apply for her first teaching position, there was an opening for a third-grade bilingual teacher, and since she spoke Spanish, she was hired. After a few years of teaching experience, Grandma went back to school and received her master's degree in bilingual education from New Mexico Highlands University in 1977.

Grandma Lia doesn't remember ever using any formal state standards of education, so she said that teachers taught what they liked, what they felt was important. She just knew, though, that she was supposed to teach in Spanish for one period a day (which, with clarification, meant

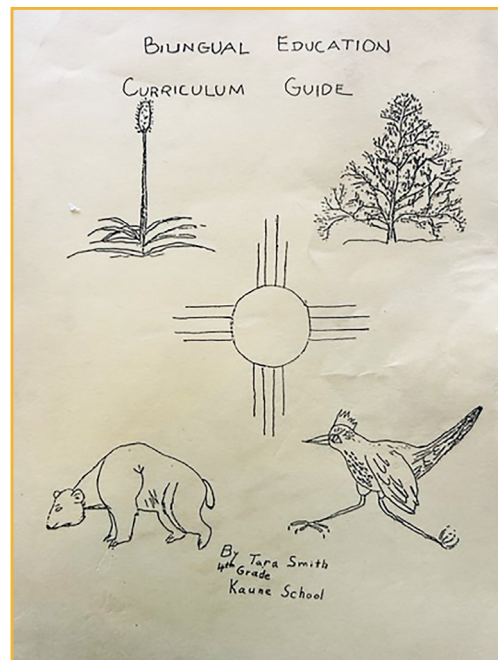
about an hour.) She recalls that the student population of her school at that time was about 50% Hispanic and 50% Anglo; all of whom were monolingual English speakers.

Grandma's recollection of the student population matches my own. I was fortunate enough to be able to attend the same school where Grandma taught in the mid-late 1980's, before she retired in 1990. I don't remember any Spanish speakers in any of my classes, even though I was enrolled in the school's bilingual program. What I remember learning in Spanish during those formative years was how to count in Spanish up to 100, the days of the week and months of the year, the colors, and how to say basic phrases like, *Buenos días* and *¿Cómo estás?* We also learned how to sing songs, like "De Colores" and "México Lindo" and we had performances for the school and parents of Spanish dances like, "La Raspa". In thinking about formal bilingual education programs these days, I suppose that the program model back

then would have aligned with what we now know as an Enrichment Bilingual Education Program, with the intention of it being a Heritage Program model, focused on language revitalization and cultural awareness.

As I spoke with Grandma, these memories were brought back

to life for me. They were also formally validated when I came across one of Grandma's old teaching resources titled, "Bilingual Education Curriculum Guide", written by a committee of Santa Fe Public School educators, circa 1985, which included Grandma Lia. As I skimmed



Santa Fe Public Schools' Bilingual Education Curriculum Guide, circa 1985

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Making Multimeaning Words Transparent in the Math Classroom

by Lisa Meyer—Director of Instructional Equity, Dual Language Education of NM
and Erin Mayer— Developer, AIM4S³™ Math Framework

Have you ever been giving a short-cycle assessment and had a student ask you this type of question? “Maestra, what does *product* mean? Does it mean like shampoo?” Or, as you are walking around proctoring your state exam, you see that a student has read the directions, “Draw a table to find the answer” and is literally drawing a sketch of a kitchen table. You know the students can do the math, but they are going to get the answer wrong because they don’t know the vocabulary, and you can’t give them any help. In both situations, these words have a specific mathematical meaning as well as another meaning that we use in everyday contexts outside of math class.

As a math educator who has spent much of my career looking at how we give multilingual learners access to grade-level content, I’m amazed at how often I use vocabulary with students and don’t recognize that the word has multiple meanings that could confuse my students. I’m knee-deep into a carefully planned math lesson on expressions, equations, and formulas, and I have students who are lost wondering what baby formula or facial expressions have to do with seventh-grade math!

Conversation with other teachers have led me to believe that I’m not the only one with this challenge. Recently, a colleague shared with me that she had been in a seventh-grade math class where students were working on balancing equations. The teacher commented to her, “Today they are struggling, and I’m not sure why. They had this yesterday.” My colleague observed one

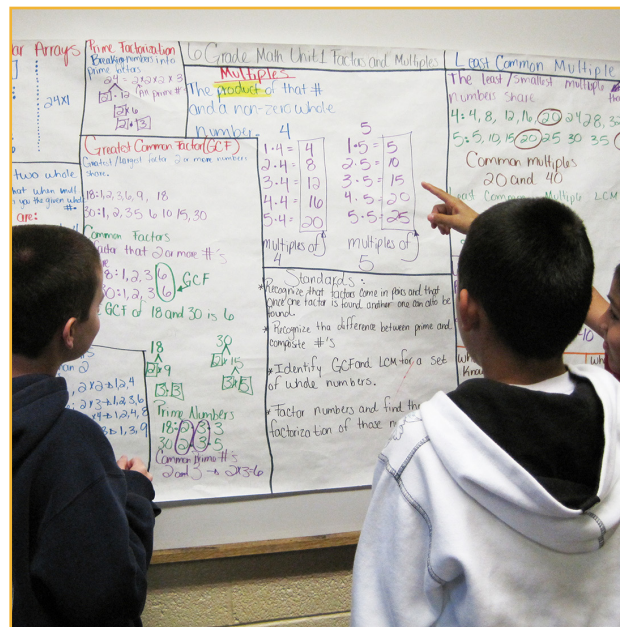
of the groups that had not begun their work and asked if they understood what they needed to do. One of the students pointed to the words *make up* and said they didn’t understand what it meant. My colleague asked them to define *make up*. One student said *maquillaje* or makeup in Spanish. Another replied, “My sister wears makeup” and made a facial expression showing he didn’t know

how this made any sense with their math lesson. A third student touched her face and modeled putting makeup on. None of these multilingual learners understood that they needed to *make up or create* their own mathematical example.

As teachers, the more aware we become of multiple-meaning words in the math classroom, the more transparent we can be in our instruction with students. As we highlight these types of words, students become more comfortable asking

questions when a word doesn’t make sense and helping us to identify vocabulary that needs to be clarified or directly taught.

On the next page is a chart of ten terms we routinely use in the math classroom that have multiple meanings. The meanings listed capture the big idea of the math term without getting into technical definitions. This is not an all-inclusive list so some of the words have additional everyday meanings or uses that are not included here. As you read the list, consider how these terms might confuse students and disrupt their mathematical thinking.



Teaching students the multiple meanings of math terms prepares them to navigate math lessons and the world outside of the classroom.

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Chart of Multiple-Meaning Math Vocabulary Examples

Term	Mathematical Meaning	Real-Life Mathematical Context	Everyday Meaning(s)	Everyday Example(s)
area	the space inside a plane figure or region that can be measured by square units	If you call me with the <i>area</i> of your kitchen floor, our office manager will order the tile you need.	a space or region	Get out of my <i>area</i> ! This <i>area</i> of the playground is for kindergarten students.
cup	a unit of measurement for capacity/volume that equals 8 ounces	I need to use two and a half <i>cups</i> of flour in this cake recipe.	<ul style="list-style-type: none"> • a container that we often drink out of that can have different shapes and sizes • a protective device worn in sports to protect a man’s genitals 	I would like a <i>cup</i> of coffee, please. My brother wears a <i>cup</i> when he plays football.
degree	the unit of measurement for angles and temperature, normally expressed with the ° symbol	<p>If your daughter has a temperature over 100.4°F, you will need to pick her up from the nurse’s office.</p> <p>The carpenter made 90° angles in all four corners before she installed the new window.</p>	<ul style="list-style-type: none"> • awarded by a college or university for completing undergraduate or graduate studies • intense questioning of someone to find out as much as you can • way to rank a person’s level in martial arts 	<p>I graduated from UNM with a <i>degree</i> in criminal law.</p> <p>When my sister got home two hours late, my dad gave her the third <i>degree</i> about where she was.</p> <p>I’m testing for my first-<i>degree</i> black belt in karate.</p>
even	a number divisible by 2	You need an <i>even</i> number of chocolate bars so everyone can have 2.	<ul style="list-style-type: none"> • have it fair for both sides • a flat surface • surprising or unexpected 	<p>We will not be <i>even</i> until you repay my visit.</p> <p>My uncle built his house on <i>even</i> ground.</p> <p>I’m surprised that my uncle is <i>even</i> here! I didn’t expect him to show up for the party.</p>
expression	a mathematical description of what is occurring using numbers and symbols	A carpenter uses the <i>expression</i> length x width to determine the number of materials needed for a project.	<ul style="list-style-type: none"> • something we commonly say • how we show emotion on our face 	<p>The <i>expression</i> “the early bird gets the worm” always reminds me of my childhood.</p> <p>The <i>expression</i> on your face is priceless!</p>
fraction	represented by values like $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{3}{8}$ as a way to represent equal parts of a whole	What <i>fractional</i> amount of tint did you add to the paint to color it for the customer?	• a portion of something	Juan spent a <i>fraction</i> of the time he was supposed to doing his homework.



Indigenous Language Teaching and Learning: Acknowledging the Challenges and Celebrating the Outcomes

by Patrick Werito—Project Coordinator of Tribal Initiatives,
Dual Language Education of New Mexico

Language Shift and Loss

The realities of colonization have impacted tribal communities in every facet of their existence, including the vibrancy of the local Indigenous language that has sustained the way of life and cultural identity of its members. Tribes are faced with the unique challenge of revitalizing and/or sustaining their community Indigenous language. This is necessary to ensure there will be future generations of speakers who will sustain the inherent right to a Native way of life that includes the gift of language. This has prompted some tribal communities to consider seeking tribal permission to bring the language into the schools.

As tribal communities look for new ways to increase the vitality of their local community language, Indigenous language programs in schools serving tribal communities offer an opportunity for the new generation to learn the language. The decision to take the community language into the context of a school presents challenges for Native language teachers and language learners.

Tribal Students as Second Language Learners

Most Indigenous language learners entering schools speak English as their first language. The reasons for this are complex: the pervasiveness of English as the language of power is a reality in many communities, both domestic and foreign; many grandparents and parents were victims of boarding school experiences in which children were punished for using their Native language, as a result, many families chose to use English only in their homes; and English is the language of popular culture, adding prestige and value for many young people.

Now, the number of community elders who speak the language is diminishing, and younger community members are finding it difficult to communicate with their elders. Parents of school-age children are concerned—the parents themselves don't speak the language and are looking for ways for their children to speak it as a way to understand the beliefs and traditions that are central to the community's identity. Schools might be the only place young learners hear and learn the language. This is why protecting the instructional time for the Indigenous language is vital and necessary (non-negotiable).

Dual Language Education of New Mexico (DLeNM) believes that listening to community elders, parents, school administrators, teachers, and students informs the kind of meaningful support needed for sustaining the community's language in schools. To that end, we spoke to several Native language teachers who volunteered to share their own path to learning their language, the approach they follow to teach their students the language, the challenges they face, the materials they use, and the changes they

have witnessed in student and parent attitudes and motivation towards learning the language.

We spoke to three Navajo Diné-language teachers who work in schools in New Mexico's western districts—either in the Navajo Nation or in counties that exist alongside the Navajo Nation. The teachers spoke alternately in English and Diné, with one teacher telling us, *"I'm an English language learner myself so my English is limited and if I can't explain something in English, I use my heritage language."*



Students in Justine Jones' class play **Tsidiil**, a Navajo stick game.

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Who are the Native Language Teachers?

Like most Native language teachers, those we spoke with learned their heritage language at an early age from their parents and home environment. There are no college or university programs that offer degrees in becoming a Native language teacher, with the exception of a few tribal colleges. These tribal colleges offer Native language classes but few offer classes on *how* to be a Native language teacher in a school. Therefore, current language teachers bring their own language experiences and knowledge to the classroom. Based on the interviews with Native language teachers, it takes years to improvise, adapt, and overcome the struggles of teaching Native language in a classroom setting.

JJones explained it this way:

The way I learned my language is I was born with it, through our origin and cultural stories. Our language came from the beginning of our existence, our origin, that's where our Navajo language came from. I was innately born with my language from the time of conception. I heard Navajo being spoken when I was in the womb. After I was born, my parents spoke Navajo to me. I was raised with Navajo as my first language and slowly through school English started to come to me.

LRamone told us:

I learned my language from mom and dad. I learned the language they were talking. My parents spoke a slightly different Diné language. My mom has a Pueblo grandmother, so she speaks a little different dialect. My dad learned Spanish, so he uses some Spanish words. I learned English at school. I was able to combine the languages. I don't remember when I learned English—one day I realized I was speaking English. Our parents encouraged us to speak Diné at home when we were on summer break from school. When we stayed in the dorms, we were encouraged to speak English. As we got older, we spoke both languages.

In New Mexico, tribal members can take tribal language proficiency assessments developed

by their tribes. If they pass, these individuals can apply for the Native Language Teacher Certification with the New Mexico Public Education Department. The certification is **ONLY** to teach language and culture. It does not qualify candidates to teach any other subject and does not reflect any coursework or training in pedagogy, curriculum, or instruction. Oftentimes, tribes do not have the capacity to provide professional development in these areas for their Native language teachers. In addition, some school districts do not include Native language teachers in their professional offerings despite the fact that state law requires school districts to ensure that Native language bilingual programs are part of a school district's professional development plan (NM Indian Education Act, 1972). Despite these challenges, Native language teachers utilize their own cultural and linguistic assets and creativity to support tribal students in learning their heritage language.

Teaching Native Language within the Four Walls of a Classroom

One of the challenges of teaching Native language within the four walls of a classroom is immersing students in the language. Staying in the target language of instruction can be mentally challenging and can cause great discomfort—there are some words in the English language that have no words in the Indigenous language. Since most language teachers learned their language in a home and community context, they are often unfamiliar with vocabulary needed for school. But they find a way, often by aligning school experiences with community values and beliefs.

JJones:

All those experiences that I grew up with, that's what I try to replicate in my classroom. For example, our natural laws, fundamental laws, and customary laws I embed into my classroom. An example is my classroom rules—this could mean so many things. It goes back to just being kind—teaching kindness. Even keeping your hands to yourself and walking down the hallway, don't touch the walls, keep your hands to yourself, sit still. These basic simple rules really go a long way. I [connect them to my] interpretation of what laziness looks like. I show them this is what laziness looks like if you don't do your work

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through it, I saw that the layout was by grade-level and contained goals and objectives for the following areas: Spanish as a Second Language, Spanish Language Arts, English as a Second Language, Spanish Historical Timeline in the New World, Social Studies – Hispanic Historical Events and Geographical Locations; and lastly, Social Studies – Hispanic Customs.

Seeing this, I wondered about how our Nuevo Mexicano dialect of Spanish was used in an academic setting. When I asked Grandma Lia about this, she said that the difference between her dialect from any other did not become apparent until she got her first student from México. The curriculum guide she was using was rich with New Mexico vocabulary, but her student from México would often correct her. For example, here in New Mexico, we call socks, *medias* and Grandma's student would tell her that they were *calcetines*. Grandma says that they would teach each other different names for things and negotiate meanings. I was glad to hear that she wouldn't get mad at being corrected, but rather took it as a learning opportunity for both herself and her students.

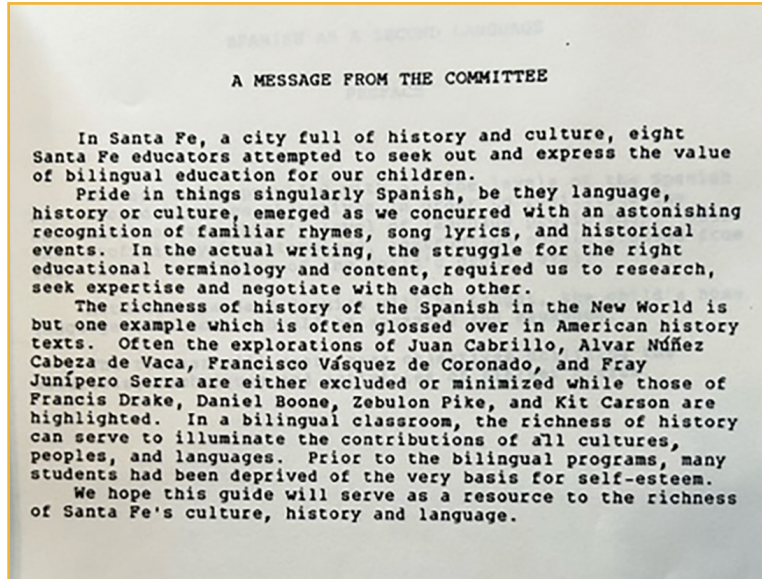
I faced this dilemma myself when I began my teaching career in 2005 as a kindergarten bilingual teacher. A memory I have is yelling to my students who were at the top of the slide on the playground, ¡*cuidao!* Nuevo Mexicanos pronounce words ending in “-ado” by eliminating the final d sound, so words like, *cuidado* become, *cuidao*. I realized, however, that if I wanted to write the word, *cuidao* for my students, we would actually have to spell it correctly, c-u-i-d-a-d-o. Hearing phonemes and syllabic segmentation in words is a developmental milestone in early childhood, so I had to choose—

was I going to continue to say, *cuidao*, or was I going to say, *cuidado*? I chose the latter.

As I learned more Spanish throughout my early teaching years by listening to my students, their families, and some of my colleagues, the Spanish I was hearing was more a reflection of México, than New Mexico. I was so happy to be learning,

using, and teaching in Spanish that I began speaking to my grandparents more and more in Spanish, too. I noticed that we could get by well enough, but every so often, one of them would look at me puzzled because of a word I had used and ask, ¿*Cómo?* because it was a word they had never heard before. They would then teach me how to say it in Nuevo Mexicano Spanish.

Now that all my grandparents except Grandma Lia have passed, my opportunity to use Spanish when communicating with family elders has dwindled. Most people of Grandma's generation are also no longer working, so there is not a large-scale platform for our Nuevo Mexicano dialect to be taught to children. If we're fortunate enough, we continue to use it within our own families. What is important now, though, is that our children have access to more high-quality bilingual and dual language education programs within our state and country. Bilingual education has changed over the years in that we now work with rigorous academic standards; we strive for multilingualism and biliteracy (at a minimum); we value and embed the teaching of sociocultural competence—which is an ABSOLUTE MUST these days; we work to improve teacher preparation to ensure that our bilingual educators are highly qualified in working with diverse populations and multilingual learners; and we make bilingual and



A message from the committee that created the curriculum guide underscores the importance of teaching New Mexico's students to value the role that history and culture play in honoring their identity.

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dual language programs accessible to our most vulnerable students—those who are marginalized and need this kind of programming to gain equitable access to their dreams.

So, all in all, I must thank Grandma Lia for serving as a role model to me, both personally and professionally. I wouldn't have become a bilingual educator without her around to inspire me and to teach me the old ways of doing things, our language, and our culture. Things have changed greatly in the education realm, however, none of the improvements would have been possible without those who came before us. Grandma's advice to all current and future bilingual educators: "Enjoy the job. Be happy to teach our language."

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Term	Mathematical Meaning	Real-Life Mathematical Context	Everyday Meaning(s)	Everyday Example(s)
operation	a procedure or function that produces a new value using addition, subtraction, multiplication, division, or another math operation	What <i>operation</i> did you use to format the Excel spreadsheet to show the quantities purchased?	<ul style="list-style-type: none"> • a surgery performed by a doctor • a highly organized activity that involves many people doing different things 	<p>My aunt had an <i>operation</i> to have her appendix removed.</p> <p>The rescue <i>operation</i> began on Sunday.</p>
product	a result of multiplying factors	I calculated the <i>product</i> of the prices and quantities to determine the total cost of the items in my shopping cart.	<ul style="list-style-type: none"> • things for sale on the rack or shelves of a store • the results of someone's efforts 	<p>My favorite hair <i>product</i> is made by L'Oreal.</p> <p>A good report card is the <i>product</i> of your hard work.</p>
table	the organizer to demonstrate a pattern of relationship between quantities	We used a <i>table</i> to report to the board the cost/profit relationship for buying t-shirts from six different distributors.	<ul style="list-style-type: none"> • a piece of furniture with a level surface commonly used to eat or work on • to postpone a conversation or vote • an organizer used to display information (ex. state population, political representatives, nutritional value of food, etc.) 	<p>We need a new dining room <i>table</i>.</p> <p>We had to <i>table</i> the idea until next month's meeting.</p> <p>I checked the nutritional <i>table</i> to find out how much sugar was in each serving of cereal.</p>
volume	the amount of space a three-dimensional object occupies	To survive in captivity, bull sharks need a tank with a <i>volume</i> of at least 250,000 gallons of water.	<ul style="list-style-type: none"> • a mass or quantity • a degree of loudness, how loud something is 	<p>The local newspaper receives a large <i>volume</i> of mail every Tuesday.</p> <p>Please turn the <i>volume</i> down on the TV.</p>

Strategies to Support

As we increase our awareness of these terms that have multiple meanings, we can be intentional in our instruction to minimize confusion during our lessons and on assessments and make the language transparent for our students. Below are a few strategies that support students in understanding multiple-meaning words and learning their mathematical definitions.

Highlight multiple-meaning words in lessons

This can be done by highlighting for students orally or in writing when multiple-meaning words come up in lessons. Consider this word problem

in i-Ready from the explore session of the fifth-grade unit on volume. What multimeaning words would you circle and discuss with your students? Is there other language that would be important to talk about?

As math language teachers, we need to make sure we highlight the math meaning as well as take advantage of this opportunity to highlight everyday meanings for the word. In the example above, we would of course want to talk about volume as well as other possible meanings of the word -model. Highlighting this type of language will expand students' vocabulary and help them

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understand words in multiple contexts. If you make looking at language a regular part of your lesson, students will help you spot challenging vocabulary and will start asking what words mean when they don't understand them.

Have students be word detectives

Start a chart on the wall and have students write down multiple-meaning words when they find them. This chart can be large and visual or quite simple, with students using post-it notes to write what they find. The goal is for students to be word detectives with you.

Include student-friendly math definitions when charting

Charting concepts in math can build a powerful class reference tool for students to refer to during lessons. Charting teaches notetaking skills and provides additional support for multilingual learners and students who struggle with math.

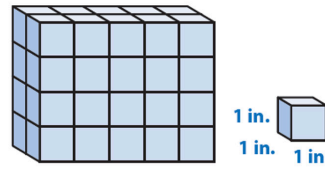
When charting, be sure to embed key vocabulary with short student-friendly definitions and visuals. Charting, as opposed to a word wall is recommended because students are present when the chart is built and can see the words and visual representations in the larger context of what you are studying. The chart is available to students to use as a reference during daily lessons. For example in the chart to the right, there are student-friendly definitions included for area, volume, and plane that have been color-coded to sketches or drawings that illustrate the concepts.

In conclusion

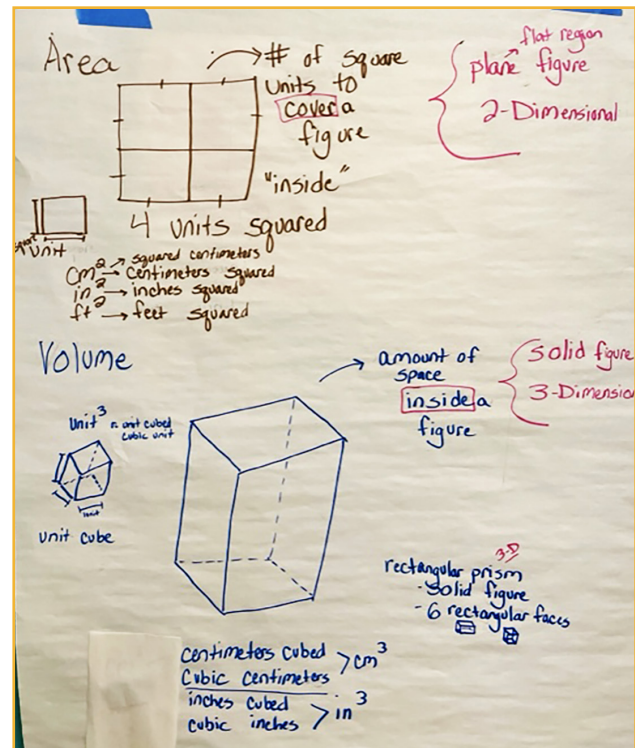
Increasing our awareness of multiple-meaning words and highlighting them in our math instruction will support students in interpreting this language in math class, in social contexts, and in situations where they are applying math concepts outside of school. Students will recognize that on a math test, they need to draw a table to solve a problem while at lunch or in class they sit at a table to have a flat space on which to eat or work.

TRY IT Make sense of the problem

Becky uses 1-inch cubes to create a model for a small paper gift bag she is making. Her model is a rectangular prism. What is the volume of Becky's model?



From *i-Ready Classroom Common Core (2020)*,
5th Grade Unit 1, Session 1



This is an example of an area and volume chart that has been created in front of students.

Awareness and command of this language are crucial for students to successfully navigate their world. We as teachers can help set them up to be able to do this.

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Look at these Compendiums, a strategy that is part of the Achievement Inspired Mathematics for Scaffolding Student Success (AIM4S™) Framework that provides teachers with the tools to make math instruction comprehensible for all students. Compendiums are class resource charts that are built with students to support their understanding of content and language during a math unit. How many multiple-meaning words can you find in each Compendium?

Introduction to Number Sense
Unit 1

Counting
5 frame:

1	2	3	4	5
6	7	8	9	10

10 frame:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

fingers:
count: bears, fingers, ABC letters, people, day on the calendar
Count in our head in our brain: 1 2 3 4 5 6, 7 8 9 10

Number Writing
0 zero, 1 one, 2 two, 3 three, 4 four, 5 five, 6 six, 7 seven, 8 eight, 9 nine
10 ten

Strategies
1 to 1 correspondence: count one at a time, touch every object, say only 1 number name every time you touch.
Manipulatives: fingers, letters ABC, days on the calendar, straws, gumballs, books, bears
Subitize:

Standards
We will count to 100 by ones.
We will use accurate counting to answer, "How many?"
We will apply counting to answer story problems.

Numbers | what to learn
mean, count, interpret? (Addition)
How can I count in Spanish? (Language)
How do I count feet? (Length)
Can I count chairs? (Counting)
Can I count a banana, can I count two?

Kindergarten: Introduction to Number Sense

Multimeaning Math Word Challenge

Help us build a resource to support math educators in identifying math terms that have multiple meanings in different contexts. Use the QR Code or link below to share words your students find confusing or challenging. We'd love to hear anecdotes from your classroom with examples in English, Spanish, or other instructional languages. We'll share them on DLeNM's social media or in future Soleado newsletters.

<https://bit.ly/3tCvN0Q>



Statistics
a number, fraction or percentage that describes a piece of information
What they are: 5, 3/5, 12%
How do you get them? Gather info, Analyze it, Interpret it
What does it mean? % of the students in Ms. Ulibarri's class prefer soccer to basketball
Box shows middle 50% of the data, Whiskers show the remaining 50%

Dot Plot
data shown as a dot on a number line
mean - average: 6.34
median - middle number: 6
mode - most frequent: #6
range - maximum - minimum: 12 - 1 = 11
Sum of the values ÷ the values
Where are the clusters or gaps in the data?
Are there any outliers? # much larger or smaller than others

Histogram
What is measured or counted by the data?
What is the shape of the data?
Labels for the bars are numerical intervals
of bags of red M&M's in each bag
of bags of red M&M's in each bag: 4, 9, 10-14, 15-19, 20-24

Box Plot
Comparing M&M Colors
lower quartile, median, upper quartile
What is the lowest quartile? (median of the lower half)
What is the upper quartile? (median of the upper half)
What is the mean absolute deviation?

Inquiry Statistics
What we know...
They are used in sports, especially in baseball and basketball
Statistics use lots of numbers and charts. A statistician is an expert at preparing statistics.
How to build a bar graph
The mean is the average.

Standards and Mathematical Practices
1) Display numerical data on dot plots, histograms and box plots, while attending to precision.
2) Construct viable arguments and critique the reasoning of others by asking and answering questions about the data.

What we want to learn...
What are statistics?
Why do we need to learn about them?
What does the mean mean?
What careers use statistics?

Sixth Grade: Statistics

For more information about the AIMS4S™ Framework, please [click here](#).



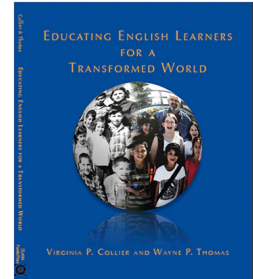
"I didn't get it until I read it..."

Dual Language Education Legacy Series by Drs. Virginia Collier and Wayne Thomas

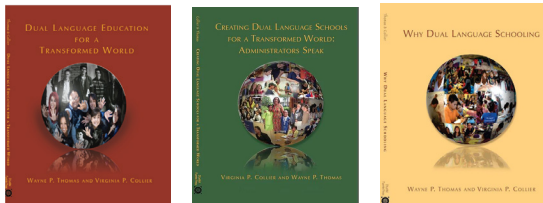
Dual language matters, and if you're looking for a resource that not only connects the 'what' with the 'why' of dual language education, then the legacy series by Drs. Wayne Thomas and Virginia Collier has what you need.

"Bilingual educators throughout the U.S. have always had the burden of proof in demonstrating the benefits of learning a second language and, at the same time, maintaining the richness of a maternal language that nourishes and defines the essence of our cultural identity in this global society. The work of Thomas and Collier has unified and empowered educators and provided us with a common language. This empirical common language, complimented with processes and schemas..., has demonstrated without a doubt the effectiveness of bilingual education, regardless of the sociopolitical matrix that surrounds our field. At the national level, their longitudinal research and data has created an environment to develop additive instructional programs. In our district, this data has been instrumental not only in our move from transitional bilingual education into the dual language program models, but also in the expansion of a program in which two linguistic groups form part of one learning community where each and every student's language and culture are recognized."

Wilma Valero, Former Director, Programs for English Learners, U-46, Elgin, Illinois.

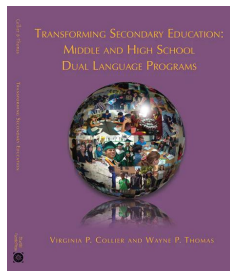


The series starts off with *Educating English Learners for a Transformed World*, a publication that should be read by anyone who is making decisions regarding the design, implementation, and assessment of education programming for English learners.



Dual Language for a Transformed World follows and makes the case for dual language education to become the standard for all schools. The third book in the series, *Administrators Speak* is a must read for administrators and school leaders. Leaders from around the country share challenges, best practices, and celebrate the success of their dual language programs.

The fourth book in this series, *Why Dual Language Schooling*, was written for families, boards of education, and business and community members who seek to understand the exciting promise of K-12 dual language education. The final book in this series, *Transforming Secondary Education*, features authors representing secondary dual language programs across the United States. They share insights, considerations, and successes—an invaluable resource for schools and districts that are preparing to expand their program to the secondary level.



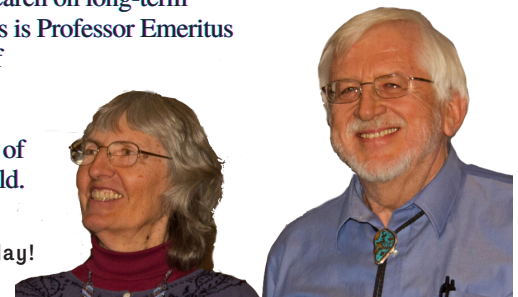
"The research of Dr. Wayne Thomas and Dr. Virginia Collier has opened the eyes of many educators, policy makers, and the community at large about the long-term effects of dual language education... Their work is also powerful for promoting the development of students' native language, second language, and academic achievement."

Rossana Boyd, Ph.D., Director, Bilingual/ESL Teacher Certification Programs—University of North Texas; Past President—National Association for Bilingual Education

The legacy series by Drs. Virginia Collier and Wayne Thomas is published by **Fuente Press** and available for purchase at www.dlenm.org.



Drs. Virginia Collier and Wayne Thomas are internationally known for their research on long-term school effectiveness for culturally and linguistically diverse students. Dr. Thomas is Professor Emeritus of Evaluation and Research Methodology and Dr. Collier is Professor Emerita of Bilingual/Multicultural/ESL Education, both at George Mason University. Their research on dual language education is perhaps the most well-known across the United States. Their longitudinal studies of student achievement in various types of educational programs for English learners are considered seminal work in the field.



For more information, scan the QR code or visit www.DLeNM.org today!





—continued from page 7—

or if you don't properly take care of yourself. These are teachings that my mother and father taught me. We think of our students as children through our clan kinship. At the beginning of the year, I send a clan sheet home, and through that I know how I could greet them—as my grandma or grandpa, my little brother, or my dad. We make those connections through our kinship. We're a family; we take care of one another.

She added:

For our district, we are expected to teach SEL in our classes. A lot of the challenge is that western mindset. [It] has pretty much taken over. I prefer to use culturally embedded norms. After a long day, I ask the students to relax. I turn off the light and put on ... some kind of flute music. I tell them, "whatever negative feelings your feeling, let them go, let them out". [The music] really helps them decompress and calms them down.

GBlackwater has noticed that: "When I address the students in Navajo, students are more inclined to adhere to discipline and classroom management, using more caring and nurturing words." The alignment with community norms and values supports students' cultural identity, extends their sense of belonging and provides them a bridge to better understand grandparents and other elders.

Instructional Strategies and Materials

The Native language teachers we spoke to have found the consistent use of instructional strategies and teacher-made materials to be especially helpful for their students.

LRamone told us:

Learning is based on situational learning; resources are very limited. We make our own materials for the classroom. From our district, we are asked to use "questioning," but our students do not understand the

prompts. So, our focus now is questioning and having students respond. We've learned that students respond to gesturing, repetition, and sign language. They like learning the language with all these kinesthetic and hands-on strategies, so that's the one thing that really helped us in getting them to learn the language. Students help each other in

peer-to-peer settings. We use this strategy called Talk Moves. I get up and ask a question to one student. That person gets up and asks another. We have three or four students walking around asking each other questions and talking to one another.



Students help to make **be'ast[On7**, blue and white corn tamales.

JJones acknowledged that finding effective strategies from other sources, making materials, and creating those materials at first is overwhelming. But experience has given her the confidence to build upon those that work and get rid of those that don't.

Collaboration with other Native language teachers is critical,

allowing teachers to build a basic foundation for teaching the Native language. Some districts even arrange for collaborative summer curriculum development that greatly enhances teacher effectiveness and confidence.

Parent Expectations and Involvement

The teachers tell us that many of the parents no longer speak the Native language and look to the schools to teach their children community values, traditions, and language. The students are encouraged to teach their parents, who are often anxious to learn. During the pandemic, many parents joined their children in the virtual classroom.

Another way teachers have found to support this intergenerational language learning is by assigning projects that must be accomplished with parent help. Once completed, the projects are displayed at school or they are taken to the Shiprock fair—a multiday affair that includes parades, competitions, performing arts, a rodeo, a powwow, and so much more. The projects are culturally based and provide a sense of identity

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and pride. Some students create a float for the fair parade that highlights Navajo culture. Others create a map of the Nation or write a play in which they play key roles; parents cook corn mush for the class; grandparents come to school as knowledge keepers and artisans. These projects reinforce traditional norms and values. Other schools offer after-school cultural activities for students and parents during which traditions and the appropriate language are shared. Teachers may also create recordings of classroom activities to post on Google Classroom so that parents can know, understand, and share in what their child is learning.

Outcomes

Jones told us that the way she knows that the program is working is when students in program are compared to students who are not in program. There is a considerable difference in their behavior and sense of identity. The students in program know their identity thanks to the teachers' efforts to embed cultural knowledge in their instruction. They know who they are, which clan they belong to, and their community's traditions.

The language teachers explained that some of their students share their learnings with their non-Native classmates but are quick to emphasize that the language is theirs, thus taking ownership of the language and the knowledge that they have acquired. Students enrolled in other programs in their school and not participating in Native-language instruction even refer to their classmates who do receive instruction in Diné as Navajos, despite the fact that they are all Navajos. Somehow, they understand that the knowledge and skill their Native language-learning classmates receive make them more Navajo.

Conclusion

Native language teachers' work has many challenges: an existential sense of urgency to revitalize and reestablish a community's language,

the overwhelming influence of a westernized/colonized view of education, a scarcity of professional development opportunities that specifically focus on Native language teaching, isolation from the work and support of regular education staff, few instructional materials, and parents with little opportunity or knowledge to provide language practice after the school day. Yet despite these challenges, Native language teachers have grounded themselves in their



Ms. Ramone's students proudly share their traditional clothing and **tsiy44** (Navajo hair knot) during heritage week.

commitment to their community's values, beliefs, traditions, experiences, and language. They draw on their own upbringing and the sense of identity they were provided by their families and work to share that sense of self to their students. Native language teachers purposefully and intentionally plan

their activities to ensure that their students acquire the community's language and beliefs by providing necessary scaffolds, despite the extra effort and time that this requires. The effect is a growing generation of young community members with a strong cultural and linguistic identity ready and willing to sustain a long tradition of an Indigenous way of life.

Thanks to Louise Ramone, teacher with the Farmington Municipal Schools, Esperanza Elementary School; Justine Jones, teacher with Central Consolidated School District, Eva B. Stokely Elementary School; and Grace Blackwater, teacher with Farmington Municipal Schools, Farmington High School for their candid and heartfelt responses to our questions.



Dual Language Education of New Mexico

PO Box 91508
Albuquerque, NM 87199
www.dlenm.org
505.243.0648

Executive Director:

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Director of Business and Development:

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Editor: Ruth Kriteaman
soleado@dlenm.org

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