

A Study of California's Dual Language Learner Professional Development (DLL-PD) Grant Program

Findings From the DLL PD Bridge Study

Lisa J. White, Deborah J. Holtzman, Rebecca Bergey, Heather E. Quick

November 2021



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Introduction

This report summarizes results from the Dual Language Learner (DLL) Professional Development (PD) Bridge Study conducted by the American Institutes for Research® (AIR®) from 2019 through 2021. The purpose of the study was to examine the implementation and impact of an investment by the state of California in PD for educators to help them better support DLLs attending early learning and care programs across the state.

DLLs represent a large and growing population in California’s early learning programs. Yet, without formal certifications or training requirements, many early learning providers across California are not sufficiently prepared to work with DLLs (Brodziak de los Reyes et al., 2020; Gándara et al., 2005; Oliva-Olson et al., 2017). Research has found, for example, that few educators use linguistically responsive practices to foster DLLs’ language and literacy development (Jacoby & Lesaux, 2017; Sawyer et al., 2016). Specific and intentional teacher training that focuses on instruction for DLLs can lead to increases in knowledge about DLLs (Gardner-Neblett et al., 2020) as well as better quality teaching practices (both general practices and those specific to working with DLLs) and positive learning outcomes for DLLs (Buysse et al., 2010; Castro et al., 2017). In addition, important teacher characteristics such as cultural competency and amount of training are both associated with child outcomes (Ramírez et al., 2019).

Recognizing the need to support teachers working with young DLLs and the potential impact of such support on learning outcomes for DLLs, the state of California allocated \$5 million in 2018

Key Study Findings

- *Teachers who participated in GLAD, LLP, or SEAL (either as part of the DLL-PD grant program or earlier) not only received more DLL-related PD than other teachers but also reported needing less additional PD.*
- *Teachers who participated in GLAD, LLP, or SEAL prior to the DLL-PD grant program were less likely to express English-centric views and had higher levels of confidence in teaching DLLs.*
- *Teachers who participated in GLAD, LLP, or SEAL more frequently used evidence-based instructional practices, especially teachers who received the PD prior to the DLL-PD grant program.*
- *Teachers who participated in GLAD, LLP, or SEAL demonstrated more family engagement practices than those who did not receive this PD.*
- *The extensiveness of DLL-related PD teachers receive may be the main driver of their use of evidence-based practices with DLLs and their families.*

to provide PD to early learning and care providers specifically focused on supporting DLLs. The goals of the **DLL-PD Program** were as follows (Early Edge, n.d.):

- “Train more early educators and caregivers to effectively support DLLs and their families”;
- “Strengthen and expand the current DLL-specific training infrastructure in California, including online options”;
- “Increase DLL-specific higher education coursework”; and
- “Promote a birth to third grade PD model for teachers serving DLLs and English learners.”

In service of these aims, the program, which was administered by the California Department of Education (CDE), offered one-time grants to six organizations and collaboratives to provide PD for early learning providers focused on DLLs during the 2019–20 school year. The grantees were (a) the California Preschool Instructional Network (CPIN), (b) California State University, Channel Islands–Early Childhood Studies Program, (c) Preschool Guided Language Acquisition Design (GLAD), (d) Sobrato Early Academic Language (SEAL): A PreK-3 Model, (e) the Language Learning Project (LLP), and (f) the Faculty Initiative Project. Ultimately, the program aimed to support educators and caregivers to better understand and serve young DLLs with high-quality early educational experiences.

At the time the DLL-PD Program was being implemented, AIR was already leading the First 5 California (F5CA) DLL Pilot Study, a large-scale, 5-year study focused on DLLs in California, funded by F5CA. This study was designed to examine the ways that DLLs in early learning settings are supported by instructional practice and family engagement and, in turn, the ways that instructional practice and family engagement are enhanced by educator PD. Recognizing the opportunity to bridge the F5CA Study and the new state-funded DLL-PD Program, the Heising-Simons Foundation (HSF) chose AIR to conduct a study of the DLL-PD Program. Conducting the two studies in tandem offered a clear opportunity for the study of the DLL-PD Program to synergistically leverage the data and sample from the F5CA study. Because of this connection to the F5CA study, the HSF-funded study was titled the DLL PD Bridge Study.

The AIR DLL PD Bridge Study supplements findings from another study of the DLL-PD program conducted by Harder+Company Community Research. Funded by Sobrato Philanthropies, the Harder+Company study focused on participant experiences in the CDE DLL-PD program, based on pre- and post-surveys and focus groups of early educators participating in the program (Harder+Company Community Research, 2021). The study team found that the majority of the educators reported increased knowledge, confidence, and skills for supporting DLLs and their families after participating in the DLL-PD program. The study also summarized common challenges that educators shared; these included a lack of paid time for PD, the difficulty of

finding substitutes, insufficient time to update curricula, and inadequate access to technology. Findings from the Harder+Company study are promising and add perspective to the unfolding picture of the CDE DLL-PD grants, but they should be considered with caution given the small sample size for the post-survey groups. AIR’s study adds to the research base with quantitative analyses showing relationships between participation in the grant-funded programs and early educators’ attitudes and beliefs, instructional practices, and family engagement strategies.

Overview of Study and Research Questions

The DLL PD Bridge Study focused on three of the grant programs—GLAD, LLP, and SEAL—because these were the programs that were most directly providing PD to preschool classroom teachers. Teachers selected to be in the study from these PD programs had either participated in the program *prior* to the grant period (“pre-grant group”) or as part of the DLL-PD grant program (“grant-period group”). The purpose of the study was to examine whether participation in the three PD programs was associated with teachers’ beliefs about and practices for working with DLLs and their families. Our main comparison group was teachers who did not participate in the grant programs (selected from the F5CA DLL Pilot Study), but we also compared pre-grant and grant-period participants.

The study addressed the following five research questions (RQs):

1. What are the characteristics of the DLL PD grantee programs in terms of format, content, and learning goals?
2. How much DLL-related PD have grantee and other teachers had, overall and on specific topics, and what forms has the PD taken? How helpful have they found it?
3. Is there a relationship between teachers’ participation in the grantee programs and their confidence, attitudes, and beliefs about teaching DLLs?
4. Is there a relationship between teachers’ participation in the grantee programs and their use of specific practices for teaching DLLs?
5. Is there a relationship between teachers’ participation in the grantee programs and their use of strategies for engaging with the families of DLLs?

Upon completion of the data analysis, we reviewed findings with each of the grantee programs individually in a series of co-interpretationSM meetings. Feedback from these meetings is summarized in the *Implications and Conclusion* section.

Method

This section describes the data sources, sample, analysis approach, and outcome measures used for the study.

Data Sources

The PD Bridge Study drew primarily on two sources of data: interviews with the grantee programs and surveys of teachers.

Interviews. To address RQ 1, we conducted virtual interviews with individuals from the three grantee programs included in the PD Bridge Study in November and December of 2019. The interview respondents included one to three individuals from each program who were key to the design as well as delivery of the PD program. We asked about their program model and delivery, goals for training teachers of DLLs, the key elements and strategies included in their program, and the types of resources teachers received. We also asked whether their traditional PD model differed from how the program was being implemented as part of the DLL-PD Program. Finally, we asked them about learning goals and anticipated outcomes from their program. Supplemental follow-up conversations occurred in August 2020 to understand whether and how the program delivery changed due to COVID-19 disruptions. All interviews were recorded (with consent), transcribed, and synthesized, and we analyzed the three programs both individually and in relation to one another.

Surveys. The main data source for RQs 2–5 was a survey of teachers in early learning and care programs in California. The survey was conducted online from May 2020 through July 2020. Teachers were invited to complete the survey via email, with email addresses provided by their programs during recruitment in late 2019 and early 2020.

Survey topics were aligned with the RQs: teachers' PD experiences (particularly related to PD focused on working with DLLs and their families), their confidence, attitudes, and beliefs related to teaching DLLs, their use of specific practices for teaching DLLs, and their use of strategies for engaging with the families of DLLs. For the latter two topics (interactions with children and families), the survey instructed teachers to answer about their practice *prior to the COVID-19 pandemic*, given that the survey was administered after pandemic-related disruptions had begun.

We invited 757 teachers to complete the survey. These teachers represented 341 classrooms in 177 programs in 18 counties.¹ According to information provided by grantees and participating sites, 82 of the teachers were current or past participants of the three focal CDE DLL-PD grant programs.

Of the 757 teachers invited to complete the survey, 688 taught only in a single classroom participating in the study, while the other 69 taught in two participating classrooms (e.g., morning and afternoon sessions). We asked these 69 teachers to complete a separate survey for *each* of their two classrooms, with the rationale that the two classrooms might differ in the number or composition of DLLs and the instructional practices used. In all, therefore, we issued invitations for a total of 826 surveys to be completed.

Overall, we received 777 survey responses, for a response rate of 94%.² These 777 responses were from 714 teachers in 338 classrooms at 175 programs. Among the responses were 94 surveys completed by 79 grantee-program teachers teaching in 70 classrooms in 40 programs.³

For teachers who taught in multiple classrooms and thereby answered multiple surveys (one per classroom), we selected only one of their classrooms—the one with the largest number of DLLs—to include in the PD Bridge Study analysis, given that our primary interest for the PD Bridge Study was teacher-level PD rather than classroom-level practice.⁴ Also, of the sampled teachers and classrooms in the three grantee programs (GLAD, LLP, and SEAL), none taught only infants and toddlers, and none were based in family child care homes. Because we wanted to make sure our PD Bridge Study analyses compared the grantee teachers with a similar set of non-grantee teachers, we omitted from the comparison sample all non-grantee teachers teaching only infants/toddlers and those in family child care homes. The resulting PD Bridge Study sample included 505 early childhood teachers in 239 classrooms serving DLLs. They were situated in 136 early learning and care programs across 18 counties in California.

¹ The survey-invitation sample included 24 teachers (in nine classrooms in four programs) in two counties that were not part of the F5CA DLL Pilot Study. Programs in these two counties were added because the early learning programs in the F5CA Study's 16 counties did not have any grant-period LLP teachers. All the teachers added in the two supplemental counties were grant-period LLP teachers.

² Not all of the 777 surveys returned were fully complete, but all had at least some usable data.

³ Some of these classrooms and programs had non-grantee teachers as well.

⁴ There were 63 teachers who submitted two surveys (one per class they taught). For 56 of these teachers, their two classrooms had different numbers of DLLs, and we retained for the PD Bridge analysis the survey response for the classroom with the greater number of DLLs. For the remaining seven, we picked the survey response (class) that had a completion time closer to 90 minutes, with the rationale that more thought had likely gone into that response and that it was likely completed in a single session. (Completion time was calculated as the time of submission minus the time of survey start.)

Sample Description

Of the 505 teachers in the sample, 30 were pre-grant teachers and 49 were grant-period teachers, according to our pre-survey records.⁵ However, on the survey itself, an additional 116 teachers reported having participated in GLAD, LLP, and/or SEAL at some point. Although these teachers were not on our list of participants for any of the three programs, we deemed it possible that they had, nevertheless, been participants at one time or another. But because we were not certain, we analyzed them as their own group, which we labeled “self-identified participation.” Finally, there were 310 teachers who neither were on our lists of GLAD, LLP, or SEAL participants nor did they self-report participation in any of the three programs. In sum, our analyses included four distinct groups of teachers:

- Pre-grant participants in GLAD, LLP, or SEAL (n = 30)
- Grant-period participants in GLAD, LLP, or SEAL (n = 49)
- Self-identified participants in GLAD, LLP, or SEAL (n = 116)
- Non-participants in GLAD, LLP, or SEAL (n = 310)

Exhibit 1 provides background information on the teachers in each group. As the table shows, there were some differences among the groups. In particular, pre-grant teachers were more likely to be the lead teacher in their classroom, to have a bachelor’s degree or higher, and to have DLL-related certification. Pre-grant and grant-period teachers were more likely than teachers in the other two groups to be Hispanic/Latino and to speak Spanish proficiently.

Exhibit 1. Background Characteristics of the Teachers and Classrooms in the PD Bridge Study Sample, by Group

| Background Characteristic | Pre-Grant Participation in GLAD, LLP, or SEAL (n = 30) | Grant-Period Participation in GLAD, LLP, or SEAL (n = 49) | Self-Identified Participation in GLAD, LLP, or SEAL (n = 116) | No Participation in GLAD, LLP, or SEAL (n = 310) |
|---|--|---|---|--|
| <i>Teacher Characteristics (self-reported)</i> | | | | |
| Lead teacher in class | 80% | 51% | 33% | 36% |
| Bachelor's degree or higher | 73% | 39% | 38% | 40% |
| Years of experience teaching young children (ages 0–5) ^a | 13.0 | 13.0 | 14.0 | 12.6 |
| CLAD-, BCLAD-, or TEFL/TESOL-certified ^a | 17% | 0% | 3% | 2% |

⁵ Because the number of teachers in each of the three individual grantee programs was quite small—and even smaller when disaggregated by pre-grant versus grant-period participation—all of the analyses presented in this report combine the three grant programs.

| Background Characteristic | Pre-Grant Participation in GLAD, LLP, or SEAL (n = 30) | Grant-Period Participation in GLAD, LLP, or SEAL (n = 49) | Self-Identified Participation in GLAD, LLP, or SEAL (n = 116) | No Participation in GLAD, LLP, or SEAL (n = 310) |
|---|--|---|---|--|
| Hispanic/Latinx | 83% | 90% | 67% | 64% |
| Proficiency in English (0 to 4) ^a | 3.6 | 3.5 | 3.5 | 3.6 |
| Proficiency in Spanish (0 to 4) ^a | 3.2 | 3.3 | 2.6 | 2.5 |
| Classroom Characteristics (as reported by teachers) | | | | |
| Total number of DLLs in the classroom | 13.7 | 16.0 | 15.6 | 13.6 |
| Number of Spanish-speaking DLLs in the classroom | 11.3 | 14.6 | 11.2 | 11.0 |
| Number of languages spoken by DLLs in the classroom | 2.1 | 1.5 | 2.0 | 1.9 |
| Preschoolers only (versus mixed preschool and infant/toddler) | 97% | 94% | 91% | 86% |

^a A small percentage of teachers were missing data on this background characteristic. Rather than exclude these teachers from the analysis, we used dummy variable imputation. See Appendix A for further detail.

As can be inferred from the exhibit, most of the DLLs in the classrooms of the two “official” grant groups (pre-grant group and grant-period group) were from a Spanish language background. The 79 teachers in these two groups collectively reported teaching *no* Cantonese-speaking DLLs and only nine Mandarin-speaking DLLs. Moreover, *none* of the 79 teachers reported using any Cantonese or Mandarin in their instruction. Although these two languages are of interest in the larger F5CA Study, their rarity among the DLLs and teachers in the two grant groups led us to exclude outcomes related to Chinese and Mandarin from the PD Bridge Study analyses.

Vietnamese, the other language that is included in the F5CA Study, was slightly more common. Three of the 79 grant-group teachers reported using at least some Vietnamese in their instruction, and 10 of them reported teaching at least one Vietnamese-speaking DLL. Although these Vietnamese numbers are larger than the Cantonese and Mandarin numbers, they still pale in comparison to the Spanish numbers: all 79 of the GLAD/LLP/SEAL teachers reported having Spanish-speaking DLLs in their class (with numbers ranging from two to 24), and 70 of the 79 teachers reported using Spanish in the class. Three of them reported using Spanish and NOT English. For these reasons, we decided to only examine outcomes related to Spanish (and English) for the PD Bridge Study.

Analysis Approach

For RQ 1, we transcribed the interviews and read through all the transcripts. We identified three key aspects of the PD programs, as they emerged from the interviews: format, content, and learning goals. We then summarized how each PD provider described their program, as it corresponded to each of these topics, and consolidated the information for each topic to understand the similarities and differences across the programs.

For RQ 2, our analyses examined the PD experiences—in terms of amount, format, and perceived utility—of teachers in each of the four groups (pre-grant group, grant-period group, self-identified group, and no-participation group). Comparisons among the groups were primarily descriptive. However, as an additional way to characterize the experiences of teachers in each of the groups, we also created a measure of how much DLL-related PD teachers had received overall and analyzed it statistically, using the same modeling approach described in the following paragraph.

For RQs 3–5, our main goal was to see whether the four groups differed in outcomes related to confidence, attitudes, and beliefs (RQ 3), instructional practice (RQ 4), and family engagement (RQ 5) with all else held constant. For these analyses, we used statistical modeling—in particular multilevel regression—to determine whether there were statistically significant differences in outcomes among the four groups. Our estimation strategy accounted for the nested structure of the data (teachers nested in classrooms and classrooms nested in early learning and care programs) and controlled for the teacher and classroom background characteristics shown in Exhibit 1, along with indicators for missing data on each background characteristic.

The key terms in the statistical model were indicators for each of the PD groups. The no-participation group served as the reference group, meaning that the coefficient for each of the other three groups was the *difference* in the outcome between that group and the no-participation group, holding constant all the background characteristics. In post-estimation testing, we also examined whether any differences among the first three groups—the pre-grant group, the grant-period group, and the self-identified group—were statistically significant (all else equal).

Even with the statistical modeling, however, we are unable to make causal inferences. For instance, if we observe that one of the grant-participation groups significantly differs from the no-participation group on a particular outcome, we cannot assume that participation in the grant program is what *caused* the difference in the outcome. It could be that the teachers who participated in the grant programs differed from the nonparticipating teachers in unobserved ways and that those unobserved differences could be responsible for the differences in the outcome. It could also be that the groups would already have differed on the outcome prior to the PD.

Moreover, it is important to note that statistical significance is affected by sample size: in general, the smaller the groups, the less likely that differences between them will register as statistically significant. Although our overall sample size of approximately 500 teachers is suitably large, the pre-grant group had only 30 teachers and the grant-period group had only 49.⁶ Thus, small differences between these two groups, specifically, are unlikely to be significant. Differences involving either of the other, larger groups (self-identified and no-participation) are more likely to be significant, even if the differences themselves are not any larger.

Outcome Measures

The measures we examined as outcomes for RQs 3–5 are described in detail in the *Results* section of this report, with each outcome described immediately prior to the presentation of findings for that outcome. In short, however, the outcomes are as follows:

- RQ 3 (confidence, attitudes, and beliefs related to DLLs)
 - Confidence in supporting Spanish-speaking DLLs
 - English-centric views
 - Pro-bilingual attitudes
- RQ 4 (specific practices for teaching DLLs)
 - Amount of instruction in English
 - Amount of instruction in Spanish
 - Use of instructional strategies in English to support DLLs
 - Use of general instructional strategies in Spanish
 - Use of strategies in Spanish to build English
 - Number of books in Spanish per Spanish-speaking DLL
 - Use of general strategies for working with DLLs
- RQ 5 (engaging with families of DLLs)
 - Number of language-related topics about which information is collected from families at intake
 - Number of strategies for involving parents in the classroom
 - Number of types of materials sent home

⁶ As a result of missing data on the outcome variables (caused by item-level nonresponse or survey skip patterns), most of our individual statistical analyses do not include the full sample of 505 teachers, but all except one include at least 475 teachers. The exception is for the number of books in Spanish (see Exhibit 17), for which the analysis sample size is 415.

It is important to keep in mind that all of these outcome measures are based on teacher self-report from a survey and have not been independently verified or validated. Moreover, most of the measures, particularly for RQs 4 and 5, gauge only quantity or frequency (as reported by teachers), and do not measure quality. Again, information about the content and construction of each measure is provided in the *Results* section.

Results

This section presents the results of the study, ordered by RQ.

RQ 1: What are the characteristics of the DLL PD grantee programs in terms of format, content, and learning goals?

To understand the format, content, and learning goals of each PD grant program, we interviewed each of the three PD program developers and training experts about their PD program. The findings in this subsection describe common elements as well as distinctive elements of the three programs in these topic areas. We also report on updates regarding COVID-19 pandemic-related disruptions to the PD grant program implementation for each program.

Format of PD Offerings

Exhibit 2 describes the various formats and schedules for the PD activities, including any changes that were made to the traditional model for the specific grant period activities. The exhibit also includes details about incorporation of leadership in the training sequence and program. All three programs offer some component of training and support for administrators. The intent of the leadership training is to ensure that the PD is implemented and supported at a system-wide level.

Exhibit 2. Format and Duration of PD Activities in Pre-Grant and Grant Periods

| | GLAD | LLP | SEAL |
|-------------------------|---|---|--|
| Pre-Grant Period | 5 full days in a row | 5 Saturday sessions every other month for 3 hours at a time | 2-year ongoing program with 2-day launch, 2-day modules through the year, and an optional 10-day summer bridge between Years 1 and 2 |
| | Leadership component offered but not required | Leadership component (in addition to teacher training) offered for site directors | Includes several leadership convenings about the program |

| | GLAD | LLP | SEAL |
|---------------------------------|---|---|--|
| Grant-Period Adaptations | 5-day training Added a 5-day train-the-trainer leadership component Added a new component that involved a “train-the-trainer” model | Same approach, but added statewide Leadership Orientation for administrators, coaches, and trainers Extended to new counties beyond the original PD implementation sites | Condensed to a 12–15-month program with a 1-day launch and an optional condensed summer bridge. (During the grant period, none of the study sites participated in the optional summer bridge portion and none completed the SEAL PD series due to the onset of the COVID-19 pandemic.) |

Note. This table is based on descriptions of the programs that the PD providers shared with the study team in the interviews (with specific attention to the format and duration prior to and during the grant). There may be additional details and variations of PD delivery based on particular sites or different time periods for each provider.

Job-Embedded Practice. All PD program developers mentioned that the PD is intended to provide both theoretical background as well as opportunities for job-embedded learning and practice with strategies.

- GLAD participants observe trainers enacting practices and then reflect on the implementation while learning to develop their own materials.
- The LLP program takes place on Saturday mornings (as suggested by participants) and thus does not involve modeling or practice activities directly embedded in the training. The LLP program does ask participants to bring their curriculum so that they can reflect and plan how to integrate strategies into their own program.
- SEAL sequences the training so that participants can practice between training sessions with the support of a district/site coach. In addition, Summer Bridge participants co-teach a SEAL unit with another SEAL teacher in the morning, and then spend the afternoon reflecting and planning with other participating teachers and their coach.

Follow-Up Supports. All three grant programs mentioned follow-up support, but there is variation in the way in which that support is provided.

- GLAD offers follow-up coaching but does not require it.
- LLP offers coaching support and also observes classroom implementation after each PD session as well as a time to reflect on the observation.
- SEAL requires site participants to have dedicated district coaches go through training and provide follow-up support throughout the duration of the program. Participants also engage in convenings across other sites participating in training throughout the duration of the program.

Content of PD Offerings

All of the PD program developers described their approach as being grounded in current research about best practices for serving young DLLs. Some of the key content was similar across all three PD developers, particularly in the areas of reading and writing, oral language development, instructional strategies and supports, and family engagement.

Organization and Presentation of Content

- GLAD focuses on 19 strategies and organizes those into five component areas: focus and motivation, input, guided oral practice, emergent reading and writing, and family engagement. Teachers learn about the strategies and how to select strategies based on learning goals.
- LLP centers on the Personalized Oral Language Learning (POLL) strategies, which are organized around family languages and interests, environmental support, and instructional support.
- SEAL has four pillars that serve as a foundation for its approach, and teachers are asked to apply those key ideas in the development of their own thematic units. The SEAL model also emphasizes language learning integrated within the context of learning about content.

Culturally Responsive Pedagogy

- GLAD addresses culturally relevant pedagogy as it comes up during training but does not have particular resources or training sessions focused on this.
- LLP encourages participants to use a family intake form to learn about student linguistic and cultural backgrounds and also offers guidance on selecting classroom materials that reflect children's identities.
- The SEAL approach emphasizes affirmation of the child's home language and connection between language learning and social identity. SEAL utilizes some anti-bias resources and has created some of its own resources about affirming student identity.

Family Engagement

- GLAD offers strategies, materials, and resources for family engagement including take-home cards for students and weekly family letters to support home-school connections.
- LLP integrates family engagement throughout all sessions. One specific tool for engagement is the use of a family language interview form.
- SEAL emphasizes the critical role of families and the home language in children's learning throughout the training, as well as the schools' responsibility to cultivate strong school-family partnerships. SEAL created several videos to highlight this message and relevant strategies for educators and families.

Alignment With Standards and Assessment

- GLAD provides a crosswalk that shows the alignment between strategies and DRDP measures.
- LLP sites that were trained prior to the DLL-PD grant period participated in the use of the IDEA Oral Language Proficiency Tests (pre-IPT) in English and Spanish to assess student language. Use of the pre-IPT was not a component of the DLL-PD grant participants' experience.
- SEAL also provides a crosswalk that shows the alignment between strategies and Desired Results Developmental Profile (DRDP) measures.

Learning Goals and Anticipated Outcomes

Although there were commonalities across the three PD programs in the topics addressed, the programs differed in learning goals and anticipated outcomes for participants.

- GLAD focuses on providing teachers with strategies and improving their awareness of the need to be intentional in the use of those strategies to support DLLs. The GLAD developers expect participants to increase awareness of language development and use their GLAD toolkit throughout the day.
- LLP focuses on providing teachers with learning strategies to support children's home languages. The LLP developers hope that by utilizing those strategies, teachers will make a positive impact on students. They expect participants to value bilingualism and implement strategies as part of a systemic approach that includes collaboration across administrators and teachers to support DLLs.
- SEAL focuses on the principles that guide its approach, including an understanding of the role of the home language, that language is learned through interaction, and that learning activities should reflect and support children's developmental trajectory. The SEAL developers expect participants to establish child-centered learning environments where children learn language through learning about the world.

COVID-19-Related Adaptations to DLL-PD Grant Implementation

All three PD programs were scheduled to be implemented across the 2019–20 academic year but faced disruptions related to the COVID-19 pandemic. In all three programs, PD providers shared how they adapted content to focus on pandemic-related concerns and issues for teachers. They also adapted their final PD delivery and, in some cases, missed final delivery of training and/or coaching.

- GLAD had some sites complete the PD training; others did not receive the final training sessions. Coaching continued virtually but not consistently for all sites. Certification for trainers did not take place and instead was adapted for a “virtual Preschool GLAD specialist” certification.
- LLP offered the final components of training as well as coaching virtually.
- SEAL offered the final training cycle virtually, but not all grant participants completed the training through the virtual offering.

RQ 2: How much DLL-related PD have teachers had, overall and on specific topics, and what forms has the PD taken? How helpful have they found it?

To understand teachers’ experiences with PD, we examined the following:

- How much PD they reported receiving on specific topics
- How much DLL-related PD they received overall
- The formats of their PD and the perceived utility of each format
- The amount of additional training they felt they needed

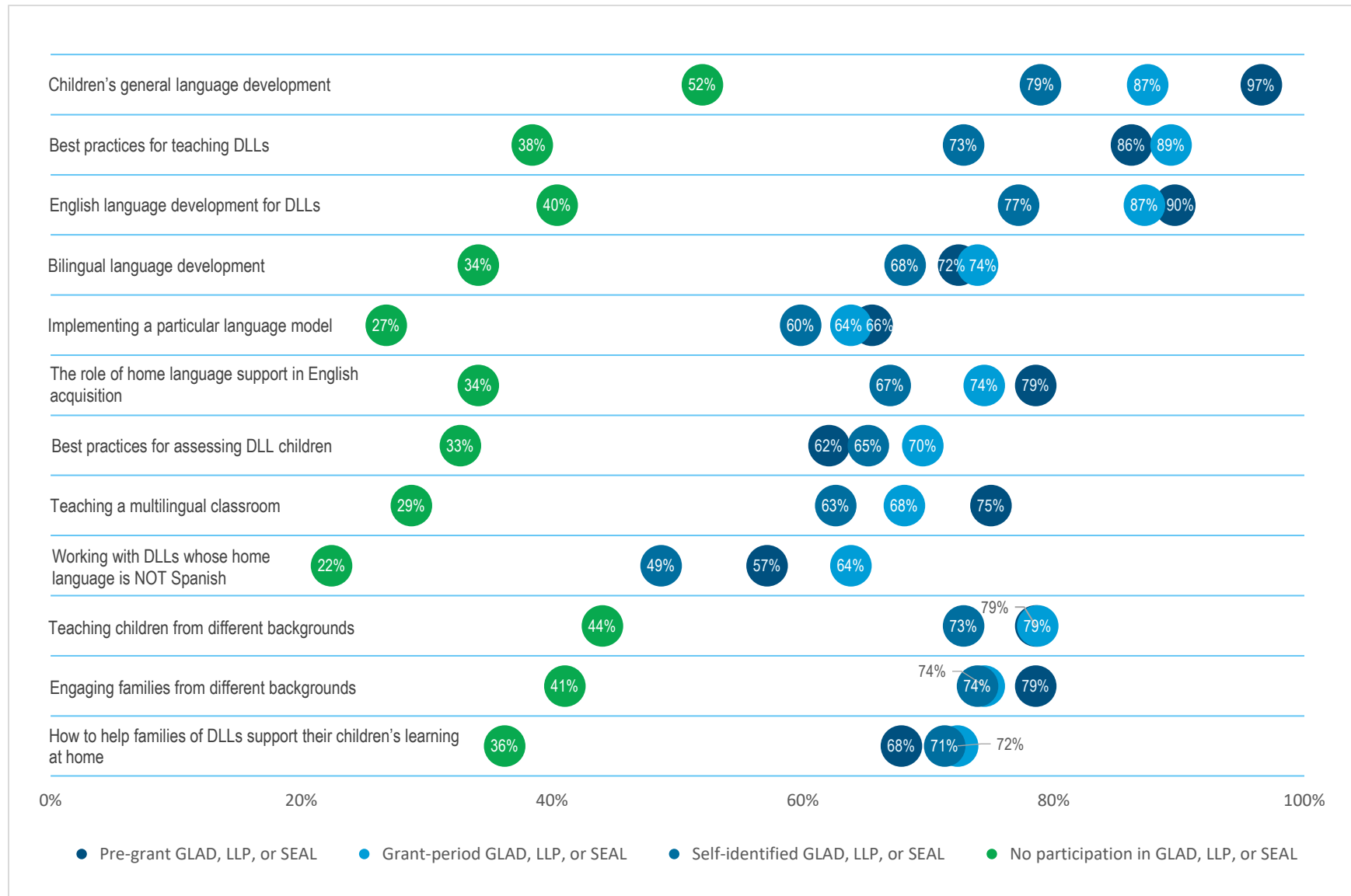
Amount of PD on Specific Topics. The survey listed several DLL-specific topics (e.g., bilingual language development, best practices for assessing DLLs, engaging with families of DLLs) and asked teachers how much PD they had received on each one, on a 4-point scale from *no PD on the topic* (coded as 1) to *a lot of PD on the topic* (coded as 4). The survey question did not specify any particular source for the PD; that is, the PD teachers reported receiving on any of the topics could have been part of a PD program that focused specifically on DLLs (e.g., GLAD, LLP, or SEAL), but it could also have been part of more general PD offerings that touched on topics related to DLLs. The survey question also did not specify a time range for receiving the PD.

For nearly every topic, either the pre-grant group or the grant-period group had the highest percentage of teachers reporting having had *a lot or a moderate amount of PD* on the topic (Exhibit 3). On most of the topics, 70% to 90% of the teachers in each of these two groups reported having had at least *a moderate amount of PD*. Slightly lower percentages of teachers in the self-identified group—typically 60% to 80%—reported at least *a moderate amount of PD* on each topic. For the no-participation group, however, the percentages were much lower—less than 50% for every topic except one, just 30% to 40% for most of the topics, and even only 20% to 30% for a few of them. This pattern of percentages across the four groups—with the two official grant-program groups reporting the most PD, and the no-participation group reporting the least—makes sense and supports the validity of our grouping approach.

For all four groups, the topic that the *fewest* teachers reported having had at least a moderate amount of PD on was working with DLLs whose home language is not Spanish. To the extent

that teachers do not have DLLs from other language backgrounds in their classes, they perhaps have less of a need for PD on this topic, but the relative rarity of PD on this topic may be cause for concern if language diversity is increasing throughout the state, particularly when it comes to languages that are less similar to English than Spanish is. Different types of PD may be called for to help teachers (who may or may not speak the home language) work most effectively with non-Spanish-speaking DLLs. And even teachers who do not currently work with such students may work with them in the future.

Exhibit 3. Percentage of Teachers Reporting at Least a Moderate Amount of PD on Various Topics, by Group



Overall Amount of DLL-Related PD. To investigate the extent to which the amount of DLL-related PD teachers had received was associated with the types of outcomes examined for RQs 3–5, we needed a single measure capturing all of the topics combined. To create such a measure, we averaged the values (from 1 to 4) across all 12 topics to arrive at a single score for each teacher. We call this measure the “amount-of-DLL-PD” scale; note that it captures both quantity (from “no PD” to “a lot of PD”, but not in terms of hours or days of PD) and comprehensiveness (PD on multiple different DLL-focused topics). A value of 1 on the scale would correspond to having had *no* PD on *any* of the topics, while a value of 4 would mean having had a lot of PD on every one of the 12 topics. The scale is highly reliable, with a Cronbach’s alpha of 0.97. Descriptive statistics on the scale for each of the four groups are shown in Exhibit 4.

Exhibit 4. Means and Standard Deviations of the Scale Gauging the Amount of DLL-Related PD Teachers Had Received, by Group

| Group | Mean (SD) |
|---|---------------|
| Pre-grant GLAD, SEAL, or LLP (n = 30) | 3.0 (0.82) |
| Grant-period GLAD, SEAL, or LLP (n = 49) | 2.9 (0.73) |
| Self-identified GLAD, SEAL, or LLP (n = 116) | 2.9 (0.74) |
| No participation in GLAD, SEAL, or LLP (n = 310) | 2.1 (0.78) |

Note. The possible values of the scale range from 1 (*no PD on any topic*) to 4 (*a lot of PD on every topic*). Values were imputed for 16 teachers; see Appendix A for further detail.

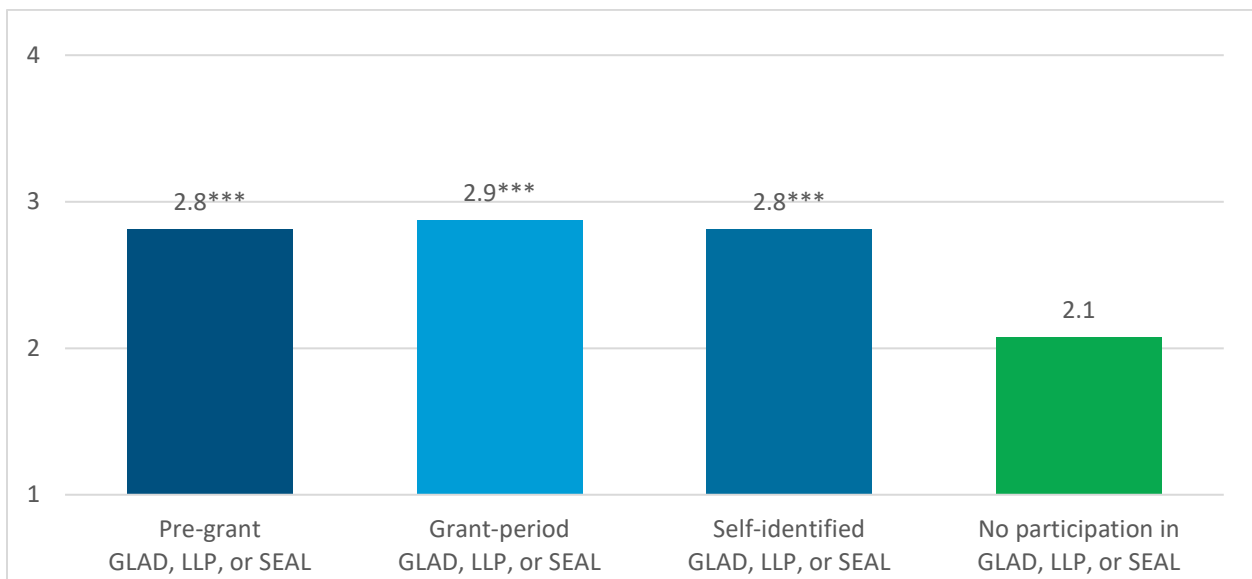
As Exhibit 4 shows, the first three groups had similar mean values on the scale: they all averaged a value of approximately 3, which is equivalent to having had a moderate amount of PD on all 12 topics. Not surprisingly, the no-participation group had a notably lower value—closer to 2, which corresponds to having had only a little PD on all 12 topics. The difference between each of the first three groups and the no-participation group was statistically significant, but there were no significant differences among any of the first three groups.

However, it is possible that factors such as role in the classroom (e.g., lead teacher or not) and various background characteristics could have influenced the amount of PD they had received (or the topics on which they received it), and given that there were differences across the four groups in such factors (as shown in Exhibit 1), it could be that these differences, rather than group membership per se, explains the differing amounts of PD for each group. To tease this out, we

conducted a statistical analysis in which we regressed the PD amount on *group controlling* for the background characteristics shown in Exhibit 1, as well as taking into account the nested structure of the data. (See the *Method* section; the statistical model we used for the amount scale was the same as that used for the outcomes explored for RQs 3–5.) We then calculated an *adjusted* value for each of the first three groups, showing what that group’s value would be if its composition (in terms of background characteristics, etc.) was the same as that of the no-participation group. The results are shown in Exhibit 5, including asterisks to indicate whether the difference between each of the first three groups and the no-participation group is statistically significant.

As Exhibit 5 shows, the results of the statistical model yield essentially the same conclusion as the unadjusted means shown in Exhibit 4: the pre-grant group, grant-period group, and self-identified group each had significantly more DLL-related PD (overall) than the no-participation group. And, although not shown in the exhibit, there still were no significant differences among the first three groups.

Exhibit 5. Overall Amount of DLL-Related PD



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. *p<0.05; **p<.01; ***p<.001. The possible values of the scale range from 1 (*no PD on any topic*) to 4 (*a lot of PD on every topic*).

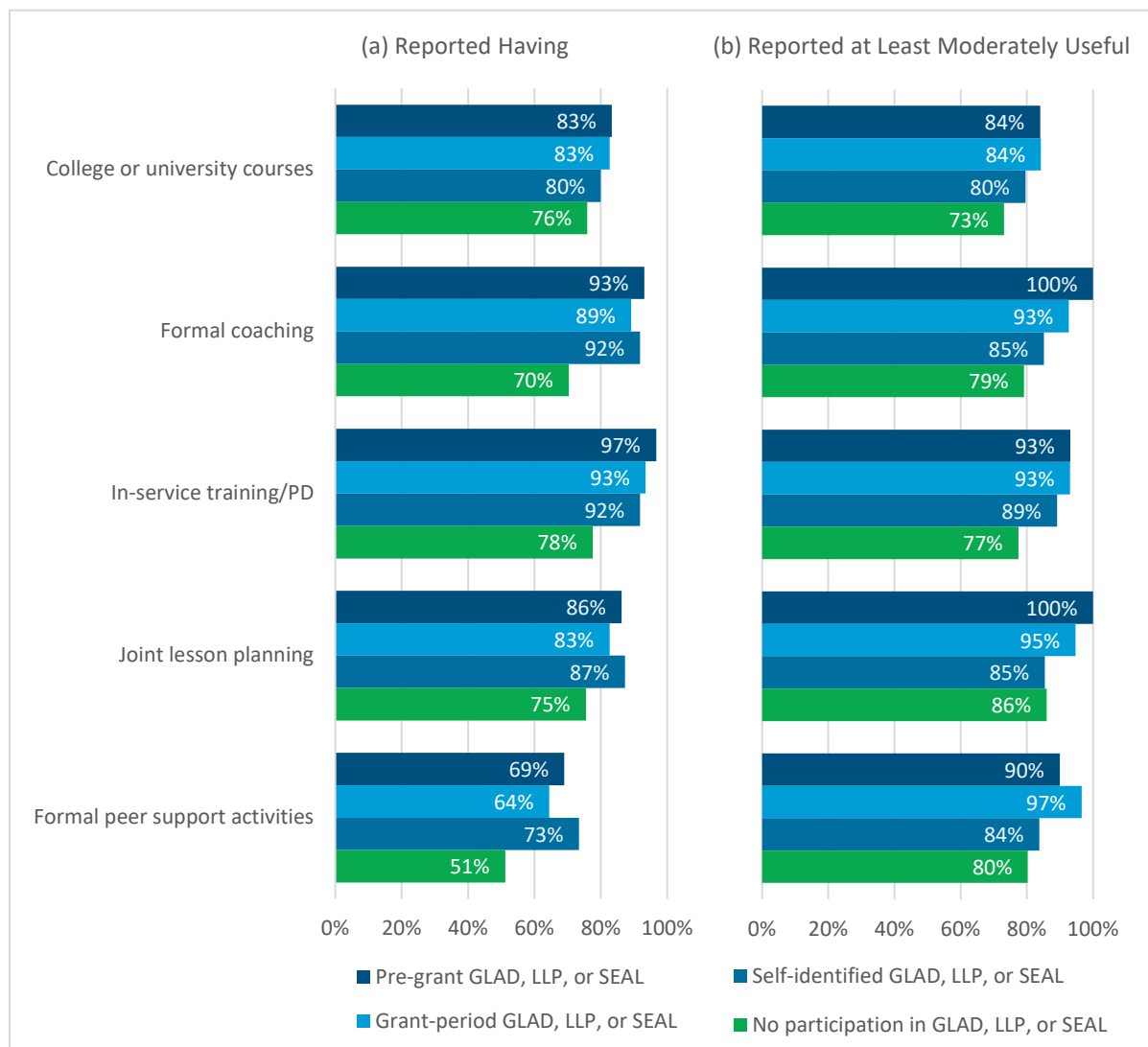
Some of the background characteristics were indeed significantly associated with the amount of DLL-related PD teachers reported receiving:

- Being the lead teacher in the classroom
- The number of different languages spoken by the DLLs in the classroom
- The teacher’s proficiency in Spanish

All of these were positively related to the amount of PD reported. For instance, the more different languages there were in the classroom, or the more proficient the teacher was in Spanish, the more DLL-related PD teachers reported (all else being equal).

Format and Perceived Utility of PD. In addition to asking teachers how much PD they had received on various topics, the survey also asked them to rate how useful various *forms* of PD had been for helping them work effectively with DLLs, on a scale from 1 (*not at all useful*) to 4 (*very useful*). They also were able to indicate whether they had *not* had PD in each of the listed formats (in which case they did not rate the usefulness). Exhibit 6(a) (left panel) shows that most teachers reported having had PD in most of the five formats listed, with the most common being in-service training/PD and the least common being formal peer support activities. Formal coaching was also quite common. For all of the formats, teachers in the no-participation group were less likely than teachers in the other three groups to report having experienced PD of that form, but even in the no-participation group, each form of PD was experienced by at least half of the teachers.

Exhibit 6. Percentage of Teachers, by Group, Reporting (a) That They Had Received Various Forms of PD and (b) That the PD Had Been at Least Moderately Useful for Helping Them Work Effectively With DLLs



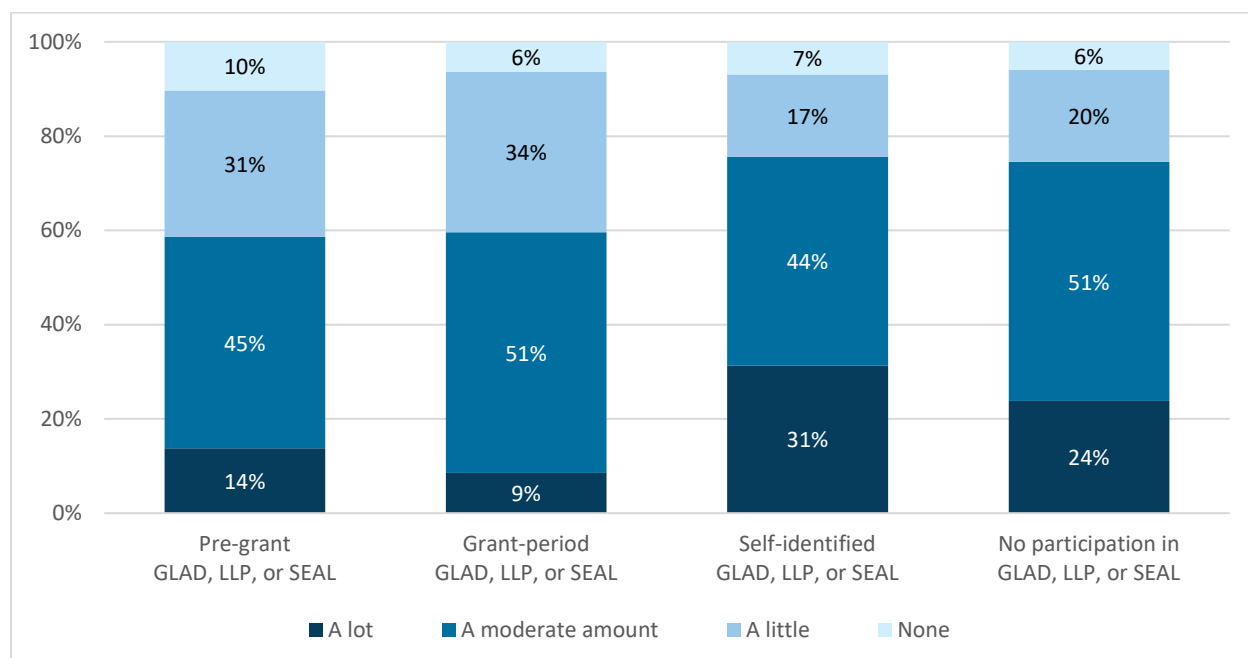
Note. Percentages for panel (b), on the right, are among only the teachers who reported that they had had that form of PD.

Exhibit 6(b) (right panel) shows that all five of the forms of PD were considered *at least moderately useful*, in terms of working effectively with DLLs, by large majorities of teachers in all four groups. Again, the percentages tended to be somewhat lower for the no-participation group, but not dramatically so.

Additional Training Needed. Lastly, teachers were asked how much additional training or PD they felt they needed to successfully support DLLs in their classrooms. As shown in Exhibit 7, teachers in the two grant-program groups were less likely than teachers in the self-identified

and no-participation groups to say that they needed *a lot* of additional PD. However, the majority of teachers in both the pre-grant and grant-period programs (approximately 60%) still reported needing at least a moderate amount of PD, which speaks to the value of ongoing PD to support teacher practice.

Exhibit 7. Amount of Additional PD Teachers Felt They Needed to Successfully Support DLLs in Their Classroom, by Group



Summary. The pre-grant group, the grant-period group, and the self-identified group reported having had more DLL-related PD, overall and by specific PD topics, than the no-participation group. One interesting finding that emerged was the relative lack of PD on working with DLLs whose home language was not Spanish; in all four groups, this was the topic on which teachers were the least likely to have received at least a moderate amount of PD. More broadly, most teachers in all four of the groups reported having participated in each of several different forms of PD, although the percentages for each format were somewhat lower for the no-participation group. There were few differences among the various PD formats, or among the four groups, in ratings of usefulness of the various formats. Finally, teachers in the two grant-program groups were less likely than teachers in the self-identified and no-participation groups to indicate a need for a lot of additional PD to successfully support DLLs in their classroom.

RQ 3: Is there a relationship between teachers’ participation in the grantee programs and their confidence, attitudes, and beliefs about teaching DLLs?

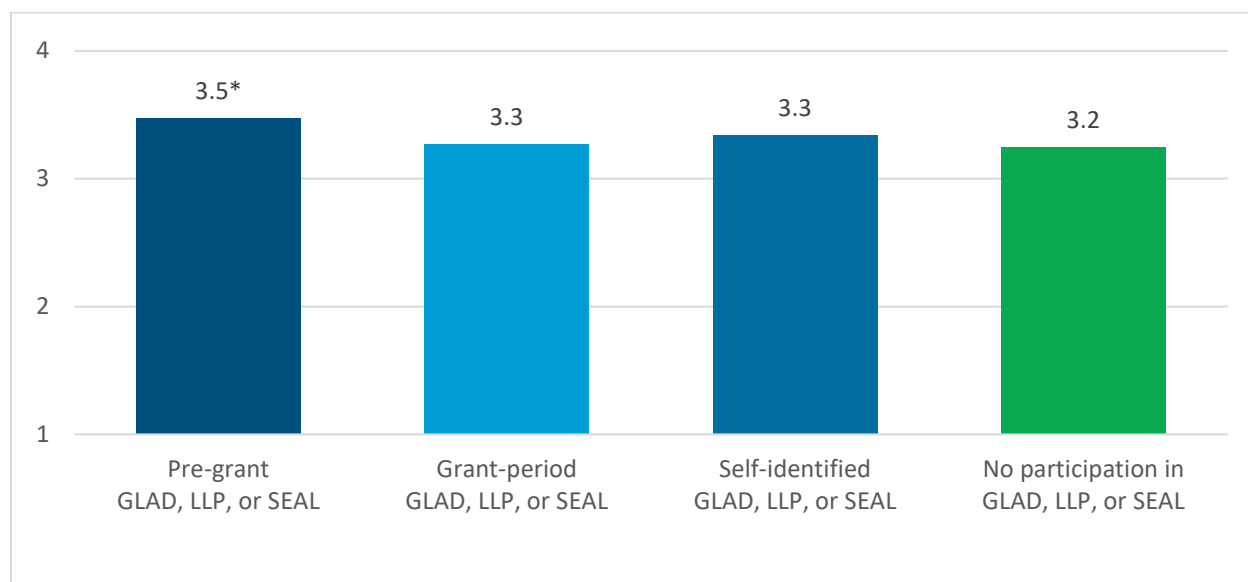
The survey asked teachers how confident they were in their ability to support Spanish-speaking DLLs; another set of questions was about respondents’ attitudes and beliefs about teaching

DLLs. We constructed scales for these constructs and examined each one as an outcome, focusing on whether there were differences among the four PD groups.

Confidence. Teachers indicated how confident they felt in supporting Spanish-speaking DLLs in each of seven developmental areas: English language development, Spanish language development, pre-literacy skill development, social-emotional development, math learning, assessing DLLs, and engaging with families. For each of the seven areas, teachers indicated whether they were *not confident at all* (coded as 1), *slightly confident* (coded as 2), *moderately confident* (coded as 3), or *very confident* (coded as 4). We averaged the responses for each teacher across all the items to arrive at a single score; an average value of 4, for example, would indicate high levels of confidence on all seven areas of development. We then analyzed how this confidence scale (which had high reliability, with a Cronbach’s alpha of 0.90) differed among the four PD groups, controlling for the background characteristics described previously.

As shown in Exhibit 8, the pre-grant group indicated significantly higher confidence than the no-participation group. There were no other significant differences among groups. Across the board, confidence levels were quite high—all groups averaged above a 3, between *moderately confident* and *very confident* on the original survey metric. High levels of confidence, however, do not necessarily reflect high levels of capacity or competence. As the grantees pointed out when we presented this finding to them, sometimes “you don’t know what you don’t know.” (See the *Implications and Conclusion* section for more discussion on this topic.)

Exhibit 8. Teachers' Confidence in Supporting Spanish-Speaking DLLs



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. The possible values of the scale range from 1 (*not at all confident* in any of the seven developmental areas) to 4 (*very confident* in all seven developmental areas).

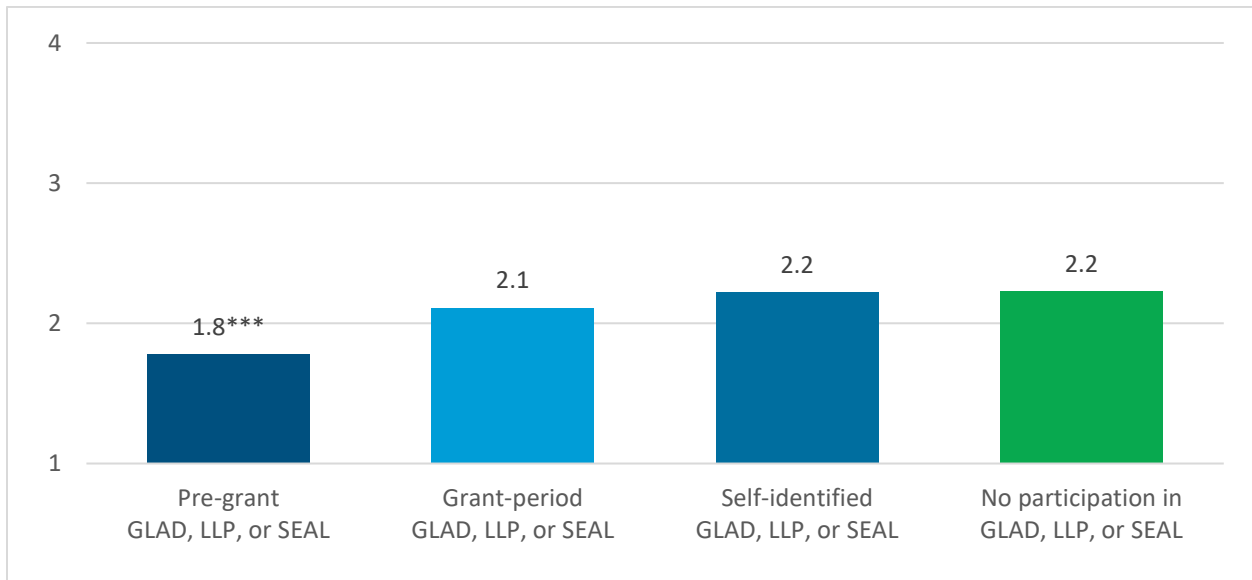
Attitudes/Beliefs. The survey presented teachers with a number of statements about DLLs in early education and asked them to rate their agreement with each statement, on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*). From these statements, we used a combination of theory and empirical analysis to create two scales. The first was a measure of the extent to which teachers held English-centric views; the second gauged the extent to which teachers had a pro-bilingual attitude. Exhibit 9 shows the items constituting each scale. As with the confidence scale, we averaged teachers’ ratings across the items in each scale to arrive at a single score, ranging from 1 to 4, for each teacher on each scale; higher values represent higher levels of agreement. However, note that on the English-centric views scale, *lower* values (i.e., *less* agreement) are more reflective of current thinking in the field as it relates to supporting bilingualism.

Exhibit 9. Survey Statements Constituting the Two Attitudes/Beliefs Scales

| English-Centric Views ($\alpha = 0.61$) | Pro-Bilingual Attitude ($\alpha = 0.75$) |
|--|--|
| <ul style="list-style-type: none"> • Teaching DLLs solely in English is the best way to get them ready for kindergarten. • Learning two languages can be confusing for children. • Generally speaking, DLLs learn English faster when their parents speak to them in English. • We live in the United States, so English should be the main language taught to children. | <ul style="list-style-type: none"> • Continuing to use their home language promotes a child’s future school success. • DLLs learn English better when they are also developing their home language. • It would be great if everyone spoke at least two languages. • Children who speak more than one language tend to be more skilled at understanding other people’s viewpoints. • Children who speak more than one language tend to be more creative in solving problems. |

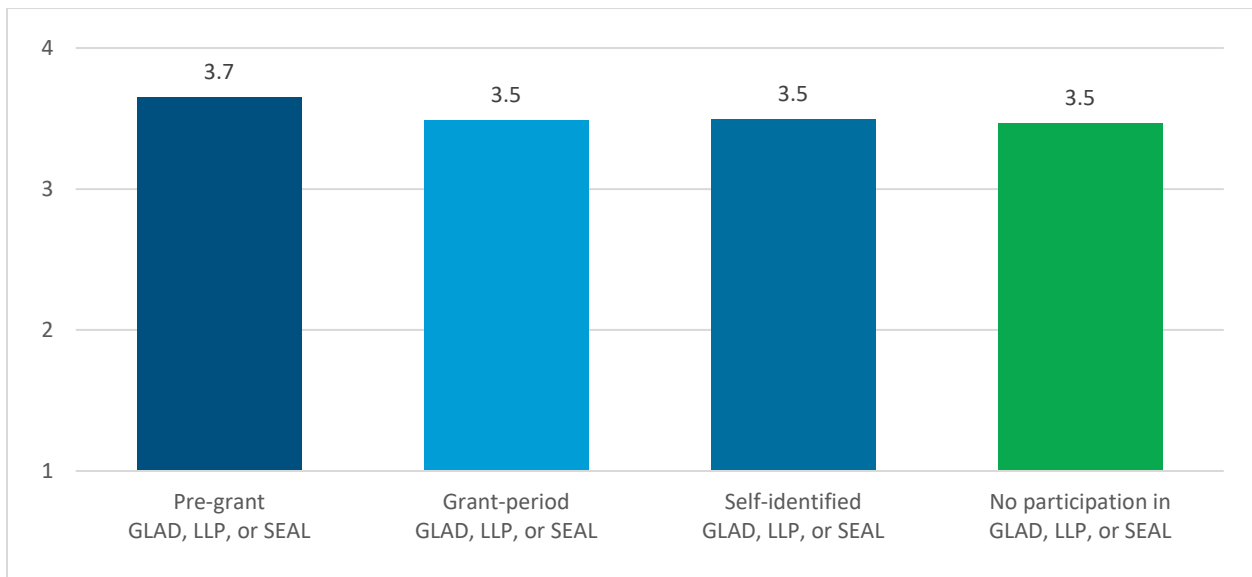
Although all four groups inclined toward disagreement with the English-centric statements, the pre-grant group was significantly less likely than each of the other three groups to agree with these statements. (See Exhibit 10; the significant difference between the pre-grant group and the no-participation group is indicated by the asterisks on the pre-grant bar, but the other two significant differences—between the pre-grant group and the grant-period group ($p < .05$) and between the pre-grant group and the self-identified group ($p < .01$)—are not shown in the exhibit.) On the other hand, there were no significant differences among the groups in terms of pro-bilingual attitude (Exhibit 11). All four groups had high values, between *agree somewhat* (3) and *agree strongly* (4), on the pro-bilingual attitude scale.

Exhibit 10. English-Centric Views



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. * $p < 0.05$; ** $p < .01$; *** $p < .001$. The possible values of the scale range from 1 (strongly disagreeing with all four English-centric statements) to 4 (strongly agreeing with all four English-centric statements).

Exhibit 11. Pro-Bilingual Attitude



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. * $p < 0.05$; ** $p < .01$; *** $p < .001$. The possible values of the scale range from 1 (strongly disagreeing with all five pro-bilingual statements) to 4 (strongly agreeing with all five pro-bilingual statements).

Summary. Overall, the pre-grant group seemed to have more confidence and favorable attitudes than the no-participation group, but there were few other statistically significant

differences between groups. Generally, the pre-grant and grant-period groups performed similarly on these measures, with the exception of English-centric views, which the pre-grant group was less likely to express than the grant-period group. These findings may suggest that the GLAD, LLP, and SEAL programs helped boost teachers' confidence in working with Spanish-speaking DLLs and made them less English-centric, particularly for those teachers who participated *prior* to the DLL-PD grant program.

RQ 4: Is there a relationship between teachers' participation in the grantee programs and their use of specific practices for teaching DLLs?

To understand relationships between teachers' PD participation and their use of best teaching practices for DLLs, we examined the following instructional constructs as outcomes:

- Amount of instruction in English and amount of instruction in Spanish
- Use of the following instructional strategies:
 - Strategies in English to support DLLs
 - General strategies in Spanish
 - Strategies in Spanish, to build English
- Books in Spanish
- General strategies for DLLs

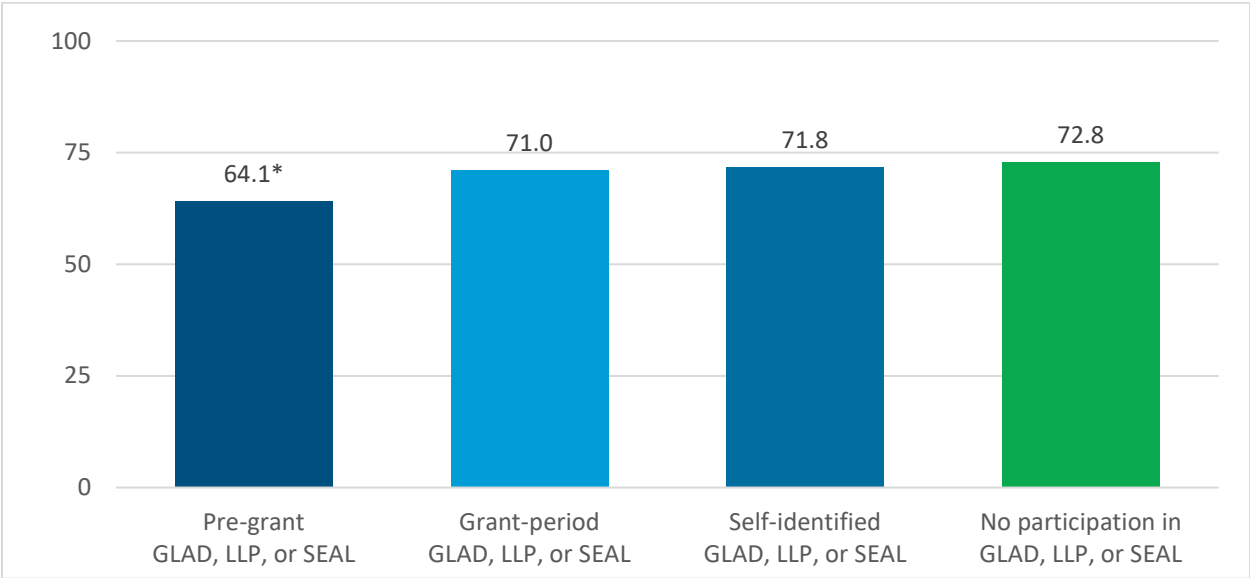
Each of these constructs is described in greater depth in the sections that follow.

Amount of Instruction in English and Spanish. The survey asked teachers which languages they spoke in the classroom, and, for each language that they marked, the percentage of their classroom speaking time they used that language. Across all languages they listed, the percentage of time had to add up to 100%. If they reported speaking only one language in the classroom (whether English or another language), they were not asked the percentage question; rather, their percentage was coded as 100% for the one language they reported using. For this report, we analyzed the percentage of time teachers reported using (a) English and (b) Spanish in the classroom.

Adjusted for background and classroom characteristics, teachers in all four groups reported using English about two thirds of their total speaking time in the classroom, on average. The pre-grant group reported speaking English a significantly lower percentage of time than the no-participation group: 64% of the time for the pre-grant group (adjusted for background characteristics) compared to 73% of the time for the no-participation group (Exhibit 12). The pre-grant group also spoke significantly less English on average than the self-identified group ($p < 0.05$, not shown on graph). The difference between the pre-grant group and the grant-

period group was similar in magnitude to that of the difference between the pre-grant group and the self-identified group, but, likely due at least in part to the small sample size of the pre-grant and grant-period groups, this difference did not register as statistically significant.

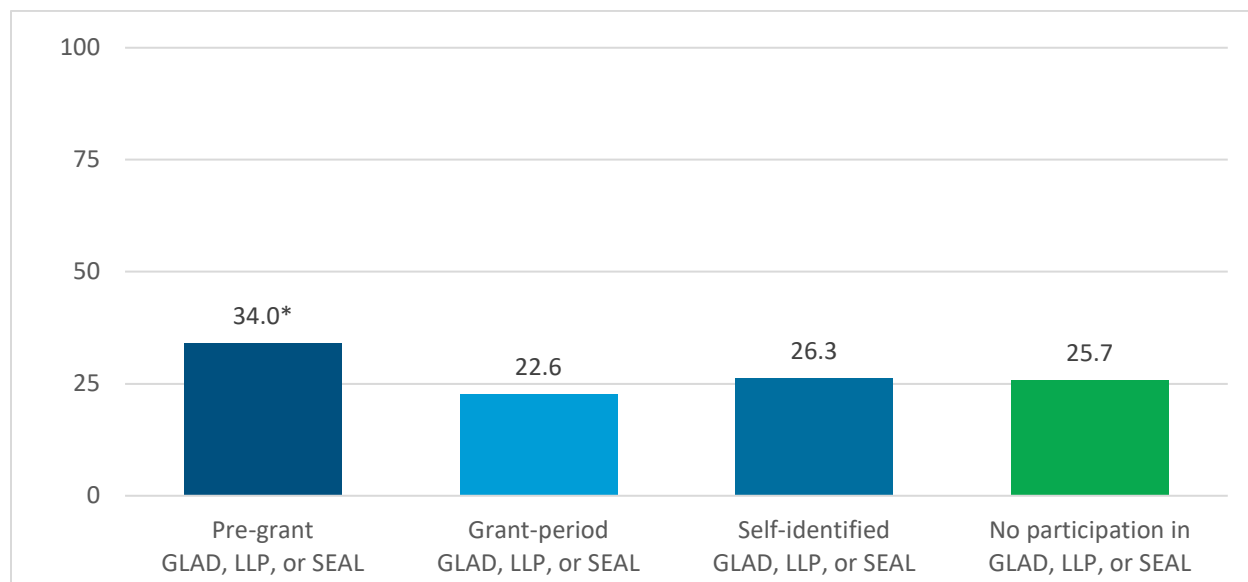
Exhibit 12. Average Percentage of Teacher Speaking Time That Is in English



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. *p<0.05; **p<.01; ***p<.001.

Findings regarding the amount of Spanish use in the classroom mirror—and complement—those of English use (Exhibit 13). Once again, the pre-grant group was significantly different from the no-participation group, with *greater* use of Spanish—about one third of the time for the former group compared to only one fourth of the time for the latter. The pre-grant group also spoke a significantly higher proportion of Spanish than either the grant-period group (p<0.01, not shown on graph) or the self-identified group (p<0.05, not shown on graph).

Exhibit 13. Average Percentage of Teacher Speaking Time That Is in Spanish



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. * $p < 0.05$; ** $p < .01$; *** $p < .001$.

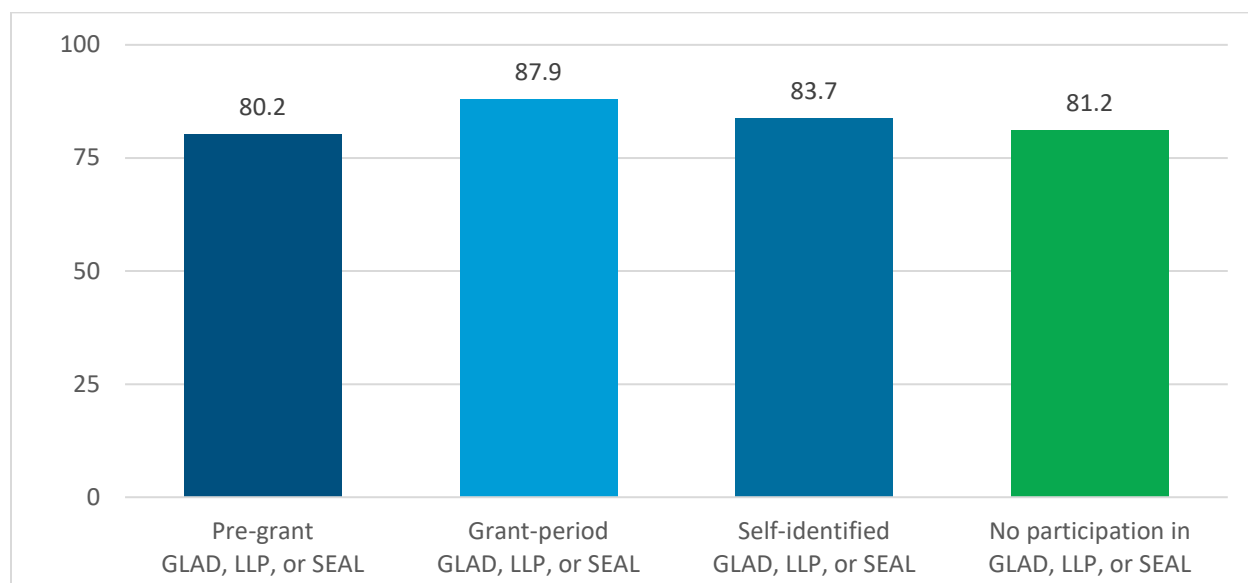
Use of Instructional Strategies With DLLs. In addition to asking about the amount of *time* teachers spent speaking English or Spanish (or other languages, though those are not discussed in this report), the survey also asked how often teachers used specific instructional strategies in each language. From these questions, we derived three highly reliable scales:

- *Use of instructional strategies in English to support DLLs:* This scale was based on a series of 14 questions about teachers' use of English in the classroom. Two questions were about the frequency of use of English for instruction and for behavior, respectively; the remaining 12 questions were about how often teachers did various instructional activities in English (e.g., singing songs; reading books; building English, math, or science vocabulary; providing social-emotional support) with DLLs of any language background (see Exhibit A2 in Appendix A for a full list of items included in this measure). Responses to each item were coded on a 0 to 100 scale, with 0 representing *never* and 100 representing *every day/all the time*. Each teacher's scale value was formed by averaging the values across all 14 items; higher values represent more frequent use of the strategies. Cronbach's alpha was 0.96.
- *Use of general instructional strategies in Spanish:* The items in this scale were similar to those in the previous scale, except that they were about use of Spanish rather than English and asked specifically about support for Spanish-speaking DLLs, with several of them having a particular focus on Spanish language development (see Exhibit A3 in Appendix A for a full list of items included in this measure). The items were coded, and the scale was constructed, in the same way as the previous one. Cronbach's alpha was 0.98.

- *Use of instructional strategies in Spanish for the purpose of building English:* This scale asked how frequently teachers used each of the following three strategies: (a) introducing key vocabulary words in Spanish to prepare children for learning the word in English; (b) drawing connections between English and Spanish; and (c) speaking Spanish one on one with Spanish-speaking DLLs to build their English language skills. The response options were *never, a few times a year, a few times a month, a few times a week, and every day* (coded as 0, 5, 20, 50, and 100 respectively), and ratings for the three items were averaged to produce one score per teacher. Like the individual items, the average ranged from 0 to 100; a score of 100 would represent doing all three practices every day. Cronbach’s alpha was 0.92.

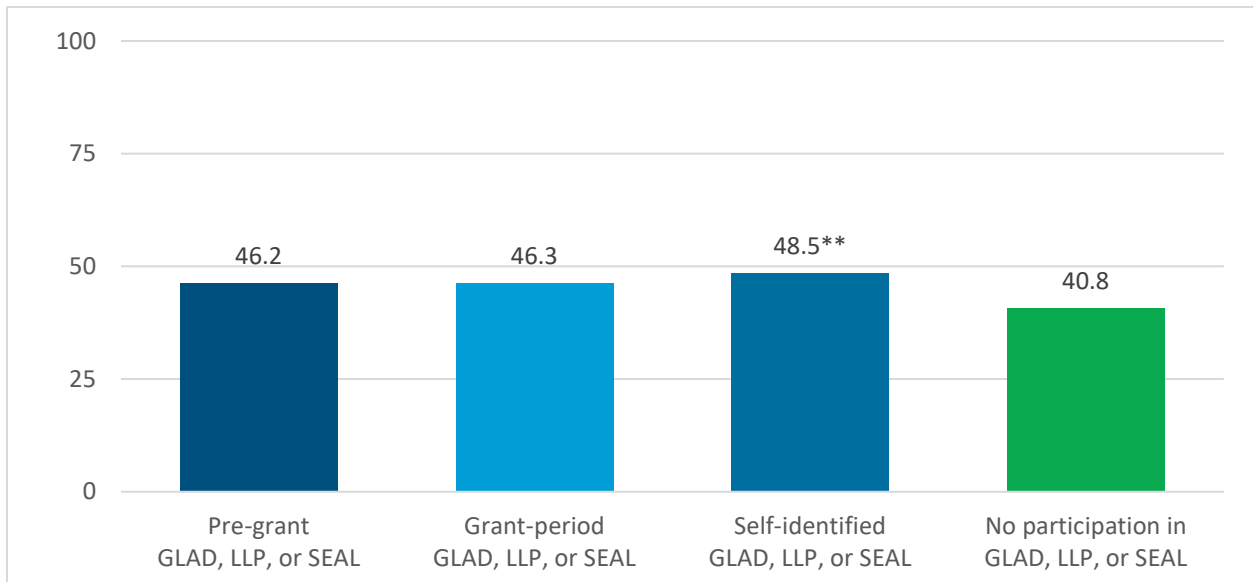
There were no significant differences among any of the groups in their average frequency of strategies in English to support DLLs (Exhibit 14). For the scale on use of general instructional strategies in Spanish, there was one significant difference: the self-identified group reported more frequent use of these strategies than the no-participation group, on average (Exhibit 15). Lastly, for the scale on use of instructional strategies in Spanish to build English, the grant-period and self-identified groups both had significantly higher values than the no-participation group (Exhibit 16).

Exhibit 14. Average Frequency of Strategies in English to Support DLLs



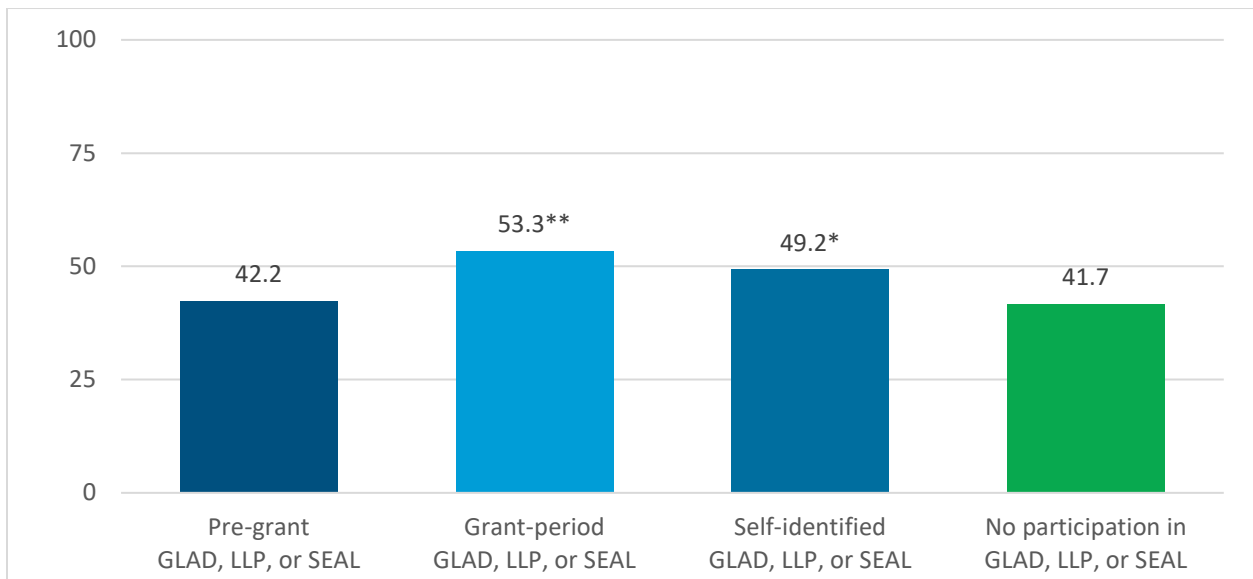
Note. Asterisks indicate a significant difference between the marked group and the no-participation group. *p<0.05; **p<.01; ***p<.001. The possible values of the scale range from 0 (*never* for all 14 items) to 100 (*all the time/every day* for all 14 items).

Exhibit 15. Average Frequency of General Instructional Strategies in Spanish



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. *p<0.05; **p<.01; ***p<.001. The possible values of the scale range from 0 (never for all 14 items) to 100 (all the time/every day for all 14 items).

Exhibit 16. Average Frequency of Strategies in Spanish to Build English



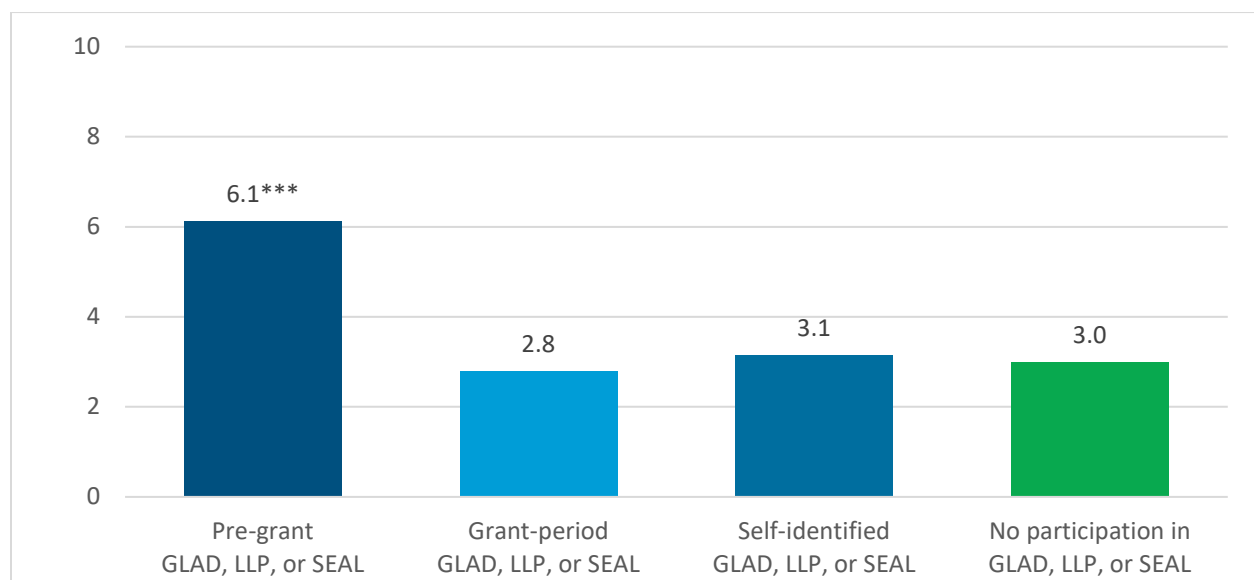
Note. Asterisks indicate a significant difference between the marked group and the no-participation group. *p<0.05; **p<.01; ***p<.001. The possible values of the scale range from 0 (never for all three items) to 100 (every day for all three items).

Books in Spanish. We also wanted to know whether the PD groups differed in the number of books in Spanish available to DLLs from Spanish-language backgrounds. The survey asked teachers

how many Spanish-speaking DLLs were in their classroom and how many books in Spanish their classroom had. From the responses to these two questions, we calculated the number of books in Spanish per DLL of Spanish language background, as reported by each teacher.

As shown in Exhibit 17, the pre-grant group reported having significantly more books in Spanish (per DLL of Spanish language background) than the no-participation group. The pre-grant group also had significantly more such books than the grant-period group ($p < .01$, not shown on graph) and the self-identified group ($p < .001$, not shown on graph). In other words, the pre-grant group had more books in Spanish per DLL of Spanish language background than each of the other three groups. Whereas the pre-grant group had an average of about six books in Spanish per DLL of Spanish language background, the other three groups each reported having only half as many—about three, on average, in each group.

Exhibit 17. Average Number of Books in Spanish Per DLL of Spanish Language Background



Note. Asterisks indicate a significant difference between the marked group and the no-participation group.

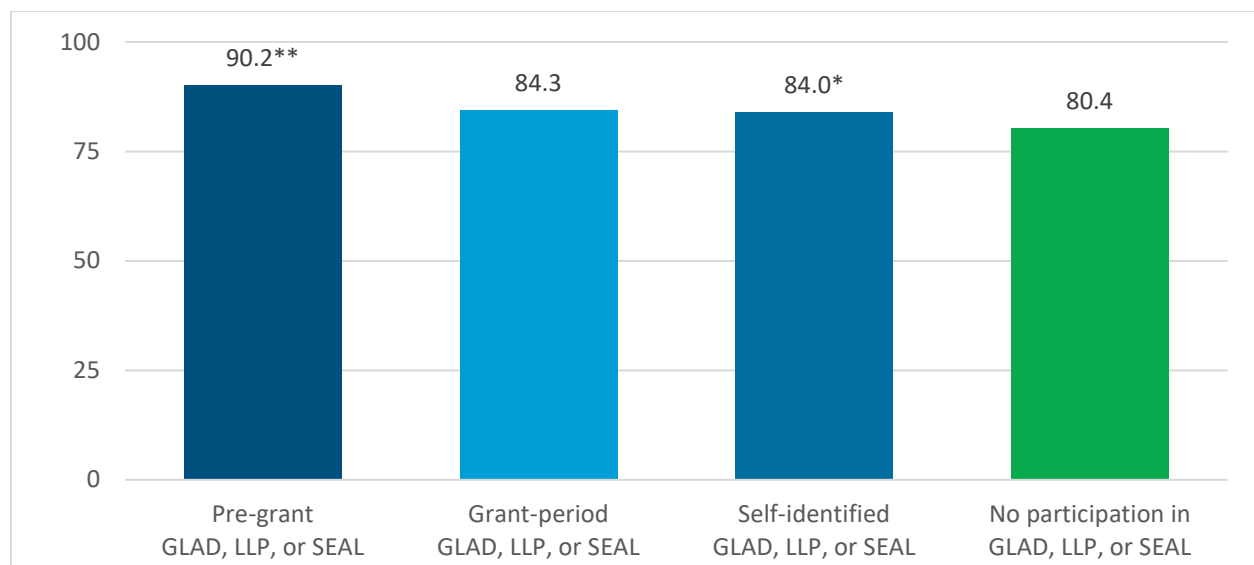
* $p < 0.05$; ** $p < .01$; *** $p < .001$.

General Strategies for DLLs. The last of the constructs we examined as part of RQ 4 pertains to the use of strategies for DLLs that are not tied to a specific language. The survey asked about eight such strategies; examples include use of gestures to convey meaning, use of hands-on materials like objects and pictures, and activities exploring children’s family backgrounds and cultures (see Exhibit A4 in Appendix A for a full list of items included in this measure). For each of the eight strategies listed, teachers reported whether they used it *never*, *a few times a year*, *a few times a month*, *a few times a week*, or *every day* (coded as 0, 5, 20, 50, and 100, respectively). For each teacher, we averaged the values across all eight items to arrive at a

single number for the teacher; a score of 100 would represent doing all eight of the practices every day. This measure was moderately reliable (Cronbach’s alpha of 0.75).

Use of these general strategies was very frequent in all four groups, with the group averages ranging from 80 for the no-participation group to 90 for the pre-grant group (Exhibit 18). The pre-grant group and the self-identified group both reported using general strategies significantly more often, on average, than the no-participation group. Although the grant-period group had about the same average frequency as the self-identified group—in fact slightly (though not significantly) larger—the difference between the grant period group and the no-participation group was not statistically significant. This is likely at least in part because of the small size of the grant-period group and the much larger size of the self-identified group.

Exhibit 18. Average Frequency of Use of General Strategies for Working With DLLs



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. The possible values of the scale range from 0 (*never* for all eight items) to 100 (*every day* for all eight items).

Summary. The findings from the instructional models show some interesting patterns, mostly favoring the pre-grant group. Specifically, as compared to the no-participation group, the pre-grant group used more Spanish (and less English), had more books in Spanish, and engaged more frequently in general strategies for DLLs. In addition, we found that the self-identified group used general strategies in Spanish more often than the no-participation group and that the grant-period group used strategies in Spanish to build English more often than the no-participation group. These findings suggest that teachers who participated in GLAD, LLP, or SEAL (pre-grant, grant-period, and self-identified) were engaging in more DLL-supportive instructional practices than the no-participation group.

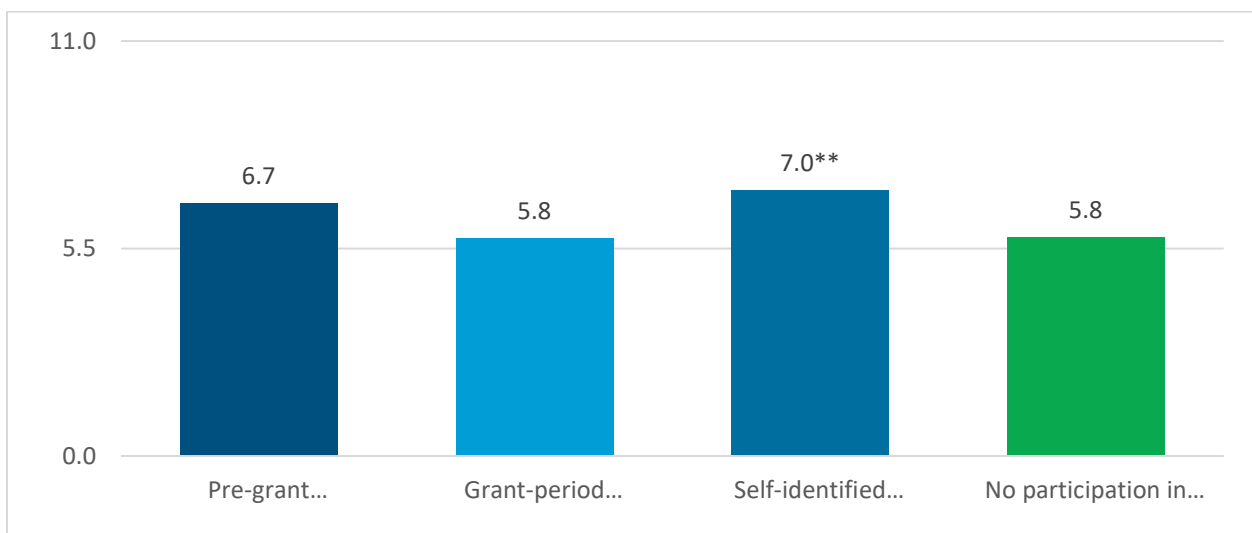
RQ 5: Is there a relationship between teachers' participation in the grantee programs and their use of strategies for engaging with the families of DLLs?

To understand relationships between PD participation and use of family engagement practices with families of DLLs, we examined the following aspects of family engagement: (a) gathering information from families, (b) engaging families in the classroom, and (c) sending materials home to families. Each construct is described in the following subsections, along with findings.

Gathering Information From Families. The survey presented teachers with a list of 11 possible types of information about families (e.g., language spoken at home, amount of English spoken at home, the child's dominant language, parent's language goals for the child) and asked them to indicate which ones they or other staff gathered upon a child's entry to the early learning and care program or the teacher's classroom (see Exhibit A5 in Appendix A for a full list of items included in this measure). Our analytical measure is an index (sum) of the number of information types checked, ranging from 0, meaning that none of the information types were collected, to 11, meaning that they all were collected, for each teacher.

As shown in Exhibit 19, the self-identified group collected information on a significantly higher number of topics—seven, on average—than both the no-participation group and the grant-period group ($p < 0.05$, not shown in graph), which both collected just under six types of information, on average. The pre-grant group gathered almost as many information types (6.7) as the self-identified group, but the difference between the pre-grant group and the other groups was not large enough to register as significant.

Exhibit 19. Average Number of Language-Related Topics About Which Information Is Collected at Intake (of 11)

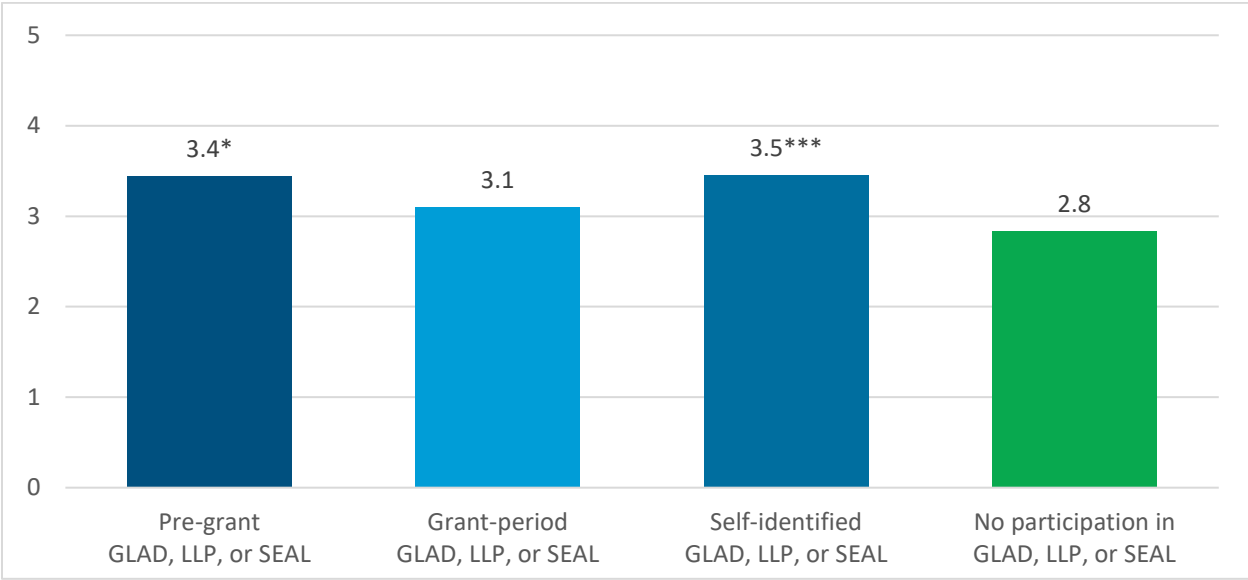


Note. Asterisks indicate a significant difference between the marked group and the no-participation group. * $p < 0.05$; ** $p < .01$; *** $p < .001$.

Engaging Families in the Classroom. We also asked teachers how they involved DLLs’ families in the classroom. The survey presented respondents with a list of five possible engagement strategies (e.g., inviting parents to visit the class and use their home language with the children; inviting them to share pictures or cultural objects; or making them feel welcome in the classroom) and asked them to indicate which of the strategies they or other classroom staff used (see Exhibit A6 in Appendix A for a full list of items included in this measure). We summed the number of strategies indicated by each teacher, creating an index ranging from 0 (*none of the strategies*) to 5 (*all the strategies*).

The no-participation group indicated use of just under three of the five strategies, on average, while the other three groups each averaged more than three. As shown by the asterisks on the first and third bars in Exhibit 20, the pre-grant group and self-identified group, respectively, were significantly different from the no-participation group, reporting the use of more classroom-based family engagement strategies, on average, than the no-participation group. No other significant differences between groups were detected.

Exhibit 20. Average Number of Strategies (of 5) for Involving Parents in the Classroom



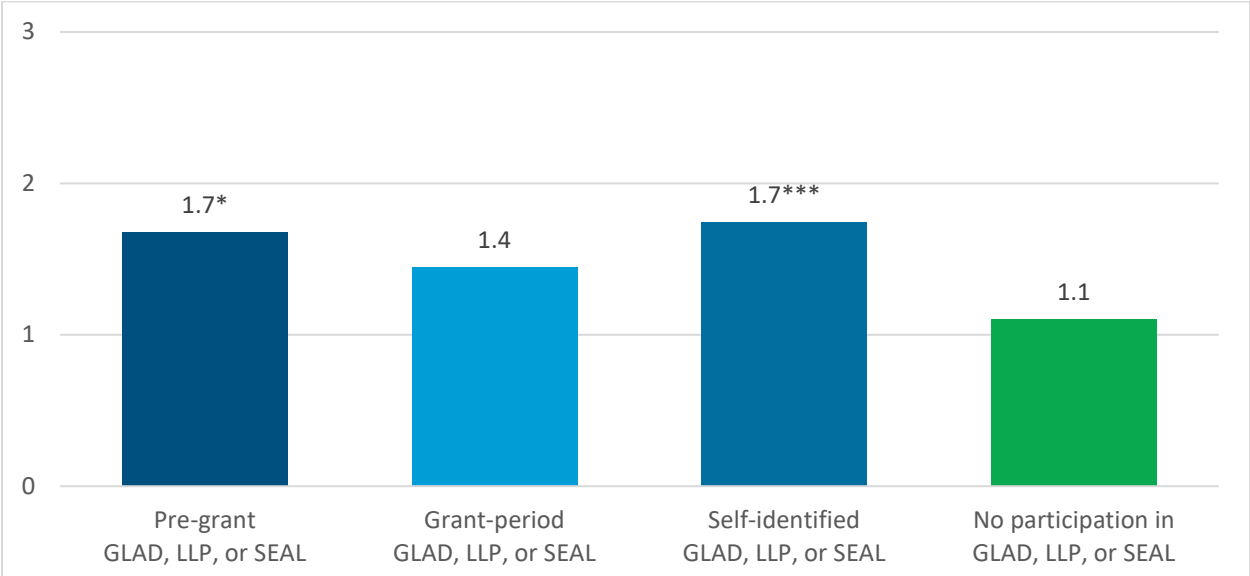
Note. Asterisks indicate a significant difference between the marked group and the no-participation group. *p<0.05; **p<.01; ***p<.001.

Sending Materials Home to Families. Lastly, we asked teachers about the types of materials they sent home to families of DLLs. Teachers reported on three different types of materials: (a) activities/suggestions for how parents of DLLs could support their child’s English language development, (b) activities/suggestions for how parents of DLLs could support their child’s home language development, and (c) reading and information on the benefits of bilingualism.

Again, we summed the number of materials each teacher indicated sending home, resulting in an index running from 0 to 3.

All four groups averaged sending home between one and two of the material types, ranging from 1.1 for the no-participation group up to 1.7 for both the pre-grant group and the self-identified group (Exhibit 21). The pre-grant group and the self-identified group both sent home significantly more types of materials than the no-participation group. As with the previous measure, there were no other significant differences among groups.

Exhibit 21. Average Number of Types of Materials Sent Home (of 3)



Note. Asterisks indicate a significant difference between the marked group and the no-participation group. * $p < 0.05$; ** $p < .01$; *** $p < .001$.

Summary. For all three aspects of family engagement, the self-identified group seemed to be engaging with families in more ways than the no-participation group. The pre-grant group performed better, statistically speaking, than the no-participation group on two of the three measures—engaging families in the classroom and sending materials home—but not on the types of information gathered. The grant-period group, meanwhile, generally had average values between those of the no-participation group and those of the other two groups, and only on one of the three measures (collecting information from families) did it have a statistically significant difference with any of the other groups.

Additional Analysis: Relationship Between Amount of DLL-Related PD and Outcomes

In addition to examining the effects of PD *group* on the outcomes of interest—confidence/attitudes, instructional practices, and family engagement strategies—we also explored whether the overall amount of DLL-related PD teachers had received was associated with these outcomes, *over and above* any effect of group membership. To do this, we ran an additional set of statistical models that were identical to those described previously except that they included one more predictor: the measure created as part of RQ 2 that gauged the amount of DLL-related PD teachers had received.

The amount of PD significantly predicted nine of the 13 outcomes. Specifically, receiving greater amounts of DLL PD was associated with the following:

- Greater confidence in supporting Spanish-speaking DLLs and greater likelihood of expressing pro-bilingual attitudes
- More frequent use of general instructional strategies in Spanish, strategies in Spanish to build English, and general strategies for working with DLLs
- Less frequent use of strategies in *English* to support DLLs
- Gathering more types of information from families, using more strategies to engage families in the classroom, and sending more types of materials home

All of the relationships were significant at the $p < 0.001$ level except for pro-bilingual attitudes, for which the significance level was $p < 0.05$.

Although there were a small number of exceptions, the inclusion of the amount of DLL-related PD in the statistical model tended to reduce the magnitude of differences among the four PD groups, and in most cases, group differences that were originally detected without including the amount of PD were no longer significant when it was added. In other words, when we accounted for the amount of PD teachers received, group differences across teacher outcomes were less apparent, suggesting that the specific PD group teachers were in (pre-grant, grant-period, self-identified, or no-participation) mattered less for practice than the overall amount of DLL-related PD teachers had received. For instance, there was no longer a significant difference between the pre-grant group and the no-participation group on the confidence measure. This finding does not necessarily mean that participation in the GLAD, SEAL, and LLP programs did not improve outcomes such as teachers' confidence; rather, it could be that the *mechanism* by which these programs helped improve teachers' practice was the amount of DLL-related PD they received.

In making sense of this finding, it may be useful to bear in mind that teachers in the no-participation group may still have had *some* DLL-related PD (presumably from sources other than GLAD, LLP, or SEAL, maybe as part of more-general PD offerings)—they just had *less*, on average, than teachers in the other three groups (Exhibits 3, 4, and 5). Although we saw in many cases that the pre-grant group, the grant-period group, or the self-identified group had significantly better outcomes than the no-participation group, these differences may largely have been driven by teachers in the no-participation group who had very little DLL-related PD. But when we include the amount of PD in the statistical model, we are effectively comparing teachers, across all four groups, who had *similar* levels of PD. Hence, it may not be surprising that we no longer observe group differences for some of the outcomes.

Implications and Conclusions

In California and across the country, early learning and care programs serve a large and growing population of DLLs. Yet without adequate training for educators, DLLs do not receive the instruction and linguistic supports that enable them to develop—and reap the full benefits of—bilingualism (Jacoby & Lesaux, 2017; Sawyer et al., 2016). From prior research, we have initial limited evidence to indicate that DLL-related training has the potential to improve teacher practices and student outcomes for DLLs (Buysse et al., 2010; Castro et al., 2017). Building on that work, this study offers additional evidence for the role of DLL-related PD in supporting teacher beliefs and practices that serve DLLs. Overall, findings from this study suggest that participating in DLL-specific, job-embedded PD that focuses on a wide array of content, including language instruction, culturally responsive pedagogy, family engagement, and assessment, is related to teacher beliefs and practices that support DLLs. Specifically, we found the following:

- ***Teachers who participated in GLAD, LLP, or SEAL (either as part of the DLL-PD grant program or earlier) not only received more DLL-related PD than other teachers but also reported needing less additional PD.*** The PD groups (pre-grant, grant-period, and self-identified) generally reported having had more DLL-related PD, overall and by specific PD topics and formats, than the no-participation group. In addition, the pre-grant and grant-period groups were less likely to report needing a lot of additional PD (though many still reported needing at least some additional PD).
- ***Teachers who participated in GLAD, LLP, or SEAL prior to the DLL-PD grant program were less likely to express English-centric views and had higher levels of confidence in teaching DLLs.*** Although all groups had similar levels of “pro-bilingual” attitudes, the pre-grant group

had significantly less of an English-centric view than all three of the other groups. The pre-grant group also had significantly higher confidence than the no-participation group.

- ***Teachers who participated in GLAD, LLP, or SEAL more frequently used evidence-based instructional practices, especially teachers who received the PD prior to the DLL-PD grant program.*** Compared to teachers in the no-participation group, teachers in the pre-grant group were generally more likely to report engaging in instructional practices shown in previous research to be beneficial for DLLs. Specifically, the pre-grant group used more Spanish (and less English), had more books in Spanish available for DLLs with Spanish language backgrounds, and engaged more frequently in general strategies for DLLs than to the no-participation group. The grant-period group, meanwhile, used strategies in Spanish to build English more often than the no-participation group.
- ***Teachers who participated in GLAD, LLP, or SEAL demonstrated more family engagement practices than those who did not receive this PD.*** Specifically, the pre-grant group reported more classroom-based engagement and sending home more materials to families of DLLs than the no-participation group; the grant-period group reported collecting more information from families than the no-participation group.
- ***The extensiveness of DLL-related PD teachers receive may be the main driver of their use of evidence-based practices with DLLs and their families.*** Across all three outcome domains, the scale gauging the amount of teachers' DLL-related PD—in terms of both quantity and the range of DLL-related topics covered—tended to be a highly significant predictor, often diminishing group effects. In other words, the extensiveness of the PD that teachers received may have been more important than the specific PD program that teachers participated in.

As this summary shows, across all of the outcome topics, we found positive results for teachers who received the DLL-focused PD, but differences were most marked for the pre-grant group (those receiving GLAD, LLP, or SEAL *prior* to the DLL-PD grant program), compared to the other groups, and especially the no-participation group. The grant-period group was not as consistently different from the no-participation group.

These findings do not necessarily mean that the PD delivered during the DLL-PD grant program was not as effective as it was prior to the DLL-PD grant program, however. There are a few possible reasons for why the findings emerged as they did:

- ***Effect of Time.*** Teachers who participated in the PD program *prior* to the grant period may have had more time to reflect on, make sense of, and apply to their practice the information they learned than those who just recently received the training. Thus, there may be a lagged effect of time for PD participation to influence practice.

- **Ongoing PD.** Teachers in the pre-grant group may also have had continued PD opportunities to improve their practice over time, beyond their initial participation in GLAD, LLP, or SEAL. These opportunities may have included follow-up activities (e.g., coaching, mentoring) as part of their initial participation in one of these programs or other PD opportunities outside of those programs. They may have continued to enhance their skills and knowledge after their initial PD participation, which may explain why they consistently performed better on the outcomes of interest in this study.
- **Effect of COVID-19 Pandemic.** Given that the PD programs that received DLL-PD funds were still in the process of delivering PD to educators when the COVID-19 pandemic hit in March 2020, the original plan for PD delivery was disrupted (not to mention the massive effects of the pandemic on typical classroom practice). Therefore, the PD may not have been delivered exactly as intended (which was, in fact, indicated in our follow-up interviews with the PD developers). In addition, although the teacher survey asked about teachers' practice *prior* to the COVID-19 pandemic, they completed the survey after the pandemic disruptions had begun, and their recollections may have been imperfect. Moreover, the grant-period teachers, in particular, may not have had enough time prior to the pandemic to implement what they had learned in the PD, thus their survey responses may have reflected more of their pre-PD classroom practice.

Co-Interpretation With Grantees. We reviewed the findings in co-interpretation meetings with representatives from GLAD, LLP, and SEAL. We met separately with each grantee to review the overall study findings as well as descriptive results specific to their program. The following key themes and points, which may help provide context and potential implications for the findings described in this report, emerged from these meetings:

- **High confidence ratings observed across all groups do not necessarily indicate high levels of knowledge or skill.** Grantees noted that confidence levels (in supporting Spanish-speaking DLLs) were quite high across all groups, regardless of the PD received. The importance of interpreting this result with caution resonated with the grantees because even if teachers express confidence, they may not be implementing the desired instructional strategies with quality and efficacy. In discussions with grantees, we also heard the possible interpretation that “you don’t know what you don’t know,” which may explain why even those who did not receive high levels of PD expressed generally high levels of confidence; they may not have been aware of the additional learning needed to effectively support DLLs.
- **Findings and interpretation may vary based on a classroom’s or program’s language model.** When discussing the findings on instructional practices as they related to English and Spanish language use among teachers in this study, multiple grantees brought up the

point that this may be influenced by the language model in use in their classroom or at their early learning and care program. For example, in reflecting on why English use was higher than Spanish use, one grantee mentioned that their program trained very few teachers from dual language programs. Findings should be contextualized in different program models to help determine whether the instructional practices as measured in this study are appropriate for the language model in use at any given site.

- ***Obtaining more books in Spanish is an actionable step.*** All grantees reflected on the findings related to the number of books in Spanish in their classroom. One grantee noted that they were unable to deliver Spanish books to their teachers (as they ordinarily do) due to the COVID-19 pandemic. Another grantee group observed that the average number of Spanish books among their teachers looked low and indicated that ensuring that classrooms in their program have access to high-quality books in Spanish would be an easy action step emerging from the study results. We also discussed the importance of not just having books in Spanish but making sure that they are culturally reflective of and accessible to the children in their classroom and that they are actually used in the classroom. This finding seemed useful for all three grantee programs.
- ***Family engagement was associated with PD participation and is increasing as an area of focus for the PD programs.*** Regarding the findings that PD participation was often positively associated with family engagement practices, particularly for the pre-grant group, all grantees highlighted recent efforts to increase the amount of content in their PD on how to work with and engage families of DLLs. One grantee reflected that this was one of the study's most encouraging findings and is in line with what they have seen and heard, especially from parents who have shared how beneficial they find their engagement with their children's teachers and early learning programs. Another grantee reflected that they have also built family engagement activities into the PD units, as part of their PD program curriculum, which may help teachers implement positive strategies with families. Therefore, the findings from the study seem to align with increased PD program efforts related to family engagement.
- ***More focus is needed on assessment.*** Grantees commented on the importance of assessment, given that this was a topic on which fewer teachers reported receiving PD. Two grantees mentioned they have some content on this, particularly as it relates to the DRDP, but reflected that there is definitely opportunity to add more, particularly in the realm of formative assessment. Overall, all grantees expressed interest in and the need to increase opportunities to discuss assessment in their programs.

Limitations. A few limitations of this analysis are important to acknowledge. First, findings from this study are purely correlational and reflect teacher reporting at one point in time. We did not

conduct an experimental study with randomly assigned teachers and a pre-post design, which would have allowed for examining causal impacts of PD participation and change in teacher outcomes over time. Future work to conduct a more rigorous study that could generate stronger conclusions may be warranted as a next step.

In addition, although we looked descriptively at each of the three individual grantee programs, the findings presented in this report are based on analyses that combined teachers across the programs. We acknowledge that the programs differ from one another in ways that could potentially influence outcomes, but the small sample size of each program did not allow for statistical analysis at the level of the individual grantee program and valid inferences about how the three programs might differ from one another in their effects.

Lastly, several of the outcomes we analyzed are specific to Spanish and DLLs from Spanish language backgrounds. This approach was largely due to limited variation in the language backgrounds of the DLLs in the classrooms of the teachers in our sample (very few grant-program teachers reported teaching DLLs of languages other than Spanish) and in the languages that the teachers themselves reported speaking. Future work may focus on PD for teachers with more DLLs from language backgrounds other Spanish.

Conclusion. This study provides an important opportunity to understand the potential benefits of California's unprecedented investment to provide DLL-focused PD to educators in the state. The findings do suggest that participation in PD can be beneficial for teacher practice and approaches to working with DLLs and their families. In addition, the widespread interest in receiving additional PD related to supporting DLLs across all groups in our study reflects a need for ongoing professional learning for all teachers. Given the large and growing population of young DLLs in California and across the country, PD can help ensure that teachers are adequately prepared to work with DLLs. Questions about how much and how frequently PD needs to occur in order to reap the benefits is also another important consideration for both researchers and program administrators to explore more deeply. Given the study findings, we hope there continues to be investment in both delivery of and examination of the effects of DLL-specific PD.

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Appendix A

Handling of Missing Data

Four of the teacher background characteristics used as controls in our statistical models—years of experience, certification, proficiency in English, and proficiency in Spanish—had small amounts of missing data (Exhibit A1). We imputed values as follows:

- Years of experience: average (mean) value within PD group
- Certification: 0 (i.e., no-DLL-related certification)
- English proficiency: average (mean) value within PD group
- Spanish proficiency: average (mean) value within PD group

The statistical models included 0/1 indicators of missingness for each of the four variables. (For the certification variable, this indicator had the effect of treating “missing” as its own category.)

Exhibit A1. Percentage of Teachers Missing Background Data, by Group

| Background Characteristic | Pre-Grant Participation in GLAD, LLP, or SEAL (n = 30) | Grant-Period Participation in GLAD, LLP, or SEAL (n = 49) | Self-Identified Participation in GLAD, LLP, or SEAL (n = 116) | No Participation in GLAD, LLP, or SEAL (n = 310) |
|---|--|---|---|--|
| Missing data on years of experience teaching young children | 3% | 6% | 7% | 5% |
| Missing data on CLAD, BCLAD, or TEFL/TESOL certification | 0% | 6% | 6% | 5% |
| Missing data on proficiency in English | 3% | 6% | 5% | 5% |
| Missing data on proficiency in Spanish | 3% | 6% | 6% | 6% |

In addition, 16 (3%) of the 505 teachers were missing a value for the scale gauging the amount of DLL-related PD teachers had received: two teachers each in the first three groups and 10 in the no-participation group. These values, too, were imputed with the within-group average, and the analysis models that included the amount-of-PD measure also included an indicator of missingness for this measure.

We did not impute values for the outcome measures examined as part of RQs 3–5. Teachers who were missing values for those outcomes are omitted from the analysis.

Survey Items Constituting Selected Outcome Measures

Exhibit A2. Use of Instructional Strategies in English to Support DLLs

How often do YOU YOURSELF use ENGLISH in the classroom for each of the following purposes?

(Never, Occasionally, Often, All the time)

- For instruction (e.g., during lessons or play to provide content and guide learning)
- For routines or behavior management (e.g., asking children to sit down or wash their hands; solving conflicts between children)

How frequently do YOU YOURSELF do each of the following with DLL children, *using English*, in the [CLASSROOM] classroom?

(Never, A few times a year, A few times a month, A few times a week, Every day)

- Read books in English with DLLs (with or without other children)
 - Sing songs in English with DLLs (with or without other children)
 - Work with DLLs on English letter identification/sounds
 - Work with DLLs on other aspects of early English literacy (e.g., book knowledge, early print concepts)
 - Work with DLLs on English oral language development (e.g., extending child talk, asking questions to encourage child talk, modeling correct language use)
 - Work on building DLLs' English vocabulary
 - Work on building DLLs' English vocabulary specifically related to *math*
 - Work on building DLLs' English vocabulary specifically related to *science*
 - Work on building DLLs' English vocabulary specifically related to social-emotional concepts (e.g., emotion words, expressing feelings)
 - Speak English one on one with DLLs to build their English language skills
 - Speak English one on one with DLLs to support their general learning
 - Speak English one on one with DLLs to provide social-emotional support (e.g., comforting them)
-

Exhibit A3. Use of General Instructional Strategies in Spanish

How often do YOU YOURSELF use SPANISH in the classroom for each of the following purposes?

(Never, Occasionally, Often, All the time)

- For instruction (e.g., during lessons or play to provide content and guide learning)
 - For routines or behavior management (e.g., asking children to sit down or wash their hands; solving conflicts between children)
-

How frequently do YOU YOURSELF do each of the following in the [CLASSROOM] classroom, *using Spanish*, to work with Spanish-speaking DLLs on their *Spanish* language development?
(*Never, A few times a year, A few times a month, A few times a week, Every day*)

- Read books in Spanish with Spanish-speaking DLLs (with or without other children)
 - Sing songs in Spanish with Spanish-speaking DLLs (with or without other children)
 - Work with Spanish-speaking DLLs on Spanish letter identification/sounds
 - Work with Spanish-speaking DLLs on other aspects of early Spanish literacy (e.g., book knowledge, early print concepts)
 - Work with Spanish-speaking DLLs on Spanish oral language development (e.g., extending child talk, asking questions to encourage child talk, modeling correct language use)
 - Work on building Spanish-speaking DLLs' general Spanish vocabulary
 - Work on building Spanish-speaking DLLs' Spanish vocabulary specifically related to *math*
 - Work on building Spanish-speaking DLLs' Spanish vocabulary specifically related to *science*
 - Work on building Spanish-speaking DLLs' Spanish vocabulary specifically related to social-emotional concepts (e.g., emotion words, expressing feelings)
 - Speak Spanish one on one with Spanish-speaking DLLs to build their Spanish language skills
 - Speak Spanish one on one with Spanish-speaking DLLs to support their general learning
 - Speak Spanish one on one with Spanish-speaking DLLs to provide social-emotional support (e.g., comforting them)
-

Exhibit A4. Use of General Strategies for Working With DLLs

How frequently do YOU YOURSELF do each of the following in the [CLASSROOM] classroom?
(*Never, A few times a year, A few times a month, A few times a week, Every day*)

- Use body language and gestures to convey meaning when working with DLLs
 - Use pictures, photographs, and objects when working with DLLs
 - Use an interactive schedule (e.g., with pictures and moveable cards/magnets) to help DLLs understand routines
 - Do specific activities that explore children's family backgrounds and cultures
 - Make sure that DLLs have opportunities to interact with English-speaking children (whether in your classroom or not)
 - Intentionally engage DLLs during group time by asking them questions or responding to their comments
 - Group children so that less-experienced English speakers are paired with more-experienced English speakers for activities
 - Plan and implement hands-on learning experiences for DLL children that allow them to connect language to content (e.g., providing sand and tools if exploring words like *digging, sifting*, etc.)
-

Exhibit A5. Number of Language-Related Topics About Which Information Is Collected From Families at Intake

Do you or other staff gather information from families (such as through written forms or in-person meetings) on any of the following topics when children join the childcare site or the [CLASSROOM] classroom?

(Checkbox format)

- What language(s) are spoken at home
 - Amount of English spoken at home
 - Amount of home language spoken at home
 - Child's dominant language (i.e., the language the child feels most comfortable in)
 - Age at which child was first exposed to English
 - Parents' country/countries of origin
 - Household composition (for example, whether household is multi-generational with grandparents, etc.)
 - Family's cultural background
 - Parents' language goals for child
 - Key words in home language (e.g., for you to use with their children)
 - Parents' reading practices with their children
-

Exhibit A6. Number of Strategies for Involving Parents in the Classroom

Do you or other classroom staff use any of the following strategies in your classroom to engage the families of DLL children?

(Checkbox format)

- We invite parents and other family members who speak the home languages of the children to come to class and use those languages in activities (e.g., book reading) with the children.
 - We ask parents, especially DLL parents, to share pictures of their families to display in the classroom.
 - We invite parents of DLLs to share objects or activities specific to their cultural backgrounds.
 - We put in extra effort to make parents who speak a language that we do NOT speak or understand feel welcome in the classroom.
 - We invite parents of DLLs to suggest ideas for classroom activities.
-

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