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A Dual Language Education Logic Model for Practitioners, Policymakers, and Researchers

by Jacqueline Mendez and Rachel McCormick, Abt Associates

Dual Language Education of New Mexico (DLeNM) recently worked with Abt Associates on a study that measured the impact of a group of Albuquerque schools offering whole school dual language programs. A special contribution of the study was the development of a Dual Language Education Theory of Change Logic Model in both English and Spanish. The logic models, authored by Dr. Elizabeth R. Howard of the University of Connecticut, Michael Rodríguez of DLeNM, and Jacqueline Mendez of Abt Associates, were created for use by practitioners, policy makers, and

from the final report, written by dual language expert Dr. Elizabeth R. Howard on the development of the logic model, is featured below. The full report can be found at <https://www.abtassociates.com/insights/publications/report/new-mexico-charter-school-study-findings-report>. The study's finding will be shared at the "Findings from a Study of Dual Language Schools in Albuquerque" session at La Cosecha 2021.



Abt Associates' report outlines the findings of a study of Albuquerque-area charter schools offering whole-school dual language programming.

Dual Language Education Theory of Change

The logic model (see page 9) is anchored in the Guiding Principles for Dual Language

Education (Howard et al. 2018) and supplemented by further research and best-practice guidance in the field since the time of publication. In addition, the logic model incorporates the heightened attention to equity and social justice within DL education (Cervantes-Soon et al. 2017; Flores, 2021; Freire, 2020; Palmer et al. 2019), as well as a growing awareness of the urgency of culturally sustaining and anti-racist pedagogy in schools in general (Lyiscott, 2019; Muhammad, 2020; Paris & Alim 2017). The logic model assumes that representatives from all stakeholder groups form a steering committee to oversee the enactment of the various phases of the model. With equitable participation from all members, the perspective, activities, and

researchers. *Practitioners* can use the logic model to assist with dual language program implementation, needs assessment, and quality monitoring to ensure alignment with research and best practices in dual language education. The logic model may assist education *policy makers'* understanding of the various components of a DL program to help them create policies that increase access, ensure equity, and promote program excellence. *Researchers* can use the logic model to help identify any gaps in their own studies, as well as in the field overall. An excerpt

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- ▣ The Four Instructional Spaces of a Dual Language Classroom
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PDSA as a Buildingwide Tool for Improving Student Outcomes

by Tyler McLaughlin—Assistant Principal, Thunder Mountain Elementary, Mesa County Valley School District 51, Grand Junction, CO

When it comes to improving student achievement and growth, there are many questions to consider. What resources will help? What professional learning needs to be in place? How can we cultivate and maintain professional buy-in to allow time for initiatives to demonstrate efficacy of student achievement? How can we increase student ownership in the process? Dual Immersion Academy took a stab at some of these perplexing questions by dusting off an “oldie but goodie” and utilized it to answer these questions. The Plan, Do, Study, Act (PDSA) cycle ended up quantitatively and qualitatively proving worthy of reexamination.

Implementing the PDSA cycle at both a schoolwide and classroom level in our dual language program proved powerful. It took time and careful planning and gave teachers an additional researched-based tool while providing a sense of collective efficacy amongst the entire staff, fostering student agency and rendering solid results.

School Background and Professional Learning Journey

Dual Immersion Academy (DIA) in District 51 in Grand Junction, CO began as a charter school in 1996 but has existed as a typically funded public K-5 school since 2004 and grew to a K-8 model in 2008. Since that time, the staff has participated in professional learning in accordance with the Guiding Principles of Dual Language and has implemented many refinements and adjustments based on student growth and achievement data. We have been fortunate to have high levels of staff

retention that builds both social and professional capital to support continuous improvement of our pedagogical skill set.

In 2017, a few mathematics teachers from DIA@BMS (6-8 grade portion of the DL program housed in Bookcliff Middle School) participated in Achievement Inspired Mathematics for Scaffolding Student Success (AIM4S^{3™}) training offered by Dual Language Education of New Mexico and began to implement the framework. Their work, enthusiasm, and best practices spread like a virus (sorry for the timing of that idiom). Since then, all teachers in all content



Teachers at DIA discuss how the PDSA cycle might work in their classroom.

areas in both DIA and DIA@BMS have been trained and have implemented the framework within their grade-level and content area.

Even after years of gradual implementation and professional development around the instructional framework, we still had areas in need of refinement. When planning for professional learning for the 2020-2021 school year, our leadership team wanted to maintain alignment across the nine grade levels and to make educated decisions about how and where to focus our energies. We decided to focus our professional development attention on data analysis. Student data revealed that we had quantifiable challenges with our bilingual and biliteracy data. Overall, our students were doing well, but there was a substantial percentage of students that was not meeting the growth or achievement benchmarks

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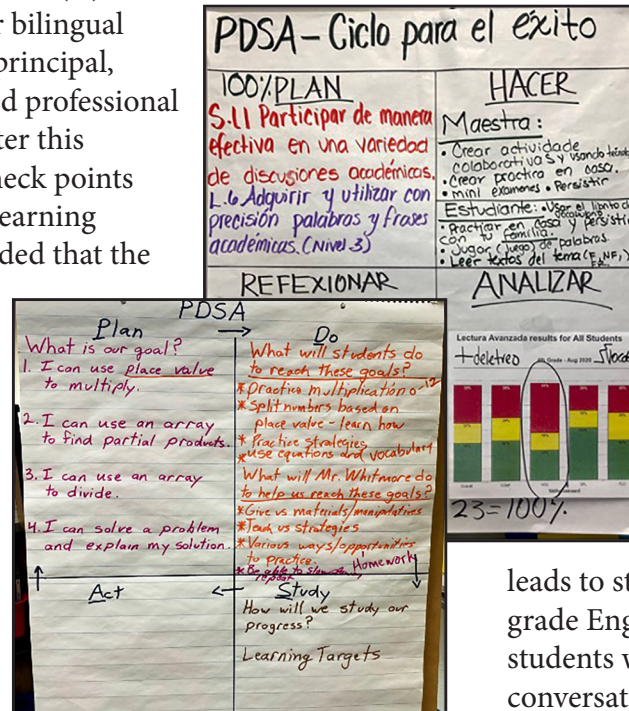
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in their second language—the data indicated an over-arching and consistent need for oral and written language support across content areas. As we analyzed and discussed this data, we realized that we had just effectively completed the Study (S) portion of a Plan (P), Do (D), Study (S), Act (A) cycle! Our next step would be to figure out what we all need to do, what Act (A) would shift the script for our bilingual learners. Together with our principal, Monica Heptner, we designed professional learning that would help foster this focus, including quarterly check points and scheduled professional learning from DLeNM. The staff decided that the PDSA cycle was worth implementing, and that our schoolwide PDSA and professional plan would create simplicity and a focus on a high-leverage tool for improvement.

One of our first steps was to begin differentiating the PDSA concept so that the strategy would be applicable to every teacher. Because each grade level is so different in terms of cognitive and human development, content area, and linguistic complexity, we wanted each teacher to be autonomous, but provide “guardrails” to support schoolwide implementation. The decision was made that the Act (A) would include a focus on completing a Plan, Do, Study, Act (PDSA) cycle in each of our classrooms. We recognized that the PDSA would look different in the different grades and in each language and began by developing a Spanish version of the cycle because the acronym PDSA does not pertain to the Spanish language classes. The Spanish teachers collaborated and developed “*El ciclo para el éxito*”, which consisted of *Plan, Hacer, Analizar, y Reflexionar*.

The staff decided that the PDSA cycle (“*El ciclo para el éxito*”) with a predetermined focus on oral and written language domains would serve

as our “guardrails”. Each teacher would complete a quarterly PDSA cycle with their students on the content of their choice with special focus on oral and written language development, and as a building we would complete a PDSA cycle around the use and success of the classroom-level PDSA cycles. Simply put, we would do a PDSA cycle about PDSA cycles.



One of the first steps DIA took was to begin differentiating the PDSA so that the strategy would be applicable to every teacher.

PDSA as an Improvement-Science Tool From the Perspectives of Different Stakeholders Students' Perspective

When students are involved in the PDSA cycle, they develop metacognition regarding their own learning. They also develop a sense of ownership which

leads to student agency. In a second grade English class, for example, the students were immediately involved in conversation and reflection regarding their use of sentence frames during partner mathematics “workplaces” (games reinforcing mathematical concepts), and how the use of sentence structures directly impacted both their improved understanding of how to play the game and their improved understanding and application of the mathematical concept the game was intended to reinforce. One student said, “I like being a part of what is helping us as a class go for our goal, and I also get better at the same time.”

Classroom Teachers' Perspective

The teachers at DIA were able to take the schoolwide focus of oral and written language development and differentiate for the specific developmental and linguistic needs of the students in their grade levels and within their content and language of instruction. For example, in the older grades, students have a better developed ability for reflection around specific content. For younger

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The Four Instructional Spaces of a Dual Language Classroom

by DLeNM's Professional Development Coordinators

Twenty-five years ago, when dual language education was in its infancy, it was widely understood that there were three goals: high-academic achievement to ensure that participating students met grade-level content standards, bilingualism and biliteracy by way of a strong language-development focus in all content areas, and sociocultural competence through the daily interaction of participating students from various cultural and linguistic backgrounds. These goals were reflected in the Guiding Principles for Dual Language Education (Howard et al. 2007). The guiding principles identify and describe the major dimensions of program design and implementation that support the goals of the program and are organized into seven strands (p.5). The idea was that program administrators, teachers, and interested community members would use the document as a self-study tool and guide for planning, developing, and improving their program.

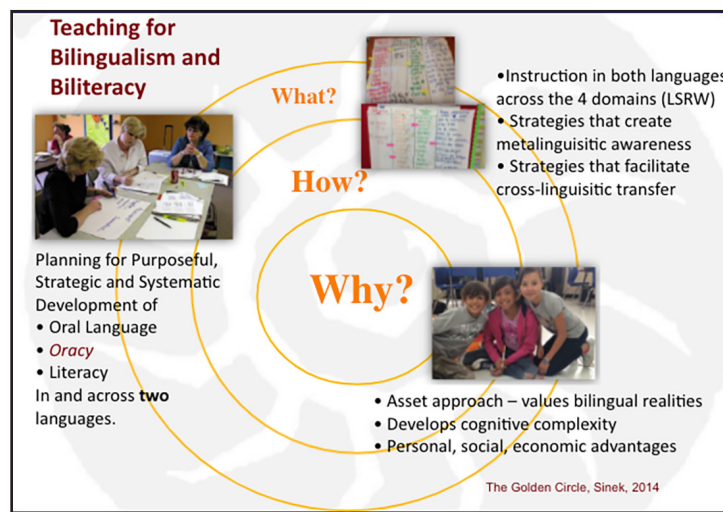
With the publication of the 3rd edition of the Guiding Principles (2018), changes were made throughout the document to better reflect all that has been researched, learned, and experienced by dual language educators over the many years these programs have been in place. One change is a greater focus on the importance of the development of sociocultural competence. Experience has shown that simply being in the presence of classmates and teachers from other cultural and linguistic backgrounds is not enough. As a result, the current image is of three equal pillars representing each of the goals, with the

guiding principles focusing its instruction strand on strategies that support the attainment of all three in equal measure.

Another change in the latest edition of the guiding principles reflects the controversy surrounding the earlier insistence on a clear separation of the two program languages. When dual language programs began, the focus was on creating a separate space for each language that would ensure

an immersion-like experience for the students that would result in high levels of language acquisition and proficiency. Some practitioners interpreted this guidance as a strict separation of languages and, in extreme cases, reprimanded the students for not staying in the language of instruction. While that was never the intent of the guidance,

the practice became the topic of much debate. The 3rd edition of the guiding principles now reflects the notion of an “appropriate separation” of languages to account for more recent research into the essential practice of bilinguals to make use of their entire linguistic repertoire as they develop their understanding of important concepts and articulate their learning. This allows teachers to feel confident in supporting students to translanguage, or use both languages, as they investigate, learn, and discuss while still supporting report outs and final products in the language of instruction. It also supports the idea that students need a time and a space within their instructional day to develop metalinguistic awareness of both program languages and learn how the two languages differ and how they are alike.



Teaching for bilingualism and biliteracy is a complex, but ultimately transformational process.

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The professional development team at Dual Language Education of New Mexico searched for a way to support teachers and administrators they serve in understanding what these changes look like in a dual language classroom. Using three exceptional resources—Teaching for Biliteracy (Beeman & Urow, 2013), Biliteracy from the Start (Escamilla et al. 2014), and The Translanguaging Classroom (Garcia, Ibarra Johnson & Seltzer, 2017), we developed the concept of the four spaces of the dual language classroom. This concept was originally born from the big ideas of the OCDE Project GLAD® instructional framework, but we have found that it aligns well with other instructional frameworks that support language learners.

The four spaces of the bilingual or dual language classroom include the Culturally and Linguistically Responsive Classroom Environment that serves as the foundation, the Partner Language Space (typically the Spanish Space), the Cross-Linguistic Space, and the English Space. With culturally and linguistically responsive pedagogy as the foundation of bilingual and dual language programs, bilingualism and biliteracy occur in the three instructional spaces which can be viewed and explained separately, but function in tandem with each other. By explicitly and strategically linking the planning, instruction, materials used, and assessments for these three spaces, emerging bilingual students in bilingual multicultural education programs are guaranteed best practices developed for their unique needs.

The Culturally and Linguistically Responsive Classroom Environment

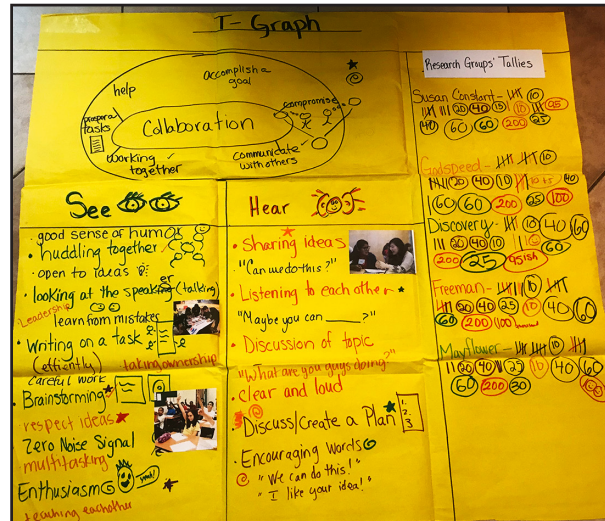
Before any instructional strategies or systems can be developed to support literacy, and especially biliteracy, it is critical that the classroom environment is one in which every student

feels validated and affirmed. This environment goes beyond a cheery classroom decor or bulletin board messages welcoming students. This kind of positive classroom culture is achieved when the teacher commits to understanding the many facets of their students' identities through an asset lens. The classroom ecology is one that reflects the varied linguistic and cultural traditions, as well as the lived experiences of all members of the class.

In this context, students are encouraged and supported in making meaningful connections between their prior knowledge and current academic content. This means that the curriculum is created by teachers targeting specific standards. Teachers often find they need to use a range

of materials including published curriculum, trade books, primary sources, guest speakers, etc. as resources. Teachers work to ensure that students see themselves, their values, traditions, and experiences in the units of study and as a window into learning about and appreciating other cultures. Units of study are therefore expanded to include a more multicultural approach in which big

ideas are studied with an eye toward how they are manifested by people from different cultural backgrounds. There is equity of voice, and all students have the opportunity to contribute, interact, or ask questions without fear of being looked down upon. This means that the classroom environment is respectful of all and predicated on each student's responsibility to all members of the class community. Collaboration and cooperation are modeled, taught, and practiced daily with the expectation that all members of the class community will behave in ways that support positive interdependence (e.g., the use of the T-Graph for Social Skills to teach students the details of collaborative behavior.)



The T-Graph for Social Skills teaches students what collaborative behavior looks and sounds like.

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Infusing Project GLAD® with Inquiry-Based Learning

by Lauren Butcher—Community Programs Manager,
Explora Science Center and Children’s Museum, Albuquerque, NM

In the spring of 2020, Explora Science Center and Children’s Museum in Albuquerque developed and implemented space-themed, inquiry-based science lessons in dual language and English learner classrooms in Albuquerque and Rio Rancho. Developed by OCDE Project GLAD® certified teachers, these Explorations incorporated resources from NASA’s Universe of Learning with three Project GLAD® strategies. The Explorations are available for free at <https://www.universe-of-learning.org/informal-learning/inspiration-discovery-explora-science-center-childrens-museum>. They were implemented in prekindergarten, kindergarten, and fourth-grade classrooms. This article describes why inquiry-based science and Project GLAD® are a natural fit, and how the curriculum successfully incorporated three Project GLAD® strategies: ELD Review, Cognitive Content Dictionary, and Chants.

Project GLAD® and Inquiry-Based Science

Inquiry-based science and Project GLAD® support one another. A recent meta-analysis found that inquiry-based science instruction increased science academic achievement for English Learners when compared with direct instruction (Estrella et al., 2018). Inquiry activities allow access to higher level critical thinking skills and provide motivation for authentic oral and written communication. However, the paper concluded that inquiry-based science itself may not be sufficient to meet the heavy language demands placed on the English learner. Teachers must also have the understanding and instructional practices to support English learners’ needs. Therefore, a Project GLAD® unit which incorporates evidence-based language

development strategies and inquiry-based science may provide the greatest chance of linguistic and science academic success for English learners.

Overview of Explora - NASA’s Universe of Learning Lessons

The curriculum contains three Explorations. Each Exploration includes an hour of hands-on activities exploring a particular vocabulary word. “Floaters and Sinkers” looks at **density**, “Massively Fun” focuses on **mass**, and “In a Spin” looks at **rotation**. A NASA Universe of Learning Resources printable poster and video accompany each vocabulary word to provide anchor

visuals, real-world examples related to space, and background information for teachers and students. All materials required for the hands-on activities are inexpensive and easily found at a local grocery or hardware store. “Floaters and Sinkers,” for example, challenges students to make a small clay-ball float using straws, compare the densities of various fruits and vegetables to water, and make a small submarine using a film canister and an Alka-Seltzer® tablet. “Massively Fun” demonstrates how to make an inexpensive, easy balance beam with a ruler and a spring scale with a rubber band so that students can compare the masses of classroom objects. Finally, “In a Spin” uses paper plates and markers to make drawing spin tops, and a cellphone light to explore the rotation of planets.

Strategies

Effective teachers ask the “right question at the right time.” In inquiry, teachers ask exploratory and meaning-making questions to guide student discovery.

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Hands-on inquiry experiences are at the heart of Explora’s science lessons.



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Exploration Questions

For those students who seem to be really interested in the topic of study, exploration questions can help focus attention and encourage active play, experimentation, discovery, and thoughtfulness.

- Tell me what happened?
- What did you notice?
- What does it look like?
- What is it made of?
- What would happen if....?
- What difference did you notice?
- What might you try instead?
- What can you tell me about your experiment?
- How did you do that?
- What does this make you think of?
- In what ways are these the same?
- In what ways are these different?
- What materials did you use?
- What can you do instead?
- What do you feel, see, hear, taste, and/or smell?
- What are some different things you could try?

Making-Meaning Questions

For some students, making-meaning questions can help solidify their experience into a true learning event. These questions help support reflection, learning, and understanding.

- Why do you think that happened?
- What evidence makes you think that?
- What would happen if we changed . . . ?
- What do you think this tells us about . . . ?
- Do you have any idea how we could test this out?
- What would you need to find out more?

© Explora Science Center and Children's Museum

The Explorations combine three Project GLAD® strategies with inquiry-based science: the ELD Review, the Cognitive Content Dictionary, and Chants.

The ELD Review

The educator facilitating the Explorations modified

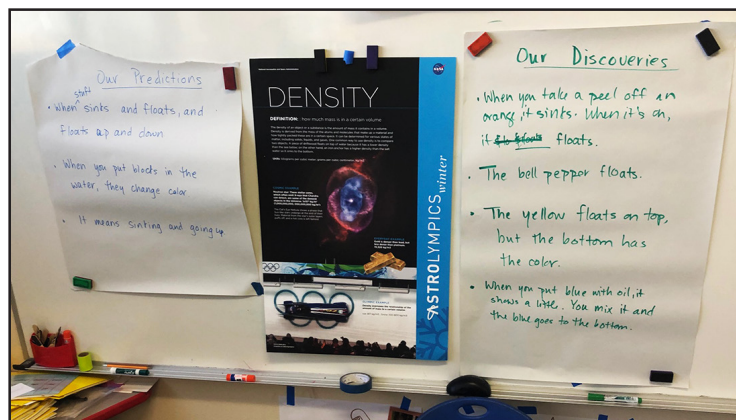
these inquiry science questions to Project GLAD®'s ELD Review strategy. The ELD review strategy has leveled question structures that meet the English learners' proficiency levels as measured by language proficiency assessments. Students at proficiency level 1 are asked "point to/locate/show/find" type questions. These questions require receptive understanding but no productive language. Level 2 students answer "yes/no" questions with a simple one-word response. Level 3 students answer "either/or" questions, which require that the students repeat one of the options given, and students at Levels 4 and 5 are asked open-ended questions, which allow them to use their expanded language skills to answer in longer phrases and sentences. During the Explorations, for example, the educator asked the Level 1 student to, "Show me what you think would happen if you go faster" while the Level 2 student was asked, "Do all things rotate the same way?" Level 3 students were asked, "Will it go faster or slower?" while Levels 4 and 5 students were asked, "Explain how rotation happens on Earth."

Cognitive Content Dictionary (CCD)

The Explorations used a modified Cognitive Content Dictionary (CCD) to support the explicit vocabulary in the lesson. The CCD is a Focus and Motivation Project GLAD Strategy which promotes Tier 2 and Tier 3 vocabulary acquisition and can be a powerful classroom management tool when the vocabulary word is used as a signal word ("When you hear the signal word, stand up, push

in your chair and line up for lunch"). The strategy evolves over two days and involves introducing a key Tier 2 or 3 vocabulary word related to the unit of study on Day 1. The students, in teams of 3 or 4, are asked to predict its meaning with the teacher scribing exactly what each

team predicts. Over the course of the rest of the



As a modification of the CCD, students were asked to make predictions of the key vocabulary word after a whole-group opening event.

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plans will then reflect the will of all the steering committee members rather than of the school personnel alone.

Mission Fulfillment Statement

Highlighted in red and flowing through the center as three interconnected, synchronous gears is

a mapping sentence that aligns with the overarching input statement. It articulates the goals, agents, and beliefs that consistently guide the progression of the inputs, precursors, and core activities

toward the desired outcomes. The mapping sentence calls for “mission fulfillment through a continuous focus on academic achievement, bilingualism and biliteracy, and sociocultural competence by the school, home, and community, through a stance that prioritizes equity and social justice, fosters critical consciousness, and is anti-racist and culturally and linguistically sustaining.” The mapping sentence clearly specifies the goals, partners, and dispositions required to attain the desired outcomes.

Building Blocks of Program Development and Implementation

Moving from left to right across the logic model, the first two columns on the left summarize the building blocks of program development and implementation. The inputs (in purple) are the resources that are required to initiate the program. In many ways, these inputs are common to any type of program, such as the selection of curricular materials and assessments, horizontal and vertical alignment of curriculum and instruction, and the development of a scope and sequence of the curriculum to guide instructional pacing. However, within a DL education program, the complexity of these inputs is much greater, as they must account for and be responsive to linguistic

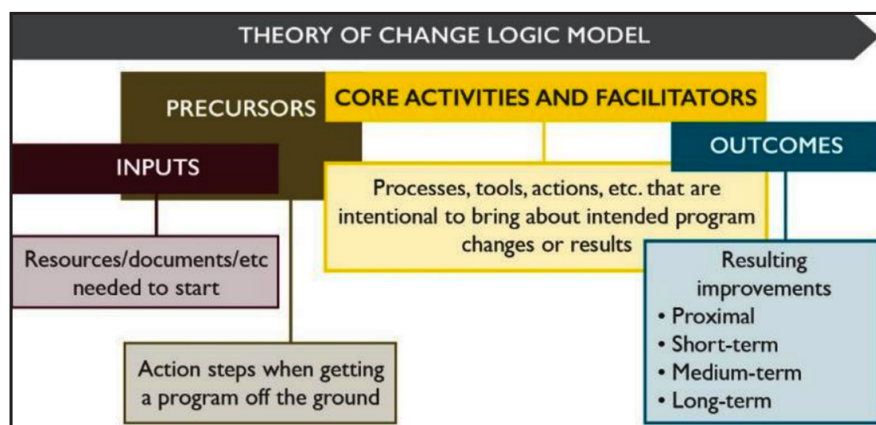
and cultural variation and serve to promote sociocultural competence and oral and written proficiency in both program languages, as well as academic achievement. All of this should be reflected in the strategic plan at the district level to ensure that there is systemwide understanding and commitment. In addition, the language allocation plan that

specifies which content areas are taught in which language is a unique input that a monolingual program would not have. The second column (in green) introduces the precursors, or action steps, that are needed to get

the program off the ground. For a DL program, this includes recruiting highly qualified administrators, support staff, and instructional personnel. Other action steps include enrolling students from varied language programs as articulated in the strategic plan and engaging families and other community members and organizations as strategic partners.

Core Activities and Facilitators

The middle of the logic model (in orange) conveys the core activities that the various actors undertake in order to achieve the desired outcomes. As with the inputs, many of the core activities are familiar to educators in any discipline, such as professional development, creating and modifying curricular materials, administering assessments, using effective instructional strategies, and promoting home-school-community engagement. These activities are always informed by the goals and stance noted at the center of the model, meaning that they promote equity and social justice and affirm linguistic and cultural diversity, which are specific to the priorities of DL stakeholders and ultimately promote bilingualism, biliteracy, sociocultural competence, and academic achievement.



Theory of change logic models contain elements intended to support program practice, policy, and research.

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This logic model was developed with support from Arnold Ventures. Last updated 1/27/2021. Authors: Elizabeth Howard, Keag School of Education University of Connecticut and Michael Rodríguez, Dual Language Education of New Mexico. Jacqueline Mendez, AEL Associates.

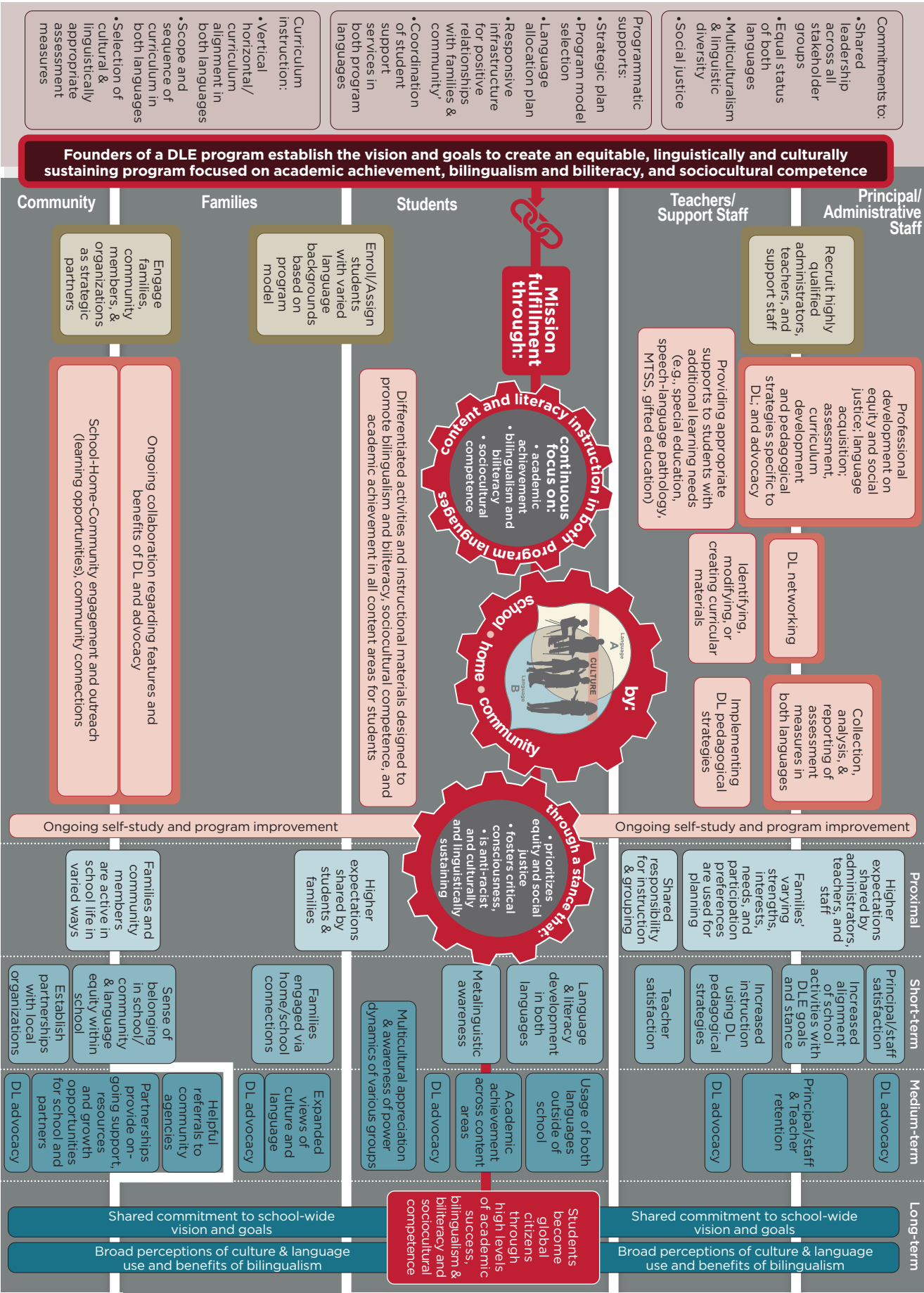
Dual Language Education Theory of Change Logic Model

INPUTS

PRECURSORS

CORE ACTIVITIES AND FACILITATORS

OUTCOMES





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Outcomes

On that note, the final column (in blue) represents the four levels of intended outcomes, ranging from proximal to short-term to medium-term to long-term. These outcomes grow from shared responsibility and increased expectations to satisfaction and a sense of ownership.

The equitable use of program languages in the school and the wider community increases metalinguistic awareness and the appreciation of linguistic diversity, and fosters the development of leadership and shared advocacy. Ultimately the mission, that students become global citizens through high levels of academic success, bilingualism and biliteracy, and sociocultural competence, is realized through a sustained commitment to the vision and goals of the program and strengthened perspectives on linguistic and cultural diversity, along with the benefits of bilingualism.

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grades, the process had to be much more guided and substantially more concrete in terms of behaviors and actions that the students and teachers took to help them with their classroom-level goal. It was inspiring to watch our seasoned veteran teachers take on the PDSA and tailor it to the needs of their students.

Interventionists' Perspective

Having a school-wide goal that is specific enough to create change but broad enough to pertain to all staff roles is a challenge. DIA's intervention staff had an open mind for how they would apply this strategy to individual student goals and designed and implemented their own cycle. They were able to successfully utilize the PDSA regarding sight words and fluency with plans to continue a PDSA cycle this year regarding sight words and fluency in both languages.

Specials Teachers' Perspective

Specials teachers frequently get overlooked when it comes to designing schoolwide professional development for systemic change. The Specials teachers were able to creatively design their own classroom-level PDSAs by focusing on vocabulary development for their respective subjects. They too met their classroom-level goals and found that the language-focused PDSA reinforced the teaching of their subjects much more than they had anticipated.

La perspectiva de Sra. Barnes - 4o grado

Aunque todos participaron en implementar el "ciclo para el éxito" (PDSA) con sus alumnos en su propio contexto, y tomando en cuenta que era un año retador por la pandemia, la perspectiva de una maestra intermedia quien

enseña lectoescritura, estudios sociales, y ciencias en español en cuarto grado muestra como esta herramienta puede tener logros grandes y obvios.

Sra. Barnes hizo su "ciclo para el éxito" (PDSA) basado en el data de vocabulario según I-station (una plataforma para el asesoramiento y enseñanza del idioma). Al principio del año,

después de que los alumnos tomaron su prueba inicial, Sra. Barnes se dio cuenta de que sus alumnos necesitaban enseñanza específica y abundante de vocabulario. En el área de vocabulario en agosto 2020, 30% de sus alumnos lograron un nivel proficiente (verde), 18% salieron parcialmente proficiente (amarillo), y 51% mostraron un nivel insatisfactorio (rojo). Cada mes, tomaron una prueba breve, estudiaron los resultados, hicieron el "ciclo para el éxito" (PDSA), y determinaron exactamente qué haría la maestra (preparar lecciones

y recursos) y qué harían los alumnos (practicar diariamente usando juegos y tecnología, y mejorar su aplicación del vocabulario en su lectura y escritura) para mejorar sus habilidades. También, usaron Flipgrid para grabar el uso del vocabulario en forma oral. En mayo 2021, usando la misma plataforma de asesoramiento (I-station), en el área de vocabulario, 71% de los alumnos aprobaron un nivel proficiente (un aumento de 41% agosto-mayo), 10% salieron parcialmente proficiente (disminución de 8% agosto-mayo), y solo 20% mostraron un nivel insuficiente (disminución de 31%). Con logros tan impresionantes, el "ciclo para el éxito" (PDSA) va a continuar como otra herramienta clave para la Sra. Barnes.

Principal's perspective

From the Principal's perspective, Ms. Heptner



Data was gathered at both the school and classroom levels and analyzed as part of the PDSA process.

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felt that she was able to organize a method of measuring student outcomes irrespective of the content, language of instruction, or grade level. “It was truly powerful to have an aligned process for all teachers, regardless of which content they teach, or in which language. We even had the Specials teachers and interventionists participating. It is really powerful to create a focus to build collective efficacy. Especially when the focus is one that empowers the students to take ownership of their learning in a cyclical and consistent fashion. Even though it was a challenging year, we will definitely continue using the PDSA cycle because it was a very robust, vertically aligned addition to our dual language program. It has fostered student agency and allowed us to use improvement science to target an issue and get everyone on board.”

Coach’s Perspective

There are many different coaching cycles I have had the opportunity to be a part of that are both unique and highly effective in terms of refining and building capacity of dual language pedagogy. Building a culture of collaboration and having a sense of collective efficacy became the goal for schoolwide implementation of best practices bundled within the AIM4S³ framework. Throughout the previous two years, we spent time in smaller cohorts becoming trained in this framework. As teachers became trained, there were abundant opportunities for individual and small group coaching cycles. This continuous professional learning focus on the implementation of AIM4S³ and the PDSA cycle created a deeper understanding, implementation, and level of commitment to the work.

Having a schoolwide PDSA alignment led to more consistency during coaching cycles despite a wide variety of content and behavior objectives. AIM4S³

developers, Lisa Meyer and Erin Mayer provided tailored professional learning and our staff spent time in their PLCs researching, collaborating, and planning for the progress and execution of each teacher’s specific PDSA focus. Each teacher studied student data under the schoolwide focus of oral and written language development. Then they would guide their students in a reflective conversation about how they were going to Act (or adjust) their current practices. Together, they would develop a Plan of what goal they wanted to accomplish and collaboratively decide what they (the students and the teacher) were going to Do

to accomplish the goal. Most teachers were able to move the needle on their students’ achievement and growth data and appreciated how the PDSA helped foster student agency and ownership of the work, growth, and achievement.



Erin Mayer and Lisa Meyer, co-developers of the AIM4S³™ framework, lead a virtual professional development session with a focus on the PDSA cycle.

Obstacles and Complications

The PDSA cycle implementation was

not without its challenges. Between constraints on the metacognitive abilities of younger students and frequent absences and scheduling challenges due to COVID, there were plenty of instances where the PDSA was not the “silver bullet” we all hoped for. Although we were proud that our district was the largest in the state to continue face-to-face instruction with strict COVID protocols in place, there were some groups of students who were quarantined too frequently to have the PDSA focus have much of an impact—this was especially true for the primary grades that stipulated instruction in each language once every other day. Additionally, the younger students had increased linguistic challenges while working in their second language because their classmates and teachers wore facemasks. The teachers reported that this inconsistent contact with the youngest of our

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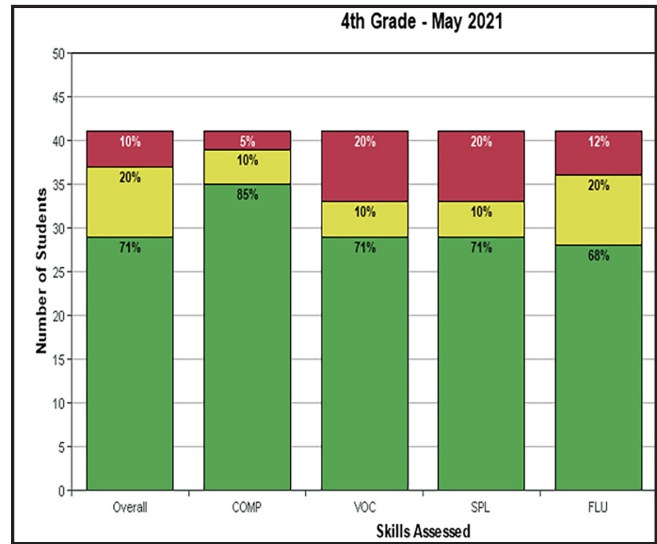
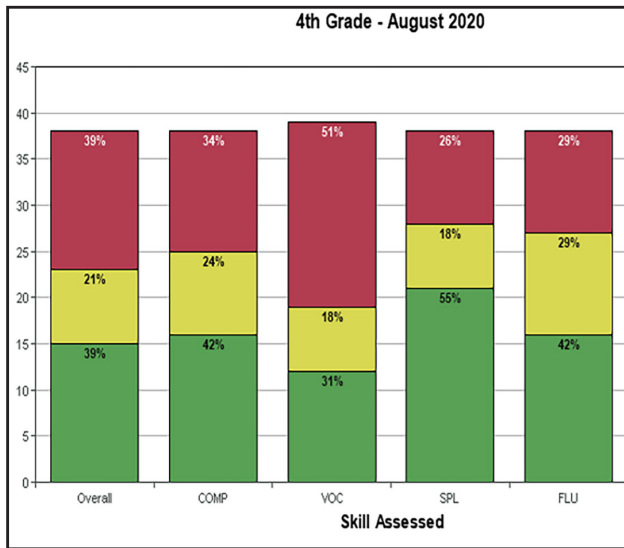
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learners presented a real challenge, but that there was value in the PDSA moving forward.

Reflections

There is power in alignment and collective efficacy. In the plan (P) portion of our schoolwide PDSA, our goal was: **“80% of K-5 students will meet their classroom outcome/goal in the area of language development.”** The Do (D) portion had the teachers designing classroom-level PDSA cycles specific to the linguistic needs of their students and within the context of their language and content area. The administration conducted a quarterly, building-level PDSA, and the coach supported the planning, implementation, and data collection of classroom-level PDSA cycles. Upon Studying (S) the progress at the end of the year, we found that we had accomplished

our school-level goal. Although the process was not perfect and had to be adjusted to the wide range of classroom scenarios, most classrooms achieved the goals set in their original Plan. While Acting (A), the consensus was that when it came to designing professional learning and shaping momentum for a building, simplicity is the greatest sophistication. We also reflected on how we might include more stakeholders in the “DO” portion of the cycle, increasing the power of the tool by including families. That is an action (A) we will certainly consider in the future to broaden the support for our schoolwide goals. The PDSA cycle offered us a common, powerful tool that fostered student agency while honoring the differences among teacher, their language of instruction, and the development of their students.



Comparing 4th grade data gathered at the beginning of the school year with data gathered at the end showcases the positive effect the school’s commitment to using the PDSA has had on students’ language development.

For more information about Achievement Inspired Mathematics for Scaffolding Student Success (AIM4S3™), please visit aim4scubed.dlenm.org





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The Four Instructional Spaces of a Dual-Language Classroom



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Data is gathered regarding students' proficiency and skill development in both program languages, as well as state/district mandated assessments, in-class assessments, and anecdotal records. This data allows teachers to understand where each student stands in both languages and provides information for instructional planning. Within a culturally and linguistically responsive classroom environment, the third pillar of dual language education, sociocultural competence, is intentionally modeled and supported, with multiple opportunities for development and practice.

With a strong foundation in cultural and linguistic responsiveness, the big idea is that the remaining three spaces are linked together. Each one allows the emerging bilingual student to learn, hear, and use one language exclusively, while the Cross-Linguistic Space allows students to use all features of their linguistic repertoire in strategic ways to deepen their understanding of content and the language of instruction and enhance both their academic achievement and linguistic performance.

The Partner Language (Spanish) Space

A key component of any bilingual or dual language program is the instructional space for the language other than English. The goal is to present rigorous, grade-level content with intentional scaffolds that support language development along with content mastery. This means that all content in this space is grounded in the appropriate content standards. In this article we are specifically referring to Spanish-English bilingual and dual language programs, but these ideas also apply to programs with other partner languages. In the case of language arts instruction, it is our opinion that the Common Core en Español Standards (CCEE) (<https://commoncore-espanol.sdcoe.net/>) provide first, a translation into Spanish of Common Core's English Language Arts Standards, and second, a linguistic augmentation that includes examples and elaborated standards for features that are unique to Spanish. This is important. First, it offers teachers a supporting document that maintains the same expectations and level of rigor for Spanish use as teachers expect for English use. Also, its structure and design are based on a theoretical framework

that is consistent with a metalinguistic approach; one that encourages and supports students' understanding of those elements and approaches that are common to both languages, and those that are unique to Spanish.

Students' language proficiency levels are considered and instruction includes opportunities to increase those proficiency levels. Scaffolds such as sentence frames, guided oral report outs, and shared writing activities support students in developing academic, grade-level spoken and written language. These very important goals are achieved through engaging, interactive activities that guide students to use the language in multiple ways. Multiple structured peer collaboration strategies are used to provide students with equity of voice and many opportunities to practice and rehearse the language with classmates. To maximize instructional opportunities, authentic literature is used to ground students in the content being studied and to connect to their culture and prior experiences. Graphic organizers or anchor charts are created in front of students to help illustrate new learning by highlighting key vocabulary and including visual representations of key content. These charts are displayed on classroom walls and are referenced often by teacher and students to reinforce content and provide access to the language necessary to articulate learning. Instructional frameworks such as OCDE Project GLAD®'s Input Charts and AIM4S™'s Compendium are great examples of interactive, visually detailed, and highly scaffolded charts that support access to grade-level standards.

The Cross-Linguistic Space

It is in the cross-linguistic space that metalinguistic awareness is highlighted and developed. Teachers in this space facilitate this development by intentionally encouraging students to leverage what they know in one language to support their acquisition of the other. Translanguaging, the intentional use of both languages to negotiate for meaning and deepen students' understanding and linguistic performance, is supported by encouraging students to utilize their entire linguistic repertoire

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to develop key understandings and then build upon their growing acquisition of one of the program languages to finalize that project. This approach allows teachers to encourage students to process content delivered in English by using their home language while still guiding students to ultimately produce a product using academic English. Activities are intentionally planned to highlight similarities

and differences in the program languages and encourage metalinguistic awareness and analysis.

Karen Beeman and Cheryl Urow's *The Bridge* (2013) and Literacy Squared's (Escamilla et al., 2014) *Así se dice, the Dictado*, and Lotta Lara strategies, provide students the opportunity to analyze and compare languages beyond the identification of cognates.

Differences and similarities in syntax (the structure of parts of speech within sentences), phonology (the sound-symbol relationship), morphology (word formation), and pragmatics (how words are used in different contexts) are highlighted and discussed. Teachers may use side-by-side translations of literature and encourage students themselves to negotiate translations of vocabulary or key concepts. Teachers may also guide students to analyze language used to describe, justify, compare, and question the content being studied, and, together with the students, create reference charts as shown on the graphic on Page 12.

The English Space

The English Space, like the Partner Language Space, is anchored in appropriate grade-level standards with the intentional use of scaffolds to support all students. Students' English proficiency levels are known and understood and used to plan instructional activities that support the development of greater proficiency in all language domains. High-quality literature is shared and discussed in whole-group and small-group

contexts. Teachers model fluent reading and provide students with multiple opportunities to read chorally and in pairs. Skills are developed to assist students in reading fluently with understanding. Activities that promote peer-to-peer interaction provide students the opportunity to negotiate for meaning, share knowledge and experiences, and promote collaboration. Sentence

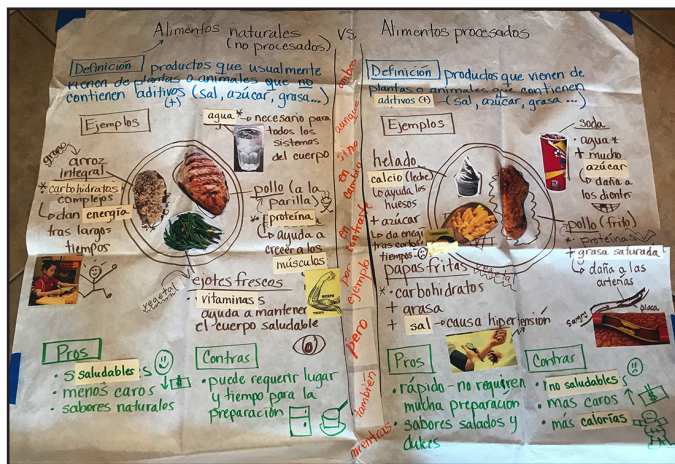
frames, visuals, and realia scaffold the learning and provide students a supported entry-point to understand the concepts and share their learning. Graphic organizers and other anchor charts are again created in front of the students and include picture cards and sketches to clarify the topic, while the teacher calls for students to repeat vocabulary chorally, thus giving

students the chance to anonymously practice key words and phrases. Charts are color-coded to provide an extra scaffold and promote recall, and are used as reference points for extension activities.

Planning for Bilingualism and Biliteracy

DLeNM's concept of the four spaces of a bilingual or dual language classroom is best achieved when all four spaces are considered and used in a thematic approach to teaching and learning. Themes, or units of study, may come from content materials or from intentional analysis of the grade-level standards and content scope and sequence documents. Effective planning for bilingual and biliteracy goals includes deciding which language should be used to teach and develop the key understandings, and how the other language can be used to extend the learning and develop the language of the content.

Questions teachers should consider when planning for the four spaces include, "What collaborative strategies and activities will best allow students to



Color-coded charts provide an extra scaffold to help make complex information comprehensible to students.

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develop and practice the language and deepen their understanding of the concepts?” “Is there authentic literature in both languages to support and motivate students and allow them to see themselves and their experiences in the instructional protocols?” “What materials and strategies can be used that provide enough scaffolding and sheltering to support differentiated learning?” “How can the concepts and language be bridged to help students better understand both languages and leverage their use?”

Teaching and learning in a bilingual or dual language classroom is a complex, but an ultimately transformational process! The four spaces of the dual language program can guide teachers in planning instruction that maximizes students’ language and content learning while building students’ sociocultural competence. Done well, dual language education truly can be transformative for our students.

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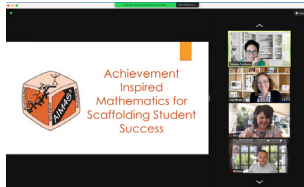
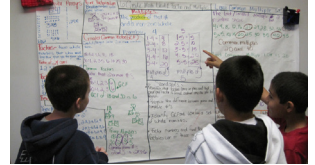
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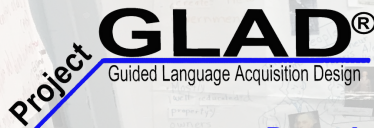
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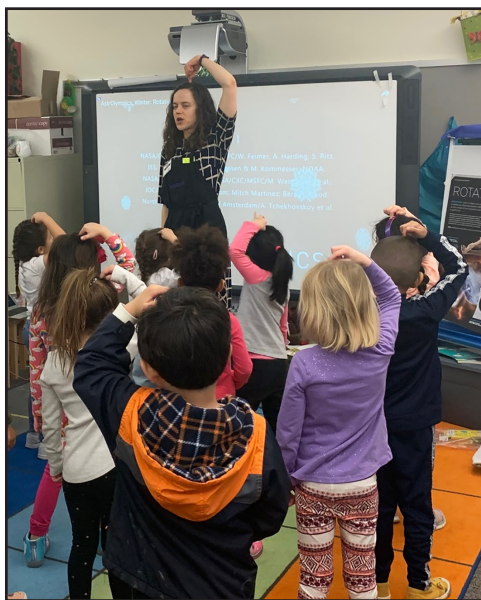
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day, the word is used and explored as a way for students to develop a true definition. On Day 2, the CCD is revisited, the teacher provides a formal definition of the word, and the teams negotiate an oral sentence reflecting their understanding of it. The CCD process was modified for the context of these Explorations. Because inquiry-based science relies on student discovery, the educator introduced the vocabulary word only after students experienced a whole group “opening event” with discussion, one hands-on activity, and a Turn-Pair-Share question to activate prior knowledge. This process ensured that students had both personal and shared knowledge to bring to their predictions of the word.

In the Exploration “Floating and Sinking,” the opening event involved making predictions about which would float or sink in a tub of water—a bowling ball or a ball bearing. The educator placed both in the water and students watched in amazement as the large bowling ball floated and the small bearing sank. Students moved into groups to make predictions about various household objects floating or sinking in water and tested them in a tub of water. The educator then called the students to the carpet and asked them to turn and share with a partner, “What do you know about floating and sinking in water? Have you seen something similar?” After hearing various responses, the educator might say, “We have been looking at things that float or sink in water. When we look at whether materials float and sink in water, we say we are looking at their *density*. Say density to your neighbor, to me, to your elbow. What do you think density means?” The predictions were recorded on the modified CCD. The educator then showed the NASA Universe of Learning poster on “density” and played the video. The subsequent inquiry-based activities all centered around density, and the educator concluded the Exploration by revisiting the modified CCD. The students were asked to turn and share, “What do you now know about density?” and their responses were recorded on the chart.



Children learn chants and accompanying movements that are related to the hands-on activities of the unit.

Chants and Songs

Finally, the Explorations utilize chants and songs which include target vocabulary words and concepts set to familiar tunes and rhythms. This is a Guided Oral Language Project GLAD® strategy and is effective because it lowers the affective filter for English learners—promoting more risk taking, embeds academic vocabulary in context, and increases acquisition through practice of language patterns. The chants directly relate to the hands-on activities and are recited along with suggested movements which mimic what students experience during the Exploration. In “Floaters and Sinkers,” students use their hands to describe floating and sinking in water as they sing about density. In “Massively Fun,” students tilt like a balance beam as they measure mass, and in “In a Spin,” students rotate around their central axis.

Future Opportunities

If you’d like to learn more about incorporating inquiry-based science into your Project GLAD units, be sure to look out for DLeNM’s Spring 2022 professional learning opportunity with Explora Science Center and Children’s Museum: “Infusing Project GLAD® with Inquiry-Based Learning.” You’ll learn how to develop high levels of academic language and content knowledge with your language learners while engaging in hands-on science and engineering activities. We will breathe new life into some GLAD® strategy favorites while tapping into the NGSS standards. Participants will receive a kit of materials to use doing the workshop. We hope to see you there!

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