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ABSTRACT

This study evaluates the Dual Language Program (DLP) implemented at a Title I public school in Baltimore City during the 2019–2020 and 2020–2021 school years. Building on previous research, the DLP's implementation, sustainability, and effects on students' learning outcomes were examined. Utilizing a mixed-methods approach, the study's second phase included participants from the school's mainstream, English-only program (MP), enriching the overall understanding of the school community's perception of the program. Data were collected through surveys, classroom observations, and standardized assessments —the DIBELS and the iReady Diagnostic assessments. Findings showed challenges with curriculum standardization and prevalent misconceptions about bilingualism. Nevertheless, the program's successes were evident in DLP students' enhanced engagement, parental involvement, and community support. Despite the challenges of the COVID-19 pandemic, the DLP demonstrated its capacity for scaleability and sustainability. During the 2020–2021 school year, regardless of virtual learning, DLP students not only maintained but, in the case of Cohort 1, showed greater growth in reading skills compared to MP students, with Cohort 3 DLP students improving to reach statistically similar performance levels to their MP peers. Findings indicate that the DLP has the potential to serve as a sustainable educational program, fostering both dual language proficiency and academic outcomes.

Introduction

In response to the evolving linguistic demographics of the nation, there's been a noticeable increase in Dual Language Programs (DLPs) in U.S. public schools (Thomas and Collier 2002). A DLP is an academic program characterized by content-based instruction spanning at least five years. The primary objectives of these programs are to facilitate academic achievement, foster bilingualism and biliteracy, and cultivate sociocultural competence among students (De Jong, Freire, and Alfaro 2023; Howard et al. 2018). DLPs, characterized by their structured curriculum, provide instruction in two languages, typically the dominant language and a partner non-dominant language, 'to promote academic achievement, bilingualism and biliteracy, and awareness and appreciation of diverse cultures'

(Institute of Education Sciences 2023, 1). The defining feature of DLPs, as described by Torres-Guzmán (2007), is that their role as enrichment bilingual/multicultural education programs with a structural emphasis on language equity, often employing a 50/50 model for balanced exposure to both languages. DLPs offer a unique and valuable educational experience that prepares students for success in a globalized world. By cultivating bilingualism, biliteracy, and cross-cultural understanding, DLPs empower students to become effective communicators, critical thinkers, and responsible global citizens (Baker 2019; Benson 2002, 2022; Garcia 2023; Hamman-Ortiz 2023; Lindholm-Leary 2021).

Designed to support the holistic development of students, DLPs go beyond academic pursuits to promote critical sociopolitical and cultural competencies (De Jong, Freire, and Alfaro 2023; Freire, Freire, and de Oliveira 2014; Garcia 2023; Gonzalez, Vinluan, and Rosales 2023). The primary objective remains to enhance language proficiency, focusing on elevating non-dominant language speakers to or beyond the proficiency level of their dominant language-speaking peers (Goldman 2018; Umansky, Valentino, and Reardon 2015). These programs also foster personal growth in areas such as identity development, self-esteem, empathy, leadership, and community relationships, enabling students to connect with and maintain their cultural roots – a characteristic greatly valued by participating families (Gonzalez, Vinluan, and Rosales 2023; Portes and Rumbaut 2001).

The structure of DLPs typically varies in a continuum between the 50/50 and 90/10 models, the former equally dividing instruction between the two languages and the latter commencing with a strong emphasis on the non-dominant language (Arredondo 2023; Gonzalez 2020; Serafini, Rozell, and Winsler 2022). DLPs bridge cultural gaps, foster positive cross-cultural attitudes and behaviors, and promote understanding (Christian 1996; Howard, Sugarman, and Christian 2003).

Although U.S. states with significant bilingual populations, such as California, Texas, New York, Florida, Illinois, and New Mexico, have established DLPs (Beaudrie and Loza 2020; Freire et al. 2022; Giang and Park 2022; Gonzalez 2020), others are beginning to embark on this journey. Research consistently reports evidence of DLP students' positive academic achievements, particularly in literacy skills and cognitive flexibility (Cummins 2001; Rolstad, Mahoney, and Glass 2005), often outperforming their peers in mainstream English-only programs. Beyond academics, DLPs play a pivotal role in molding global citizens, enhancing national unity, and heightening cultural appreciation (Bialystok 2001; Collier and Thomas 2004). Demographic transitions in school districts often drive the introduction of DLPs to meet community needs and promote equity.

The demographic shift in Baltimore City since 2011 has transformed the student population of the school being studied. In 2012–2013, African American students constituted 57.8% of enrollment. However, by 2019–2020, Latine students made up 56.2%, and 32.7% of the overall student body were English Learners (Baltimore City Public Schools 2019). This trend continued into 2022–2023, with 73% identified as Latine, and 60% as English Learners (Baltimore City Public Schools 2022).

In Baltimore City, aside from the full-service community Title I public school under study (from here forward referred to as the school), there are only three DLPs. Most DLPs in Maryland are in private, magnet or charter schools that primarily cater to wealthier demographics. To date, this is the only known public school in Baltimore City serving students from underprivileged backgrounds and offering a dual language program, employing a flexible teaching model tailored to each grade's linguistic needs. The school has also utilized a phased approach to expand its DLP, adding a new grade annually. This approach has ensured the continuity of bilingual and bicultural education from prekindergarten through fifth grade. A detailed instructional breakdown can be found in Table 1.

To address these demographic changes, the school undertook initiatives to support Spanish-speaking students and families. When presented with the opportunity to join a dual language learning working group by the Baltimore City School District, the school readily formed a team to participate. Their preparatory efforts involved literature reviews, visits to other DLPs in the mid-Atlantic region, and avenues for teacher professional development.

This study evaluates this school's DLP, focusing on its inception, implementation, and expansion up to its seventh cohort during and after the constraints imposed by the unexpected swift shift to

Table 1. Full-service community school DLP's instructional model across grades.

Grade	Language of instruction	Percentage in Spanish	Percentage in English
PreK	Half in Spanish, half in English – phonics in English, oral language and literacy comprehension in both languages	50%	50%
K	All in Spanish, except 1 resource class per day (e.g. art, gym, etc.)	80%	20%
1st	All content in Spanish, with English reading instruction added in at mid-year based on readiness	70%	30%
2nd	Half-day in English (2 core subjects), half-day in Spanish (2 core subjects), with reading and phonics instruction in each language	50%	50%
3rd-5th	Half the academic content in English and half in Spanish	50%	50%

online learning due to COVID-19. The aim is to determine the program's impact on student learning outcomes, primarily regarding reading skills, as these were the measures available to the research team, and provide recommendations for replicating its success in other public schools with similar populations.

Conceptual framework

Coburn's Conceptualization of Scale has been utilized as the guiding framework to assess the evolution of the English/Spanish dual language program at this school. Coburn (2003) views scale as a multidimensional construct, arguing that focusing solely on numbers overlooks the qualitative measures crucial to a school's ability to engage in reform efforts that significantly impact teaching and learning.

Coburn's framework encompasses four interrelated dimensions – Depth, Sustainability, Spread, and a shift in Ownership. In this study, Depth refers to changes in the school's beliefs, norms, and principles due to DLP implementation. Sustainability emphasizes the program's maintenance of its foundational principles over time, while Spread pertains to increasing awareness and involvement in the DLP across school staff, students, and families. Lastly, Ownership signifies the transition of responsibility for the program from its initial creators to the broader school community. This model has guided every phase of this research, from design and data collection to data analysis and presentation of findings.

Methodology

Research design and methods

This study is best characterized as implementation research (Damschroder et al. 2009; Halle, Metz, and Martinez-Beck 2013), aiming to explore how and how well the DLP at this school is designed, implemented, and scaled, particularly identifying the key factors influencing these processes. The study adopted an Intrinsic Case Study approach, focusing on the case itself, as it presents salient characteristics that provide insights into the phenomenon of interest (Creswell 2007).

A mixed-methods approach was employed (Johnson and Onwuegbuzie 2004), with qualitative data collected from stakeholder interviews, focus groups, classroom observations, and surveys. Quantitative data were sourced from student assessments, test scores, and surveys targeting students, parents, and teachers.

The teacher leading the design and implementation of the DLP served as a research collaborator, working alongside the research team during the first phase of this study. The assistant principal served as the school liaison during the second phase. Phase I focused on test score data from SY 2016–2017 through SY 2018–2019 and collected qualitative data in spring 2019. Analysis of data for Phase I conducted through the spring of 2020 concluded with Sherman Center Research Report No. 1 (Mata-McMahon et al. 2020) and a manuscript for publication.

Phase II, presented here, involved qualitative data collection from fall 2020 through spring 2021, in the height of COVID-19, analyzing students' test scores from SY 2019–2020 to SY 2020–2021. Due to COVID-19, data collection for Phase II was extended, as some restrictions on data collection were imposed, such as limited in-person access to the school site and thus to key stakeholders like teachers, students, and parents. The study was approved as UMBC IRB Research Protocol 150 Y19JMM26085 and City Schools IRB 2020–001 and 2021–004.

Setting

The school under study is a full-service community Title I public elementary and middle school in Baltimore City. As a Title I school, at least 40 percent of the students come from low-income families and receive government funds to support students in meeting academic standards; this school has experienced a notable demographic shift, with its Latine and English learner student population expanding threefold since 2016, reflecting the broader linguistic and cultural diversity of the area. Of the 998 students attending Pre-K to 8th grade, 73% identify as Hispanic/Latine and 22% as African American/Black (Baltimore City Public Schools 2023; Maryland State Department of Education 2023).

The school is designated as a full-service community school (FSCS), an educational institution that offers both comprehensive academic education and various community services such as healthcare, counseling, and after-school activities, to enhance educational outcomes by supporting students, their families, and the broader community (Office of Elementary & Secondary Education 2023). The English/Spanish dual language program is one of these services, responding to the community's growing linguistic needs and helping bridge achievement gaps while boosting student success (Maryland State Department of Education 2021). The DLP was initially designed to tend to the linguistic needs of Spanish-speaking students and newcomers with low English proficiency. Yet, it also included native English speakers who were identified as high-performing students and whose families were interested in them learning Spanish as a second language.

As a typically functioning FSCS, the school operated as an in-person site, with class sizes ranging between 21 and 33 students. At the start of the COVID-19 pandemic, the school swiftly transitioned to fully online instruction in April 2020 through the 2020–21 school year.

Research questions

RQ1. What are the challenges and successes of continuing to scale the school's DLP from K-2 to PreK-4 and beyond?

RQ2. What are the conditions, processes, and supports necessary to continue to scale the school's DLP from K-2 to PreK-4 and beyond?

RQ3. What is the DLP's impact on learning outcomes at the school?

Participants

Participants for Phase I included school administrators, teaching staff, parents or guardians, and students in the DLP. For Phase II, the same participants as for Phase I were included, with the addition of parents and students from the mainstream program (MP). At the time of data collection, the school's parents and families were 63.2% Latine, 35.5% African American, and 1.3% White, primarily from underserved and low-income backgrounds. Latine families were primarily immigrants from Central and South America and spoke Spanish as the primary language at home. The teaching staff was 58% White, 20.5% African American, 17% Latine, and 4.5% Asian/Pacific Islander.

Table 2 summarizes Phase II participant information, identifying their language preference, which program they participate in, and the number of participants per group.

DLP students are predominantly Latine (92%) compared to MP students (62%). The DLP cohort has a higher percentage of native Spanish speakers (91%) and limited English proficiency (74%). In contrast, MP students have a more diverse linguistic background, with 27% having English as their home language and 36% having limited English proficiency. Gender distribution is relatively

Table 2. Survey and focus group participant information.

Participant	Program	Lang. preference	Amount
Teachers/Staff/Administrators	DLP	Bilingual	10
	MP	English	14
	Both programs	English	11
		Total	35
Parents/Guardians	DLP	Spanish	32
	MP	Spanish	3
	DLP	English	9
	MP	English	4
		Total	48
Students	DLP	Spanish	15
	MP	Spanish	7
	DLP	English	22
	MP	English	38
		Total	82
		Overall Total 165	

balanced in both groups, with 55% of DLP students and 52% of MP students identifying as female. This student demographic information by cohort is detailed in Table 3, and the racial breakdown of DLP students by cohort and academic year is in Table 4.

Data collection

This study sourced qualitative data through stakeholder interviews, focus groups, observations, surveys, and program materials. Quantitative data was obtained from student test scores from SY 2019–2020 and SY 2020–2021 and survey responses.

Surveys. The surveys, offered in English and Spanish, combined open-ended questions with rating scale items and were administered to teachers and staff, parents and guardians, and third- and fourth-grade students from both DLP and MP programs. Distribution occurred virtually in the fall of 2020, when all instruction was conducted online. And in person in the spring of 2021, as the school resumed a hybrid instructional model with alternating groups of students attending in-person classes Monday through Thursday and all students attending virtual classes on Friday.

Focus Groups. Virtual sessions involved DLP and MP teaching staff and were audio-recorded, transcribed, and member-checked. Focus group protocols with pre-established questions were used during focus group sessions and designed following the funnel-shaped interview guidelines

Table 3. Demographic information of DLP and MP students by cohort.

Demographic Indicator	Total DLP	Total MP	Cohort 1 DLP	Cohort 1 MP	Cohort 2 DLP	Cohort 2 MP	Cohort 3 DLP	Cohort 3 MP
Gender – Female	55%	52%	59%	48%	46%	51%	59%	57%
Race/Ethnicity – Latine	92%	62%	91%	47%	100%	67%	86%	70%
Race/Ethnicity – White	0%	4%	0%	7%	0%	2%	0%	2%
Race/Ethnicity – Black	8%	32%	9%	42%	0%	29%	14%	25%
Race/Ethnicity – Asian	0%	1%	0%	0%	0%	2%	0%	0%
Race/Ethnicity – Multiracial	0%	2%	0%	4%	0%	0%	0%	3%
Home Language – English	9%	27%	14%	40%	0%	21%	14%	21%
Home Language – Spanish	91%	29%	86%	27%	100%	41%	86%	48%
Limited English proficiency	74%	36%	64%	21%	86%	38%	73%	47%
Total students (n)	66	222	21	73	22	63	23	86

Table 4. Demographic information of DLP students by cohort and academic year.

Cohort/Race	SY 2019–20			SY 2020–21		
	African American	Latine	Total	African American	Latine	Total
Cohort 1	2	20	22	2	22	24
Cohort 2	0	23	23	0	23	23
Cohort 3	3	20	23	3	22	25

(Morgan 2019). All protocols were designed starting with broader questions (Krueger and Casey 2015), progressing to specific queries, and ending with a summarization (Morgan 2019).

Observations. The study was initially conducted in grades K-2 during SY 2018–2019 and expanded to preschool and grades 3–4 in SY 2020–2021. The emphasis was on DLP and MP programs' curriculum delivery, interaction, and engagement. Documentation methods included notes for in-person classes and video recordings for virtual classes.

Test Scores. Student performance was measured using two different instruments across the two academic school years studied. During SY 2019–2020, Cohort 2 (grade 2) and Cohort 3 (grade 1) students completed the DIBELS assessment, which measures students reading skills in Grades K to 8 (University of Oregon, 2018). Students in Cohort 1 (grade 3) completed the iReady Diagnostic reading assessment, measuring student reading ability (including phonological awareness, phonics, high-frequency words, vocabulary, comprehension in literature, and comprehension in informational texts) in Grades K to 8 (Curriculum Associates 2019). During SY 2020–2021, all students were assessed via the iReady Diagnostic reading assessment. Most students were tested at the beginning (BOY), middle (MOY), and end of the school year (EOY), with some inconsistencies in the regularity of testing due to COVID-19. Student growth was determined by identifying the difference between their EOY and BOY composite test scores when available. A growth score indicated a student's increase in their reading skills during that school year.

Data analysis

In-depth content analysis was used to code and interpret the qualitative data. The process included both deductive (Hatch 2002) and grounded theory (inductive) approaches (Strauss and Corbin 1998). Specifically, Coburn's (2003) four dimensions of scale informed the deductive phase of data analysis, when the qualitative data were read, and passages related to each dimension were identified. The inductive phase allowed for themes and concepts to emerge from the data without pre-established notions or concepts onto which the data were made to fit. This phase allowed for in vivo codes (Charmaz 2006) to emerge directly from the data, using the participants' words. Through these complementary and iterative approaches, key codes and subcodes, salient themes in organized narratives, and supporting evidence were identified. NVivo 12 software was used to analyze the qualitative data. The conceptual and in vivo codes and subcodes that emerged from the coding process are presented in Table 5 across all stakeholders by data source.

A series of independent sample *t*-tests were conducted to compare differences in growth scores (i.e. BOY to EOY) for students in the MP and those in the DLP for each cohort in both SY 2019–2020 and SY 2020–2021. Analyses were conducted using SPSS version 28. Results were interpreted with an alpha level of 0.05, and effect sizes were computed using Cohen's d. Other quantitative data, such as rating scale survey questions, were analyzed using simple descriptive and inferential statistics to determine the frequency of response and correlation across items.

Validity and reliability

Ensuring validity and reliability was paramount. For qualitative components, validity was addressed through data collection methods and researcher triangulation (Lavrakas 2008; Miles, Huberman, and Saldaña 2014). Additionally, iterative coding processes facilitated inter-coder reliability. Specifically, through separately conducting both the in vivo coding and the subsequent conceptual coding and

Table 5. Frequencies for conceptual and in vivo codes across all stakeholders.

Code	Subcode	Sub-Subcode	A_M_FG1	A_DL_FG2	P_M_SR	P_DL_SR	A_M_SR	A_DL_SR	A_DLM_SR	Sub-Subcode Total	Subcode Total	Code Total
Depth	Successes	Curriculum Design	5	3	9	8	7	9	20	61		
		Bilingualism	9	3	5	30	–	6	3	56		
		Relationships/School Culture	4	3	–	2	7	11	11	38	155	
	Challenges	Curriculum Design	5	19	–	25	12	17	17	95		
		Bilingualism	–	–	–	2	11	–	5	18		
		Relationships/School Culture	1	–	–	–	7	1	2	11		
		COVID Instruction	–	1	–	3	3	–	1	8	116	
	No Change		–	–	–	–	4	–	1		5	276
Spread	Challenges		4	1	2	–	4	–	2		13	
	Successes		7	3	–	–	–	1	–		11	
	Recommendation		7	–	–	–	–	–	–		7	31
Sustainability	Support		1	8	–	–	–	–	–		9	
	Challenges		5	–	–	–	1	–	–		6	
	Recommendation		5	–	–	–	1	–	–		6	
	Parent Involvement		–	1	–	–	–	–	–		1	
	Successes		1	–	–	–	–	–	–		1	23
Ownership	Support		2	1	–	–	–	–	–		3	
	Successes		1	–	–	–	–	–	–		1	4

Legend for codes: Administrator/Teacher/Staff (A), Parents (P), Dual Language program (DL), Mainstream program (M), Dual Language and Mainstream programs (DLM), Focus Group (FG), Survey Response (SR).

coming together to negotiate codes and coding processes. To determine students' learning outcomes, iReady Diagnostic, and DIBELS measures were utilized due to their adequate validity and reliability (Curriculum Associates 2022; Good et al. 2004), supported through regular proctor training and monitoring benchmark assessment cycles.

Findings

Findings stem from both qualitative and quantitative data collected. The qualitative findings presented are from the analysis of the open-ended questions from survey responses from teaching staff, parents, and students, as well as transcripts from focus groups conducted with teaching staff from both programs. Video recordings and notes from classroom observations also provided qualitative data. The quantitative findings stem from the teaching staff, parents, and students' rating-scale items survey responses and the analysis of the DIBLES and iReady Diagnostic scores for students in Cohort I, II, and III from the DLP and the Mainstream programs from SY 2019–2020 and 2020–2021. Findings are presented below by research question.

RQ1. What are the challenges and successes of continuing to scale the school's DLP from K-2 to PreK-4 and beyond?

Looking at the qualitative data to answer RQ1, the research team found the challenges to scale the DLP from, K-2 to PreK-4 and beyond appeared across all four components of Coburn's reconceptualization of scale. The highest frequency of mentions for Challenges was found in the component of Depth (f 116), followed by Spread (f 13), and Sustainability (f 6), as shown in Table 5. Major challenges identified within Depth were curriculum design, bilingualism, relationships/school culture, and COVID-19 instruction.

Challenges of continuing to scale the DLP

Challenges found will be presented for the codes and subcodes with the highest frequencies only, including challenges of Depth, Spread, and Sustainability. In the code of Depth and the subcode of challenge, the sub-subcode with the highest frequency was curriculum design; teachers in the DLP expressed a dire need for more resources so that the curriculum could best meet student needs. Because there is no standardized curriculum, teachers must plan lessons around the district's guidelines to prepare students for state testing. As two teachers stated:

> Planning can feel lonely. I have to find PD resources on my own. Our professional network in Baltimore is very small. (A_DL_SR)

> Lack of resources, attempting to fit DL curriculum into the district's curriculum and meet all of the district and state requirements. Lack of Spanish intervention. (A_DL_SR)

Concerns arose as to whether the curriculum is robust and can offer additional support to students who are struggling academically.

> I have noticed and seen that students who are struggling have been dismissed from the program. So, it does seem that the program does not include or make room for those who need extra support … Because a student that is struggling should still be able to get the support needed in order to be participating in the dual language program. Just because they might have a particular need or they need an accommodation for, whatever it may be, does not mean that they should be excluded from the program. I feel it should be on the program to give them the support they need so that they can participate. (A_M_FG1)

The next highest frequency in Depth sub-subcode within challenges was notions and understanding of bilingualism. Teachers often speculated that parents who are hesitant to enroll their child in the DLP may have misconceptions about bilingual education. Hesitancy coupled with lack of information about the DLP may contribute to some parents believing that their child would become confused

learning two languages simultaneously or would compromise proficiency in the child's native language. Teachers explain that some parents may not see the benefit of bilingualism, while other parents do want their child to be enrolled in the DLP yet fear that they would not be able to help them with schoolwork because they are not bilingual.

> Families believe their English skills will deteriorate or they will become confused between languages. Families don't have the time to commit to working with their students at home. Non-Spanish speaking families are worried about how they will support their students if they don't speak the language. Lack of special education in DLP. (A_DLM_SR)

> For some English-speaking families, they probably don't see the need for it. For the non- English-speaking ones, they'd rather that their children learn English at school since They don't normally use the language at home. (A_M_SR)

To a lesser degree in code Depth, sub-subcodes identifying challenges within peer relationships and overall school culture, as well as challenges presented due to COVID-19 instruction, were also mentioned. Teachers shared that instructional time in Spanish diminished during virtual learning, therefore placing native English-speaking students at a disadvantage. Parental involvement was a buffer for struggling students. Highly involved parents supported their children's education by providing instructional supplements at home (e.g. sight words on the wall) to promote language immersion and retention.

Due to COVID-19 and the transition to online learning, students received less language immersion. Some native English-speaking students struggled to adapt to the new mode of instruction.

> The English speakers are definitely a lot more challenging, because they are no longer immersed in the class where they are hearing me speak Spanish from 8:00am to 3:00pm. They are only hearing me speak Spanish occasionally if they are on their screen from 8:30am to 12:00pm. So, it has been very hard. (A_DL_FG2)

> They are not getting as much Spanish as they should be. It is not their fault. They get 2.5 h virtually; they are not as immersed as they should be. (ASK3_FG2)

During observation of the fourth grade virtual class, researchers noticed that teachers had to manage large class sizes of about 71–72 students. Managing larger class sizes presented challenges for instructors, as they worked to redirect students' attention to the lesson and ensure student comprehension infringing upon instructional time.

The challenges within the code Spread are mainly related to program enrollment due to a notable lack of awareness among parents with over 50% of mainstream students' parents unaware of the existence of the DLP. This issue is compounded by limited program capacity, preventing many interested families from enrolling their children. Additionally, there's a skewed perception that the DLP predominantly serves Spanish-speaking students, as observed through higher Spanish-speaker enrollment.

Lastly, challenges to sustainability included many teachers advocating for additional support with instructional resources to help maintain the DLP. Teachers claimed that instructional resources, such as a final curriculum, would make the DLP more manageable. Less time would be spent building the curriculum so that teachers can focus more on scaffolding and refining lesson plans as needed. Lack of resources was the most mentioned complaint and barrier to sustainability. A mainstream program teacher shared,

> I will say that the school needs to do a lot to support the teachers in advance of the program. I think for our program in particular, the huge weight was put on the back of teachers to figure out and make it work. And I do not think that it is necessary to set the teachers or students for success when the teachers have to build as they go. So, if they were to spend more time on the front-end, and get everything figured out first, and then start the program. That would probably be ideal. (A_M_FG1)

Successes of continuing to scale the DLP

Successes found will be presented for the codes and subcodes with the highest frequencies only; the highest frequency of mentions for successes was found in the codes of Depth (f 155) and Spread (f

11), as seen in Table 5. The main successes identified within Depth were curriculum design, bilingualism, and relationships/school culture.

Regarding curriculum design, DLP students have been described as being more enthusiastic, eager to learn, and confident in their abilities. Some DLP teachers speculate that high student engagement may be due to their families' higher levels of parental involvement.

> The differences that I see are engagement with families. Students who are part of the DL program have parents who are more so involved than their mainstream peers. (A_DL_SR)

Students in the DLP reportedly have stronger English reading skills and can often speak English and Spanish without hesitancy. Teachers often commend DLP learners for their studious nature and report that the DLP helps students gain greater self-confidence in their linguistic and social skills.

> DLP students are generally more academically advanced in oral and written language skills compared to the non DLP students. (A_DLM_SR)

Regarding bilingualism, as a result of being in the DLP, students can transition between English and Spanish as needed, easily adapting to social contexts. Teachers observe non-native Spanish speakers get so excited to learn a new language**.**

> They can easily switch from English to Spanish or Spanish to English depending on the other student's native tongue. (A_DL_SR)

> The most rewarding part of teaching in the DLP is seeing students who do not have family that speak Spanish ask to speak in Spanish. Seeing their interactions with their Spanish speaking classmates, as well as communicating with their teachers using their new language. (A_DL_SR)

Regarding relationship/ school culture, students in the DLP tend to forge closer relationships. Students in the DLP also tend to have families that spend time outside of school together.

> DLP students seem to have stronger bonds with classmates and teachers in the program. Increased confidence in students in DLP. (A_DLM_SR)

The successes within the code Spread are mainly related to enhanced language and literacy skills, cultural acknowledgement and celebration, and inclusivity and confidence building for non-English speakers. Additionally, parents of students in the DLP usually Spread awareness to family and friends about the program. A MP educator shared on the importance of maintaining the native language, particularly for newcomers.

> I think, you know, being taught in their native language is really powerful. They have the social language and now they are being taught the academic language. And I think it is a really good experience for these students who come into the program either as newcomers or students that are new to the school, can join right into content, they can join right into conversation with their peers and with their teachers. So, I think all of that together makes the program really successful. (A_M_FG1)

Moreover, the DLP helps minimize issues with integrating newcomers, as they [newcomers] can avoid facing language barriers at the school.

> I agree with AS30 that it is a beautiful thing to see children, even if they just came into this country, and they can just dive right into that content, and they do not have to worry about language being another barrier that they have to overcome. (A_M_FG1)

RQ2. What are the conditions, processes, and supports necessary to continue to scale the title I public school's DLP from K-2 to preK-4 and beyond?

Research participants proposed many recommendations for scaling the DLP from K-2 to PreK-4 for Spread, Sustainability, and Ownership. For Sustainability, there were recommendations (f 6) and mentions for support (f 9). For Spread, there were recommendations (f 7) and no mention of support. Lastly, for Ownership, there were no recommendations and few mentions of support (f 3).

Conditions, processes, and supports to scale the DLP

Supports for the program were mentioned as required for the sustainability and the ownership of the DLP. Teachers highlighted the dire need for a dual language curriculum to sustain the DLP. A dual language curriculum would provide teachers with needed resources instead of having to find them independently. This recommendation includes access to resources that are already translated.

> I will say that the school needs to do a lot to support the teachers in advance of the program. I think for our program in particular, the huge weight was put on the back of teachers to figure out and make it work. And I do not think that it is necessary to set the teachers or students for success when the teachers have to build as they go. So, if they were to spend more time on the front-end, and get everything figured out first, and then start the program. That would probably be ideal. (A_M_FG1)

Teachers often highlighted the stressfulness of resource-dispersing for lesson planning. Mental health check-ins for teachers may be helpful, as the school places high standards for the DLP curriculum. Reforming the DLP curriculum design could help minimize teacher burnout.

> I think Dual Language teachers deserve more prep time. They are creating an entire curricular map in another language and have to translate everything on their own. (A_M_SR)

> Can lead to burnout when there seems to always be one more thing to add or adjust. I believe in going above and beyond for my community but keeping in check with staff mental health is also very important especially during COVID times. (A_M_SR)

Teachers show ownership of the DLP by taking pride in Latine culture. In turn, students gain greater sociocultural competence.

> Another benefit is the way the teachers of the Dual Language Program have not only translated the content that they are teaching but they are specifically uplifting and highlighting Spanish examples, like authors, or I do not know. It seems like a very sincere way to celebrate Spanish and Latin culture and heritage. [A_M_FG1]

Recommendations for DLP sustainability and spread

Parents and administrators mentioned that the program required recommendations for its sustainability and spread. Some teachers encouraged enrolling students in the DLP at higher grades since the long-term goal is to expand the DLP to make it available to all students, avoiding the burden of students transitioning between programs.

> Something that the school should look into to create a more sustainable program is figuring out ways to continue to add to the group over time … we have such a transient population that we lose some of those students. So, then the roster number is significantly lower than the other classes in the grade. And we might try to plug-in a particular student that could work in the program, but there is nothing in place that can guarantee them to be able to make that transition easily. (A_M_FG1)

Some teachers encouraged more enrollment for non-native Spanish-speaking students, as the program may seemingly cater more towards Latine students.

> One thing that I would like to see is a little more emphasis on getting more involvement from non-native Spanish speakers because I feel with time to prioritize non-native speakers with the program, and I feel there are a lot of missed opportunities for native speakers' kind of develop in that sense. (A_M_FG1)

A more robust DLP would be more inclusive and can accommodate all student needs including highly gifted students and students with disabilities.

> The program should be more inclusive to all students but also have the resources including trained bilingual staff to accommodate students of every ability. (A_DLM_SR)

Parents of DLP students want to be kept abreast of the latest developments of the DLP.

> Mejor información para padres que sólo hablan el español y les cuesta entender el inglés. (P_DL_SR_Sp) [Better information for parents who only speak Spanish and have trouble understanding English.]

Moreover, parents of MP students desire more information about the program. Over 50% of parents of MP students indicated that they did not have sufficient information about the DLP. Students can gain greater accessibility to the DLP if more information is provided to parents.

> Deberíamos tener más información de lo que es el DLP. (P_DL_SR_Sp) [We should have more information about what DLP is.]

Data collected from survey responses from students, parents, and teachers, identified their perception of the program, which if considered could support the continuing scaling of the DLP and insure its sustainability over time.

Student survey responses

Of the 82 students surveyed, 60 replied in English and 22 in Spanish, including 37 from the DLP and 45 from the MP. DLP participants appreciated the program's reputation, cultural learning, and class enjoyment but were uncertain about content parity with MP students, with over half reporting regular parental involvement in their academic progress. Spanish-responding MP students were less aware of the DLP, desired more Spanish in their education, and felt their learning differed from DLP peers, often feeling undervalued and disinterested in daily attendance. Conversely, English-responding MP students recognized the DLP, believed in educational equivalence with DLP students, felt valued, and emphasized the significance of daily attendance.

Parent survey responses

In a survey of 48 parents, 13 answered in English and 35 in Spanish, with 43 having children in the DLP and five in the MP. Parents of DLP students unanimously acknowledged the program's positive reputation and believed it enhanced their children's Spanish fluency and cultural awareness, though some English respondents were uncertain about the improvement in Spanish skills. They also appreciated the increased engagement with school officials. In contrast, MP parents, irrespective of language, were less aware of the DLP and unsure of its reputation but aspired for their children to join due to its perceived educational benefits. They felt somewhat marginalized but, like DLP parents, were involved in homework help and teacher collaboration and sought more opportunities to express their views on the DLP.

Teacher survey responses

The teacher survey was completed by 35 teachers, including 10 from the DLP, 14 from the MP, and 11 teaching in both programs. DLP-exclusive teachers agreed on the program's positive perception and noted that DLP students generally surpass MP peers in performance and attendance, emphasizing the program's focus on sociocultural awareness. They also found it easy to explain the DLP's benefits and challenges, observing strong student bonding and high family engagement, as well enrollment in the DLP was often facilitated by parent recruiters. MP-exclusive teachers acknowledged the DLP's positive parental perception but disagreed on resource allocation favoring DLP students. They emphasized collaborative curriculum adjustments for diverse needs but were uncertain about MP students' performance levels and identified English proficiency as a key challenge. They found it difficult to articulate the DLP's pros and cons and were critical of the school's role in facilitating transitions into and out of the DLP. Teachers involved in both programs shared views with DLP teachers but were more skeptical about the DLP's accessibility and communication of its benefits, showing less certainty about parental involvement in enrollment recruitment.

RQ3. What is the DLP's impact on learning outcomes at the school

In SY 2019–2020, there were no significant differences between MP and DLP students for Cohort 1 or 2, although the DLP students demonstrated more growth than MP students. For Cohort 3, the

Table 6. Independent samples *t*-tests results of comparing differences in growth scores by program for SY 2019–2020.

2019–2020	MP M (SD) n	DLP M (SD) n	Difference	Cohen's d
Cohort 1 (Grade 3)[a]	21.56 (24.64) *n* = 73	24.70 (30.32) *n* = 20	3.14	0.121
Cohort 2 (Grade 2)[b]	55.35 (9.88) *n* = 63	61.82 (14.20) *n* = 22	6.57	0.590
Cohort 3 (Grade 1)[b]	71.31 (15.44) *n* = 86	60.32 (17.30) *n* = 22	−10.99**	0.690

[a]iReady. [b]DIBELS. **$p < 0.01$.

Table 7. Independent samples *t*-tests results of comparing differences in growth scores by program for SY 2020–2021.

2020–2021	MP M (SD) n	DLP M (SD) n	Difference	Cohen's d
Cohort 1 (Grade 4)[a]	99.21 (17.81) *n* = 66	108.95 (20.06) *n* = 21	9.74*	0.530
Cohort 2 (Grade 3)[a]	108.10 (18.88) *n* = 59	107.75 (18.28) *n* = 20	−0.35	0.019
Cohort 3 (Grade 2)[a]	109.31 (15.65) *n* = 74	110.87 (16.95) *n* = 23	1.56	0.098

[a]iReady. *$p < 0.05$.

MP students (71.31) grew significantly more than the DLP students (60.32); $p < 0.01$, $d = 0.690$ (see Table 6).

In SY 2020–2021, DLP students in Cohort 1 (108.95) grew significantly more than MP students (99.21); $p < 0.05$, $d = 0.530$. There was no significant difference for Cohort 2 or Cohort 3 between MP and DLP student growth (see Table 7).

Due to the change in instruments being used across the years and Cohorts, a combined analysis of Cohorts across the school years is not possible. Additionally, a regression analysis using various demographic variables as predictors (e.g. gender, minority status, home language) was not able to be completed due to the small sample size in each group, which significantly undermined the statistical power of the analysis.

Discussion

Drawing from both qualitative and quantitative data, findings reveal a complex array of challenges and successes integral to the scaling and sustainability of the DLP. Challenges include issues related to curriculum design, teacher burnout, stakeholders' understanding of the advantages of bilingualism, and instructional adjustments made due to the COVID-19 pandemic. In contrary, the successes include DLP's heightened parental engagement, students' positive views and test scores, and overall school culture and diversity. A critical concern remains, the accessibility and equity for native English speakers and students with special needs, which results in perceived disparities in instruction between the DLP and mainstream program. This disparity contributes to a school culture where elitist attitudes and misunderstandings regarding bilingualism proliferate. To address these issues, it is recommended to expand enrollment to all students and promote inclusion by catering to the diverse needs of the entire student body, including those with special needs (i.e. physical or cognitive delays and disabilities).

Curriculum design and teacher burnout

Findings indicate an urgent need for a standardized curriculum adopted by all educators in the DLP. The absence of a consistent curriculum poses significant challenges to instructional continuity. Currently, teachers face the burden of sourcing and adapting curriculum materials that align with district guidelines and are translated into Spanish. Findings showed that DLP teachers advocated for greater instructional support to minimize teacher burnout due to high program expectations and limited educational resources (e.g. official dual language curriculum) that often led to inconsistent

instructional quality. Implementing a standardized, inclusive dual language curriculum that accommodates the needs of all students could enhance teaching efficacy and help minimize teacher burnout (Schnur and Rubio 2021).

Bilingualism misconceptions and COVID-19 challenges

Findings reveal persistent misconceptions about bilingualism, including that bilingual education might compromise their child's native language proficiency or cultural identity, have deterred families from enrolling their children in the DLP. These misconceptions, fueled by insufficient knowledge about the benefits of bilingual education, lead to limited program awareness and participation. The COVID-19 pandemic exacerbated these challenges by reducing dual language exposure opportunities due to increased student absences and scheduling constraints and limiting educators' consistent access to families. As schools have resumed their regular in-person instruction, addressing these misconceptions through well-informed communication for families could increase enrollment and participation in the DLP.

Accessibility and equity concerns

Concerns arose over accessibility for students with special needs and native English speakers. Students requiring additional instructional support are often excluded or removed from the DLP and sent to the mainstream program. Thus, raising concerns over the rise of implicit biases toward students excluded from the DLP. Students may believe that inclusion into the DLP indicates exceptional intelligence compared to peers in the mainstream program, exacerbating elitist attitudes. Such exclusivity may impact the self-esteem of mainstream students and further augment educational inequity.

DLP's heightened parental engagement

Parents of the DLP students were typically more informed about the advantages of bilingual education and actively sought enrollment in the program, drawn by potential biliteracy and academic success. These parents, often seen as 'unofficial recruiters,' actively engaged other parents about the program, fostering a sense of community, especially among Latine families. Overall satisfaction with the program and their child's progress was prevalent among both Latine and non-Latine parents. This increased involvement seemed to amplify students' enthusiasm, confidence, and bilingual proficiency. As a result, these students seamlessly transitioned between English and Spanish in various social contexts, eagerly sharing their learning experiences with family.

Students' positive views and test scores

DLP students displayed more enthusiasm and positive views about their program, which may be attributed to higher self-esteem, better social-emotional competencies, increased problem-solving skills, and increased family support (Hsin et al. 2022). Additionally, the test score analysis, particularly during the COVID-19 pandemic, reveals the resilience and adaptability of the DLP students. For instance, the SY 2020–2021 findings indicate that the DLP program students did not regress in learning when compared to the MP students. Specifically, Cohort 1 DLP students demonstrated more growth than their MP counterparts. These findings closely align with those from older, large-scale longitudinal studies conducted on dual language programs (Collier and Thomas 2004). Additionally, even though Cohort 3 MP students outperformed the DLP students in the previous year, during SY 2020–2021, the DLP students improved their performance to be statistically similar to their MP peers. As such, the DLP positively impacts student learning during virtual schooling by either improving

their performance to outperform their MP peers or minimizing previous differences such that their performance is statistically similar to the performance of students in the mainstream program.

School culture and diversity

School culture reflected diversity, encouraging attitudes and beliefs that support respect for other cultures. Findings showed that DLP teachers and students often forged supportive long-lasting relationships with each other. Students in the DLP learned to embrace Latine culture notwithstanding racial differences among African American and Latine students, or ethnic diversity among Latine students deriving from different Latin American countries. Moreover, dual language learning was found to instill pride in students' cultural backgrounds and gain more respect and understanding for other cultures. Ansari, Fehrer, and Tognozzi (2018) argue that students learn to embrace cultural differences, as learning materials and experiences in the classroom reflect the language and culture of the general student population. Furthermore, students learn to take pride in their cultural identity. Such pride breeds a culture of acceptance and belonging that encourages students to actively participate in their learning experiences (Byram and Golubeva 2020).

In summary, findings suggest that the challenges the program faced regarding its scaling and sustainability over time were related to program logistics and design, the understanding stakeholders have of bilingualism, aspects related to instruction during the COVID-19 pandemic, and lastly the overall school culture. There were concerns about accessibility and equitable education for DLP and MP students, as well as students with disabilities and struggling learners within both programs. Increased mentoring, administrative support, and funding for DLP teachers were mentioned as supports needed for the sustainability of efforts. Moreover, building networks of support would help abate teacher burnout in the absence of a standardized curriculum, and further ownership efforts. Improved DLP advertising to families could help boost participation as well as address misconceptions regarding bilingual education. Regarding students' academic performance, the DLP demonstrated a positive impact on student learning during virtual schooling by either improving their performance to outperform their MP peers or to minimize previous differences such that their performance is statistically similar to the performance of students in the MP. These findings point to the DLP continuing to be a program with encouraging potential for promoting dual language proficiency and overall academic success even during virtual learning due to the COVID-19 pandemic.

Limitations

This study's findings, particularly regarding the growth of DLP students, should be interpreted with caution due to several limitations. Firstly, the selection bias persists and continues to affect the current DLP cohorts. Additionally, the recorded increase in Dibbles and iReady scores may have varied if a wider spectrum of reading levels had been incorporated at the beginning. The comparison between DLP and MP cohorts is also potentially skewed by the increasing enrollment in the MP, compared to the consistent, smaller enrollment in the DLP. This disparity might exaggerate the perceived benefits of the DLP. Furthermore, the study could not fully explore the DLP's potential impact on learning and achievement, which are not easily quantifiable and may only become apparent after a significant period of time. The study's scope was also limited by disruptions to district-level testing due to COVID-19, hindering the analysis of AY 2019–2020 student achievement data and restricting access to teachers, students, and parents. Therefore, while the report suggests positive long-term outcomes, these findings require further investigation beyond the current limitations.

Conclusions

The expansion of the school's DLP from kindergarten through second grade to include PreK through fourth grade revealed challenges and successes, as identified by qualitative and quantitative data.

Challenges primarily lay in curriculum design, understanding of bilingualism, school culture, and quality of instruction affected by the constraints of the COVID-19 pandemic. Nevertheless, the program's successes were encouraging, including the DLP students' enthusiasm for learning, dual language proficiency, sustained test scores, and strengthened relationships, with significant support from parental involvement and community bonds. The shift to online education during the COVID-19 pandemic particularly affected Spanish instructional hours, disadvantaging native English speakers. Despite this, the DLP students demonstrated resilience, with students showing notable academic growth compared to their MP peers in MP, particularly during SY2020–2021. Even amidst challenges, this growth makes evident the DLP's strengths and potential for sustainability. The DLP has successfully promoted bilingualism, cultural awareness, and positive academic outcomes. The research findings affirm the program's value and potential for success as it scales over time. To ensure the DLP's sustainability, it is crucial to address its challenges and build on its successes to provide a comprehensive and inclusive educational experience for all students.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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