Mundo Verde Bilingual Public Charter School

Founded in

Chartered in: 2010
Doors open to P Street Campus: 2011
Doors open to Calle Ocho Campus: 2019

Number of Schools, Location(s)

Two in Washington, D.C.
P Street Campus
Calle Ocho Campus

Number of Students

P Street Campus: 600 (and more than 1,400 on the waitlist)
Calle Ocho Campus: 270

Number of Teachers / Teacher Retention

P Street Campus: 40 Lead Teachers
Calle Ocho Campus: 15.5 Lead Teachers

80% teacher retention

Per-Pupil Funding

$19,000

Sector

Charter

Grades Served

Pre-K (3-year-old) through 5th

Student Demographics

34.8% Hispanic
34.3% White
18% Black
2.5% Asian
10.4% Mixed/Other

11.1% students with disabilities
20% English language learners
24% eligible for free or reduced meals

Teacher Demographics

63% Hispanic
21% White
16% Black

56% Bilingual (Spanish/English)

Anchoring to Established Cognitive Developmental & Educational Theories

Piaget's Theory of Cognitive Development — Constructivism[1]

Researcher: Jean Piaget

Theory's Key Tenets: Children learn as an artifact of factors both internal and external to the child. Children learn best by doing and through engaging in their environment and with the adults and peers around them.

Sociocultural Theory[2,3]

Researcher: Lev Vygotsky

Theory's Key Tenets: Children learn through hands-on experiences. Everyone in the child's environment and the overall culture and society are responsible for developing higher order cognitive functions. Learning is inherently a social act. Adults facilitate children's knowledge development through scaffolding and the Zone of Proximal Development — the space between a child's prior background knowledge and what they can do on their own, and the new knowledge, understandings, or skills that they need support mastering.

Ecological Systems Theory[4]

Researcher: Urie Bronfenbrenner

Theory's Key Tenets: Children learn through both internal and external factors by engaging in several environmental or ecological systems:

- Microsystem *(e.g. family, caregivers, school)*

- Mesosystem *(refers to relationships between those within the child's microsystem, such as parent-school partnerships)*

- Exosystem *(refers to larger social systems that impact the child's development, such as community-based resources or parent workplace environments that may cause stress on parents that lead to stress for children)*

- Macrosystem *(refers to cultural values, customs and laws)*

- Chronosystem *(refers to dimensions of time and the interplay between time and a child's external life changes and circumstances as well as the child's internal development and identity)*

Introduction

"What are you doing about the use of plastic bags?" may not be something a member of Washington, D.C.'s Water Board of directors is used to hearing when he visits schools, but at Mundo Verde Public Charter School, it was the first thing a student asked him. The board member was so impressed that he asked the third-graders to speak to the full DC Water board about issues related to water cycles and the way that human interaction can endanger water supplies. This opportunity represented the culmination of a third-grade multiyear focus on "cycles" in the natural world, and the role that students can play in enabling and protecting such cycles.

Mundo Verde is an intentionally diverse public charter elementary school in Washington, D.C. serving nearly 600 students[5] from pre-k (3-year-olds) through fifth grade. The school was founded on the belief that how children learn is as important as what they learn. Given that touchstone, Mundo Verde leaders said they leverage biliteracy and sustainability to "develop cognitive skills, cultural humility, and equity."

[1] Jean Piaget, "Piaget's Theory," in: Bärbel Inhelder, Harold H. Chipman, and Charles Zwingmann, eds., *Piaget and His School* (New York: Springer-Verlag Berlin Heidelberg, Springer Study Edition, 1976).
[2] Lev Vygotsky, "The Development of Higher Psychological Functions," *Russian Social Science Review* 18, no. 3 (1977): 38.
[3] James P. Lantolf and Aneta Pavlenko, "Sociocultural Theory and Second Language Acquisition," *Annual Review of Applied Linguistics* 15 (1995): 108–124. doi:10.1017/S0267190500002646.
[4] Urie Bronfenbrenner, "Ecological Systems Theory," in Ross Vasta, ed., *Six Theories of Child Development: Revised Formulations and Current Issues* (London, England: Jessica Kingsley Publishers, 1992), 187–249.

[5] In SY 2020, Mundo Verde opened the Calle Ocho Campus increasing enrollment to 875

Mundo Verde's journey began in 2010, when a group of parents teamed up with educators, environmentalists, and community leaders to bring the vision to light. Under the leadership of Kristin Scotchmer and Dahlia Aguilar, Mundo Verde opened in August of 2011. Scotchmer, who grew up principally in Guatemala and speaks Spanish as a first language, sought to create a high-quality, tuition-free, bilingual experiential education for both her own daughters and other children across D.C. Scotchmer shares this vision with the founding principal (now Chief of Schools), Aguilar, who grew up in South Texas. When teaching English as a second language (ESL), she was struck by how her students were segregated by language. This approach caused some ESL students to lose their abilities to speak both English and Spanish. Aguilar yearned for a school that elevated the importance of language and culture as central to learning. Though neither Aguilar nor Scotchmer had focused their careers to date on environmentalism, both shared a commitment to social justice and connected deeply with the broader founding vision of a school in which students engage deeply and directly in projects as leaders and changemakers, paving the way for a more just and sustainable world.

Mundo Verde is the culmination of these visions. The mission of Mundo Verde is "to foster high levels of academic achievement among a diverse group of students by preparing them to be successful and compassionate global stewards of their communities." Mundo Verde seeks to serve students furthest from opportunity in Washington, D.C. To achieve this, the school's model includes:

- **Biliteracy:** Via Mundo Verde's immersive language program, all students learn to speak, read, and write in English and Spanish. At Mundo Verde, bilingual education is seen as a lifelong way of thinking.[6,7] To ensure that graduates of Mundo Verde have the opportunity to continue language learning beyond fifth grade, the school collaborated with other D.C. language immersion schools to form District of Columbia International School (DCI) for sixth- through 12th-graders in 2014.

- **Education for sustainability:** Mundo Verde cultivates skills, habits, and dispositions that empower students to engage effectively with their communities. The school's focus on sustainability teaches that natural, social, and economic systems are linked and interdependent.

- **Project-based learning:** Mundo Verde's curriculum promotes self-discovery and critical thinking, encourages teamwork, builds character, and capitalizes on children's innate spirit of adventure through active investigation and project-based learning, using the EL Education (formerly "Expeditionary Learning") model.[8]

Aguilar explains, "All these pieces [of biliteracy, sustainability, and project-based learning] fit well together because each motivates the other." Described in the founding charter, Mundo Verde's sustainability values, content focus, and instructional models (Two-Way Language Immersion and EL Education) are brought together with great intentionality to support students' overall growth as stewards and change-agents.

To complement its academic approach, Mundo Verde also incorporates character standards or Habits of Community Stewardship, known by the acronym ESPICA (empathy, speak your truth, perseverance, inquiry, collaboration, appreciation and joy). Across the school day, teachers provide examples of what good habits look like, and encourage such practices throughout class and expeditions. Teachers frequently pair an academic standard with a character standard in a given lesson to ensure that a habit is absorbed and understood in the day-to-day challenges of learning.

Diversity is also core to the Mundo Verde model and demonstrated in the school's student population to leadership and staff. Including Scotchmer and Aguilar, Mundo Verde's leadership team comprises principally women and over 70% Black and Latino leaders, many of whom grew into leadership roles from teaching positions. Among the staff, 63% are Hispanic/Latino, 21% are White, and 16% are Black. Additionally, 56% of staff are bilingual Spanish/English and 12% are monolingual Spanish. These demographics support best practices and research in second language acquisition, which indicate that to become fluent, proficient listeners, speakers, readers, and writers in a language, children must learn from highly proficient and fluent native speaking models.[9,10]

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[6] Ellen Bialystok, "Cognitive Effects of Bilingualism: How Linguistic Experience Leads to Cognitive Change," *International Journal of Bilingual Education and Bilingualism* 10, no. 3 (2007): 210–223, DOI: 10.2167/beb441.0.
We know that bilingualism and biliteracy supports not only language and literacy functions in development, but also other higher level cognitive abilities such as the executive functions, as evidenced by notable cognitive developmental language researchers such as Ellen Bialystok.
[7] Lera Boroditsky, "How Language Shapes Thought," Scientific American 304, no. 2 (2011): 62.
It has also been established that language shapes thought and conceptual understandings of others and the world around us.

[8] Mundo Verde draws upon EL Education (Expeditionary Learning) and Center for Applied Linguistics (CAL) models. EL is a model of schools that implements project-based learning "expeditions" anchored on three dimensions of student achievement (mastery of knowledge and skills, character, high-quality student work). Center for Applied Linguistics is a nonprofit organization with contributions to the fields of bilingual and dual language education. Mundo Verde participates in CAL's needs assessments and campus observations to strengthen its literacy education programming. While Mundo Verde's program includes key influences from both EL and CAL, this case study aims to explore the deep and nuanced integration of CSD specifically through Mundo Verde. Although elements of CAL and EL are embedded in Mundo Verde's DNA, this case study is not representative of all CAL or EL schools.
[9] Elizabeth R. Howard et al., *Guiding Principles for Dual Language Education (2nd ed.)* (Washington, DC: Center for Applied Linguistics, 2007).
[10] María Robledo Montecel and Josie Danini Cortez, "Successful Bilingual Education Programs: Development and the Dissemination of Criteria to Identify Promising and Exemplary Practices in Bilingual Education at the National Level," *Bilingual Research Journal* 26, no. 1 (2002).

Defining and Measuring Success

Definition of student success. Mundo Verde leaders define a broad vision for student success. As Aguilar said, success is when "students are engaged in the celebration of learning, they understand learning is a charge to speak out — here or beyond, they understand their environment, they embody their values, they have ownership of their voices, they are engaged in meaningful work." Scotchmer added, "Being a diverse school, we're also focused on forming relationships across differences early so that students are foundationally and forever changed."

Current and desired ways of measuring success across domains. Mundo Verde is eager to identify better tools to document what it cares about: student agency and empathy, problem solving, the cognitive benefits of bilingual education, and the impact of education in a diverse environment. The school is working to develop assessments, indicators, and measures informed by the field to fully assess the power of the model in its entirety in two languages.

Mundo Verde evaluates teacher success using the Danielson framework, and has developed a supplementary observation tool for equity in teaching practice. The tool gathers evidence about how well teachers engage students across lines of difference in participating, creating excellent work, and collaborating, with a particular emphasis on equitable engaging at-risk students and students of color.

Academic success. Mundo Verde points to strong academic outcomes:

- For the past four years, Mundo Verde has earned a Tier 1 rating as a high-performing charter school in Washington, D.C. (as defined by DC Public Charter School Board). [11]

- Mundo Verde has earned 4 of 5 stars in both its first and second year under the state's new report card system and is proud to be in the top 25% of over 200 schools in the city. [12]

- The school sees significant growth between third and fifth grade in student performance in language arts. While third-graders at Mundo Verde perform on par with D.C. averages in state PARCC ELA testing, by the time the same students graduate in fifth grade, they outperform D.C. averages by 20 percentage points. In addition, 80% of graduating fifth-graders are on track for school-established benchmarks for English and Spanish language abilities.

- Students exhibit strong performance in grades three to five in math, consistently outperforming district averages in math PARCC exams.

Mundo Verde sees these outcomes as a floor rather than a ceiling for its work, and has developed a comprehensive plan to improve the achievement of all students, with particular focus on accelerating growth in the performance of Black, Hispanic, and economically disadvantaged students.

How Mundo Verde Facilitates Comprehensive Student Development

Mundo Verde demonstrates integration across multiple domains of Comprehensive Student Development (CSD) into its model. In the sections that follow, we explain what Mundo Verde's model looks like and clarify how the model fuels CSD.

The following aspects of Mundo Verde's model are critical to its success in facilitating student development:

1. Developmentally appropriate project-based learning experiences

2. Biliteracy as mechanism to build "bigger brains" [13] and empathy

3. Sustainability as lens to enable student ownership and fuel agency

4. Quality food, student nutrition, and physical health extend learning

5. Adult practices that promote continuous growth

While some schools are grounded in biliteracy, project-based learning, or sustainability, Mundo Verde's success is in its
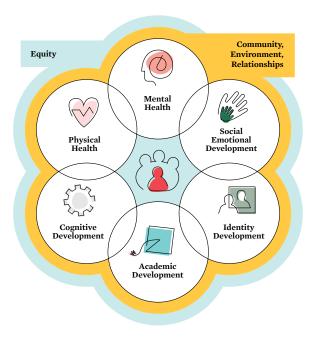
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[11]DC Public Charter School Board, 2019 School Quality Report.

[12] Office of the State Superintendent, 2019 STAR Framework 2019.
[13] Wayne P. Thomas and Virginia P. Collier, "The Multiple Benefits of Dual Language," *Educational Leadership* 61, no. 2 (2003): 61.

intentional and full integration of the three elements. Biliteracy, project-based learning, and sustainability are not implemented in isolation, and they are not competing priorities. Instead, expeditions (10- to 12-week interdisciplinary projects) seamlessly integrate learning in English and Spanish around one core concept related to the natural, social, and economic systems that make up our complex world. In the past two years, Mundo Verde has deepened its diverse-by-design practices and launched intentionally anti-racist approaches to better ensure equity of student growth and outcomes.

Comprehensive Child Development

1. Developmentally appropriate project-based learning experiences

Cognitive	Physical	Academic
Mental	Social Emotional	Identity

■ Primary Domain ■ Secondary Domain

Students participate annually in two projects called "expeditions." Through hands-on experience, original research, critical thinking, problem-solving, real-world application, and age-appropriate audiences, students build character along with academic skills and learn to make connections, understand diverse perspectives, develop conclusions, generalize to big ideas, and understand how their lives are connected to the world around them."[14,15] As a direct result of this integrated learning approach, Mundo Verde supports development across multiple domains: Students develop a sense of identity, culture, place, and purpose, as well as the knowledge, skills, values, and the intellectual efficacy (the ability to effect change) necessary to be sustainability-minded global stewards.

Mundo Verde staff define the focus and audience for expeditions based on a "sphere of impact" philosophy. This philosophy ensures that the purpose, audience, and potential impact of an expedition are developmentally appropriate. In preschool, students focus on the classroom as audience. In kindergarten, the sphere of impact grows to the school. By upper elementary grades, students are introduced to impacts beyond the school, starting with their immediate family, and growing to broader local and national communities. Aguilar says of the approach: "By having the right audience, students have a voice and develop an understanding of their own agency."[16]

Mundo Verde, like other EL Education schools, measures student success in three dimensions: mastery of knowledge and skills, character, and high-quality student work. In EL's definition of high-quality student work, schools are challenged to increase the complexity, craftsmanship, and authenticity of student work products. Complexity ensures that the work is rigorous, with high-order thinking and skills, connections to big concepts, transferability of understanding, and consideration of multiple perspectives. Craftsmanship evaluates accuracy, detail, and beauty in the conception and execution of the work. Authenticity measures creativity, use of relevant formats, and connection to standards. Mundo Verde has integrated standards from Education for Sustainability to EL Education's framework and aligns it to biliteracy by ensuring student work is considered along each element of quality in both Spanish and English.

[14] Mundo Verde, "Expeditionary (Project-based) Learning," November 2018, http://www.mundoverdepcs.org/expeditionary-learning/.
[15] Piaget, "Piaget's Theory," in: Inhelder, Chipman, and Zwingmann, eds., *Piaget and His School.*
[16] Bronfenbrenner, "Ecological Systems Theory," in Vasta, ed., *Six Theories of Child Development: Revised Formulations and Current issues.*

Project-based learning executed in this thoughtful way enables Comprehensive Student Development (CSD) across multiple domains. Expeditions prompt **cognitive development**, and specifically executive functioning, including problem-solving and planning. Engaging in projects and reflections of one's self and one's community strengthens **identity development**, including personal identity and collective identity. Through working on projects together, students engage in **social-emotional development**. Interdisciplinary expeditions with intentional age-appropriate audiences strengthen **academic development** across all content areas.[17] The following vignettes illustrate how expeditions promote Comprehensive Student Development:

- In the first-grade expedition "Treasures, Maps, & Poetry,"[18] students explore their school, homes, and local parks. Students create maps of places, incorporating mathematical concepts of measurement and nonfiction reading and writing (in English and Spanish) to teach others about the usage of maps. They also use inference, poetry, and photography to create a treasure hunt game for a local park, used by Mundo Verde students and broader neighborhood visitors. In addition to practicing math, English, Spanish, and core academic skills, first-graders are grounded in a purpose and authentic audience of other children like themselves using the park.

- In third grade, students participate in "The Right to Read" expedition, where they explore the power of education through literacy heroes. In a third-grade English classroom, groups of students discuss the heroes they are reading about. One group talks about "Malala: Activist for Girls' Education," sharing the obstacles that the protagonist faced in her fight for women and girls in Pakistan to receive an education. Another group reflects on Ruby Bridges "Through My Eyes" and the impact of segregation in the U.S. around the 1960s. At the next table, yet another group of students discusses "Six Dots: A Story of Young Louis Braille," about how reading and language may be very different for those with special needs.

- Following book discussions, students engage in ways to promote literacy. For example, one year, students created a small "give one, take one" library at the entrance of Mundo Verde, encouraging families to exchange and increase their access to books. Another year, students produced podcasts at Howard University, sharing their literacy heroes and reflections with the greater community. The result of rigorous and character-building project-based learning is authentic student ownership and applied learning beyond the classroom. A Mundo Verde parent said of her child's deeper understanding

and awareness: "We went to a museum after my son did the 'Right to Read' expedition. He saw an exhibit in the museum and asked, 'How could a blind person read this?' That critical thinking came from Mundo Verde." It is worth noting the critical thinking and empathy demonstrated by this question. The child had to have been putting himself in the shoes of a blind person to ask such an in-tune and poignant question.

- Expedition topics are relevant to students and their community, and support character development. For the same 'Right to Read' expedition, a teacher said of the impact on her fourth-graders: "Out of the 'Right to Read' expedition, I've never seen a child at Mundo Verde teased, treated poorly, or in any way mistreated for struggling with reading. Students help each other because there are intentional conversations in third grade on reading disability."

2. Biliteracy as mechanism to build "bigger brains" and empathy

Cognitive	Physical	**Academic**
Mental	Social Emotional	**Identity**

■ Primary Domain   ■ Secondary Domain

Mundo Verde's biliteracy program begins in the early years for 3- to 4-year-olds and 5-year-olds as full immersion in Spanish language, in which 90% or more of instruction is in Spanish. From first to fifth grade, classes are dual immersion, with approximately 50% learning in English and 50% in Spanish. While teachers, classrooms, and instructional blocks are dedicated to learning in either Spanish or English, content across all subjects in each language is seamlessly woven throughout the students' week. [19,20]

Biliteracy has a significant impact on **academic development** as students access content and instruction in two languages. Research indicates that students in dual language immersion programs outperform peers in English reading standardized

[17] Expeditions are dynamic, often updated to respond to the interests of students or to retain authentic purpose once a genuine need has been addressed. As a result, details included in this case study may refer to expeditions in their past form.
[18] For SY 2018–19, the first-grade expedition was renamed and reimagined as Stewards of Our Common Spaces.

[19] Dorothy Legarreta, "The Effects of Program Models on Language Acquisition by Spanish Speaking Children," *TESOL Quarterly* 13, no. 4 (1979): 521–534, doi:10.2307/3586447.
[20] Elizabeth R. Howard, Donna Christian, and Fred Genesee, *The Development of Bilingualism and Biliteracy from Grade 3 to 5: A Summary of Findings from the CAL/CREDE Study of Two-Way Immersion Education* (Santa Cruz, CA, and Washington, DC: Center for Research on Education, Diversity & Excellence, 2004).
For decades, scientific evidence has revealed that a balanced approach to second language acquisition in which children received continued learning in both their native language and a second language yields the highest gains in language and literacy proficiency in both languages, for all children, regardless of their backgrounds.

tests.[21] Additionally, dual language immersion models have been shown to ameliorate the negative effects of low socioeconomic status on overall academic achievement, particularly literacy.[22] Biliteracy forms a critical part of the Mundo Verde model not just because it helps children learn a second language, but because it enables key skills that contribute to **cognitive development**.[23] In the words of Aguilar, biliteracy enables children to build "bigger brains." Speaking two or more languages requires the brain to engage in cognitive flexibility. Additionally, bilingualism promotes empathy through perspective taking. There are words, concepts, and expressions that exist in some languages that don't exist in others. Having access to another person's language allows us to experience the world through a different lens. It has been well established that language shapes our knowledge, perceptions, and understandings of others and the world.[24] Mundo Verde's bilingual education also supports **identity development** with its intentional focus on culture and identity. This particularly benefits dual language learners who speak Spanish at home by affirming their identities. The following illustrate how biliteracy is practiced at Mundo Verde:

- In a fifth-grade humanities class, the teacher provides instruction as part of the human rights unit in Spanish, explaining key concepts and sharing a Spanish video on the Magna Carta. A few minutes later, in the same classroom, students actively discuss and document key takeaways in Spanish, practicing oral and written Spanish skills. In a second-grade class, students work on math in Spanish, with the objective of using place value to solve word problems. In pairs or trios, students are spread throughout the classroom, some on the rug while others sit at a table, actively collaborating and conversing in Spanish.

- Students see cultures of various Spanish-speaking countries elevated and celebrated. For example, in October the library is transformed for a secular Día de los Antepasados (Day of the Ancestors). The room is covered in bright papers and flowers, and students are encouraged to share photos, stories, and memories of loved ones who have passed, building upon indigenous cultural practices in

Latin America of celebrating both the cycle of life and past generations. Before and after school, students stop by the library to contribute an artifact, or show what they've brought to a friend.

- Mundo Verde sees biliteracy as an "equalizer." Students who speak Spanish at home are no longer viewed as having to catch up with their peers, as most students are in the process of learning a non-native language (be it Spanish or English). Students also develop curiosity and appreciation for language and culture. A fourth-grade student, whose mom speaks limited English, said, "The coolest thing is to help people learn other languages. When my mom goes out I can translate for her and she doesn't need a translator because I can do it."

[21] Jennifer Steele et al., *Dual-Language Immersion Programs Raise Student Achievement in English* (Santa Monica, CA: RAND Corporation, 2017), https://www.rand.org/pubs/research_briefs/RB9903.html.
[22] Laura-Ann Petitto, "New Discoveries from the Bilingual Brain and Mind across the Life Span: Implications for Education," Mind Brain and Education 3, no. 4 (2009): 185.
[23] Additional research: Language management calls upon executive functions such as attention control, cognitive inhibition, and working memory; there is mounting evidence that bi- and multilingual people are better at analyzing their surroundings, multitasking, and problem solving. They also have a larger working memory, including for tasks that do not involve language. In terms of brain structure, they have more gray matter (and associated activity) in the dorsal anterior cingulate cortex, a locus for language control and broader executive function. Superior executive function is, in turn, a strong predictor of academic success. Neel Burton, "Beyond Words: The Benefits of Being Bilingual," Psychology Today, July 28, 2018, https://www.psychologytoday.com/us/blog/hide-and-seek/201807/beyond-words-the-benefits-being-bilingual.
[24] Lisa Feldman Barrett, Kristen A. Lindquist, and Maria Gendron, "Cognitive-Emotional Interactions: Language as Context for the Perception of Emotion," *Trends in Cognitive Sciences* 11, no. 8 (2007): 327–332.

3. Sustainability as lens to enable student ownership and fuel agency

Cognitive	**Physical**	**Academic**
Mental	**Social Emotional**	**Identity**

■ Primary Domain   ■ Secondary Domain

At Mundo Verde, sustainability is both for the content (the what) and as a vehicle for learning (the how). The emphasis on sustainability supports students in developing civic identity and agency to improve their own communities.

The focus on sustainability, in addition to the other core aspects of its model, attracts many to the school. One mother shared, "I chose Mundo Verde for my sons. I liked the focus on 'being green,' recycling, and making the world better. The country where I come from, sustainability is big. We don't use too many chemicals. As a kid, my grandpa taught me how to grow plants. When I heard Mundo Verde focused on these things, I wanted my children to have the kind of education that helps them to create a better world."

Mundo Verde has adapted existing models of sustainability education. The school has identified "power sustainability standards" that can be spiraled every year — thus increasing academic rigor while reinforcing other core aspects of Mundo Verde's model. For example, via a sustained focus on "cycles" — from plant cycles and food cycles to water cycles and interplanetary cycles — Mundo Verde makes explicit the connections between sustainability and social justice and reinforces students' roles in various cycles (emphasizing ESPICA values).

The focus on sustainability supports **academic development** of students' knowledge of science, history, and civics. Students' **identity development** is supported as they develop a sense of purpose and collectively apply their learning to change the conditions in their community and their world. **Social-emotional development** is supported as students build agency and self-efficacy via the process of seeing the real-world impact of their efforts. As students learn about life cycles in nature, they develop empathy for their fellow living beings and understand how all living things are connected to each other. Students build social awareness via exposure to the intersection between sustainability and social justice. Finally, students learn about and create positive change in the environmental factors (e.g., water safety) that have an impact on their **physical health**. Examples of sustainability in action include:

- Students engage in rigorous projects that inspire sustainability efforts at the school and beyond. Fourth-graders learning about renewable energy are leading the charge for Mundo Verde to install solar panels. Another class raised American shad at the school to release into the Anacostia River after learning about the fish's contributions to the ecosystem and the importance of clean water for the fish.

- As described in the introduction to this case study, a third-grade group planned an exhibition on water cycles as a capstone to an expedition. Students presented an array of high-quality work to demonstrate their knowledge of the science of water and the ways that human interaction can endanger water supplies. Projects included well-crafted, complex items like a set of postcards to send to community members informing them about issues with DC Water, and a bilingual book about the history of the City's water system with scientific illustrations of American Shad on the cover that compelled readers to engage. Audience members included other students, parents, and — perhaps surprisingly — a few Washington, D.C. government leaders. After perusing the work, a representative from DC Water's board asked the students if they had any questions for him. One by one, children stepped up to a microphone and confidently asked hard-hitting questions like, "What are you doing about the use of plastic bags?" The executive was so impressed by the students' work and thoughtful questions that he asked them to present at an upcoming board meeting.

- A student shared another impact of the project: "I didn't know we wasted so much water. I went home and told all my family. The next month, my parents said our water bill was less because we've changed. We can make the world a better place. Our generation could destroy the world or save it." A mother shared how the information changed the way her daughter engaged with the world: "We were listening to the radio and there was a story about algae in the water in Florida; the story talked about the water cycle, pollution. My daughter immediately connected it to what she had learned — she's constantly putting things together. These are things she'll remember as a human being, bring home, and connect to as part of the bigger

world." One Mundo Verde leader reflected on the power of these experiences: "It's what I hope will happen to students, that they'll understand that learning is a charge to speak out, whether here in D.C. or beyond."

- In another example of the far-reaching applications of what they learn, students in fifth grade participate in an immersion Capstone trip each year.[25] During their visit to a native reservation in Florida, students used their Spanish language, observation skills, and curiosity to engage with residents about the evident water pollution. While discussing the challenges with a community leader, fifth-graders suggested potential solutions and strategies based on what they had learned during their third-grade water-based expeditions. One teacher said, "What a powerful example that you can take students anywhere and have them speak with confidence; even in a new environment, they can share and transfer ideas."

- In exploring issues of diversity along lines of gender and race/ethnicity, Mundo Verde staff anchor the conversation in ideas of sustainability and biodiversity in nature, without which ecosystems would not exist. Thus, Mundo Verde starts by recognizing each individual human identity and the assets that diversity across individuals brings to a community. A related connection is made via Mundo Verde's explicit instruction of biophilia versus biophobia, through which students are taught empathy with the earth and its plants and creatures.

4. Quality food, student nutrition, and physical health extend learning

Cognitive	**Physical**	**Academic**
Mental	**Social Emotional**	**Identity**

■ Primary Domain ■ Secondary Domain

Mundo Verde's focus on food and wellness is a special application of its emphasis on sustainability. In classrooms and beyond, students learn about food from its origin as seeds in a garden or animals on a farm. They then learn how to make and also daily consume healthy onsite prepared meals. They practice responsible food disposal in the form of composting, and they explore food sales via a student-run community

market. At Mundo Verde, the garden and kitchen are extensions of the classroom, and Chef Dot (who leads the school kitchen) and her team are fully integrated as educators in the school. In addition to taking special courses such as art, music, and physical education, students participate in a gardening and cooking course. Through these courses, they engage with their local sustainability cycle.

Mundo Verde's approach to food education supports **academic development**. Through experiences in the garden, the kitchen, the compost pile, and the market, students learn about science, math, and health. Together, students engage in **identity and social-emotional development** as they assume roles in supporting the food and wellness culture at Mundo Verde and their neighborhoods. They also build personal identity and agency around their individual roles in the food cycle. Students learn about food scarcity and the impact that this can have on others around them. Lastly, of course, students engage in practices that support **physical health** (i.e., nutrition and general health). The following examples illustrate the value of focusing on student nutrition and physical health to support learning:

- Students learn where food comes from through a gardening class. As students plant seeds, they learn about the science of a garden (e.g., in which season to plant corn) and the language — in both English and Spanish — to describe their work. One parent reflected on the result of her son's food knowledge: "We had a 'firm discussion' about what organic means. He asked me what I thought. I said it's a word for things grown without pesticides and a word for food that is three times more expensive than other food. My kid corrected me to say that organic means anything that decomposes. I was so surprised how he listened to me, but then explained to me what organic actually meant. He's learning, and he's learning how to argue his points in a respectful way."

- As food grows, students learn how to use it. A recent cooking class went into the garden to select fresh kale.

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[25] The Capstone trip is an extraordinary adventure that represents the culmination of Mundo Verde's fifth-graders' elementary school learning. The goal of the trip is that students will leave Puerto Rico with a greater sense of the interconnectedness of language, communities, culture, and the environment. This new awareness will empower them to take responsibility for their learning and their contributions to their own community and gain confidence in their roles as biliterate and bicultural global citizens (in 2018 the Capstone Trip destination was changed to Florida due to hurricane recovery efforts).

With armfuls of leafy greens, they returned to the school kitchen to practice cooking with it.

- Students enjoy nutritious food daily via breakfasts and lunches made in Mundo Verde's "from-scratch" kitchen with a low-sugar, low-salt policy. The diverse, kid-friendly menu is reported to please even the pickiest of eaters. One parent admired how "Chef Dot makes broccoli sexy" and a student said, "Our school lunch is healthy, not just Lunchables. I really enjoy that." Another parent reflected on the unique experiences her son gets as a result of this hands-on approach: "I love that we have our own kitchen here. At my son's previous school, a company brought lunch. It felt like hospital food. Now, my son loves being in the kitchen. He takes his role very seriously helping the chef. He's integrating knowledge across school at home."

- Students learn about the science of composting uneaten food and food byproducts as a way they can personally support sustainability. Students first discuss the amount of food wasted in a given day. One student said, "It really showed how much trash we throw away and how much perfectly good food we throw out." Then they learn about the value of composting, which one student described as such: "If you eat an apple and put [the core] in compost, you can use that apple to make other stuff. Composting that apple leads to good soil with lots of worms that can then help us make more foods that can then help our bodies." Students thus reinforce their understanding of a food cycle. At the same time, they develop as sustainability advocates. One parent shared, "My son is now the composting bully in the family. We now compost because of him. He feels very empowered to bring his learning home. My littlest one is now an environmental activist."

- Some food grown at Mundo Verde is even sold in a student-run market. On a recent rainy Tuesday, eager students hosted the market as parents and other community members came to buy squash, kale, and other fresh produce. Students served different roles in the market, from cashier to leader of market beautification (i.e., a stocker). Other students collected data about visitors to the market by tallying people's ratings of a new recipe from the Mundo Verde kitchen — a sweet squash dish. Students could then contrast this model of a garden in an urban area, which provided easier access to fresh foods, with the lack of access to fresh, healthy foods in other communities. Exploring issues of food insecurity and food deserts, they experienced both a model, and thinking, that were designed to counteract these challenges.

5. Adult practices that promote continuous growth

Cognitive	Physical	**Academic**
Mental	**Social Emotional**	Identity

■ Primary Domain   ■ Secondary Domain

Mundo Verde's unique model relies on structures for staff to engage in rigorous continuous improvement, blending high-quality, research-based, existing materials to leverage teacher capacity and creativity. Aguilar said, "I'm proud that Mundo Verde is dedicated to continuous improvement. We're never there, and we're always thinking about how to be better." This enables teachers to continuously enhance their approaches to scaffolding student development within and across domains.
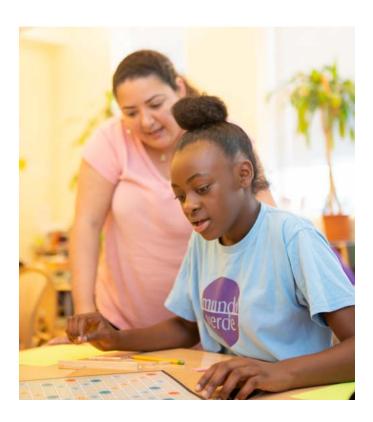
Mundo Verde's curriculum often builds on externally developed and research-based curriculum and assessments, including learning expeditions, Eureka math lessons, Fountas & Pinnell reading assessments, and the IDEA Proficiency Test (IPT) for language proficiency. With Expeditionary Learning's attributes for high-quality student work, for example, Mundo Verde includes sustainability education as part of the criteria to evaluate a work's authenticity. Similarly, a math teacher might translate Eureka word problems into Spanish or tweak a word problem to include a focus on nutrition and one of Chef Dot's recipes. Simple adaptations such as these make learning relevant and engaging for Mundo Verde's students.

Staff value this combination of rigor and flexibility. A Mundo Verde coach said, "Teachers tell us that we're a *yes* school. There are very few things we say no to. Teachers can invite any external audience, can rewrite expeditions (as long as it's high rigor), and there's a lot of freedom and innovation." Statements like these indicate that Mundo Verde's teachers are immersed in an ecosystem that lends itself to high teacher motivation and job satisfaction.[26]

The Mundo Verde staff's focus on continuous improvement engages teacher creativity to meet rigorous standards for student **academic development.** Applying continuous improvement not only to academics but also to student culture supports students' **social-emotional development** and **mental health** as staff make continuous, intentional efforts to ensure that each student has strong relationships and supports for emotional health. The following examples demonstrate how continuous improvement looks:

[26] Nese Börü, "The Factors Affecting Teacher-Motivation," International Journal of Instruction 11, no. 4 (2018): 761–776.

- In previous years, as part of the kindergarten expedition Animal Adaptations, students created postcards about ducks and frogs. The postcards were taken by fifth-graders to be given to other students they met during the Capstone Trip to Puerto Rico. While this was an exciting prospective audience for students, teachers reflected this year that kindergartners developmentally needed to see impact on a community closer to home. The following year, the expedition was updated so that student created an alphabet book about nature that was then shared with students at a neighboring school. This tweak maintained the complexity and craftsmanship expectations of the work, and teachers pushed to further improve the work's authenticity and relevance. As a teacher said, "We work on stabilizing the expeditions so that the authentic purpose is evergreen. However, there are places where expeditions expire — meaning the purpose becomes irrelevant to students. When it's no longer authentic, we rethink the process, audience, and final product."

- One leader shared another example of continuous improvement: "Early on, teachers took a student product [a picture book] and sent it to a publishing company. Though more professional and 'final,' the act of publishing it outside took away the sense of ownership. We've changed to have students closer to the end product." Now they publish such books in-house.

- Staff are engaged in continuous improvement of Mundo Verde's culture of belonging. In one session, all instructional and non-instructional staff were given a roster of Mundo Verde students. The adults placed identifying markers next to student names: a check for a student whose face the adult would recognize, an underline if the adult knew the names of that student's parents, a circle if the adult knew a personal story about the student. The group used the tallies to identify students who were less well-known and develop plans to strengthen relationships with them.

- Last year, leaders recognized that parent meetings were not as representative of the community's diversity as they once had been. Leaders first sought to learn by conducting listening sessions with Latino and Black families at the school. Among other themes, the leaders heard that the protocol for parent meetings was creating a barrier for some parents' engagement. The team not only revised the protocol to be more inclusive, but they also implemented other changes. For example, in the process, leaders reflected on how dense the text was in communications with families. Leaders redesigned parent communications to enable access for more families.

Conclusions

Core elements of the Mundo Verde model — project-based learning, biliteracy, sustainability, nutrition and physical health, and adult practices that fuel continuous growth and development — enable Comprehensive Student Development across domains. The particulars of the Mundo Verde model are deeply informed by its unique programmatic elements; however, themes elevated in this case study about what development in these areas looks and feels like and details about how this development occurs are designed to be broadly applicable.

What enables this success?

The section that follows summarizes aspects of the Mundo Verde school model that enable its success in Comprehensive Student Development. This section is intended to demonstrate the intentionality and comprehensiveness of the school's approach.

The "What": Mission, Vision, and Definition of Student Success

Mission/Vision

- Mundo Verde's mission to prepare "successful and compassionate global stewards" is executed through the

development across domains, leveraging programming components from project-based learning, biliteracy, and Education for Sustainability.

Standards

- Mundo Verde prioritizes both academic and character standards. This enables holistic student development. Mundo Verde measures both academic standards and Habits of Community Stewardship in classrooms. The shorthand for the habits, ESPICA (empathy, speak your truth, perseverance, inquiry, collaboration, appreciation & joy), is both visible and heard throughout the school building.

The "How": Curriculum and Educational Approach

Overall Ecosystem

- Mundo Verde's ecosystem puts people first. All approaches center around learning for both the adults and children in the environment and the interplay between the two.

- Teachers at Mundo Verde experience flexibility and autonomy in the delivery of their craft.

- Relationship building between adults and children, adults and other adults, and children and other children in the ecosystem are at the forefront of everyday practice.

- Ecosystem and relationships are the connective threads for all other aspects of the learning day, including learning and instruction.

Community engagement

- Mundo Verde is a diverse school by design, welcoming students of all racial and socioeconomic backgrounds.

- As a language immersion program, Mundo Verde enhances students' appreciation for and exposure to Spanish-speaking cultures and language.

- Mundo Verde's projects (i.e., expeditions) affect age-appropriate "sphere of impact" (what Mundo Verde uses to describe the intentional purpose, audience, and impact of student work). This enables community engagement even at a young age. For example, Mundo Verde preschool students focus on works that engage their classrooms. The sphere of impact expands to their school, family, neighborhood, city, and beyond as they develop throughout elementary grades.

- Expeditions frequently engage local professionals. This deepens engagement and learning. For example, in

a third-grade expedition on the water cycle, students engaged with the DC Water Board.

Instructional methods

- Students attend classes in both Spanish and English to promote their bilingual development. Preschool and kindergarten classrooms at Mundo Verde are full immersion in Spanish (90% or more of instruction in Spanish), and elementary grades are dual immersion (approximately 50% in English, 50% in Spanish). Beyond language classes, biliteracy is intentionally interwoven within expeditions and interdisciplinary classes.

- Mundo Verde emphasizes high-quality student work, through refinement of developmentally appropriate criteria for complexity, craftsmanship, and authenticity.

Curriculum and materials

- Curricula at Mundo Verde interweave the three components of the model: project-based learning, biliteracy, and Education for Sustainability.

- Mundo Verde continuously improves upon the curriculum and materials to maintain rigor and authenticity, balancing the use of high-quality external materials with teacher flexibility and creativity.

Assessments and measures

- In addition to PARCC state assessment, Mundo Verde leverages measures of biliteracy and measures of habits (from Expeditionary Learning).

The "How": Operational Systems

Use of time

- Each semester, students engage in multi-week, interdisciplinary expeditions, through which students develop and refine a high-quality work product.

- For staff, Wednesday afternoons are dedicated professional development. During this time, staff strengthen skills, celebrate each other, and build relationships.

Use of physical space

- The school uses public parks to maintain its commitment to time outdoors, connect to the neighboring community, and offer extended play as part of its health and wellness policy. Partnering with Casey Trees, the school greened its space with the planting of over 50 trees. Additionally, the school donated asphalt-covered spaces in the previ-

ous building that were play and parking spaces to provide green spaces for learning and play. To support its robust food and wellness program, Mundo Verde uses a portion of its land for a garden and composting center. Additionally, the school includes full kitchen equipment for staff to cook nutritious meals. Students engage with both of these spaces through gardening and cooking classes.

The "Who": Talent

Leadership

- Mundo Verde is led by a strong group of principally women, whose backgrounds are broadly reflective of both the staff and student population and professional experience in education.

- Leaders have blended elements of other high-quality educational experiences into a compelling, integrated model. Leaders support the success of this model by establishing a culture of rigor and continuous improvement.

Staff

- Mundo Verde intentionally recruits and develops teachers from diverse racial/ethnic and cultural backgrounds. Of the staff, 65% are Hispanic/Latino, 24% are White, 10% of staff are Black, and 1% are Asian/Pacific Islander. Additionally, 6% of staff are bilingual Spanish/English.

- Teacher trainings at Mundo Verde model desired classroom instruction, incorporating play, rigor, and relationship development.

- To support staff, Mundo Verde provides opportunities for reflection and celebrations. The strong staff culture this creates extends beyond the school walls and school hours. Mundo Verde staff report being well-supported. They often develop strong friendships, forming weekend soccer teams and other social get-togethers.

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