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Evaluation of LAUSD's Instructional Technology Initiative

Year 2 Report

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1. Introduction

Under its Instructional Technology Initiative (ITI), the Los Angeles Unified School District (LAUSD) sought to provide educators and students with technology devices, curriculum tools, and supports that will transform teaching and learning. Phase 1 of the project began in August 2013, with the delivery of iPad tablets to 47 schools. During the 2014–15 school year, the district moved ahead with Phase 2 of the project in 38 schools, 11 of which received iPads and 26 of which did not receive devices for reasons that will be explained. Also during 2014–15, the district launched Phase 1L, involving 19 high schools that selected computing devices from among three different options. The external evaluation of the project, conducted by American Institutes for Research (AIR), addressed the implementation and outcomes of the program. This is the second and final evaluation report. The Interim Report, delivered in September 2014, described the district's implementation of the initiative and school experiences with technology use in Year 1 (2013–14). This Year 2 Report evaluates the district's progress with acting upon recommendations from the Interim Report, district implementation of the initiative with respect to anticipated targets, and school progress with supporting technology integration and using technology in the classroom.

This introduction describes the ITI and how it has changed over the past two years and provides an overview of the evaluation questions, methods, and objectives. It is followed by Chapter 2, which describes the district's implementation of the initiative's major components. Chapter 3 describes technology use in ITI schools, and to a lesser extent non-ITI schools. Chapter 4 describes findings from case studies in 11 schools depicting their efforts to support technology integration and their experiences with the initiative. Finally, Chapter 5 summarizes the findings, provides recommendations, and discusses the implications of the evaluation for the district's support of technology integration.

1.A. Description of ITI

This section describes ITI's major goals, phases, participants, and activities.

Project Goals and Components

The implementation of ITI began in 2013, when it was called the Common Core Technology Project. The district expressed the following goals for the initiative:[1]

- *Provide educators with tools (devices) to advance student learning and create learning spaces that are designed to increase learner engagement.*
- *Support the Common Core State Standards implementation by providing all students with the opportunity to engage with digital curricula, interactive supports, and adaptive assessments.*
- *Close the "digital divide" by ensuring that all students have access to 21st century technology.*

The district implemented these goals by providing technology resources to schools, adopting policies and procedures to ensure the safety of students, and committing resources to support school leaders and teachers in using the technology for instruction. We first summarize the

[1] Goals were stated in a presentation to the LAUSD Board of Education on September 25, 2013.

district's approach to implementing the initiative in the 2013–14 school year, and then note changes to the initiative in 2014–15.

Summary of Initiative in 2013–14 (Year 1)

The district began implementing Phase 1 of the initiative in the 2013–14 school year (Year 1) in 47 schools. Housed in the Office of Curriculum, Instruction, and School Support (OCISS) the initiative included a number of staff from this office joined by personnel from the Information Technology Division (ITD). The district funded the initiative with public bond funds. The major approaches of the initiative and key findings from Year 1 included the following:

- **Technology Resources.** The district established a contract with Apple Computer to purchase iPads bundled with a variety of apps, including digital curriculum resources developed by Pearson Education. These curriculum resources, referred to as the Common Core System of Courses (CCSoC), included lessons, content, assignments, and assessments aligned to the Common Core State Standards in mathematics and English language arts (ELA). *The Year 1 evaluation found that, according to school and district staff, the Pearson curriculum materials were not yet complete.*
- **Instructional Support.** Internal district staff and the external vendors (Pearson and Apple) provided professional development. The vendors provided two- to three-day professional development sessions to teachers at the beginning of the 2013–14 school year. The district also provided monthly workshops for principals and other school leaders to support their school-based leadership of the initiative. The district hired 14 virtual learning complex facilitators (VLCFs) to provide a variety of types of support to staff as they learned how to use the devices and digital resources to support instruction. However, due to restrictions on the use of bond funds, the VLCFs could not provide instructional support to teachers. Therefore, their role was limited to providing operational support (e.g., preparing schools to receive devices) and supporting school leaders. *The Year 1 evaluation found that educators required more robust professional development and support for technology integration into instruction. Professional development workshops were introductory, and VLCFs seldom had an opportunity to provide support for technology integration into classroom instruction.*
- **Technical Support.** The district provided technical support through 14 on-site microcomputer support assistants (MCSAs) and through the district's IT HelpDesk. During Year 1, both VLCFs and MCSAs participated in the process of device deployment, during which they set up, assigned, and distributed devices to students on a school-by-school basis. *The Year 1 evaluation found that the district had not yet developed a robust system for technical support; many schools reported a lack of access to support or insufficiently timely responses to help requests.*
- **Safety and Security.** The district engaged in several efforts to ensure student safety and device security. Following a widely publicized incident in fall 2013 in which 185 students in three high schools disabled the Internet filters on their devices, the district implemented two policies to ensure student safety. First, the district restricted devices to campus to be able to monitor devices more closely. Second, the district used software to monitor devices and ensure that security settings and content filters are in accordance with district policy. The district also developed Digital Citizenship materials aimed at

students, parents, and school staff to promote awareness and education about navigating an online environment safely and responsibly.

- **Communications About the Project.** Communication with schools consisted of monthly principals' meetings, phone conferences and e-mails with principals, and a monthly newsletter. *The Year 1 evaluation found that school staff lacked clear information about the initiative with respect to the vision for how technology should be used, when devices would be deployed, and whether students would be able to take them home.* As for communicating with the public at large, several aspects of the project have been the subject of public scrutiny, such as the use of public bond funds, selection of a single vendor and device platform, and breaches in device security. To better address public concerns, the LAUSD Joint CCTP Communications Task Force created several communication vehicles to explain the initiative, including a project website, a monthly newsletter, and several hourlong programs produced by LAUSD and aired on public television. *The Year 1 evaluation found that, in the opinion of district leaders, communication efforts needed to be more proactive in explaining the vision and purpose of ITI to the public at large.*
- **Participating Phases.** In Year 1, the district planned to implement the initiative in three phases, although implementation occurred mainly in one of the three.
  - Phase 1 involved 47 schools (19 elementary, 9 middle, 14 high, and 4 span schools) whose teachers received devices between August and September 2013 and whose students received devices between August 2013 and January 2014.
  - Phase 2 schools included 38 elementary and middle schools using iPads bundled with the CCSoC. The district procured devices for 11 of the 38 Phase 2 schools by the end of the school year. These devices were distributed in five of the 11 schools toward the end of the school year (April 2014).

Summary of Initiative in 2014-15 (Year 2)

During Year 2, the initiative expanded in scope to include 101 schools participating as part of four distinct phases:

- Phase 1 included 44 of the 47 schools from continued from the previous year (20 elementary, 8 middle, 12 high, and 4 span schools); the remaining three schools closed prior to Year 2. Their devices were stored in a central location over the summer of 2014 and redistributed starting in August 2014.
- Originally, Phase 2 included 38 elementary and middle schools that were to receive iPads in Year 2. However, the district had procured devices for only 11 of these schools before suspending its contract with Apple. This resulted in two separate phases:
  - Phase 2A included 9 elementary and 2 middle schools, all using iPads that the district procured in Year 1. Students in these schools received their devices in fall 2014.
  - Phase 2B consisted of 27 schools for which the district had not purchased iPads in Year 1. The district suspended its purchasing agreement with Apple in August 2014, leaving these 27 schools without devices to distribute to students. In

November 2014, the district announced the continued rollout for Phase 2B schools. The rollout was deferred to the 2015–16 school year after the FBI launched an investigation (in December 2014) of procurement practices related to ITI. However, teachers in these schools received their iPads (which were purchased prior to the suspension of the Apple contract) and were invited to participate in all professional development (including on-site coaching from VLCFs and technical support from MCSAs, along with support for change management planning). Phase 2B schools will be able to select which type of device to distribute to students in 2015–16.

- Phase 1L represented an attempt by the district to explore the merits of devices besides iPads. This phase included 19 high schools that each selected a mobile computing device from among three choices: the Samsung Chromebook, Lenovo Yoga, and Microsoft Surface. Each came bundled with a different set of curriculum materials[2]. The distribution of devices to Phase 1L began in February 2015 and continued through May 2015. Seven of the Phase 1L schools deferred device rollout until the 2015–16 academic school year.

Table 1 summarizes the number of participating ITI schools by phase and school level in 2014–15.

Table 1. Number of ITI Schools by Phase and Level, 2014–15

	Elementary	Middle	High	Span	Total
Phase 1	20	8	12	4	**44**
Phase 1L	0	0	18	1	**19**
Phase 2A	9	2	0	0	**11**
Phase 2B	17	7	2	1	**27**
Total	**46**	**17**	**32**	**6**	**101**

During 2014–15, the initiative continued most of the approaches from the previous year, but with the following notable additions and changes:

- **Technology Resources.** As mentioned in the description of Phase 1L, during Year 2, the initiative included a range of different mobile devices and curriculum materials besides the iPads bundled with the Pearson CCSoC. In addition, the district completed upgrades of wireless networks across the district (i.e., at ITI and non-ITI schools) with the intention of supporting the 1:1 model of device distribution, in particular to enable all students within a given school to be able to access the Internet simultaneously.
- **Student Safety.** The district initiated a policy allowing students to take home devices when their school met five required components specified in a checklist (detailed in 3A, Technology Use During Year 1). This policy was implemented in one pilot school in November 2014, and 25 additional schools received approval to send devices home in

[2] The Lenovo Yoga was bundled with the CCSoC from Pearson; the Microsoft Surface was bundled with ELA materials from StudySync and mathematics materials from McGraw Hill; and the Samsung Chromebook was bundled with materials from Houghton Mifflin Harcourt.

December 2014 through May 2015. The district enacted policies to make the delivery of Digital Citizenship lessons mandatory.

- **Instructional Support.** In June 2014, the district changed the funding stream to include both bond and general funds, the latter of which were used to fund VLCF efforts for providing instructional support. As a result, in Year 2, VLCFs began to provide on-site coaching and professional development to teachers to support the integration of technology resources instruction. Furthermore, the district increased the number of VLCFs from 14 to 28, and added three staff to serve in a supervisory capacity. The district developed and provided four additional centralized professional development workshops for teachers related to technology integration.
- **Technical Support.** The district expanded the number of MCSAs from 13 to 23. The district offered training to school staff to enable them to assume responsibility for mobile device management (e.g., to add to or delete apps from iPads) and asset management (e.g., to update the location of devices moved to different classrooms).

Table 2 summarizes the major approaches to the initiative by year.

Table 2. Changes to Major ITI Approaches by Year

Major Approaches	Year 1	Year 2
Phases and Schools	47 schools in Phase 1	101 schools: ▪ 44 in Phase 1 ▪ 11 in Phase 2A ▪ 27 in Phase 2B ▪ 19 in Phase 1L
Technical Infrastructure	▪ Schools receive iPads bundled with Pearson CCSoC ▪ Other apps preinstalled	▪ Schools in Phases 1, 2B, and 2B receive iPads with Pearson CCSoC ▪ Schools in Phase 1L select from among 3 devices, each with different curriculum package ▪ Upgrades to wireless networks
Safety Policy	Devices not allowed to go home	Devices go home in 26 schools
Instructional Support	▪ 14 VLCFs support leadership teams ▪ Centralized professional development (PD) focused on device training and use of Pearson app	▪ 28 VLCFs and 3 supervisors support leadership teams and teachers ▪ Centralized PD includes device training and 4 additional day workshops focused on technology integration
Technical Support	▪ 14 MCSAs provide on-site support ▪ IT Help Desk	▪ 23 MCSAs and 9 supervisors provide on-site support ▪ IT Help Desk
Funding source	Bond-funded	Mix of bond funds and general funds

Beyond the developments to these approaches, the district began considering changes to the overall goals and vision for the initiative. Superintendent John Deasy, who set the vision for the initiative and was seen as its leading advocate, resigned in mid-October 2014. His successor, Ramon Cortines, expressed the district's continued commitment to providing technology to students but signaled that the district would reconsider the vision of the initiative. In particular, he stated that the district did not have sufficient funds to continue with the 1:1 model. In early 2015, he announced that the name of the initiative was changing from the Common Core Technology Project (CCTP) to the Instructional Technology Initiative (ITI) in order to emphasize the focus on the use of technology for instruction including and beyond implementation of the Common Core State Standards. Shortly thereafter, Cortines announced the formation of the Instructional Technology Task Force with the goal of setting the district's vision for instructional technology. The task force was expected to issue recommendations for a three-year strategic technology plan in early 2016.

Exhibit 1 provides a timeline of major events involving ITI and district leadership.

Exhibit 1. Timeline of Milestones and Events, August 2014–April 2015

October, 2014: John Deasy resigned as superintendent, and the school board appointed Ramon Cortines as interim superintendent. Superintendent Cortines issued a statement reiterating his commitment to educational technology but suggesting that new funding sources should be explored.
November 2014: LAUSD approved take-home of student devices. The ITI director sent out a readiness checklist for schools intending to send devices home.
November 21, 2014: LAUSD Board of Education approved moving forward with Phase 2B, which included 27 schools.
December 1, 2014: FBI retrieved 20 boxes from LAUSD Facilities Services Division related to an investigation of procurement practices involving CCTP. The superintendent released a statement offering the district's full cooperation with the investigation.
December 2, 2014: Superintendent Cortines postponed rollout of the Phase 2B schools and devices with the stated intent to resume rollout in the 2015–16 school year.
December 9, 2014: LAUSD Board of Education approved allocation of an additional $13 million of bond funds to the CCTP.
February 20, 2015: In a news statement, Superintendent Cortines stated that he did not believe LAUSD had the funds to support a 1:1 technology model and provide devices for every student. He suggested that LAUSD explore other funding resources to curriculum preloaded on devices and evaluate where best to dedicate current resources.
February 2015: Superintendent Cortines changed the initiative name from Common Core Technology Project (CCTP) to Instructional Technology Initiative (ITI). The name change represented the district's reemphasis on the instructional aspects of the initiative, which extend beyond the Common Core.
February 2015: The LAUSD ITI team began to deliver devices to Phase 1L schools. The original timeline expected all Phase 1L to receive devices by April 2014; however, 7 of the 19 Phase 1L schools have deferred rollout until fall 2015 of the 2015–16 school year.
March 23, 2015: The district announced the creation of the Instructional Technology Initiative Task Force headed by Dr. Judy Burton. The task force is serving as an advisory group to develop recommendations for a 3-year strategic plan to guide instructional technology integration in LAUSD.
April 13, 2015: LAUSD sent Apple a letter demanding a refund for the Pearson curriculum that added $200 cost to each iPad. The superintendent's letter asked to recoup the cost of the Pearson licenses.
July, 2015: A memo from Superintendent Cortines to Local District (formerly Educational Service Center) superintendents included the following updates: ▪ The district appointed an interim director for ITI, replacing the director who oversaw the project during the past two school years. ▪ Local districts would now be accountable for supporting schools in managing device inventory and overseeing their instructional technology integration. ▪ All ITI schools would be required to submit a School Instructional Technology plan no later than October 30, 2015. Prior to this date, no school will be permitted to distribute devices to students until it completes and submits the first three of the plan's six sections.

1.B. Overview of Year 2 Evaluation

The Year 2 evaluation followed up on the findings from the Interim Report in three respects. First, it followed up on the district's efforts to act upon recommendations for program improvement included in the Year 1 evaluation report. Second, it evaluated the extent to which the district provided resources and carried out its activities as planned. Third, it tracked school-based efforts to implement support structures for technology integration, and examined classroom-based usage of technology for instructional purposes. The findings about these topics support recommendations to the district for the management of large cross-cutting district initiatives in general, and guidance on management of technology implementation initiatives in particular. The evaluation also identifies and highlights promising school- and classroom-level practices for technology integration.

Implementation Targets

In preparation for the Year 2 evaluation, particularly its second and third purposes, AIR collaborated with LAUSD to develop an implementation matrix that described the major components of the initiative. These components reflected (1) **resources** to be provided by the district, such as computing devices and technical infrastructure; (2) **activities** to be carried out by district staff, such as planning and delivery of professional development and onsite instructional support; and (3) **school supports** to be implemented by school staff with the assistance of the district in order to support technology integration. The implementation matrix defined a target for implementation of the component and the data source for measuring whether the district has met the target. For example, for the component of VLCFs (a resource to be provided), the description is "Each school has access to District instructional support staff (VLCFs)." The implementation target for Year 2 of the initiative was "VLCFs are assigned to provide support to up to 4 schools or 2,499 students." The data source for evaluating this target was the VLCF staff list, provided by the initiative's team lead for VLCFs.

Exhibit 2 lists all components identified by district staff. In Chapter 2, we present implementation findings for those components that addressed the Year 2 evaluation questions (as described in the next section). Within that chapter, we present more detail for these components, including their data sources and implementation targets.

Exhibit 2. ITI Resources, District Activities, and School Supports to be Implemented in Year 2

Resources	District Activities	School Supports
(I) 1:1 computing (iPads, laptops) (II) Technology infrastructure (III) Digital instructional resources (IV) Mobile device management system (V) Asset management system (VI) Learning management system (VII) MCSAs for technical support (VIII) ITD Help Desk (IX) VLCFs (X) Digital citizenship resources	(1) Assessment of schools' readiness: survey, course, checklist (2) School infrastructure enhancements (3) Deployment (4) Asset management (5) Student and Device Safety (6) Mobile Device Management support (install apps, lock devices) (7) Prof. development: technology integration (8) VLCF-led training on technology integration, device use, digital citizenship (9) Change management support & coaching (10) Development of instructional resources (11) Technical support (12) Digital citizenship education (13) Training for principals on change management for technology integration (14) Parent outreach & education (15) Community outreach	(a) Vision and expectations for technology use & teaching practice (b) Leadership team: PD & leadership activities (c) Tech support (designated or external) (d) Tools & time for collaborative lesson development (e) Tools and time for teachers to review & interpret data (f) Staff-led deployment & monitoring (g) Parent education groups

Evaluation Questions

The Year 2 evaluation addressed implementation and experiences of all phases of the initiative (i.e., schools in Phases 1, 1L, 2A, and 2B). The evaluation questions for Year 2 are listed in Exhibit 3. AIR and district staff arrived at these questions after reviewing Year 1 findings and identifying evaluation priorities for Year 2 at the outset of the year. In particular, we articulated a set of six subquestions under Evaluation Question (EQ) 1 that addressed major topic areas of district leadership of the initiative. These subquestions addressed areas for improvement noted in the Interim Report. In addition, we revised the subquestions under EQ 4, pertaining to implementation of school supports, to correspond to the set of school supports anticipated by the district and listed in Exhibit 2.

Exhibit 3. Evaluation Questions for Year 2

1. What is the continuing nature and effectiveness of the district planning and assistance for ITI and other technology-integration programs? What, if any, improvements are recommended to maximize the potential for program success in subsequent years?
    a. **Deployment**: What was the district's approach to deployment? Did the district have sufficient number of staff in different roles to support deployment? Is the current approach to deployment scalable? What was the district's approach to ensuring schools are ready for deployment?
    b. **Safety and Security**: To what extent did the district implement its strategy for ensuring safety of students and security of devices? What were stakeholder concerns, if any? To what extent did the district consider input from stakeholders in developing policies and practices (e.g., device take-home)?
    c. **Coordination With Related Initiatives**: To what extent, and through what channels, did ITI leaders coordinate with district staff leading other instructional initiatives? To what extent was such coordination evident in trainings and professional development?
    d. **Communication**: How was information about the initiative communicated to project stakeholders (school staff, students, parents, and the public at large)?
    e. **Instructional Support**:
        i. What were the professional development plans for Year 2? Were they implemented and utilized as intended?
        ii. What was the district's approach to hiring and training VLCFs for the 2014–15 school year?
        iii. What continual training and support did VLCFs receive from district Leadership to perform their roles and responsibilities?
        iv. Did VLCFs support schools as intended?
        v. Did the district procuring, creating, and distributing digital instructional resources as intended?
        vi. To what extent did the district support schools with organizational change management?
    f. **Technical Support**: What resources did the district dedicate to provide technical support for ITI schools? What were stakeholder perceptions of the accessibility, timeliness and effectiveness of technical support? What were the district's plans for building schools' capacity to provide their own technical support, and were these plans implemented?
2. How was technology used by teachers and students in the ITI schools and in other school-based technology-integration initiatives?
    a. What were the most frequently used applications?
    b. To what degree and how was the Pearson curriculum used in different grades in ITI schools?
3. In what ways did schools differ with respect to models and strategies for technology integration?
    a. What were the activities, experiences, and perceptions of students, teachers, principals, parents, and district staff regarding the technology applications in schools with differing levels of technology integration?
    b. What supports for technology integration were enacted at the school level? To what extent did schools at different levels of technology integration provide the following supports?
        i. Vision and clear expectations for technology use
        ii. Active and ongoing support from school leadership team
        iii. Technical support
        iv. Opportunities for teacher collaboration

v. Support for data-driven personalization of teaching
vi. Staff-led deployment and monitoring
vii. Parent education opportunities

c. What were the most common barriers to achieving implementation goals for schools at different levels of technology integration?

4. What are early student outcomes in student achievement, attendance, behavior, and mastering 21st century skills?
5. Based on a synthesis of the findings, what are recommendations to the district regarding:
   a. The most promising models and strategies for implementing technology in different school contexts (e.g., elementary, middle, or high school) and integrating technology into instruction for diverse learners (English learners, students with disabilities, socio-economically disadvantaged students, gifted, etc.)?
   b. Professional development and other types of support for teachers and principals?
   c. Strategies by central office, ITI staff, and other district leaders for increasing overall program quality and sustainability?

1.C. Overview of Chapters and Methods

We addressed each of the first three evaluation questions in a separate chapter of the report. Chapter 2 addresses the evaluation questions related to district leadership of the ITI (EQs 1a–1f). Chapter 3 addresses the evaluation questions related to how schools used technology (EQs 2a–2c). Chapter 4 takes a case study approach to address EQ3. Chapter 5 provides a synthesis of findings to arrive at a set of recommendations, thus addressing EQ5. The present report does not address early student outcomes (EQ 4), due to the shifting nature of the ITI during the 2014–15 school year, as well as the fact that most outcomes data (e.g., Smarter Balanced assessments) were not yet available. The following is a brief summary of the data sources and methodologies employed in each section. Appendix B provides a full description of data sources and methodologies employed in Year 2.

District Leadership. Chapter 2 addresses EQ 1, evaluating the District's actions to follow up on Year 1 recommendations related to six major topics: deployment and readiness, safety and security, coordination with related initiatives, communication, instructional support, and technical support. These recommendations are reiterated within the major sections of Chapter 2, which correspond to each of these major topics. Aligned with these topics, we evaluate whether the district achieved its targets as specified in the implementation matrix. The findings draw upon three types of data:

- **Interviews and focus groups with district staff.** In January–March 2015, we interviewed 14 ITI team members and district administrators, and conducted focus groups with Educational Service Center (ESC) superintendents, VLCFs, and MCSAs. Protocols were tailored to each respondent's area of responsibility or expertise.
- **Document review.** We obtained a variety of artifacts and documents to substantiate implementation of planned activities (e.g., completion of change management plans, development of parent engagement materials) and to better understand district policies (such as school requirements for device take-home).

- **Extant data.** To determine the extent of implementation of several initiative components, we obtained extant data from a variety of sources, including the following:
  - Deployment records (dates of deployment and take-home approval)
  - Report on wireless infrastructure upgrades
  - School bandwidth usage reports
  - Learning Zone records of participation in centralized professional development
  - VLCF daily logs
  - VLCF and MCSA staff lists
  - HelpDesk request records
  - Lists of schools with administrative access to Mobile Device Management (MDM) and Destiny Asset management systems
  - Instructional Readiness Checklist data

Further details about all three data sources are provided in Appendix B.

Classroom Technology Use. Chapter 3 addresses EQ 2 by describing how teachers and students used technology to support and enhance teaching and learning, with a particular focus on the extent to which teachers leveraged the full potential of 1:1 technology and went beyond simple replacement or substitution of newer technology for older technology. This focus reflected the district's emphasis of the SAMR model (Puentedura, n.d.), which was included in all of the district's centralized professional development workshops.[3] This chapter draws upon observation data collected during site visits. To address questions related to school-based implementation (both EQ 2 and EQ 3), the evaluation team visited 11 schools, including 10 ITI schools and one non-ITI school,[4] between January and April 2015. We drew a sample of 10 ITI schools, including four elementary schools, two middle schools, and four high schools, from schools that had high levels of device activity (according to available MDM data). By phase, the sample included six Phase 1 schools, three Phase 2a schools, and one Phase 1L school.[5] Appendix B provides details about our sampling methods.

The evaluation team visited a total of 85 classrooms across the 11 sampled schools. Two trained observers conducted each observation, with each employing a different observation protocol.

- One observer used the Classroom Technology Observation Protocol (CTOP) developed for this project to document different uses of technology during classroom activities. Observers selected from among 18 categories of activities to describe technology use

[3] This model shows a progression of classroom technology integration. In the first two levels, technology enhances instruction. These levels include Substitution and Augmentation, where technology is used as a substitute for other tools, with little to some functional improvement to instruction. The next two levels, however, are said to transform instruction, through Modification, where technology allows teachers to significantly redesign learning tasks, or Redefinition, where technology allows learning to occur in previously inconceivable ways.
[4] A second non-ITI school was recruited but withdrew its participation due to other commitments.
[5] We selected the Phase 1L school based on its early deployment date. Most Phase 1L schools did not deploy in advance of the site visit window in March 2015.

(e.g., whole-class instruction, Internet search, supplemental digital programs, project work, word processing, etc.).

- One observer used the Classroom Assessment Scoring System (CLASS) rubric (Pianta, La Paro, & Hamre, 2008) to describe classroom quality in the classrooms we visited. The CLASS rubric includes 12 dimensions that are grouped into domains of Emotional Support, Classroom Organization, Instructional Support, and (for some grade levels) Student Engagement.

By linking these two sets of observations, we explored the relationship between technology use and instructional quality. Specifically, we compared the average CLASS ratings of segments in which we observed technology uses that leveraged the 1:1 student devices and went beyond simple replacement or substitution of newer technology for older technology (e.g., overhead projector, paper) versus uses that did not.[6]

In addition to these highly detailed data collected in a small sample of classrooms, we analyzed several data sources that depicted technology use in all ITI schools (save for the 27 Phase 2B schools, which did not deploy student devices). These data sources included reports from the MDM system on the overall level of device usage within schools, as well as log data indicating the frequency of usage of the Pearson curriculum materials. We also analyzed responses to the 2014 School Experience Survey that indicate student-reported level of classroom technology use during the 2013–14 school year. Although these data are relevant to the previous year, they were not available at the time of the Year 1 evaluation report.

Finally, we examined student responses to technology-related items in a districtwide survey. These data, which were collected in Year 1 but not made available until Year 2, allowed us to compare the experience of students in Phase 1 schools during very early implementation with those in a sample of non-ITI matched comparison schools.

School-Level Supports for Technology Integration. Chapter 4 addresses EQ 3 using a case study methodology. We conducted in-depth site visits to examine school supports, such as a vision for technology use, the presence and activities of school leadership teams, professional development opportunities, and parent engagement activities. These findings depict the variation in school approaches to implementing the initiative, along with reactions of stakeholders to the technology resources provided. We conducted interviews with one school head administrator at each of the sites, including nine principals, one assistant principal, and one school coordinator. We also conducted focus groups with school leadership teams, teachers, parents, and students at each of the sites. (At one site, we were unable to complete focus groups with the school leadership team and parents; at another site, we conducted three separate teacher focus groups to

[6] For example, uses that we categorized as "transformative 1:1 uses" for this analysis included student use of interactive lesson content/activities, conducting Internet research, composing projects or creating presentations, and conducting mathematics/science simulations. Examples of technology uses that we did not categorize as "transformative 1:1 uses" included teacher use of technology for whole-class instruction (mainly, use of technology as overhead projector), nonacademic use, administrative use, students writing a paper or reading. While many of the latter technology uses were made possible with ITI-provided devices, they do not reflect more transformative use of 1:1 technology in which the device makes possible a task or experience that would otherwise not be.

accommodate staff schedules.) In total, participants in focus groups included 34 school leadership team members, 72 teachers, 64 parents, and 60 students.

We complemented these data with district records of school participation in professional development and change management activities. We synthesized these data to assign ratings to individual schools aligned to dimensions established in the *PowerUp WHAT WORKS Technology Implementation Practice Guide* (Center for Technology Implementation, 2013) as well as any other key dimensions of interest and importance to LAUSD, including the International Society for Technology in Education (ISTE) standards (ISTE, 2013a; ISTE, 2013b) and the SAMR model (Puentedura, n.d.).

Key Findings and Recommendations. Chapter 5 presents key findings based on our synthesis of Chapters 2–4. Addressing EQ 5, this chapter presents several recommendations to the district that follow from these key findings.[7] We conclude the report with a general discussion of the implications of this evaluation for the district's ongoing efforts to support technology integration.

1.D. Synopsis of Year 2 Evaluation Findings

In general, we found that the district and ITI schools made steady progress relative to the previous year, particularly with building essential infrastructure for deploying devices, training teachers, engaging with parents, and providing technical support. At the same time, however, the district has not yet arrived at a solution for several organizational and technical challenges. Ongoing challenges and areas where less progress occurred were in deploying devices in a timely manner, communicating with schools, coordinating efforts with other instructional initiatives, and clarifying a vision for technology use in instruction. The district has publicly acknowledged these challenges and initiated several efforts to address them. Schools also made progress with implementing key support structures, and classroom technology use appeared to be more frequent than during the previous year. However, the ways that technology was used in the classroom were similar to the previous year, and access to and use of high-quality digital resources remained limited.

[7] This report does not address EQ 4 since outcomes data were not available in time for inclusion.

2. District Leadership

This section addresses EQ 1, *What is the continuing nature and effectiveness of the district planning and assistance for ITI and other technology-integration programs? What, if any, improvements are recommended to maximize the potential for program success in subsequent years?*

We examined this question with respect to the following topic areas, each of which comprises several specific ITI components:

- **Deployment and readiness**, including efforts to increase efficiency of distribution and to ensure the readiness of schools to use the devices
- **Safety and security**, including efforts to monitor devices and provide digital citizenship training to students.
- **Coordination with related district initiatives**, addressing the extent to which ITI leaders coordinate with district staff leading other instructional initiatives
- **Communication**, encompassing efforts to communicate with schools, parents, and the larger community about the initiative's vision, goals, and accomplishments
- **Instructional support**, including efforts to provide professional development and ongoing training and support to teachers and school leaders
- **Technical support**, encompassing efforts to address technical problems as they arise and to build school capacity to address technical issues in house

This chapter is organized into sections corresponding to these topics. For each topic, we report on the extent to which the district implemented the key components of the initiative, as well as the district's progress in addressing the recommendations from the Interim Report. With respect to implementation, we draw primarily on extant data and district documents to determine the extent to which the district met the implementation targets identified by ITI leaders. Each section of this chapter provides a table listing the implementation components corresponding to the section's topic.

As background, the initiative is housed in the Office of Curriculum, Instruction, and School Support (OCISS); therefore, the executive director of OCISS provides the overall guidance and oversight to the rest of the ITI team. The ITI director provided the main day-to-day leadership of the initiative, which involved coordinating and managing the work of several functional teams that implement the major components of ITI. Each of these teams has a lead who reported to the director. The roles of each team lead may be summarized as follows:

- **Instructional lead/content developers.** There are two instructional content leads, one an ELA specialist and the other a mathematics specialist. These leads work with other team members on developing centralized professional development in support of technology integration and developing parent engagement materials and programs. These staff members are housed within OCISS.

- **Technical.** The technical team consists of several individuals in the Information Technology Division (ITD) assigned to different functions:
  - The technical support lead oversees the work of 23 MCSAs and nine MCSA supervisors in providing technical support for the ITI schools as described in the report introduction.
  - The cyber security lead is responsible for security policy and configuration. This lead communicates as needed with MCSAs about the implementation of security policies (e.g., Web filtering changes or apps that need to be put on a device).
  - The infrastructure lead ensures that schools have the wireless environment for devices to connect to the Internet.
  - The MDM administrator confers with LAUSD stakeholders, vendors, and contractors to ensure proper configuration of mobile devices in order to ensure device compliance with security policy, device restrictions, and settings. The administrator supervises two MDM specialists who handle requests to push additional apps to groups of users (e.g., a classroom of students), set custom device restrictions as requested by schools, and work with school police to track lost or stolen devices.
- **Organizational change management (OCM).** The OCM lead and one OCM specialist support schools in developing and implementing a strategy to promote changes in school culture and instructional practices. The OCM team is also responsible for internal communication efforts related to ITI. Staff members on this team are housed within OCISS.
- **Instructional readiness.** The instructional readiness team works with school leadership on planning and coordinating deployment, preparing leadership teams to support school staff, and providing ongoing coaching and support to teachers for technology integration. The team comprises a lead, 28 VLCFs who provide support directly to schools, and three instructional readiness facilitators who supervise the VLCFs.[8] All staff members on this team are housed within OCISS.
- **Asset management.** The asset management team includes one lead and one additional staff member who are both part of ITD. This team uses the district's asset management system to manage and track the devices issued to students and teachers, so that the district has accurate information on the location, condition, and status of each device. This team is also responsible for designing and offering training sessions for school staff on use of the asset management system.
- **Safety.** The safety team is responsible for implementing the district's strategy to ensure students' online and physical safety, as well as the security of devices. The team includes two members of the Los Angeles School Police Department.

In summary, ITI comprised a number of functional teams, with staff who were housed in OCISS or ITD. These staff were responsible for implementing the ITI components, which are discussed

[8] In Year 1, due to restrictions when using public bond funds, VLCFs were permitted to work only with the school leadership team (10 percent or less of teachers) and were restricted from provided training to the school as a whole. As of June 2014, the district had arranged for a mix of general and bond funds to be used to fund VLCFs to work directly with teachers.

in the following sections. This chapter includes references to the particular ITI functional team that was involved in implementing particular strategies, where this information is relevant. In describing strategies planned or implemented by several different team leads that are part of OCISS, we use the broader term *instructional team*. Similarly, when referring to strategies implemented by several team leads from ITD, we use the term *technical team*. When describing strategies or processes implemented by several different functional teams across ITD and OCISS, we refer simply to the *ITI team*.

2.A. Deployment and Readiness

Deployment is the process for preparing and distributing devices to schools. In this section, we focus on deployment during the 2014–15 school year, which was the second year of participation in ITI for Phase 1 schools. As noted in the Interim Report, deployment was the main focus of the initiative during the 2013–14 school year (i.e., the first year of participation for Phase 1 schools). The challenges of device distribution drew project leaders and VLCFs away from their anticipated roles with providing support for integration of technology into instruction. A key challenge was accommodating the time required to set up devices for individual users. Based on these Year 1 findings, the Interim Report included recommendations for the district to (1) find a technical solution to decrease the time spent on provisioning each device and (2) identify efficiencies in deployment and ensure an appropriate level of staffing, so that VLCFs and district leaders are available to support technology integration into instructional practice.

This section also examines the district's efforts to ensure that schools are ready for deployment, in two broad respects. *Technical* readiness is the wireless network infrastructure that allows teachers and students to access the Internet during classroom instruction, and allows school and district staff to make updates to software. *Instructional* readiness, as defined by the district, is having a plan for technology integration and a team of school leaders who have specific roles in monitoring and implementing the plan. As noted in the Interim Report, schools encountered challenges in using technology related both to technical and instructional readiness.

This section addresses the following evaluation questions:

- *What was the district's approach to deployment?*
- *Did the district have a sufficient number of staff in different roles to support deployment? Is the current approach scalable?*
- *What was the district's approach to ensuring schools were ready for deployment?*

Aligned with these questions, this section reports the extent to which the district implemented the ITI components listed in Table 3.

Table 3. Deployment and Readiness Components of ITI

Component	Description	Data Source	Implementation Target
Deployment	Administrators in each ITI school know the deployment plan for their school before start of year.	Interviews with district and school staff	Most ITI administrators know the deployment plan (97%–100%).
Deployment	School deployment plan is communicated to staff within each ITI school.	Interviews with school staff	Many staff are aware of the plan (80%–96%).
School Infrastructure Enhancements	All ITI schools will have received the necessary infrastructure enhancements needed to support a one-to-one computing environment.	1:1 Ready School Site Report	Most schools meet the criteria for technology infrastructure (90%–100%).
Technological Infrastructure	Wireless bandwidth is sufficient for reliable Internet access (e.g., all staff and students can use the Internet simultaneously).	Bandwidth reports	Most schools have wireless bandwidth that meets demand (80%–100%).
Assessment of School Readiness	Leadership teams from pre-deployment ITI schools will participate in the district instructional-readiness course to help them establish a strategic plan for effective Common Core technology integration.	Review of strategic plans	Many predeployment schools complete a technology integration plan (70%–89%).

Source: ITI Implementation Matrix.

What was the district's approach to deployment?

In 2014–15, the district deployed 35,781 iPads to 54 Phase 1 and Phase 2A schools, and 10,879 devices to 12 Phase 1L schools.[9] This section describes the approach to deployment in 2014–15, as described by members of the Technical and Instructional Readiness Teams (including MCSAs and VLCFs) and documented in district records. The following were the main steps:

1. Working from a centralized storage facility, one team of MCSAs *provisioned* the devices in advance of deployment by installing the apps and security settings appropriate for the intended student's grade level. MCSAs prepare the devices for shipping to the school by sorting them according to order of distribution (in coordination with VLCFs).
2. Prior to deployment, VLCFs planned the distribution of devices with school leaders to determine the location and order of the distribution. VLCFs assisted schools in tracking students whose parents had signed and submitted liability waivers, and in ensuring that only students with completed forms received a personalized device.
3. During device distribution, devices were *personalized* by assigning students an Apple ID and password, and also *inventoried* into the district's asset management system. Although VLCFs and MCSAs were available to help with these steps, in many cases, students and

[9] Instructional Technology Initiative Operations and Technical Dashboard, 5/8/15. The report was issued after the last deployment.

school staff performed these steps.[10] In particular, school staff who had received district training as instructional device managers were able to assist with the inventorying of devices. The MCSAs coordinated with LAUSD's Library Services for additional on-site support for inventorying devices.

4. MCSAs assisted with technical problems that came up during distribution, such as problems with access to Wi-Fi.

Improvements to Efficiency of Deployment. According to focus groups with MCSAs and VLCFs, the deployment process included four improvements in 2014–15:

- First, the MCSAs stated that the increase in their staff (from 14 to 23) allowed them to split into two groups this year, one for off-site provisioning and one for on-site deployment. This freed up the latter group to assist with technical problems during deployment and reduced the duration of the process on-site.
- Second, the VLCFs created deployment plans in coordination with each school. These plans specified the location, order, and timing of the deployment (see Appendix D for a redacted example of one plan). With students and devices sorted in the same order, distribution was more efficient. Although these plans were shared with schools, they were not filed in a central location and thus were not accessible to MCSAs participating in the deployment.
- Third, the involvement of school staff and students with device personalization and the involvement of school staff with inventorying have decreased the time and number of staff necessary to complete deployment.
- Fourth, according to one of the deployment leads, the team automated certain components of the provisioning process and enhanced the wireless network at the facility where provisioning occurs. These enhancements increased the speed of provisioning.

Did the district have a sufficient number of staff in different roles to support deployment? Is the current approach scalable?

Despite the improvements in the deployment process, the district encountered difficulties with deployment that suggest the process is not yet scalable. Several administrators, team leaders, and school-based staff stated that the pace of deployment was slower than expected. District records document a slow process of deployment, with many schools not receiving their devices at the beginning of the year.

The main explanation given for the slow process of deployment, offered by several technical staff and one member of the instructional readiness team, was that the personalization process was still not sufficiently automated and required too much time handling individual devices (despite the automation of certain steps noted above). In particular, one MCSA explained that the process of resetting an Apple ID password has a "ripple-down effect" that delays the flow of distributing devices. Another MCSA explained, "The problem is when people forget passwords and then it's very, very difficult to get the password from Apple…it just becomes a big nightmare." According to MCSAs and one ITI team member, the district needs to address the

[10] The district policy is for students in Grades 4 and above to participate in this device personalization step.

technical challenges of inventorying devices by fully automating this process centrally, obviating the need for technical staff to handle devices individually. Thus the district's approach to deployment does not seem scalable until the process can be more fully automated, unless staffing can be increased to a level that would make individual handling of devices feasible at scale.

In addition to the technical issues with device setup, the district encountered significant delays in Phase 1L deployment related to vendors. According to two ITI team members, vendors of the Phase 1L devices did not deliver on the expected schedule. Furthermore, some of the devices needed to have their operating system reinstalled prior to deployment. This caused a delay of several months, so that Phase 1L schools did not receive their devices until February 2015.

Several staff involved in deployment discussed the adequacy of staffing. MCSAs and one team member suggested that the level of staffing required for on-site deployment varied greatly by the school's capacity to assist with device personalization. These respondents suggested that greater involvement of school staff, and a more fully automated personalization and inventorying process, would alleviate the need for more district staff.

One consequence of the technical challenges was that the district did not communicate firm dates for deployment, and it pushed back previously stated deployment dates. For example, MCSAs stated that they were not usually told about the deployment schedule more than two weeks in advance of a school's deployment (which was determined by the VLCFs and the Instructional Readiness Team). School leadership at four schools mentioned receiving devices later than originally planned. They stated that these delays were confusing and disappointing for teachers, students, and parents. One Phase 1 school that had iPads the previous year (2013–14) felt momentum was stopped because of the delay in deployment. They had been used to using iPads every day the previous year, and then they waited months to get them this school year (2014–15). Because they could not use iPads and did not know when they were coming, lesson plans had to be reworked. Several administrators, team leaders, and school-based staff stated that the pace of deployment was slower than expected and that the ITI team did not provide firm timelines for deployment to particular schools. Based on this feedback from school staff, it seems that the district did not meet two implementation targets related to deployment plans, namely, for the school administrator be aware of the deployment plan at the beginning of year and for school staff to be aware of this plan.

Table 4 illustrates the month-by-month progress with deployment, disaggregated by phase and school level. It illustrates how deployment extended far past the mid-August start date for district schools.[11] The following patterns are noteworthy:

- Deployment to 44 elementary schools began in August 2014 and continued through October (except for one that deployed in April).
- Deployment to 40 secondary (middle and high) schools began in September 2014 and continued through May 2015. However, deployment to 12 Phase 1L schools did not begin until February 2015.

[11] It was not possible to compare the actual deployment schedule (as listed in Table 4) to the schedule planned at the beginning of the year because the latter information was not included in the deployment records provided by the district. The foregoing discussion makes clear that the district anticipated an earlier completion of deployment than what occurred.

Table 4. Distribution of Devices to Schools by Phase and Months

	2014–15 School Year (Months)											
	A	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**Deferred**	**Total**
Phase 1	4	10	8	3	3	2	10	1	2	0	1	44
Phase 2A	2	3	4	0	0	0	2	0	0	0	0	11
Phase 1L	0	0	0	0	0	0	1	3	7	1	7	19
Elementary	6	12	10	0	0	0	0	0	1	0	0	29
Middle	0	0	0	0	2	2	6	0	0	0	0	10
High	0	1	2	3	1	0	6	3	6	1	7	30
Span	0	0	0	0	0	0	1	1	2	0	1	5
Total	**6**	**13**	**12**	**3**	**3**	**2**	**13**	**4**	**9**	**1**	**8**	**74**

Note: Including the 27 Phase 2B schools that did not have the option of deploying in Year 2, there are 101 ITI total schools.

In summary, the district's current approach to deployment is not scalable because it is not sufficiently automated. The consensus of district staff was that the deployment process needed to be more fully automated and that school staff would need to assume greater responsibility for device setup. The district was unable to communicate to schools in advance about deployment due to the technical challenges that caused delays.

What was the District's approach to ensuring schools are *technically* ready for deployment?

Last year's Interim Report noted that, according to several VLCFs, some schools had insufficient wireless infrastructure. The district planned to upgrade each school's wireless network to create sufficient bandwidth to support a 1:1 computing environment. The district's criteria for 1:1 readiness, as explained in an e-mail from the district's IT Capital Projects team, was that the site had a scalable fiber network with the ability to increase bandwidth up to 1 gigabyte in response to spikes in demand, and that the site had wireless density coverage to provide up to 6 megabytes per user. These upgrades were performed by the IT Capital Projects team. The district set a target this year that at least 90 percent of ITI schools would meet the criteria for 1:1 infrastructure readiness. To evaluate the implementation of this plan, we obtained a report from the IT Capital Projects group that summarized the infrastructure readiness of LAUSD schools for 1:1 rollout. As of May 2015, about 81 percent of all ITI schools were deemed "ready for 1:1," thus not meeting the implementation target. Readiness differed by school level and phase. Nearly all elementary and middle schools met the criteria for 1:1 readiness, but only about three fifths of high schools were deemed ready (see Table 5). A higher proportion of schools in Phase 2A and 2B were 1:1 ready than schools in Phases 1 and 1L. The reasons for this pattern are not apparent; the upgrades performed by IT Capital Projects were performed across the district and not only in ITI schools, and there was no evidence that these upgrades were dependent upon or coordinated with phase.

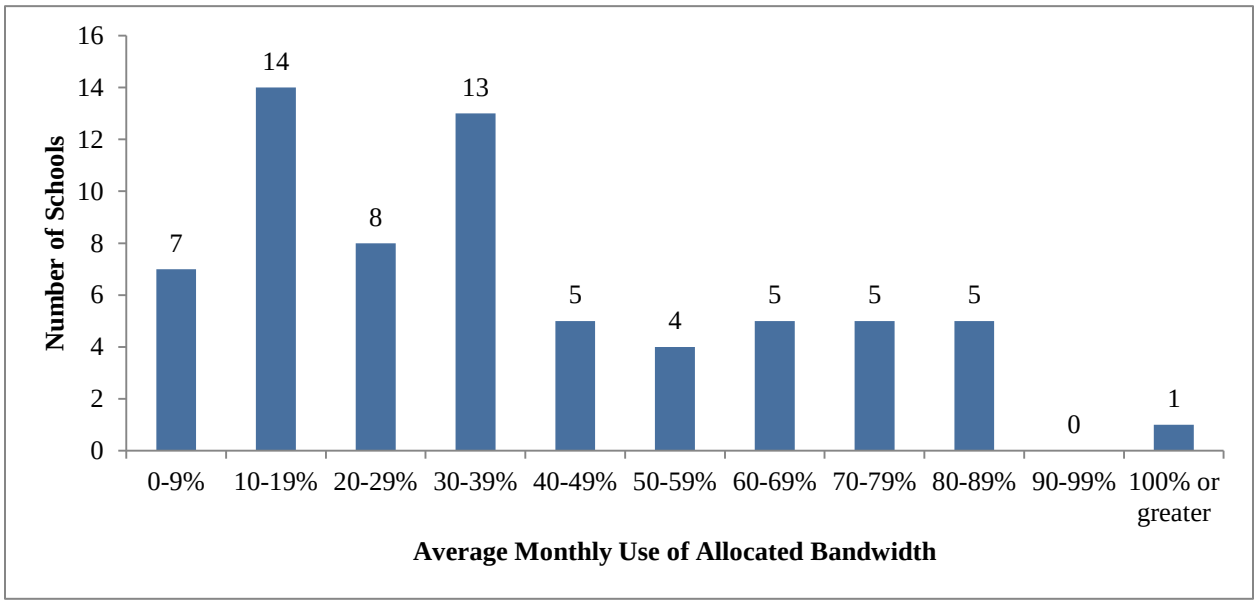
Table 5. Proportion of Schools Meeting District Criteria for 1:1 Readiness

	Phase				School Level				
	1	**1L**	**2A**	**2B**	**Elem**	**Middle**	**High**	**Span**	**Total**
Number 1:1 Ready	34	13	11	24	44	17	19	2	82
Percent 1:1 Ready (Criterion of 90%)	77%	68%	100%	89%	96%	100%	59%	33%	81%
N	44	19	11	27	46	17	32	6	101

Source: LAUSD report on 1:1 school readiness provided by IT Capital Projects.

The district intended for wireless bandwidth to be sufficient to allow for reliable Internet access (e.g., for all staff and students to be able to use the Internet simultaneously). The district set a target that at least 80 percent of schools would have bandwidth that meets the demand of network utilization. The district deemed bandwidth to be sufficient if the average usage did not exceed 70 percent of network capacity. We examined a report on bandwidth utilization among the schools in Phases 1, 1L, and 2a. Figure 1 depicts the number of schools using different proportions of their allocated bandwidth; the district was able to gather data for 67 ITI schools. It is evident that many schools are using a fairly low proportion of their bandwidth allocation; for example, 42 of 67 schools used less than 40 percent of their bandwidth.

Figure 1. Proportion of Schools With Different Levels of Average Monthly Bandwidth Use



As summarized in Table 6, 84 percent of schools met the district's criterion for adequate bandwidth; thus, the district met its implementation target for wireless bandwidth. Among elementary schools, however, fewer than 60 percent had adequate bandwidth based on the district's criterion. In contrast, 100 percent of middle, high, and span schools had adequate bandwidth.

In light of these findings, it is important to consider the experiences of school-based users to determine if they perceive the performance of the wireless network to be satisfactory. During focus groups, teachers at seven schools and students at four schools reported wireless connectivity issues in which students or teachers could not connect at all or were knocked off the Internet midactivity. Although the issue of connectivity is different from the issue of bandwidth, both represent concerns about infrastructure that merit attention from the district.

Table 6. Proportion of ITI Schools Meeting Criterion for Adequate Bandwidth

	Phase				School Level				Overall
	1	1L	2A	2B	Elem	Middle	High	Span	
Number with adequate bandwidth	32	18	7	N/A	16	10	29	2	57
% adequate bandwidth (Target: 80% of schools)	80%	100%	70%	N/A	59%	100%	100%	100%	84%
Total	40	18	10	N/A	27	10	29	2	68

Source: Report on bandwidth use per school provided by ITI technical team lead.

In summary, it appears that ITI schools are, for the most part, technically ready for deployment. Most schools received infrastructure upgrades, and all secondary schools met the district's bandwidth criterion; however, two in five elementary schools do not meet the district's bandwidth criterion, an issue that needs further attention by district technology leaders. Furthermore, school-based staff reported frequent difficulties with wireless connectivity.

What was the district's approach to ensuring schools are *instructionally* ready for deployment?

Instructional readiness, as defined by the district, means that a school has developed a plan for technology integration and has designated staff for specific roles in monitoring and implementing the plan. As described in the Interim Report, VLCFs perceived that many schools were not prepared to integrate technology during Year 1. When reflecting on Year 1 during the current year's focus groups, ESC superintendents and VLCFs stated that the district did not support or encourage Phase 1 schools to create technology integration plans as a condition for participation.

These staff, along with two additional district-level interviewees, strongly endorsed the need for schools to develop plans for how they will use technology in instruction. They stated that such plans make technology integration concrete, increase staff commitment, and bring coherence to the school's implementation of the initiative. The following sections describe the district's efforts in 2014–15 to promote instructional readiness for deployment.

Instructional Readiness Course and Instructional Technology Plan. To support a focus on planning, the project team developed an Instructional Readiness course during the 2014–15 school year. The purpose of this course, according to its website (http://achieve.lausd.net/Page/7925), was to "support school Instructional Leadership Teams in developing an informed, effective plan for instructional technology integration that is tailored to

each school's needs." In September 2014, district staff members stated that they envisioned that eventually all schools would complete this course before their initial deployment. This course was available via iTunes at the beginning of the 2014–15 school year, and accessible only through an iOS-based device. It was revised during the winter of 2015 and released to the Web (fully accessible to all devices) in April 2015. The course includes modules focused on the following topic areas:

- Vision
- Leadership and Change
- Instructional Technology Integration Goals
- Professional Learning Plan
- Digital Citizenship
- Parents, Community, and Culture

The course culminates in the completion of an Instructional Technology Plan that describes the school's approach to addressing the foregoing topics. ITI team members described two models for how schools will participate in the course. One is for a school leadership team (SLT) to work with the VLCF on each of the topics over seven or eight sessions (about two hours per session). The other is for the SLTs to attend a workshop during summer 2015 in a central location. This workshop, which had not occurred at the time of data collection for this report, will include speakers addressing each topic, discussion groups, and working sessions for each team.

The district set an implementation target for SLTs in at least 70 percent of ITI schools in Phases 1, 1L, 2A, and 2B to complete this course and to develop an Instructional Technology Plan prior to their initial deployment. According to an ITI team member involved with instructional readiness, as of May 2015, no schools had yet completed this course, but many were underway with the process. Thus, the district has not yet met this target. In an effort to make more progress with instructional readiness, the district has, as of summer 2015, stated that all schools must complete an Instructional Technology Plan prior to deployment in 2015–16.

Technology Readiness Checklist. Although schools were not required to complete the Instructional Readiness course, about three fourths of schools did complete a technology readiness checklist. This checklist required schools to assign staff members to specific roles, indicate dates of planned trainings, and specify the preferred time and location of deployment. This checklist included the following categories of school responsibilities, to be completed in advance of deployment:

- Deployment logistics, such as device storage location and confirmation that student rosters have been submitted
- Parent communication, including the distribution and collection of parent notification and consent forms and scheduling of a Parent Night to address a number of topics (parent responsibilities, safety, digital citizenship, restitution policy)
- Designation of SLT members, along with completion of introductory meetings with VLCFs and MCSAs—meetings that include an orientation to the Awareness, Desire, Knowledge, Ability, and Reinforcement (ADKAR) survey (described in section 2.E.)

- Staff training, including designation of staff to be trained as instructional device managers and mobile device managers (described below); completion of an Instructional Technology Plan (as described in previous section); training for teachers about using the devices for homework
- Digital citizenship and cyberbullying lessons, including delivery of introductory lessons for students and communication of safe practices for handling device and carrying in public

VLCFs worked with the schools on the completion of the milestones on this form. One ITI team member stated that the district initially expected the completion of at least some of the elements of this checklist to be a condition for deployment. In practice, some schools did not complete their readiness checklist before their deployment dates and did not finish putting all elements of the checklist into place until after deployment. A review of data input into the checklist form indicated that 75 of the 101 schools (74%) had completed this checklist (see Table 7). The district had not set an implementation target for school completion. Whereas most schools in Phases 1 and 2A had completed the checklist, those in 1L and 2B had not. This is consistent with the finding that schools tended to complete the form after deployment, and not before it. According to a report on deployment submitted to the superintendent in June 2015, the district has adopted a new policy requiring all schools to complete this checklist prior to deployment in 2015–16.

Table 7. School Completion of Technology Readiness Checklist

	Phase				School Level				
	1	**1L**	**2A**	**2B**	**Elem**	**Middle**	**High**	**Span**	**Total**
Number completing	39	9	11	16	40	12	21	2	75
Percent completing	89%	47%	100%	59%	87%	71%	66%	33%	74%
Total *N* of schools	44	19	11	27	46	17	32	6	101

In summary, the district's approach to promoting the instructional readiness of schools was to create resources for schools to develop a school Instructional Technology Plan and to determine a number of operational details related to deployment. Schools did not typically use these resources prior to deployment in 2014–15.

2.B. Safety and Security

During the first year of ITI, student safety and device security represented a highly public challenge for the initiative. Following a widely publicized incident in fall 2013 in which 185 students in three high schools disabled the Internet filters on their devices, the district implemented two policies to ensure student safety. First, the district restricted devices to campus to be able to monitor devices more closely. Second, the district created protocols for monitoring devices to ensure they were in compliance with the security policy. This incident during the 2013–14 academic year, and the district's reaction, served as an example of the types of safety concerns that the district would have to address as part of 1:1 distribution of mobile devices. In our first-year evaluation, we reported a number of stakeholder concerns about safety. Some school staff also expressed concern for the physical safety of students, who might be seen as

targets for thefts should a take-home policy be instated. The need to keep devices on campus created logistical challenges related to the distribution of devices, as well as the challenge of ensuring that schools were storing devices securely. Staff also expressed concern about the security of the devices themselves. The Interim Report included recommendations that the district consider input from parents and teachers when revising its take-home policy, and that in the absence of a take-home policy, it find a workable solution to the practical challenges related to in-school device distribution and collection. Based on these findings, the Year 2 evaluation plan included the following questions:

- *To what extent did the district implement its strategy for ensuring safety of students and security of devices?*
- *What were stakeholder concerns, if any? To what extent did the district consider input from stakeholders in developing policies and practices (e.g., device take-home)?*

Aligned with these questions, this section reports the extent to which the district implemented the ITI components listed in Table 8.

Table 8. ITI Components Related to Safety and Security

Component	Definition	Data Source	Implementation Target
Digital Citizenship Education	Delivery of professional development on digital citizenship lessons based on materials from Common Sense Media and other resources	VLCF logs[a]	Digital Citizenship Week Professional Development was delivered at most ITI schools (80%–100%).
Mobile Device Management (MDM) System	MDM software allows school staff and the district to monitor and control the apps loaded on devices.	District interviews	School staff have access to MDM system.
Asset Management System	The asset management system is migrated to the districtwide database and allows district staff to track the location and status of devices.	District interviews	District asset management system can generate audit and reconciliation reports.
Asset Management	District ITD asset management personnel will manage all ITI assets.	Audit and reconciliation reports	Audit and reconciliation reports are generated very frequently (11 or more times per year).
Asset Management System	The asset management system allows school staff to track the location and status of devices.	District interviews	School asset management system allows school staff to track the location and status of devices.

Source: ITI Implementation Matrix.
[a]The VLCF logs did not include sufficient detail to indicate frequency of digital citizenship training; therefore, this component could not be evaluated.

To what extent did the district implement its strategy for ensuring safety of students and security of devices?

During the 2014–15 school year, the district implemented a variety of strategies for ensuring the physical and online safety of students and the security of devices. Although some strategies related specifically to one of these three aspects, other strategies cut across two or all three.

Strategies to Reduce the Threat of Theft. Three ITI team members summarized the district's strategies for ensuring students' physical safety, namely, protection from threats arising from carrying an expensive device off school grounds. Thus, these strategies were applicable only in the schools with take-home policies in 2014–15. The ITI team members stated that the district implemented the following strategies, led by the Safety team:

- **Coordination with local law enforcement**. As stated in interviews, district staff coordinated with local police precincts to create a "safe path" for students, which was defined as a travel corridor with extra police patrols to protect against potential threats.
- **Student education about safety**. The district promoted student awareness of safety and security by developing and distributing safety training materials to teach students how to avoid behaviors that could make them targets for crime (e.g., keeping iPads in their backpacks in public). This training also addressed proper care of the device. These materials were presented to students in mandatory safety training lessons at all schools sending devices home (see Device Take Home Policy, below).
- **Theft deterrence**. According to ITI leaders, the MDM software enabled the district to disable a lost or stolen device remotely, so that it would not be usable outside of the district, and to track the device as well. In addition, every tablet was etched with the district's information, which could not be removed.

Security Settings. According to multiple ITI team members, during 2014–15, the district continued its strategy employed in 2013–14 of using Internet filters on devices to limit students from accessing inappropriate sites and to prevent external entities from accessing their information. This strategy was implemented by the Mobile Device Management team using AirWatch MDM software. One ITI team member stated, "The kids' safety is always number one, with their online presence. So we have an incredible firewall. I think it's considered one of the best, if not the best, of any K–12 organization."

In light of the disabling of security settings by students last year, the district set an implementation goal for 2014–15 of continually monitoring the security settings, along with monitoring lost and stolen devices. One ITI team member provided a screenshot of a real-time dashboard, reflecting data from the MDM system, that displayed the number of iPads that were not in compliance with district security settings (e.g., not password protected). During an interview, this team member said that MDM staff would communicate directly with school principals or VLCFs if a device was not in compliance. Because the compliance reports are available "on demand," there is strong evidence that the district has met this implementation goal; however we were not able to obtain records regarding the frequency with which the reports were acted upon.

The AirWatch MDM system enabled the district to monitor and control security settings on iOS-based devices, namely, the iPads used in Phase 1 and 2A schools. For Phases 1L schools, the district used separate products for different devices.[12] The evaluation did not request documentation of the use of these products for monitoring of security settings.

Digital Citizenship. During 2014–15, the district continued its efforts to provide digital citizenship education to students, parents, and school staff that began in the 2013–14 school year. The purpose of the digital citizenship component was described by one ITI project leader as teaching students to understand acceptable device use and acceptable online behavior, how to protect privacy, how to protect themselves from cyber bullying, and what the proper response should be to inappropriate online behavior they encounter. Beginning in 2013–14, the LAUSD ITI website provided links to digital citizenship lessons for teachers, students, and parents that included videos and tips.[13] In 2014–15, the district continued to promote the use of these materials by training teachers about them and encouraging schools to deliver these lessons to all students. The delivery of such lessons is included among the milestones on both the take-home checklist (described below) and the instructional readiness checklist (described in the section on Deployment and Readiness). No data were available to the evaluation team to evaluate the extent to which the district trained teachers on digital citizenship lessons, although principals in all take-home schools certified that students had received introductory digital citizenship lessons. During the second annual Digital Citizenship Week (October 27–30, 2014), the district launched a publicity effort to encourage teachers and schools to provide these lessons to students. This week also included special events such as a digital citizenship forum, held at a Phase 1 high school, in which students discussed the challenges and opportunities afforded by social media and other technology.

ITI project leaders indicated they were in the process of putting together a three-year strategic plan for implementing digital citizenship training across the district (i.e., beyond ITI schools). Several ESC leaders indicated that, currently, non-ITI schools have not recognized digital citizenship lessons as relevant to their schools because they associate them with ITI participation. Recognizing this challenge, one team member stated that additional planning and time would be necessary for digital citizenship to become present throughout the district schools.

In summary, the district implemented its digital citizenship strategy in ITI schools; this strategy was mostly unchanged from the previous year, although the district has developed additional mechanisms for encouraging and monitoring school-level implementation.

Asset Management Systems. One of the district's stated strategies for device security (described in the evaluation team's meeting with ITI leaders in September 2014) was to implement an asset management system that could generate audit and reconciliation reports, to be able to account for all devices that had been distributed to a school. This system was intended to allow district- and school-based staff to track and update device status (e.g., assigned to a student, unassigned, lost, etc.) and location. Although the district did not specify a date for

[12] In a personal communication, one member of the ITI technical team stated that the district used System Center Configuration Manager (SCCM) to manage security settings on Windows OS-based devices, and Google Console to manage security settings on Chromebooks. The district also uses GoGuardian for Web filtering and device tracking of Chromebooks.

[13] http://achieve.lausd.net/digcit

completion of this system, two ITI team members stated in interviews that it had been implemented as of December 2014. The development of this system this year involved the integration of different databases that stored different types of device information. These efforts were led by the asset management team.

The district set an implementation target for the ITI team to run audit and reconciliation reports on a monthly basis. District staff did not respond to requests for copies of these reports, so it cannot be determined whether this component was implemented in 2014–15.

The district has supported efforts to train school staff to use this asset management system to assign devices to new students; these efforts are described in the section on Technical Support.

Tracking of Devices. According to interviews with several ITI team members, the district implemented protocols for tracking iPads and laptops that are reported lost or stolen. The protocols described for 2014–15 were similar to those used in 2013–14. Two respondents noted that the process of tracking devices requires coordination among different groups. When a device was reported stolen or missing, staff on ITI's MDM team tracked the device and passed along the location and serial number to the school police. These respondents suggested it is possible that reducing the need for coordination among groups (e.g., by providing school police with direct access to the tracking system) could make the response time faster for these incidents. In 2014–15, there were 60 lost devices and 201 stolen devices; 61 thefts occurred in two separate incidents.[14]

Device Take-Home Policy. Due to concerns about student online and physical safety, the district did not allow students to take their devices home during the 2013–14 school year. This changed in 2014–15. In November 2014, the district released a take-home policy that included a checklist of actions that schools would need to complete before they could allow students to take their devices home. Many of these actions related to student physical and online safety, as well as device security. Each school wishing to implement device take-home would need to certify in writing that all actions were completed. Schools would need official, written notification from the district confirming they could go ahead with the taking home of devices. Major components of the take-home checklist were as follows:

- Notification letter sent to parents about take-home
- Consent forms signed by 90 percent of parents
- Informational parent meetings held
- Digital citizenship lessons and safety education sessions delivered to all students
- Staff member trained in asset management

Schools submitted their checklists verifying the completion of these steps via an online survey form. One ITI team member stated that all 26 schools that sent devices home had complied with this policy. According to an internal tracking list provided by the ITI team, these schools received approval starting in mid-November 2014 and continuing through the end of April 2015. Table 9 summarizes the number of schools opting for take-home (and completing the checklist) by phase and level. Most of the schools opting for take-home (21 of 26) were high schools, and

[14] These numbers were provided through personal communication with a member of the Safety team.

nearly all (25 of 26) were secondary schools. Most high schools (91%) and Phase 1L schools (83%) opted for take-home.

Table 9. Number of Schools Completing Take-Home Checklist

	Phase				School Level				Overall
	1	1L	2A	2B	Elem	Middle	High	Span	
Number completing	16	10	0	NA	1	2	21	2	26
Percent completing	37%	83%	0%	NA	3%	22%	91%	40%	39%
Total *N* schools	43	12	11	NA	29	9	23	5	66

Note: 27 Phase 2B schools did not deploy and are not included in the total. One Phase 1 school and seven 1L schools did not deploy in 2014–15 and also are excluded.

In summary, the district implemented a range of strategies to ensure student safety and device security in 2014–15. Several of these strategies, such as digital citizenship, theft deterrence, and device tracking, were implemented in similar ways during the previous (2013–14) school year. Two strategies related to safety and security that were implemented for the first time in 2014–15 were the take-home policy and an integrated asset management system that is accessible to both district and school staff.

What were stakeholder concerns, if any? To what extent did the district consider input from stakeholders in developing policies and practices (e.g., device take-home)?

This section summarizes stakeholder concerns related to student physical safety, device security, and student online safety. These findings are drawn primarily from site visit data. This section also considers how the district considered these concerns, along with other input from stakeholders, when developing and implementing its policies and practices.

Concerns About Students' Online Safety. Online safety was a frequent concern among stakeholders. VLCFs stated that online safety was the primary concern of parents, and they had to be prepared to address this when conducting parent meetings. Stakeholders in seven schools (including parents, teachers, SLT members, and administrators) expressed concern about online safety. Some of these stakeholders believed that there are still many sites that have not been blocked by the district's filters. One teacher reported having to manually block Pandora, a music streaming service. In addition, at least one SLT member, one teacher, and one parent expressed concern about students' ability to unblock sites that have been blocked by LAUSD. A parent in one school expressed the opinion that students are intelligent and can unblock the blocked sites. VLCFs stated that they received specific complaints about sharing of inappropriate pictures and videos. On the other hand, stakeholders at six schools (including administrators, SLT members, teachers, parents, and teachers) indicated they did not have concerns about online safety. Of these latter instances, half of respondents said they are not concerned because the district blocks inappropriate websites, and the other have said they were not concerned because students had participated in effective training for appropriate online behavior.

District staff responded to concerns on a case-by-case basis at individual schools. For example, at one school, staff reported that students were using iPads to videotape students fighting and

then sharing these videos. VLCFs reported that they disabled the video function on student devices at this school and would turn it back on when teachers requested it for student projects. VLCFs also responded to reports of inappropriate sharing of pictures, by tracking the device that sent the picture (with assistance from MCSAs) and reporting the student to school staff.

Concerns About Threats to Students and Devices. Stakeholders expressed differing opinions regarding student safety. On the one hand, students at two high schools (both with take-home policies) said that the LAUSD logo on devices deters theft. One student said that when strangers see the logo, "they know I'm backed up by LAUSD," and another student said people "know that it has a tracker in it." Similarly, the principal at another take-home high school did not share these concerns about the devices making students a target for theft. This principal noted that the parents had fears but were starting to see that their children were not being attacked because they had iPads. Nonetheless, stakeholders in four schools mentioned concern about students' physical safety when carrying a device, including one principal at a take-home high school who expressed concern about students being the target of theft if the device is exposed. A school leadership team member from this same school said that they always tell students to "zip [the device] in a bag."

Several district staff members indicated that there have not been many incidents of damage or theft to devices. This perception is consistent with an district records (through April 2014) indicating 116 reports of damaged devices out of 46,660 assigned to students, which amounts to less than two tenths of one percent of devices. As mentioned previously, there had been 201 reported incidents of theft. Despite the low prevalence of these incidents, among parents and students, device safety was a common concern. In particular, students and parents at seven schools expressed concern for their financial liability should the device be lost, damaged, or stolen. Some parents stated that for this reason they opted out of allowing their child to bring the device home with them.

There were no findings relevant to how the district was considering stakeholder input on policies or practices related to threats to students or devices.

Concerns About Take-Home Policy. Several district staff members stated there were few to no stakeholder concerns about the district's take-home policy; the prevalent view among these staff members was that this policy addressed a strong concern among schools about the previous policy restricting devices to campus (as described in the introduction to this section). Furthermore, because parents needed to actively consent to their students taking devices home, those parents who had safety or liability concerns could simply decline to give permission for their students to take their devices home. However, requiring active consent had two drawbacks stated by district staff. First, schools needed to create a process whereby students without take-home consent would check in and check out their devices on a daily basis. Second, the parental consent requirement has delayed distribution of devices at some schools, as 90 percent of parents needed to give consent before the school could be approved for take-home. One ITI team member stated, "We have a lot of schools that were very frustrated that a small group of non-responsive parents could hold up all of the take-home, and we are still working on a solution for that."

In summary, school-based stakeholders expressed differing opinions about student safety and device security. Although a range of stakeholders expressed concern for students' physical and online safety and for device security, these concerns were fairly evenly balanced by a range of

stakeholders stating that they had no concerns. According to district-level staff, there were few stakeholder concerns about the take-home policy, although the requirement of active parental consent created some administrative difficulties for schools.

2.C. Coordination With Related Initiatives and Among ITI Teams

Coordination between ITI and other district initiatives was limited during the first year. District staff indicated during the first year that the ITI team was not coordinating with initiatives led by ESCs or by other academic programs (e.g., special education, curriculum and instruction, gifted education, etc.). As a result, professional development related to other initiatives (e.g., Common Core State Standards) did not address technology integration and vice versa. The Interim Report recommended that ITI-related trainings address the Common Core standards and their implementation and, conversely, that technology be presented as a key tool in trainings on Common Core implementation.

In light of these first-year findings, this section addresses the following evaluation questions:

- *To what extent, and through what channels, did ITI leaders coordinate with district staff leading other instructional initiatives? To what extent was such coordination evident in trainings and professional development?*
- *In what ways and through what channels did the district ensure coordination and accountability among ITI teams?*

This section addresses two types of coordination: coordination with groups external to ITI and coordination among ITI teams. Regarding coordination with groups external to ITI, we examined coordination of ITI with other instructional initiatives in the district. As with ITI, many of these initiatives are providing professional development and other forms of support and resources to LAUSD schools. To the extent that the goals of these initiatives are similar (as with the Common Core initiative), coordination among initiatives would enable them to find synergies that could increase the impact of each. Among the groups external to ITI with which coordination is potentially critical are the other offices within OSCISS[15] and the district's five ESCs. Each ESC has autonomy to prioritize the instructional strategies and initiatives to be emphasized in its schools. The ESCs are led by an instructional area superintendent who sets instructional priorities that are then supported by instructional supervisors who supervise the work of the principals. In addition, each ESC has a technology coordinator and a Common Core facilitator responsible for supporting school implementation of the Common Core State Standards. A key question was the extent to which the district was able to coordinate with these staff within each ESC. Regarding coordination among ITI teams, the section examines the project management and accountability processes within ITI, and the extent to which these fostered effective coordination among the different ITI teams.

[15] Most of the initiatives are under the direction of OCISS. Within OCISS, there are several offices, each with its own programs and initiatives. According to the OCISS website (http://achieve.lausd.net/instruction#spn-content) a subset of these departments includes Curriculum Pre-K–12, College and Career, Arts Education, Multilingual and Multicultural, Early Childhood Education, and Common Core Standards. Other programs and offices not included within OCISS are the Division of Special Education, GATE Gifted, and Career and Technical Education.

To what extent, and through what channels, did ITI leaders coordinate with district staff leading other instructional initiatives? To what extent was such coordination evident in trainings and professional development?

Our findings suggest that in Year 2, as in Year 1, coordination among ITI leaders and leaders of other initiatives was minimal and therefore not evident in trainings and professional development. Four district staff as well as the VLCFs we interviewed stated that ITI is not being coordinated with initiatives led by staff in other district offices. For example, VLCFs in elementary schools confirmed they are not coordinating with Common Core facilitators (supporting Common Core implementation) or Growing Educator coaches (supporting implementation of a school-based program for Readers and Writers Workshops in K–8 ELA classrooms). Moreover, one VLCF suggested these initiatives are competing with ITI for the attention of educators:

> "[We] have other groups pushing into the school. So they might have Growing Educators…they might have Writers Workshop. They might have the Common Core team coming in. So assuming people coming in, taking up that time…and we're not all communicating with one another."

One district administrator and one school leader indicated that the lack of coordination between ITI and district-level initiatives was evident to school staff. This district administrator stated:

> "From the school site point of view…it doesn't look like we're having a concerted effort because you might have a coach from one department, which is English/language arts, and then you have our VLCF, which is integration of technology into the curriculum—and those two guys are not talking."

Coordination between ITI and the ESCs also was lacking, as acknowledged by district staff, the ESC supervisors, and VLCFs. All ESC superintendents concurred that the ITI was not regularly addressed in leadership team meetings and that there was no standing meeting to discuss ITI. Coordination meetings between the ITI team and ESC instructional directors were planned, but the first such meeting did not occur until February 2015. The ESC superintendents and VLCs also acknowledged that ESC professional development initiatives were not coordinated with ITI. Moreover, VLCFs stated that some instructional directors discouraged principals from attending the monthly ITI principals meetings, in light of a recent policy from the ESC superintendent not allowing off-campus professional development during school hours. VLCFs stated that this policy was not meant to apply to ITI principal meetings and that the resulting lack of principal participation hindered implementation of the initiative. In other cases, according to VLCFs, instructional directors pushed schools to prioritize other initiatives at the expense of ITI. One VLCF stated, "I have three schools that have so many other things going on…And so their director [is] very strict about that focus and making sure they stick to that focus."

In the opinions of district staff, the lack of coordination primarily reflected structural or organizational factors. Four district staff members pointed to the organizational structure of the district as an impediment to coordination with ESCs and other district offices. These staff members explained that the ITI team is siloed, meaning that the existing organizational structures do not support the ITI director in communicating with other OCISS offices. Similarly, coordination with ongoing ESC initiatives was challenging because such coordination would

involve five sets of ESC leaders. Finally, several ESCs pointed out that because only a small number of their schools were participating in ITI, it was not practical for other professional development initiatives to be adapted to target those schools. As one ESC superintendent explained:

> "I only have eight schools [participating in ITI], and so, really, we don't roll out PD with the iPad in mind…Because it's so limited…it wouldn't behoove us to really have any type of PD that is connected to the iPad itself or the apps or the curriculum that's on it."

One area for improvement in coordination with ESCs relates to the instructional directors, to whom the principals report. As noted by several respondents, the directors tended to be less informed about ITI than principals, contributing to the lack of coordination. This gap in knowledge, according to one ITI team member, "makes it hard for [the instructional directors] to support bringing resources [for schools] when they don't know what's going on with us." Regarding attempts to coordinate with instructional directors, ESC superintendents and an ITI team member each stated that their respective groups had attempted to initiate coordination with the other, but either had been put off or had not received a response.

In summary, ITI did not coordinate with different offices of the district and did not coordinate with instructional initiatives from within OCISS and across other offices and ESCs, thereby foregoing a potential opportunity for synergy among related efforts.

Efforts to Improve Coordination. Efforts to improve coordination with other district offices were in their early stages during Year 2, and little progress had been made from the previous year. Interviewees noted two efforts. First, the ITI team hired one staff member to serve as a liaison with the Special Education Division. Second, one district administrator from OCISS facilitated a weekly meeting focused on Common Core implementation that brought together the ITI director, district administrators involved in curriculum and instruction, and the directors of Common Core integration housed within individual ESCs.

Regarding coordination with ESCs, superintendent interviewees each mentioned several improvement efforts, including the following:

- Informational presentations by VLCFs to the supervisors and the Common Core director within the ESCs
- Weekly leadership team meetings among ESC superintendents and district administrators from OCISS, with ITI-related topics such as the instructional readiness course and digital citizenship activities said to be routinely included on the agendas of these meetings
- The use of a master professional development calendar to provide information to ESCs that allows them to approve school participation in districtwide professional development activity, including but not limited to ITI

A common perspective among respondents was that coordination would require structural changes so that the ITI is better integrated with other units within OCISS, and that coordination would require the support of the highest levels of the district. One district administrator stated:

> "You really need support from the highest level—and I'm talking to the superintendent on down—and then integrating us into all other systems…if we become integrated into

every other system in the district and the superintendent and everybody supports this, we'll be successful."

One ITI leader suggested that the instructional technology specialist within each ESC should play a key role in ensuring that technology is embedded in ongoing professional development. This individual described how this coordination ought to look:

> "I would like…more structural, systematic ways to meet and plan together [with ESCs]. I understand that we may not be able to sit down and script out every PD, but if we…could support all the ESCs in embedding [identified teacher needs] in their professional development, there are instructional technology specialists in each of those ESCs, and we have a relationship with them. I would like to strengthen their role in this work and set up more structural, regular meetings with the ESCs to ensure that instructional technology is embedded."

In summary, numerous staff acknowledged the importance of coordination of ITI with district offices and ESCs. Being in its early stages, this coordination faced organizational barriers posed by the number of different ESCs and the isolation of the ITI team from other offices in OCISS. Successful coordination may require clear expectations from senior district leaders.

In what ways and through what channels did the district ensure coordination and accountability among ITI teams?

According to all of the team leads and one district administrator, communication and coordination among the different ITI teams is less efficient and consistent than it should be (see the introduction to this chapter for an overview of the team structure). A relatively common perspective was that it was difficult to bridge differences in perspective between staff who are affiliated with OCISS ("the instructional side") and ITD ("the IT side"). Describing this division, one interviewee said, "If you look at the structure of the teams, there's a very definite instructional side and then there's an IT side. And a lot of the instructional pieces of the project have been impacted because of the challenges that we've had on the technical end." All of the team leads indicated that inconsistent coordination inhibited the team's ability to respond to challenges that ITI experienced. For example, the district needed to decide whether to assign personalized Apple IDs to students or leave these IDs anonymous.[16] It appears that ITI team within ITD was in favor of the former approach, and the team members within OCISS were in favor of the latter. They each submitted separate proposals to the superintendent to make the final decision rather than resolving the issue among the ITI teams.

There were some formal and informal structures in place to facilitate coordination, but all of the team members interviewed stated that the usefulness of these structures varied. Formally, there was a weekly meeting involving all functional teams, but some team members indicated that these were not always productive or were cancelled because of scheduling conflicts. As one

[16] Apple IDs must be used to add or delete applications from a device. iPads were delivered with temporary, anonymous IDs that were not associated with student information. Schools could choose to convert the IDs so that students receive a personalized ID that they can use to update apps on the device. Or schools could choose to retain the temporary IDs and not issue personalized IDs. The former approach had the benefit of reducing staff effort in updating devices (because students could make the updates), with the drawback of relinquishing school control over apps being added to or deleted from the device. The converse was true of the latter approach.

instructional team member explained, "We would basically just go around the circle and talk about what you were doing, and it wasn't very productive. People were really not attending to what was being said. A lot of people were on their phones or sending out e-mails." There was also an ITI-specific shared drive that was supposed to contain all ongoing timelines, but team leads indicated that this was not always updated or checked regularly by all teams. On both the instructional and IT side, team leads stated that they used internal meetings, limited to just their own functional teams, to move forward on their tasks. One instructional team member pointed out the limitations of this siloed approach, saying, "It doesn't help in the sense of working with the [IT] side of our team, and I think that's where a lot of the gaps have come from on the project." It should be noted that the ITI project team was without a project manager since January 2015 when the previous person in this role left the team. All of the team members interviewed said that they believed improving and facilitating this cross-team communication to be the responsibility of the project manager who was recently hired in June 2015.

Accountability Structure With ITI Team. Overall, team leads reported that there was a weak accountability structure during Year 2. Perhaps as an indication of the lack of coordination, several team leads believed that their own teams had good accountability, but that other ITI teams did not. For example one instructional team lead stated, "There's been very little accountability. In my unit…we keep each other accountable because we're such believers in the project. I would not say that about every unit here." According to all respondents, the technical side had not met deadlines, with ripple effects across the whole project. One ITI team member stated, "There are times definitely where one team may not have met a deadline that impacted other teams, and that has been a bit of an issue." A similar finding was reported in the Year 1 evaluation report, indicating that the ITI team did not make progress in improving accountability. One prevalent sentiment among ITI team members was that the new project manager would be proactive in holding people accountable, rather than waiting until after things go wrong to address accountability.

Three team members connected the lack of accountability to a project plan that was not sufficiently clear, and that did not delineate who was responsible for certain tasks. As one instructional lead stated, "I think a lot of times we're not necessarily sure what people are working on or when things are due." One technical team member explained how the project plan should be improved, saying, "I would love to see [an] integrated project plan that has instructional and technology and PD incorporated into one project plan with tasks inside of each one with list of dependencies so that it was identified who would be clearly working on those tasks." Thus, clearer expectations in the ITI project plan for every task and every team role might improve accountability across the project.

In summary, the ITI team has had difficulty in coordinating key decisions between the instructional and IT groups. Team members were not held accountable for completing tasks, and this lack of accountability reflects lack of clarity in the project plan.

2.D. Communication

During the previous school year, ITI encountered challenges with communicating the purpose and promise of the initiative, both internally to school staff and externally to parents and the broader community. The evaluation issued a recommendation related to communication

encouraging the district to follow through on efforts (begun in Year 1) to develop differentiated training sessions for parents. The initiative's leaders identified several activities they would undertake during the 2014–15 school year to address the challenges and recommendation. This section reports on the district's progress in communicating with schools, parents, and the community about ITI.

This section addresses the following evaluation question:

- *How was information about the initiative communicated to project stakeholders (school staff, students, parents, and the public at large)?*

Aligned with this question, this section reports the extent to which the district implemented the ITI components related to communication (summarized in Table 10).

Table 10. ITI Components Related to Communication

Component	Definition	Data Source	Implementation Target
Communication with school staff	Principal meetings are facilitated by district staff to provide ITI updates.	Meeting agendas/ attendance sheets	Principal meetings offered frequently (7 or more times).
	District provides administrators and staff with up-to-date information and guidance on how to address issues that arise.	School administrator and technology lead interviews	Many administrators agree that the district provides up-to-date information and guidance (70%–89%).
	District implements planned communication vehicles.	Communication artifacts: ▪ Principal update ▪ Newsletter ▪ Director's Digest	Updates and newsletters were distributed according to planned frequency.
Parent engagement	District prepares presentation materials for schools to use for parent education workshops.	Artifacts of parent education workshop materials (engagement plan and presentations)	District develops parent education workshop materials.

Source: ITI Implementation Matrix.

The following sections describe the district's approach to communicating information about ITI to school staff, parents, and the public at large (respectively). Each section reports on district progress with attaining its implementation targets and considers the effectiveness of its communication efforts.

How was information about the initiative communicated to school staff?

One of the findings from the Interim Report was that there was a breakdown in communication between the leaders of the initiative and school-level staff, particularly with respect to deployment and purposes of the technology they received (apps and devices). Some school staff noted that information went from the district to the principal and did not always reach the

teachers. For 2014–15, ITI leaders expressed a goal of providing both administrators and teaching staff with up-to-date information and guidance on how to address various issues that arise. The evaluation in Year 2 focused on the different avenues for communication with school staff—both principals and teachers—and the extent to which the district achieved its stated goal with respect to both deployment and the purpose of the technology.

The Organizational Change Management (OCM) team developed the overall ITI communications plan for 2014–15, which articulated plans for communicating with principals and other internal stakeholders (e.g., ESC superintendents, instructional directors). At the time of review in May 2015, this document did not include plans for communicating with teachers. The ITI communication plan described several planned communication vehicles to be developed and distributed or offered. The evaluation team reviewed the following artifacts of communication to confirm that all had been developed and distributed as planned:

- ***A weekly principal update from the ITI director to principals of ITI schools delivered via e-mail.*** The evaluation team obtained artifacts of these updates and confirmed they were distributed weekly during Year 2. The update included an overview message highlighting upcoming events (e.g., workshops) and policy changes (e.g., requirements for deployment, distribution of Apple IDs). The body of the message consisted of updates from 10 recurring topic areas: Instruction, Readiness & Integration, Safety, Managing ITI Devices, Technical Support, Change Management, 1L Schools, Conferences and Special Events, 2B Schools, and Charter Schools.
- ***Updates about ITI submitted to the Director's Digest, the district's biweekly compilation of information and updates from various district departments.*** The Director's Digest is an existing district publication whose purpose is to keep the instructional directors (supervisors of principals) informed about district policies, programs, and events. The OCM team prepared an ITI update for submission to this publication. The evaluation team obtained artifacts of these updates and confirmed they were submitted on a biweekly basis during Year 2. Typical entries provided information about testing, upcoming professional development opportunities for teachers and principals, and deployment.
- ***A monthly project newsletter that was posted to the ITI webpage[17] and sent via e-mail to staff who had signed up to receive it.*** The evaluation team obtained artifacts of these updates and confirmed they were submitted on a biweekly basis during Year 2. The newsletter typically included the following elements: an article written by a district educator describing his or her experiences using technology; a highlight of an educational app such as Nearpod or StoryKit; a "Project News" section with ITI updates (e.g., professional development opportunities); and sections such as "Conferences and Workshops" and "Safety Zone" (the latter covering such topics as reporting of lost or stolen devices).
- ***Monthly principal meetings offered by the district to share project updates and to discuss technology integration.*** Based on reviews of agendas obtained from six principal meetings, typical project updates addressed deployment, device take-home, digital

[17] http://lausd.schoolwires.net/site/default.aspx?PageType=14&DomainID=21&PageID=5927&ModuleInstanceID=13519&ViewID=9d7780dc-000e-458b-ba39-cfc84059b040&IsMoreExpandedView=True

curriculum materials, digital citizenship, parent engagement, and professional development opportunities. Topics related to technology integration included blended learning and project-based learning. According to one ITI team member, an additional purpose of these meetings was to provide opportunities for principals to meet and share knowledge. The district offered seven such meetings, in line with its implementation target of offering these meetings frequently (seven or more per year). The district did not set targets for level of participation in these meetings, although it was evident that the level of participation varied. Attendance ranged from a high of 43 principals and 73 staff at the October 17, 2014, meeting to a low of 29 principals and 41 staff at the April 17, 2015, meeting.

- ***E-mail blasts from the director*** to principals and teachers announcing specific policies or events.

- ***VLCF communication.*** In addition to these vehicles, district staff stated that the primary avenue of communication with schools was through the VLCFs, who were expected to communicate policies and information directly to staff though formal presentations or informal discussion.

In summary, there were several avenues of communication with the schools, and our analyses of relevant data indicate that the district did implement the planned strategies for internal communication. It should be noted that the communication plan did not articulate plans for communicating with teachers. The next section reports difficulties with district communication with this group of stakeholders.

Effectiveness of Communication With Schools. Despite the implementation of these regular communication vehicles, some stakeholders indicated that information communicated by the district about ITI was unclear. In particular, ESC superintendents stated that communication was unclear about deployment (as noted in the previous section) and about security policies (e.g., device take-home). School staff also noted that communication could be improved. One frequent concern was with the flow of information to teachers, a finding that was similar to the previous year. Five principals stated that although there was ample information coming to them about ITI, they would like to see more information going to other staff. SLT members (at five schools) and teachers (at nine schools) concurred with this perception; they stated they were not getting much information about the initiative. Furthermore, teachers at five schools noted they generally did not have time to read initiative updates (e.g., the monthly newsletter). These teachers said they received information through word of mouth (i.e., informally from other school staff) or through the VLCF; SLT members at two schools concurred that they received information from their VLCF, who would forward information distributed during the monthly principals' meetings.

One of the district's implementation targets for school communication was that many administrators (defined as 70% or greater) would agree with the statement "The district provides up-to-date information and guidance about ITI to school staff." During site visits at the sample of 10 ITI schools, we asked school administrators and SLT members to rate their agreement with this statement. Respondents from three schools agreed, and respondents from seven schools

disagreed.[18] Apart from their concerns about communication with teachers (described above), three principals thought the information they received via the principal meetings could be improved to make the format more useful and the content more relevant to their role. These data, when combined with other findings, indicate that the district has not yet met its goal of effectively providing up-to-date information and guidance to school staff.

Several respondents (including one district administrator, participants in the ESC superintendent focus group, and teachers in one school) noted that ITI was not communicating a clear vision for the instructional uses of technology. One district administrator stated that the focus of the initiative—as interpreted and enacted by the schools the administrator had visited—was on using the devices as an end in themselves. This administrator further stated, "I think if we had spent just a little bit of time thinking through our expectations, we could have communicated that at the front end and highlighted the reason we're doing this." ESC supervisors made a similar point in their focus group, with one stating, "All of us are struggling with…what integration of technology really looks like."

In summary, the district's communication with teachers appeared to be channeled through school leaders or the VLCFs, and school staff believed these channels were not sufficient to keep teachers informed of the initiative. Thus, the district did not meet its target for providing up-to-date information and guidance to school staff. In addition, some district and school staff believed the vision for technology use was not sufficiently clear to teachers. There were several communication vehicles for principals, although level of participation in principal meetings varied, and some principals questioned the usefulness of the meetings.

How was information about the initiative communicated to parents?

The district created the 2014–15 ITI Parent Engagement Plan to guide its approach to communicating with parents. This plan, which is included in Appendix D, lists 10 presentations for the district to create and for schools to deliver to parents. These 10 sessions focus on different topics, such as the goals of ITI, how to navigate the district's website, basic digital literacy skills, online safety, and the use of various apps and computing resources. Based on a review of publicly available materials, the district developed the 10 sessions listed in the plan as of November 2014, thus meeting the implementation target. According to district staff, these sessions were designed to be delivered by school staff or VLCFs, assisted by parent relationship coordinators (ESC-level staff who work with schools and parents to promote family engagement).

The district encouraged schools to hold information meetings using these materials to engage with parents, and the Technology Readiness Checklist (described in section 3.A) directed schools to set specific dates for such meetings. The extent to which schools in fact offered these sessions could not be determined; the district did not track parent engagement sessions offered by schools. Two ITI team members indicated that the district's approach was to let each school take the lead with communicating with parents about its plans for technology integration. In half of the ITI schools (all levels), stakeholders mentioned the use of district presentations when

[18] The respondents used a 4-point scale, with 1 and 2 representing levels of disagreement and 3 and 4 representing levels of agreement. There were three ratings of 3, four ratings of 2, one rating of 1, and two responses that expressed disagreement without specifying a numerical rating.

discussing their approach to communicating with parents (school staff were not asked directly whether they used these materials). Thus, the case study sample suggests that schools are commonly using these materials.

During our site visits to case study schools, communication with parents was a topic addressed. Findings from parent focus groups indicated that schools used multiple methods to communicate with parents about the ITI project, including parent meetings, e-mail, websites, newsletters, flyers, and one-on-one conferences with staff. The most commonly reported means of communicating with parents, reported by stakeholders at eight of the 11 schools, was through parent meetings that incorporated the presentations developed by the district. Meetings were held before deployment in order to introduce the initiative, explain to parents the expectations and rules for the devices, and distribute permission forms for parents to sign. In six schools, school leaders or parents reported that the schools also provided technical training to parents, including training on how to login to view their child's grades or how to communicate with their child's teacher via e-mail. Thus, it is apparent that the parent engagement plans were implemented at least to some degree in some schools.

Effectiveness of Communication With Parents. Two ITI team members were uncertain whether the district's efforts to communicate with parents were effective, in particular with respect to the amount of latitude given to schools in determining whether to hold parent engagement sessions. One respondent stated that parents were not as informed as they should be, and another stated that the district should hold schools accountable for engaging with parents. Although school staff mentioned using parent engagement materials, they offered very little information about the quality or effectiveness of these materials. Parent opinions about the effectiveness of school communication are discussed further in the case study analysis, in Chapter 4.

In summary, the district implemented its planned strategy for engaging and communicating with parents in Year 2. ITI team members developed a parent engagement plan and distributed the presentation materials described in the plan to schools. However, the "last mile" of the district's strategy relies on schools, and district staff are uncertain as to the extent to which schools are holding parent engagement meetings and otherwise communicating with parents. Our findings suggest that at least some schools are offering these meetings and using at least some of the presentation materials.

How was information about the initiative communicated to the public at large?

As part of the Year 1 evaluation, several district administrators stated that communication with the public at large was a priority for improvement. In particular, these respondents stated that there was a pervasive negative view of the project as a result of highly public controversies and criticisms related to the use of public bond funds, the cost of the devices, the procurement process with Apple, and the selection of iPads to the exclusion of other devices. During Year 2, the evaluation team asked several district administrators and team leads about the district's strategies and efforts to communicate with the broader public. One commonly expressed belief was that change of name (from Common Core Technology Project to Instructional Technology Initiative) was intended to shift the focus and perception of the initiative to instruction and away from the controversies. Many of the district's press releases have emphasized a change in vision

of the project. Specifically, the district issued four press releases about work of the Instructional Technology Task Force[19] and invited the press to meetings with the task force. The district released two public statements from the superintendent in which he stated he would carefully listen to public input on the initiative and signaled that the district was considering different funding sources and the inclusion of a variety of different devices beyond the iPad.[20] Thus, the district appeared to be taking steps intended to improve the public perception of the initiative.

Effectiveness of Communication With the Public at Large. In assessing the effectiveness of the district's public communication efforts during the 2014–15 academic year, three district administrators along with ESC superintendents stated that the district still needs to do a better job of communicating the benefits of the program in particular and the importance of educational technology in general. One administrator stated, "I think we need to get on the front end of telling the stories that are happening, the life-changing stories. These are changes for children's lives. We don't do that." This same administrator explained the difficulty in changing the public's perceptions:

> "It's hard for somebody who's not in education to perceive that device as an instructional tool, and I think that's a [communication] piece that we've struggled with.…[The public] lost sight of the fact that this was really about the amazing things kids can do and teachers can do in classrooms."

An ITI team member concurred on both points and stated that the district needs to focus on "leveraging the good work that's happening in our schools and having more videos and vignettes and articles about students that are leveraging technology with teachers and parents." In consonance with these opinions, another district administrator stated that external communication needs to be a major emphasis of the new vision for the initiative. One explanation for why this message has not been clear is that the district's vision is currently under development by the ITI task force. One team member acknowledged that the communication effort was in a "holding pattern" until the vision could be finalized.

In summary, the district communicated with the public at large mainly by developing press releases focusing on the new direction of the program. Administrators believe that the public still has misperceptions about the initiative's purpose and value, stemming in part from the district's own lack of a clear vision for the initiative. They further believe that a clearer message about the initiative's vision will follow from the recommendations of the ITI task force.

2.E. Instructional Support for Technology Integration

This section describes the district's efforts to support technology integration through professional development workshops and job-embedded instructional support provided by VLCFs. The 2014 Interim Report described the professional development workshops offered to teachers in Phase 1

[19] "Dr. Burton comes back to LA to create an ITI committee" 2/4/15; "LAUSD's Instructional Technology Initiative Task Force Launches," 3/23/15; "LAUSD Instructional Technology Initiative Task Force Holds First Meeting," 4/10/15; LAUSD ITI Task Force Holds Second Meeting," 4/23/15.

[20] "Statement from Superintendent Cortines committing to CCTP," 10/23/14; "News statement from Superintendent Cortines stating need to explore resources for funding," 2/20/15.

schools and the typical ways in which VLCFs were providing on-site instructional support. Key findings from last year were as follows:

- The district's centralized professional development workshops focused mainly on device operation; school-based staff stated that these sessions did not adequately prepare them for integrating technology into instruction. Moreover, fewer than half of staff who received an iPad attended these sessions.
- The district expected the VLCFs to prepare school leadership teams both prior to and following deployment, but, in most cases, VLCFs had not yet worked with these leadership teams as of spring 2014. The challenges of deployment and technical support drew the focus of VLCFs, as well as district ITI leaders, away from supporting integration of technology into instruction to focusing on troubleshooting technical problems.
- Professional development related to the Common Core State Standards did not address use of the technology made available through ITI.

Based on these findings, the Interim Report recommended that the district provide teachers with professional development on a variety of development approaches to integrating technology into classroom instruction. It also recommended that the district ensure sufficient numbers of VLCFs, as well as clarity with respect to their roles, to allow them to provide support for technology integration. To follow up on these findings and recommendations, this section addresses the following evaluation questions:

- *What were the professional development plans for Year 2? Were they implemented and utilized as intended?*
- *What was the district's approach to hiring and training VLCFs for the 2014–15 school year?*
- *What continual training and support did VLCFs receive from district leadership to perform their roles and responsibilities?*
- *Did VLCFs support schools as intended?*
- *Did the district procure, create, and distribute digital instructional resources as intended?*
- *To what extent did the district support schools with change management?*

Aligned with these questions, this section describes the extent to which the district implemented the ITI components related to instructional support listed in Table 11.

Table 11. ITI Components and Implementation Targets Related to Instructional Support

Component	Description	Data Source	Implementation Target
District Professional Development	The ITI Instructional team offers workshops on how to integrate technology into instruction (including Common Core-aligned instruction).	Learning Zone records	The district regularly offers PD workshops on how to integrate technology (4–6 per year).
District Professional Development	Teachers from ITI schools participate in district-offered PD workshops on how to integrate technology into instruction.	Learning Zone records	In at least 75% of ITI schools, at least 51% of teachers participate in at least one district-offered PD workshop on technology integration.
District Professional Development	Train-the-trainer sessions on device usage and content are delivered to ITI schools.	Learning Zone records	Staff at most ITI schools are trained (approximately 90%–100%).
VLCFs	Each school has access to district instructional support staff (VLCFs).	VLCF staff list	VLCFs are assigned to provide support to up to 4 schools or 2,499 students.
VLCF Support	Instructional support: for the implementation and use of digital content	VLCF logs	In at least 75% of ITI schools, the VLCF supports use of digital content at least once per week.
VLCF Support	Instructional support is provided in SLT setting, for implementing, monitoring, and supporting school site goals relative to Common Core and technology integration.	VLCF logs	In at least 75% of ITI schools, the VLCF supports the SLT at least once every other week.
Change Management	Schools complete ADKAR survey postdeployment.	ADKAR survey data	Many schools complete ADKAR survey (approximately 60%–79%).
Change Management	The OCM team develops a change management plan 3 months after each school completes the ADKAR survey.	School site plans	A change management plan was shared with the SLTs in some of the ITI schools (approximately 40%–69%).

Source: ITI Implementation Matrix.

What were the professional development plans for Year 2? Have they been implemented and utilized as intended?

This section describes the planned focus of professional development for 2014–15 and discusses whether these plans were implemented and utilized as intended. During 2014–15, the district offered three types of professional development to support ITI implementation: (1) centralized ITI staff workshops focused on technology integration, (2) train-the-trainer workshops focused on device usage, and (3) Educator Strategic Planning workshops for school leaders. The first two

were developed and offered by district staff, and the third was developed and offered by Apple Professional Development.

Centralized Professional Development. Our evidence suggests that centralized district professional development plans for Year 2 reflected a shift in focus from Year 1 with the intent to move beyond device operation and toward the integration of technology with instruction. Table 12 provides a brief description of each centralized workshop that was developed and offered, as indicated by workshop registration records. The majority of workshops (three of five) focused on the use of particular sets of tools (productivity, creativity, and Google tools) to support Common Core implementation. ITI team members stated that the team developed the workshops to be applicable to instruction. One member of the ITI team stated, "It's about the instruction, 100 percent about the instruction. So that's almost everything they do." The purposes of the professional development, as stated and described by ITI team members, contrast with that which was offered last year, which was focused mainly on basic device usage (as described in the Interim Report). It is important to note, however, that four of the five workshops focused on using iPads or other devices using iOS. Only one of the five workshops was relevant to schools with other devices (namely, the 20 schools in Phase 1L).

Table 12. Descriptions of Centralized ITI Professional Development Workshops (2014–15)

Course Name	Description
Enhancing Common Core Instruction through Integration of iOS Devices (device training)	Participants will gain experience using the iPad. They will learn basic navigation and explore key accessibility features and apps (Keynote and Pages) as they apply to teaching and learning.
Enhancing Common Core Instruction through Integration of iOS Productivity Tools	Participants will gain a basic understanding of how to use iOS productivity tools to support implementation of the Common Core State Standards.
Enhancing Common Core Instruction through Integration of iOS Creativity Tools	Participants will gain a basic understanding of how to use iOS creativity tools to support implementation of the Common Core State Standards.
Enhancing Common Core Instruction through Integration of Google Tools	Through the use of student MyMail accounts, participants will learn how to use Google Apps for Education to promote student interaction and collaboration. Participants also will build a foundation to utilize productivity tools to apply existing knowledge to generate new ideas, products, and processes.
Common Core Shifts and the Paperless Classroom (iOS)	Participants will experience how technology can assist in meeting the demands of the Common Core shifts in ELA, math, and other content areas. Participants will gain hands-on experience and create digital instructional materials directly applicable to their teaching context using an iPad.

Source: "Professional Development," ITI website, http://achieve.lausd.net/Page/8052.

The district set an implementation goal of developing and offering 4–6 staff workshops in 2014-15 focused on the integration of technology with instruction. As indicated in Table 13, the district developed and offered five workshops related to the integration of technology with

instruction, thereby meeting its stated goal for the frequency and focus of professional development offerings.

ITI leaders aspired to have all or nearly all teachers in participating schools attend professional development workshops. For the 2014–15 school year, ITI leaders set a target of having at least 51percent of teachers per school, in at least 75 percent of ITI schools, participate in at least one workshop on technology integration.[21] Based on attendance records from all centralized ITI professional development workshops,[22] the district fell substantially short of its utilization goal. Specifically, more than three fourths of all ITI schools had fewer than 25 percent of their teachers attend one or more of the district-offered professional development workshops on technology integration. More than one third of schools did not have a single teacher participate in these workshops. Only 16 percent of the 101 ITI schools in all phases (1, 1L, 2a, 2b) had more than 51 percent of their teachers attend one or more of the technology integration workshops offered by the district.

Participation levels in district-sponsored professional development varied by implementation phase and by school level, with Phase 2A and elementary schools showing the highest rates of participation and Phase IL and high schools showing the lowest rates of participation. For example, nearly all Phase 1L schools had no teachers who participated in a single workshop; this reflects the finding, described above, that most of the workshops were not applicable to schools that had devices other than iPads. By contrast, nearly half of the Phase 2A schools had at least 51 percent of their staff participate in district-sponsored professional development. These findings are summarized in Table 13.

Table 13. Proportion of Schools With Differing Proportions of Teachers Who Participated in ITI Professional Development Workshops

	Phase				School Level				Overall
Proportion of Teachers Participating (Target: >50%)	**1**	**1L**	**2A**	**2B**	**Elem**	**Middle**	**High**	**Span**	
0%	32%	95%	18%	11%	15%	6%	75%	83%	37%
1%–25%	45%	5%	36%	48%	37%	76%	22%	17%	38%
26%–50%	5%	0%	0%	30%	17%	6%	3%	0%	10%
51%–75%	7%	0%	18%	0%	9%	6%	0%	0%	5%
76%–100%	11%	0%	27%	11%	22%	6%	0%	0%	11%
Total *N* of schools	44	19	11	27	46	17	32	6	101

Source: LearningZone registration records.

[21] District staff did not indicate whether they expected teachers to attend some or all of the sessions. The evaluation team considered attendance at one of the offerings to count toward this implementation target.

[22] No records were available for the number of "device training" workshops offered by school staff to their fellow teachers, nor the attendance at such workshops. Thus, it is possible that this analysis undercounts teacher participation in workshops. However, it also should be noted that the device training workshops are not focused on technology integration. Therefore, the analysis does not undercount participation in the remaining four workshops that are focused on technology integration.

Train-the-Trainer Workshops. In addition to workshops offered directly to school staff, the district also offered train-the-trainer workshops to enable school staff to offer in-house training to their colleagues. The district developed one workshop for staff using iOS-based devices (iPads) and another for staff using Microsoft-based devices (e.g., the Lenovo laptop or Microsoft Surface tablet).

The district's overall target for participation was to have at least one staff member from 90 percent to 100 percent of ITI schools participate in train-the-trainer workshops. Attendance records showed that the district fell substantially short of its target. Specifically, less than one fourth (24%) of all ITI schools had one or more staff participate in this training. However, this figure varies considerably by phase and by school level. For example, more than two thirds of Phase 1L schools participated, and fewer than 10 percent of Phase 1 schools participated. Similarly, rates of participation in train-the-trainer workshops at the high school level, where deployment was in its early phases, were higher than rates at either the elementary or middle school levels. These findings suggest that participation in the train-the-trainer workshops was highest among schools deploying for the first time this year, where most teachers have not previously received the basic device training or attended workshops focused on integrating technology with instruction.[23] Table 14 summarizes participation by phase and school level.

Table 14. Percentage of ITI Schools From Which One or More Staff Participated in Train-the-Trainer Workshops

	Phase				School Level				Overall
	1	**1L**	**2A**	**2B**	**Elem**	**Middle**	**High**	**Span**	
Number participating	3	13	3	5	4	5	15	0	24
Percent participating (Target: 90% or more)	7%	68%	27%	19%	9%	29%	47%	0%	24%
Total *N* of schools	44	19	11	27	46	17	32	6	101

Source: LearningZone registration records.

Educator Strategic Planning Workshops. Principals and SLT members were eligible to participate in an Educator Strategic Planning workshop facilitated by Apple Professional Development Specialists. According to materials from the developer, "The four-day program is based on best practices from Apple Distinguished Schools and aids participants in creating and executing a localized action plan" for integration of Apple technology in a one-to-one model.[24]

The district set a target for at least one staff member from 60 percent to 79 percent of ITI schools to participate. District records of school participation indicate that less than half of schools participated (44%), thus approaching but not meeting the implementation target. Table 15 summarizes participation in this workshop.

[23] Teachers in Phases 2A and 2B received their devices the previous year; only Phase 1L did not receive student or teacher devices until the current school year.
[24] https://www.apple.com/id/education/docs/apd_catalog_april_2014.pdf

Table 15. Percentage of ITI Schools From Which One or More Staff Members Participated in Apple Strategic Planning Workshop

	Phase				School Level				Overall
	1	**1L**	**2A**	**2B**	**Elem**	**Middle**	**High**	**Span**	
Number of schools	18	N/A	8	10	27	4	5	0	36
Percent of schools (Target: 60%–79%)	41%	N/A	73%	37%	59%	24%	36%	0%	44%
Total *N* of schools	44	N/A	11	27	46	17	14	5	82

Source: Internal e-mail communication from ITI team lead.

Perceptions of Centralized Professional Development Workshops. Three district staff stated that the current set of centralized workshops were not yet sufficient to prepare teachers to use technology in the ways envisioned by the district. For example, one ESC superintendent stated the professional development should more strongly emphasize the transformational uses of technology:[25]

> "If you look at professional development in our system, it's still very traditional [with respect to instructional practices]…I've been at ITI PD. It's like, 'Okay, this is how you use the device. This is how you access different apps.'…The device just becomes a substitute for content, almost.…So, it's not, 'Hey, let's make a podcast. Hey, let's have a blog.'"

Consistent with this viewpoint, one ITI team member noted that, based on survey data collected from approximately 35 schools, the majority of teachers in elementary schools reported that they had not been adequately trained on how to use these devices for instructional purposes. Another ITI team member stated that the catalog of workshops should be greatly expanded, so that it constitutes a library of resources that VLCFs could draw upon as necessary.

During site visits, school staff at five schools noted that they needed further professional development to help them better integrate technology into their instruction. As further described in Chapter 4, staff in several schools requested workshops that were differentiated to various levels of proficiency or comfort with technology. Staff in two different schools stated that the only training they had received was on device usage, and that their teachers have little understanding of how to use the technology for instructional purposes. One school was a Phase 1L school, and as previously mentioned, the district did not in fact have workshops that went beyond device training for such schools at the time the interview was conducted. The other school was an iPad school, and the absence of participation in workshops beyond device training suggests a breakdown in communication about the full extent of professional development offerings.

Potential Factors Contributing to Low Utilization of Professional Development. Although the data suggest that the ITI team indeed made the shifts it intended in the topical focus of professional development offerings this year, data also show that all three district-sponsored professional development strategies fell short of utilization targets. One potential factor identified through interviews was related to the expectations and accessibility of professional

[25] We could not verify whether this interviewee had attended the ITI workshops developed this year.

development sessions. According to several respondents, attendance at the centralized workshops was not mandatory. The turnout for the centralized workshops offered in the fall was low, in part because these workshops were offered on the weekends or after school (at a separate location rather than the teachers' home school). In response to the low turnout and feedback about inconvenient locations and times, project leaders expanded their model for professional development from a centralized model to one that happens at specific school sites. Under this model, a school was able to schedule an on-site afterschool professional development workshop if it had at least 15 staff members sign up for it. The on-site workshops were also open to staff from other schools. In the opinion of two ITI team members, this on-site model for professional developed has increased attendance.[26] One team member explained as follows:

> "In the fall, our attendance was lower than we had hoped, and so that really changed our strategy. Instead of just scheduling professional development, we went through the VLCFs, and we had them go to their school place and say, 'Would you like us to do professional development at your site right after school?' And so since we switched to that method, we had much higher attendance."

A final reason for low attendance was the fact that most workshops focused on tools available on iOS-based devices, thus excluding Phase 1L.

In summary, the district developed five centralized professional development workshops, meeting its target. Most of these workshops focused on the use of different of sets of tools (productivity, creativity, and Google) for implementation of the Common Core State Standards. Participation in these workshops was low, in part because of inconvenient times and locations and in part because most workshops focused on iOS tools and therefore were not applicable to Phase 1L schools. Staff at the district and school levels noted that the current offerings are not sufficient to address the range of teacher knowledge and skill with technology integration.

What was the district's approach to hiring and training VLCFs for the 2014–15 school year?

VLCF Hiring. The district's approach to hiring VLCFs was similar to the previous year (2013–14). As before, VLCFs needed to have a valid California teaching credential and at least five years of classroom experience. They were interviewed by a panel of ITI staff, and their application materials needed to include samples of classroom assignments they had developed that incorporated technology.

The district's main objective for VLCF hiring was to reach a target ratio of VLCFs to ITI schools. The district increased the number of VLCFs in Year 2 to 28, from a range of 11 to 13 at different points of time during Year 1. In addition, the district hired three supervisors for the VLCFs (called instructional readiness facilitators). ITI leaders set a target for each VLCF staff member to support no more than four schools with no more than 2,500 students. This would allow each VLCF to spend one day per week at each school, with one day per week for meetings and other duties (e.g., developing professional development materials). Using district records of ITI school assignments and student enrollments, we sorted VLCFs into three categories of levels

[26] This increase could not be independently verified through attendance records because these records did not include location codes.

of school assignments. As displayed in Table 16, nearly 40 percent of VLCFs met the target, and half were approaching the target. These findings indicate that the district approached but did not meet its targeted VLCF:school ratio.

Table 16. Number and Percentage of VLCFs With Different Levels of School Assignments

VLCF School Assignments	*N*	Percent
More than 8 schools or more than 4,001 students	3	11%
5 to 7 schools or 2,501– 4,000 students	14	50%
Up to 4 schools or 2,500 students	11	39%
Total	28	

VLCF Training. The district enhanced its process for providing initial training to VLCFs as well. In July 2014, newly hired VLCFs participated in a weeklong training session that was facilitated by all of the ITI team members from the previous year. Based on a review of the agenda provided by one of the training's developers, the session included workshops focused on organizational management, use of digital resources for instructional technology, design thinking, coaching, working with principals, among other topics related to VLCF responsibilities. New VLCFs participated in job shadowing with an experienced VLCF for at least a week before beginning their on-site support.

What continual training and support did VLCFs receive from district leadership to perform their roles and responsibilities?

Evidence suggests that the district is currently using three related strategies to provide VLCFs with ongoing support for their role. The district has clarified VLCF responsibilities, added staff to supervise VLCFs and provide feedback on their performance, and provided time for weekly meetings and collaborative planning.

Exhibit 4 summarizes the VLCF responsibilities as described in a more detailed document provided by the Instructional Readiness team. As indicated in the table, VLCFs were provided with expectations regarding the focus of their work with school leadership teams and staff, as well as serving as a liaison within and between schools and the ITI initiative as a whole.

Exhibit 4. Major Categories of VLCF Responsibilities

VLCF Focus Areas and Specific Actions
Instructional Support Expectations Support school leadership team in setting, implementing, monitoring, and supporting school site goals relative to the implementation of the Common Core State Standards and technology integration. Support the implementation and use of digital content.
Stakeholder Relationship Expectations Facilitate communication between ITI and the school site, through school site leadership. Create and maintain relationships with school site administration and staff. Promote and facilitate cross-team and teacher collaboration through the use of online collaborative tools (e.g., Google docs, Office 365, etc.).

Systems and Operations Support Expectations[a]
Provide help and support where needed, in regards to ITI (e.g., maintain accurate records of necessary forms, advocate for schools to receive the needed resources from ITI personnel and central offices)

Source: Internal LAUSD document developed by ITI Instructional Readiness team.
[a]The expectations document did not provide an overall description of Systems and Operations Support. The description in this exhibit was written by the evaluation team based on examples listed under this category.

As mentioned in the section on VLCF hiring, the instructional readiness team added three instructional readiness facilitators to serve as supervisors of the VLCFS in 2014–15. These supervisors reviewed logs submitted by VLCFs to monitor the proportion of time spent on operational, instructional, and technical support, and they evaluated VLCF performance with reference to the written expectations for the role.

Finally, as previously noted, the district increased the numbers of VLCFs this year. This has meant that most VLCFs now have one day per week for meetings and for engaging in other duties to enhance their work with schools (e.g., plan and develop professional development for school staff).

Did VLCFs support schools as intended?

As noted in the Year 1 report, during 2013–14 VLCFs had limited opportunity to provide ongoing instructional support for teachers. This was due in part to the high demand for technical support among Phase 1 schools as well as restrictions on their role due to the public bond funding used to pay VLCFs. In 2014–15, following a change in funding to the LAUSD district, ITI leaders anticipated that VLCFs would focus less on technical and operational support than in Year 1. The clearer guidelines for VLCF responsibilities and increased supervision for VLCFs (described in the previous section) also represent efforts by ITI to increase its focus on instructional support. Evidence suggests that while VLCFs spent roughly half of their time on instructional support in 2014–15, they did not meet implementation targets for the frequency of that support to school staff.

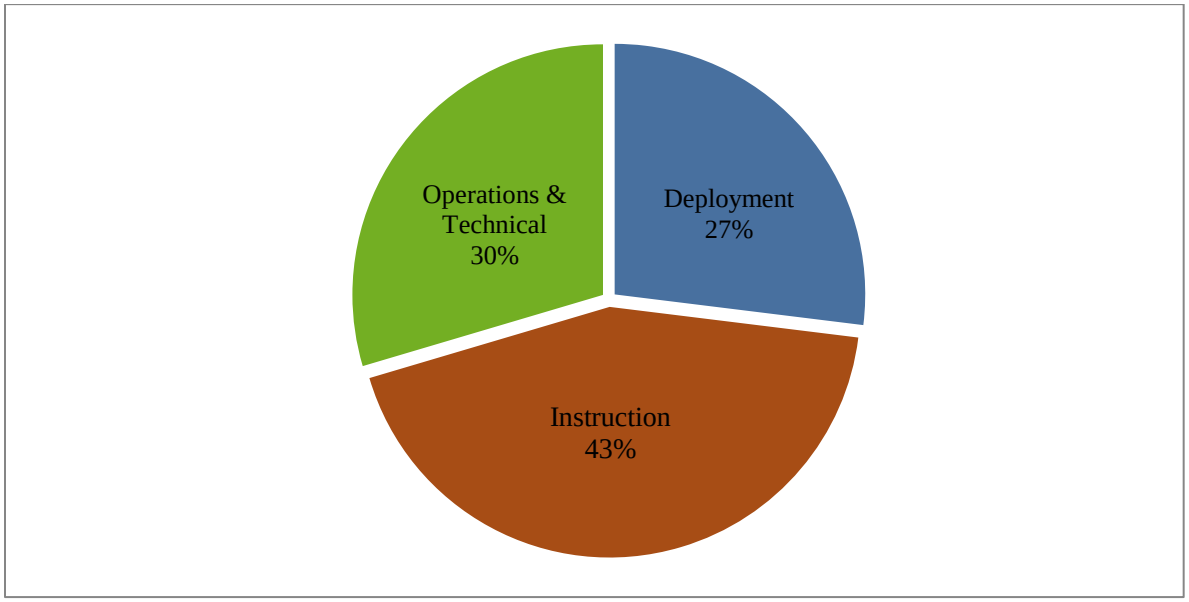
Proportion of VLCF time dedicated to instructional support. To quantify the amount of time VLCFs spent on different activities, we analyzed their daily activity logs. As explained in Appendix B, the VLCF log included 21 predefined activities that were each nested within one of the following three broad domains of support:

- **Instruction**, including activities such as on-site coaching, modeling, and co-teaching; delivering custom or centralized professional development; creating customized resources such as lesson plans; and supporting school leadership in developing technology plans
- **Operations and Technical**, including activities such as attending ITI project planning meetings; supporting schools with asset management or MDM use; and providing technical support (resolving technical issues with devices and coordinating with MCSAs and the Help Desk)
- **Deployment**, including activities related to the preparation for deployment (planning the site distribution model); assisting schools with completing take-home checklists;

delivering technical trainings to prepare staff to assist with personalization and inventorying of devices; and assisting with the distribution of devices

The individual categories are further explained in Appendix B. Figure 2 summarizes the level of activity by these broad domains. Consistent with the district's expectations, VLCFs spent the greatest amount of time on activities related to instruction (43%). VLCFs spent 30 percent of their time on operations and technical activities and more than one fourth of their time (27%) on deployment-related activities. It is likely that this latter proportion reflects the initial support that schools require, such as completing the Technology Readiness Checklist and the multiple activities specified there (e.g., devising a deployment plan). Should the district accomplish its goal of shifting more deployment responsibilities to schools, the VLCFs would presumably have more time to spend on other activities. A table displaying percentages of time spent on specific activities within these three broad categories is provided in Appendix F, Table F-1.

Figure 2. Proportion of VLCF Time Spent on Different Domains of Support During the 2014–15 School Year



The remainder of this section discusses the role of VLCFs in providing instructional support; we will discuss the VLCF role in coordinating with technical support staff (i.e., MCSAs) in section 2.F (Technical Support).

VLCF Support to Teachers on Technology Integration. ITI leaders set an implementation target for VLCFs to support teachers on technology integration once per week in each participating school. Evidence suggests that the frequency of VLCF instructional support for staff is not yet meeting ITI targets. Based on the VLCF logs for Year 2, we calculated for each school the proportion of weeks[27] in which its VLCF had provided instructional support to

[27] To determine this proportion, we tallied the number of days on which the VLCF provided instructional support (as indicated in the VLCF logs) and divided this number by the total number of weeks school was in session from mid-August through April. Given that during certain weeks it would not be practical for VLCFs to provide this support

teachers (e.g., customized professional development, coaching and modeling).[28] The frequency of instructional support did not approach the target in more than half of the schools. Just over half of all ITI schools received instructional support from the VLCF less than 0.4 times per week. VLCFs approached, but did not meet, the targeted frequency of instructional support in 36 percent of schools (who received this support between .4 and .8 times per week). Ten percent of schools received instructional support at the target level of frequency or greater. These findings are summarized in Table 17. More than 80 percent of Phase 1L and 2B schools were not approaching the targeted frequency of support, whereas most Phase 2a schools were at least approaching the target. It seems likely that the later deployment dates of Phase 1L schools and the absence of deployment in Phase 2B schools limited the frequency of instructional support.

Table 17. Proportion of Schools Receiving Different Frequencies of Instructional Support from VLCFs

	Phase				School Level				Overall
Frequency of VLCF Instructional Support	**1**	**1L**	**2A**	**2B**	**Elem**	**Middle**	**High**	**Span**	
0–0.4 times per week	55%	82%	9%	84%	48%	76%	69%	100%	62%
0.4–0.8 times per week	39%	12%	64%	8%	37%	24%	24%	0%	29%
0.8–1 time per week (implementation target)	2%	6%	9%	8%	9%	0%	3%	0%	5%
> than once per week	5%	0%	18%	0%	7%	0%	3%	0%	4%
Total *N* of schools	44	17	11 a	25 a	46	17	29	5	97a

Source: VLCF logs collected during the 2014–15 school year.
[a] Four schools were excluded from the denominator: two Phase 1L schools with missing log data, and two Phase 2B schools that declined assistance from the VLCF.

These findings are reflected in comments made during site visits to ITI schools. The most frequent complaint, voiced by stakeholders at several schools, is that the VLCF did not spend sufficient time at their school site, although they recognized that VLCFs had other demands on their time.

Nature of VLCF Instructional Support Provided to School Staff. Participants in VLCF focus groups described how they were supporting teachers in integrating technology into instruction, and the VLCF perspectives suggest more extensive instructional support provided to teachers than the log data indicate. VLCFs reported frequent communication and conversation with teachers and mentioned in particular assisting teachers with lesson planning.

Explaining the focus on technology integration into lessons, one VLCF noted:

> "[I] make technology work with what [they're] doing. So, they have their lesson plans. They have their ideas of what they want to do already. So, I just help them then incorporate the iPad into that lesson that they've already generated. So it's not, "Here,

(e.g., during testing), we considered 26 occasions of instructional support (i.e., 80 percent of 33 weeks) to meet the district's target.
[28] Instructional support was defined more narrowly than the broad "Instruction" domain.

let's teach all day, and we need an hour of iPad time.'"

In addition to providing workshops to groups of teachers as mentioned earlier, certain VLCFs reported meeting frequently with individual teachers. At least two VLCFs noted that teachers felt comfortable requesting assistance with lessons (e.g., planning, modeling, or observing). One VLCF stated, "We meet with at least two or three teachers a day.…They'll stop you in the office and run some ideas by you…we have that constant interaction with teachers." Similarly, another VLCF described "constant communication" with her teachers.

Interviews and focus groups with staff at 10 ITI schools corroborated these descriptions of VLCF support. Staff from eight of the 10 schools reported that their VLCFs provided several types of instructional support, including professional development (in 5 schools), instructional demonstrations (2 schools), one-on-one coaching (4 schools), and providing instructional resources (1 school) to teachers. School administrators in two schools stated that the VLCFs were critical in providing instructional support to teachers. One principal noted that she could not handle the role by herself, explaining, "It's great to have that extra body helping me with instruction and also with servicing the iPads when they're broken." This comment is also noteworthy because it indicates that this principal turned to the VLCF for technical support. Indeed, stakeholders at four schools reported that VLCFs provided technical support. Again, section 2.F addresses issues related to VLCF coordination with MCSAs on technical support.

VLCF Support for School Leadership. One of the stated roles of the VLCF, as described by ITI leaders, was to support school leadership in setting and implementing school goals for technology integration. Evidence suggests that the frequency of VLCF support for school leadership teams was not yet meeting ITI targets in 2014–15. ITI leadership anticipated that VLCFs would assist school leadership teams at least twice per month. According to VLCF logs, about 15 percent of schools received leadership support from VLCFs at least twice per month, and an additional one fourth received support at least once per month. Nearly three fifths of schools received this support less than once per month. Thus, the district has not yet approached its implementation target for VLCF support for school leadership. As with support for instructional technology (Table 17), very few Phase 2B schools received frequent VLCF support. These findings do not differ notably by school level, as summarized in Table 18.

Table 18. Proportion of Schools Receiving Different Frequencies of Support for School Leadership Teams from VLCFs

	Phase				School Level				Overall
Frequency of VLCF Support for SLT	**1**	**1L**	**2A**	**2B**	**Elem**	**Middle**	**High**	**Span**	
Less than once per month	57%	47%	36%	80%	63%	76%	38%	80%	59%
At least once per month	27%	35%	45%	8%	24%	18%	38%	0%	26%
At least twice per month	14%	12%	9%	8%	9%	6%	17%	20%	11%
At least once per week	2%	6%	9%	4%	4%	0%	7%	0%	4%
Total *N* of schools	44	17 a	11	25 a	46	17	29	5	97a

Source: VLCF logs collected during the 2014–15 school year.

[a] Four schools were excluded from the denominator: two Phase 1L schools with missing log data, and two Phase 2B schools that declined assistance from the VLCF.

Although the frequency of assistance to SLTs did not meet the district's target in 2014–15, interviews with school staff suggest that VLCFs were indeed supporting SLTs in at least some schools. Staff at four case study schools stated that VLCFs provided substantive support for technology planning (as described further in Chapter 4). Aspects of this support included the following:

- Planning customized professional development workshops with their schools to address topics requested by school leaders. These workshops were, in some cases, followed by coaching, modeling, and feedback on teacher lessons.
- Setting up teacher collaboration through online collaborative tools. For example, one VLCF described setting up an online sharing platform for school leaders and teachers to collaboratively develop and refine lessons (organized by grade level).

Chapter 4 (Case Studies) provides additional findings about the extent to which teachers within schools have been collaborating to support technology integration.

In summary, VLCFs spent about two fifths of their time on activities related to instructional support. They assisted teachers with instructional technology and school leadership teams with short- and long-range technology planning, but not at the targeted levels of frequency. VLCFs are spending the majority of their time on operational or technical support, including support for deployment, suggesting that these duties are precluding them from providing instructional support as frequently as envisioned by ITI leaders.

Did the district procure, create, and distribute digital instructional resources as intended?

One critical resource the district sought to provide for ITI schools was a set of digital instructional resources, such as lessons with interactive content and assessments aligned to the Common Core. As reviewed in the Introduction, in the district's original contract, each device came bundled with digital instructional resources developed by Pearson. The district intended to provide a full set of mathematics and ELA instructional resources addressing the Common Core in every grade. The consensus of district staff in Year 2 was that the Pearson CCSoC did not fulfill these expectations. Major issues noted by several district- and school-level respondents included the following:

- The curriculum was incomplete. Respondents noted that parts of the Pearson curriculum (e.g., particular units of courses) were missing, that it lacked the expected assessment materials, and that expected updates to the content were not made.
- There was a technical problem with the first version of the K–1 app that necessitated removing and reinstalling the app on all K–1 devices.
- There were other technical issues, such as difficulty resetting passwords and students getting logged out of the Pearson site without warning.

These technical problems undermined the desire of school staff to use the app. As one ITI team member stated, "We spent so much time working on [the technical issues], it kind of killed the momentum, if we had any momentum, with [implementing] the overall Pearson product." As noted in the Introduction, a letter to Apple from the district's attorney expressed strong dissatisfaction with the Pearson app and demanded a refund to the district.

As described in the Introduction (Summary of Initiative in 2014–15), the district procured a different set of curriculum materials that were bundled with each type of device available to schools in Phases 1L and 2B. Because of the limited amount of experience with these materials at the time of our site visit, stakeholders in the Phase 1L school in our case study sample had little feedback to offer on these materials. Stakeholders at most of the case study schools reported using digital curricular resources besides the Pearson CCSoC, such as Lexia Core 5, Accelerated Reader, and Symphony Math. Schools across different stages of implementation of technology supports appeared to lack curricular resources that were systematically available to teachers.

The district has curated some 1:1 instructional resources on its ITI website.[29] Each resource was a lesson or student activity that is aligned with ELA or math content or that can be applied across content areas. The resources were in the format of an iBook that must be accessed through iTunes. The website provided a brief summary for each resource, including a description of the purpose and student activity involved, the targeted content area and grade levels, and required apps. There were 18 resources that had been posted to the website during 2014–15.

In summary, the district did not provide teachers with digital instructional materials with interactive content and assessments aligned to the Common Core. Although additional digital curriculum resources were bundled with laptops purchased in Phase 1L, the late deployment of schools in this phase precluded data collection about the experiences of users with these resources.

To what extent did the district support schools with change management?

The OCM team continued to offer support for leadership of technology integration in 2014–15. The centerpiece of the district's strategy was to develop a customized change management plan for each school. This plan was based on results from the Awareness, Desire, Knowledge, Ability, and Reinforcement (ADKAR) survey administered to school staff three months after the school's initial deployment. The results of the ADKAR survey were intended to help identify barrier points on which a school might get "stuck" related to ITI implementation. The district set a goal of at least 60 percent of eligible schools (i.e., schools more than three months past initial deployment) completing the ADKAR survey. In the 2014–15 school year, 54 schools were eligible to take the survey, of which 46 (85%) completed it.[30] Thus, the district exceeded its implementation target for this support.

The OCM team planned to use the results of the ADKAR survey to develop school-specific recommendations for change management. This plan included resources and activities to address the school's barrier points. The district set a target of developing this plan for at least some of the eligible schools, defined as at least 40 percent of eligible schools. The evaluation team obtained copies of these plans and thereby determined that the OCM team completed 46 plans in 2014–15, or one for every school that completed the ADKAR survey. Thus, the district exceeded its implementation target for this support.

[29] http://achieve.lausd.net/Page/7169

[30] According to staff from the OCM team, some Phase I schools had completed this survey during the previous school year; they did not repeat the survey in 2014–15. The exact number completing the survey in each respective year was not able to be determined by the summary data provided by the district, which simply listed the number of respondents to the survey per school.

School Implementation of Change Management Plans. Among the 10 ITI schools that the evaluation team visited in winter/spring 2015, staff at six of the schools (five from Phase 1 and one from Phase 1L) confirmed they had completed the ADKAR survey.[31] Staff at four of these schools stated that they had not yet received their change management plan, nor had they heard anything about next steps. Two schools stated they had received the plan, and one of those two schools indicated that it was beginning to implement the plan. As part of the plan, the OCM provided links on using technology with project-based learning, and the principal stated the school would begin these grade-level projects in the following year. Based on the limited implementation of these change management plans, school staff did not have feedback on whether these plans were useful or relevant.

2.F. Technical Support

Technical support refers to district efforts to respond to technical problems that schools encounter that may impede their use of technology. ITI schools had several ways to request and receive technical support. Each ITI school was assigned a MCSA who would respond to help requests from school staff. As mentioned in the report introduction, the MCSAs were staff hired and managed through the district's ITD. During the 2014–15 school year, MCSAs provided help with technical issues, such as problems with hardware (student devices or other computer equipment), passwords, or WiFi connectivity. VLCFs provided assistance regarding setup of devices and the access and use of applications. Both groups provided help over the phone, through e-mail, or in person. Other district staff members also were involved with technical support, including the following:

- **ITD Help Desk.** When VLCFs or MCSAs were unable to solve a help request, they reported the issues to the district's Help Desk, operated by ITD.
- **MDM administrator.** The MDM administrator and support staff assisted with pushing apps to devices upon request (i.e., apart from preloaded apps) and with connecting to the Internet.

As noted in the Interim Report, during 2013–14 the district was still developing a robust system for technical support for ITI schools. Many schools reported experiencing insufficient technical or logistical support, and some school staff stated that the process for requesting help was unclear. The demand for technical support was one of the factors that reduced the capacity of VLCFs to support the integration of technology into instruction. Moreover, Year 1 findings suggested that both the VLCFs and MCSAs focused mainly on deployment and technical support but did not coordinate their efforts. Last year, both VLCFs and MCSAs indicated that their respective responsibilities were overlapping; the Interim Report recommended clarifying these responsibilities. The Interim Report also included two recommendations relevant to technical support. One was to ensure that a sufficient number of MCSAs are assigned to the project and clarify the process by which schools access technical support. The second was that the district should assist ITI schools in building school capacity to provide technical support. Based on these findings and recommendations, the evaluation in Year 2 addressed the following questions pertaining to technical support:

[31] Except for the one Phase 1 school that did not complete the survey, these findings are consistent with the OCM team's expectations that schools would complete this survey approximately three months after deployment.

- *What resources did the district dedicate to provide technical support for ITI schools?*
- *What were stakeholder perceptions of the accessibility, timeliness, and effectiveness of technical support?*
- *What were the district's plans for building schools' capacity to provide their own technical support, and were these plans implemented?*

Aligned with these questions, this section describes the extent to which the district implemented the ITI components related to technical supports that are summarized in Table 19.

Table 19. ITI Components and Implementation Targets Related to Technical Support

Component	Description	Data Source	Implementation Target
MCSAs for Technical Support	Each school has access to district technology support staff (MCSAs).	MCSA staff list	MCSAs are assigned to provide support to up to 4 schools or 2,499 students.
Technical Support	ITD resolves or escalates all technical issues submitted to Help Desk and MCSAs.	Help Desk logs	ITD addresses at least 60% of the technical issues from ITI schools within a week.
Staff-Led Deployment & Asset Management	The school instructional device manager (IDM) uses the MDM system to monitor student and teacher usage and manage apps.	Destiny access report	Many schools (at least 51%) have full access to Destiny (asset management system).
Staff-Led Deployment & Asset Management	The school IDM uses the MDM system to monitor student and teacher usage and manage apps.	MDM access report	Many schools (at least 51%) have a local administrator account in the MDM system.

Source: ITI Implementation Matrix.

This section summarizes findings from these sources with respect to four topics: technical support roles and staffing, the process by which schools request support, frequently encountered technical problems, and efforts to build school capacity for technical support and device management.

What resources did the district dedicate to provide technical support for ITI schools?

This section describes the technical support resources that the district has dedicated to supporting ITI schools, and the coordination among those resources.

The main resource for technical support was the MCSA assigned to each school.[32] According to a member of the technical support team, the district had 60 MCSAs on staff (along with nine supervisors) during the 2014–15 school year. Of these staff, some MCSAs were assigned to ITI schools, and the rest were assigned to respond to technology-related requests at other schools not in the initiative. For the evaluation, the district provided a list of MCSAs and their ITI school

[32] The MCSA was not the exclusive technical support resource. ITI schools, as with all schools in the district, could submit a request for technical support through the IT Help Desk. These help requests would typically be routed back to the MCSA, unless the request concerned devices or equipment unrelated to ITI.

assignments; according to this list, 23 MCSAs were assigned to 99 ITI schools (two Phase 1L schools that have not yet deployed did not have an assigned MCSA). We examined the number of schools to which each was assigned, and the number of students enrolled at these schools. ITI leaders stated that their implementation target was to assign MCSAs to support up to four schools and up to 2,499 students. The majority of MCSAs (61%) were assigned to support to five to seven schools with 2,500–3,999 students, a greater number of schools and students than the district target. Just over one third (35%) of MCSAs met the district's target for the number of schools and students. Thus, the district is approaching but not yet meeting its targeted MCSA staffing levels. These finding are summarized in Table 20.

Table 20. Number and Percentage of MCSAs With Different Numbers of Assigned Schools and Students

MCSA School Assignments	Freq.	Percent
More than 8 schools or more than 4,001 students	1	4.4%
5 to 7 schools or 2,501–4,000 students	14	60.9%
Up to 4 schools and up to 2,500 students	8	34.8%
Total	**23**	

Consistent with this finding, several MCSAs stated they have more work than they can handle. In the words of one, "Every day…there's a huge list of [tasks]…and there's no way to finish whatever you have, and then everything else adds up in that list." One particularly time-consuming task, mentioned by both MCSAs and VLCFs, was updating devices. In addition, this task required substantial coordination with schools. When such tasks would accumulate, some MCSAs received support from a "floater" MCSA—one who did not have a school assignment for that particular day. However, other MCSAs reported it was difficult to get extra support for schools with a large number of outstanding issues. In some cases, MCSA supervisors denied requests for additional help because they deemed school staff capable of addressing the issue on their own (e.g., to update devices). According to MCSAs, some school principals complained to district ITD staff about a lack of sufficient staffing for technical support.

Coordination Between MCSAs and VLCFs. In Year 1, we found that MCSAs and VLCFs did not consistently coordinate efforts to provide technical support to ITI schools and that their respective roles were not clearly delineated. Therefore, in Year 2, the evaluation team asked participants in district interviews to describe the intended roles of these two different types of staff in providing technical support, and the extent to which they were fulfilling their roles as intended. District respondents stated that the intended role for MCSAs was to serve as the "mechanics of the device" (in the words of one MCSA) and to "make sure the device works for the student." The VLCF was expected to coordinate with the MCSA and to request his or her support as needed.

Our findings suggest that MCSAs and VLCFs coordinated their efforts during 2014–15 to a greater extent than in 2013–14, but that VLCFs continued to spend much of their time on technical support. Several VLCFs described coordinating with MCSAs, such as by letting them know about technical problems and helping school staff submit help tickets for the MCSAs to address. At the same time, as one VLCF explained, they felt they needed to address technical

problems as they came up. VLCFs stated they had a considerable amount of latitude to decide which problems to address on their own and which to pass along to the MCSAs. The VLCF log data (reported in the previous section) indicate that VLCFs spent 30 percent of their time on technical or operational matters, which includes 16 percent of their time of time providing technical support (see Table B-1 in Appendix B, which breaks out VLCF data into specific activities). One VLCF estimated that his or her time was evenly split between instructional and technical support in the middle of the school year, but that operational and technical support had taken about 90 percent of his or her time at the beginning of the year. VLCFs also stated that they provided substantial technical support during the testing window for the Smarter Balanced assessments.

Consistent with this finding, school staff typically did not differentiate between the MCSA and VLCF roles with respect to technical support. Staff from eight of the 10 ITI schools reported seeking technical assistance from both the MCSA and the VLCF. School staff reported that they sought out the person they were more comfortable approaching, or who was most available. Staff in one school stated that the VLCF focused primarily on technology issues rather than instruction. In two other schools, staff reported that the VLCF took requests and then arranged for additional technical support, which would appear to be an example of coordination among the roles. The balance of our findings, however, indicate that the coordination between the MCSAs and VLCFs within a school was still a work in progress during 2014–15, and that VLCFs routinely provided technical support rather than passing the request along to the MCSA.

What were stakeholder perceptions of the accessibility, timeliness, and effectiveness of technical support?

Accessibility of Technical Support. Staff at a majority of the case study schools reported success with accessing technical support. In seven of the 10 schools, staff described a clear support system in which both school-based staff and MCSAs addressed technical problems. However, in three schools that relied primarily on district staff, staff reported more difficulty accessing technical support. Thus, the participation of school staff in providing technical support appears to be a promising practice. Furthermore, no staff reported a lack of clarity about the process for requesting technical support. This suggests that the district and schools have made progress in clarifying the process for requesting support, which staff described as unclear in the Year 1 evaluation.

Timeliness and Effectiveness of Technical Support. The Year 1 evaluation reported mixed opinions among district staff about the timeliness of responses to help requests. The ITI team set a target for the 2014–15 school year to resolve or escalate at least 60 percent of technical issues within a week. Data we obtained on the duration that each ticket submitted during the year remained open indicated that just over half of tickets were resolved in less than one week during the 2014–15 school year. There were no notable differences by phase, although clearly the largest share of Help Desk requests came from Phase 1 schools, as indicated in Table 21. Thus, the district approached but did not yet met its implementation target.

Table 21. Proportion of Help Desk Requests Resolved in Less than One Week

	Phase				School Level				Overall
	1	1L	2A	2B	Elem	Middle	High	Span	
Number of requests	2,408	159	682	431	2,267	729	614	70	3,680
% resolved in < 1week (Target: 60%)	50%	54%	54%	48%	46%	64%	50%	57%	51%
Total *N* of schools	44	18	11	26	46	17	32	6	99

Note: One school each from Phase 1L and Phase 2B had no Help Desk requests.
Source: Help Desk request logs provided by district staff.

Staff in three schools reported on the effectiveness of the MCSA to resolve technical issues, and findings varied. In two schools, school staff reported that the MCSA was effective, but in one school, the administrator said that the MCSA was not sufficiently aware of the school's technical needs and did not provide sufficient support. Staff from only three schools mentioned using the ITD Help Desk directly, and staff at two of these schools noted that it took one to three weeks to receive Help Desk assistance.

What were the district's plans for building schools' capacity to provide their own technical support, and were these plans implemented?

In light of the limited amount of time that MCSAs were present at each school (i.e., one day per week), the Year 1 evaluation recommended that the district make efforts to build the capacity of school staff to assume certain technical support responsibilities. Through the implementation matrix, ITI leaders articulated goals related to building capacity of school staff: one related to asset management and one related to device management. This section describes the implementation of these components, along with other efforts to build school technical capacity.

Training School-Based Mobile Device Management (MDM) System Administrators. The Technology Readiness Checklist required each ITI school to designate a mobile device manager. This individual would be trained to use the MDM system to manage all iOS mobile devices deployed across their school's campus (e.g., to monitor and change device settings, deploy mobile applications, and download educational content). District leaders set an implementation target for 76 percent of schools to have at least one staff member request and gain access to the MDM system. According to summaries of administrator accounts exported from the MDM system, 60 percent of ITI schools had a staff member with local administrator access, indicating that the district had approached but not yet met its implementation goal. There are notable differences by phase: 82 percent of Phase 1 schools had an MDM administrator, compared with 45 and 30 percent of Phase 2A and 2B schools, respectively. Thus, it appears that schools in the later phases made less progress toward building their capacity for device management. (Phase 1L schools were not included because their devices did not run the iOS software with which MDM was compatible.) Table 22 summarizes these findings.

Table 22. Number and Proportion of Schools With Local Administrator Access to MDM During the 2014–15 School Year

	Phase				School Level				Overall
	1	1L	2A	2B	Elem	Middle	High	Span	
Number with access	36	NA	5	8	24	12	13	0	49
Proportion with access (Target: 76%)	82%	NA	45%	30%	52%	71%	57%	0%	60%
Total *N* of schools	44	NA	11	27	46	17	23	6	82

Source: Report on administrative accounts exported from MDM system by district staff.
Note: The analysis excludes 19 Phase 1L schools (device operating systems not compatible with MDM).

Training School-Based Instructional Device Managers (IDMs). The district also trained school staff to serve as IDMs. Principals were required to designate an IDM as part of the Technology Readiness Checklist. The IDM's role is to manage device inventory at a school, a role that involves physically handling inventory (e.g., distributing or collecting devices as students transfer in and out of the school) and updating device information in the Destiny asset manager system. In the words of one of the technical leads, "The instructional device managers that the principals designate will eventually be checking out the device to a [newly enrolled] student, checking in the device back into the school [for students transferring out of a school], and ensuring that all students who are enrolled have devices." According to one member of the technical team, the MCSA will support the schools in device management rather than doing the management. This shift will allow the MCSAs to focus their efforts on solving technical problems rather than managing inventory. Given that this policy is in its early stages, we did not collect data on school staff reactions to this role as part of the Year 2 evaluation. However, as an early indication of the potential impact of the policy, some MCSAs stated in their focus group that deployment was faster and more efficient for those schools with a trained IDM at the time of deployment.

The district set a target for 51 percent of schools to have a staff member complete the IDM training course (a two-day session), thus gaining full access to the Destiny system. The district provided records of participation in the training course, but these data did not consistently include school affiliations and were therefore not amenable to analysis. Based on a review of records of access to the Destiny system, about 50 percent of ITI schools had full access to Destiny, narrowly missing the implementation target of 51 percent. We disaggregated these figures by school level and phase and found some variations. Whereas Phases 1 and 1L each met the target, Phase 2A approached it (45% of schools with Destiny access) and Phase 2B, with only 11 percent of schools with access, did not meet it. Furthermore, middle, high, and span schools all exceeded the target, but elementary schools did not meet it (24% with access). It appears that Phase 2B schools, which have not yet deployed devices to students, have not taken steps to prepare staff for asset management responsibilities.

Table 23 summarizes these findings.

Table 23. Number and Percentage of Schools With Full Access to Destiny Asset Manager

	By Phase				School Level				Overall
	1	1L	2A	2B	Elem	Middle	High	Span	
Number with access	29	14	5	3	11	25	10	5	51
Proportion with access (Target: 51%)	66%	74%	45%	11%	24%	78%	59%	83%	50%
Total *N* of schools	44	19	11	27	46	32	17	6	101

Source: Report on administrative accounts exported from MDM system by district staff.

Expanding School Capacity for Providing Technical Support. Beyond asset management and device management, some schools had developed internal capacity to provide technical support. There appeared to be three approaches to building this capacity:

- MCSAs mentioned that some schools hired a "local MCSA," namely, an MCSA who was a full-time member of the school's staff (paid for by school funds). MCSAs stated that they coordinated the local MCSAs on those campuses where they had been hired, although on the basis of the focus group it was not possible to quantify how many ITI schools had a local MCSA.
- Some MCSAs also mentioned that they encouraged schools to get students involved in technical support, and that some schools had created student tech teams. One MCSA remarked, "I try to show the kids and spread the knowledge so the kids can even fix it themselves."
- As reported previously in this section, seven case study schools had staff involved in providing some form of technical support, and this involvement seemed to be associated with more positive perceptions about access to technical support.

In summary, the district has made progress toward building school capacity to assume responsibility for technical support. It has developed and implemented training sessions to prepare school staff for asset management and device management. The district approached but did not meet its targets for preparing IDMs and mobile device managers. Only a few Phase 2B schools had gained access to these management systems. Besides training on these two systems, schools built capacity for technical support through several approaches that appear promising.

Frequently Encountered Technical Problems

School staff encountered several technical challenges that required significant amounts of technical support. MCSAs, VLCFs, and school staff most frequently mentioned difficulties with student IDs, including both Apple IDs and the district single sign-on ID. Apple IDs were necessary for allowing students to download additional apps, such as when a teacher wanted to use an app that had not previously been installed. Staff at several schools described stringent rules pertaining to the release of the Apple IDs; the IDs would be released to a school only when nearly all parents of students had completed a privacy disclosure and consent form.[33] One school

[33] An ITI team member stated that Apple initially required 97 percent completion of forms and reduced the threshold to 90 percent after discussions with the district (during fall 2014).

leadership team (SLT) member described this process as a hindrance. By the same token, obtaining new IDs for students who move into the school was described by MCSAs and VLCFs as difficult and time- consuming; one student noted that it took two weeks to get a replacement Apple ID. This problem is especially concerning in schools with high mobility rates.

A major concern related to Apple IDs was the amount of staff resources involved in updating and installing apps. According to an internal district memo, 42 ITI schools opted to retain full control of Apple IDs rather than distributing them to students.[34] This meant that school staff needed to personally input the ID and password to download apps, a highly time-consuming process. Nine ITI schools opted to give students control over their IDs, which allowed apps to be downloaded by students but carried the risk of students disregarding requests to download apps or with obtaining apps deemed inappropriate. The district was considering different policies about Apple IDs, but in the meantime, the lack of a clear policy sowed confusion among schools about which approach they should take (as stated by one VLCF).

MCSAs and one SLT member described difficulties with the district's single sign-on ID. This is an ID that is managed by the district but that was used as the credential to login to the Pearson CCSoC app. For reasons not clearly explained in interviews, not all students were in the district's system for the single sign-on ID; therefore, those students could not sign on to the Pearson app. One of the MCSAs stated that problems with the Apple ID and single sign-on ID were the greatest barrier to getting teachers to use the devices because the ID problems prevented some of their students from having access to digital materials. Along similar lines, one SLT member said, "I would say [the greatest challenge] is when the AirPlay doesn't work or the kids can't log into the Pearson."

Another frequent technical concern related to the inability to get apps to work on the device. Not having Flash player on the iPad was seen as a barrier to being able to access certain websites that require it. For example, one teacher said, "If we could somehow have Flash Player, it might help us access a lot more because there's a lot of things that you just can't do."

In summary, application management was a frequent challenge for teachers and students. Problems with Apple IDs or single sign-on led to difficulties in updating, downloading, or removing apps.

2.G. Summary of District Leadership Findings

This section reviews all of the district leadership findings presented in this chapter, highlighting improvements relative to the previous year and challenges that remain.

Deployment. The Year 1 evaluation reported that a key challenge for deployment (i.e., distribution of devices to schools and students) was the time required to set up devices for individual users. In 2014–15, the district made several improvements to the deployment process to increase its efficiency. These improvements included the provisioning of devices at a centralized location (rather than at individual schools), reducing the number of steps included in device setup, involving students and school staff in the inventorying and personalization process,

[34] Internal district memos described conflicting approaches to managing Apple IDs, as discussed in section 2.C regarding coordination among ITI teams.

and planning device distribution with school teams. However, deployment was slower than expected, with many schools not receiving their devices at the beginning of the year. The provisioning process was not sufficiently automated to allow devices to be ready for deployment in a timely manner, and district staff were not able to communicate firm deployment dates to schools. The delays in device distribution had negative consequences for teacher motivation and interest in using the devices. Moreover, the process of deployment required a large investment of time of both MCSAs and VLCFs. It should be noted that deployment was more efficient in schools where staff were trained to assist with inventorying of devices. Therefore, we recommend that the district consider and implement additional steps to automate the provisioning of devices and to shift greater responsibility for deployment to school staff. In consonance with this recommendation, the district has stored devices on school campuses over the summer of 2015, which eliminates the logistical step of packing and shipping devices to schools.

School Readiness for Deployment. The district implemented several actions to ensure that schools were technically and instructionally ready for deployment. Regarding technical readiness, the district upgraded the wireless network in most schools (approaching but not meeting district targets), and the ratio of demanded bandwidth to allotted bandwidth met the district's criterion in most schools. Elementary schools appeared to lag behind other schools, however. In addition, stakeholders in several schools expressed concerns about network connectivity. The district undertook several efforts to promote instructional readiness, such as developing an Instructional Readiness course to guide schools in developing an instructional technology plan, and developing the Technology Readiness Checklist for schools to complete in advance of deployment. The district did not communicate to schools that completion of these resources was a requirement for deployment in 2014–15; no schools in fact completed the readiness course (thus failing to meet an implementation target), and many schools did not complete the checklist prior to deployment (although nearly all did so at some point during the year). By spring 2015, the district had communicated that completion of the readiness course would be a requirement for the following year.

Communication With Schools and Parents. The Year 1 evaluation reported that the district faced difficulties with communicating the purpose of the initiative and how the technology should be used. Furthermore, the flow of communication about the initiative sometimes stopped at the principal and did not reach teachers. For 2014–15, ITI leaders expressed a goal of providing both administrators and teaching staff with up-to-date information and guidance on how to address various issues that arise. This year, the district implemented several planned school communication vehicles, including a monthly initiative newsletter, weekly update to principals, monthly principal meetings, and communications from the VLCFs. Yet, school staff again reported that teachers were not informed about the project, and the district did not meet its target levels for principal satisfaction with communication. Principals did not attend the monthly meetings in high numbers, with some describing the meetings at not useful or relevant. Their lack of participation limited their ability to pass along knowledge about ITI to their staff. VLCFs were perceived as effective conduits of information for school staff, at least in some schools. Apart from the path of communication, some stakeholders stated that the district did not communicate clearly about the overall purpose and vision of the initiative.

The district has made progress with supporting parent engagement. The district's overall strategy was to provide materials for schools to use to engage parents about ITI's goals and benefits, and to train parents in how to use their student's device. District staff created presentation materials for 10 informational sessions. The district has encouraged schools to use these materials and required schools to hold introductory parent engagement sessions in advance of implementing device take-home. Although the district has not tracked the extent to which schools used these materials, staff at many of the visited schools mentioned they were implementing parent engagement sessions. Some district staff were uncertain if the current parent engagement strategy was effective and felt that schools needed to be held accountable for effectively engaging with parents.

Communication With the Public at Large. The Year 1 evaluation reported that the initiative encountered serious public relations challenges related to the initiative with respect to online safety, use of bond funds, and the procurement process, among other issues. In 2014–15, the district attempted to address public concerns by signaling that it is reconsidering the funding source and will pursue a broader strategy of purchasing a variety of different devices. The district convened an instructional technology task force to reconsider the initiative's vision for instructional technology. In the meantime, some district administrators expressed concern that the district has not been communicating a clear vision of the purpose and value of instructional technology.

Student Safety and Device Security. During Year 1, student safety and device security represented a highly public challenge for the initiative. School staff in 2013–14 expressed concern for students' safety (online and physical) and for device security. In 2014–15, the district implemented several strategies to ensure the physical safety of students carrying devices off campus, including increased police presence near schools, safety education, and technical solutions to deter theft. Although some parents still expressed concern about their student's physical safety with devices, a range of stakeholders stated they were not concerned and that district safety trainings and security measures were effective. One major change related to student safety was the implementation of a take-home policy; schools that wished to send devices home needed to gather consent forms from at least 90 percent of parents and to certify that they met several indicators of instructional readiness. Twenty-six schools, nearly all on the secondary level, elected to send devices home under this policy. District staff reported few stakeholder concerns about this policy.

In 2014–15, the district continued its strategy from 2013–14 to protect the online safety of students; this strategy encompasses technical solutions (firewall and Internet filters) as well as digital citizenship education. With regard to the former, the district continually monitored device security settings in 2014–15. With regard to the latter, the district provided a variety of digital citizenship lessons for different grade levels, and VLCFs provided training to staff on the use of these lesson materials. The district encouraged schools to participate in these teacher trainings and to implement these lessons by incorporating them into the Technology Readiness Checklist and the take-home checklist. The extent of school participation, however, could not be determined by available data. Although some parents and staff expressed concern about online safety, others stated that Digital Citizenship lessons were effective in teaching appropriate behaviors. The district addressed specific school concerns about online safety on a case-by-case basis and, in some instances, disabled technology features that students were using for inappropriate or dangerous behaviors.

The district achieved its target of implementing an asset management system that allowed district and school staff to track and update device status and location. Moreover, ITI team members developed a training course and manual to support school staff in keeping track of their inventory of devices.

Coordination With Other Initiatives and Within the ITI Team. The Year 1 evaluation reported that ITI professional development was not coordinated with the district efforts to implement the Common Core or with ongoing instructional initiatives within the five Educational Service Centers (ESCs). In 2014–15, the ITI team continued to have difficulty coordinating its efforts with other district offices and with ESCs—such that coordination with concurrent professional development initiatives did not occur, and the other initiatives were sometimes at cross-purposes with ITI. District staff pointed to the organizational structure of the initiative as explanation for this challenge, highlighting in particular that ITI was isolated from other OCISS offices and lacked a presence at the ESC level. Several district staff stated that the coordination among initiatives would succeed only if senior leadership of OCISS encouraged and led the effort. There have been some early efforts to improve the involvement and awareness of staff within other OCISS offices and within ESCs.

Within the ITI team itself, the instructional and technical staff had difficulty coordinating, and this lack of coordination delayed the response to technical challenges such as decisions about whether and how to convert Apple IDs. Team leads reported lack of clarity of roles and lack of accountability for completion of tasks, reflecting a project plan that was not sufficiently developed. Team leads further stated that the incoming project manager should make cross-team communication a priority.

Professional Development and Instructional Support. ITI comprised four broad strategies related to instructional support, including centralized professional development, on-site support provided by VLCFs, digital instructional resources, and support for organizational change management. The district made progress with all of these strategies, yet at the same time encountered challenges with school-level implementation. Regarding centralized professional development, the Year 2 evaluation recommended a variety of professional development approaches for integrating technology into classroom instruction. The district met its target by offering five workshops focused on a variety of topics related to technology integration, as well as a workshop to train school staff to deliver an introductory device training workshop in house. Most workshops focused on using iPads and therefore were not applicable to Phase 1L schools. Few schools had high levels of teacher participation in these workshops; the district responded to low participation by offering workshops on-site at individual schools.

The Year 1 report noted that VLCFs had limited capacity to support technology integration due to the need to support deployment and provide technical support. Findings from Year 1 also indicated that there was no formal training program for VLCFs. In response to these findings, the district made progress in increasing VLCF capacity to provide technical support. First, it increased the number of VLCFs from 14 to 28 and is now approaching (but not yet meeting) its targeted ratio of VLCFs to schools. Second, the district provided guidelines for VLCFs responsibilities, added supervisors to reinforce these guidelines, and provided a weeklong training session for newly hired VLCFs. There is evidence that VLCFs assisted school leaders in planning professional development and provided direct coaching support to teachers for use of digital resources. However, the frequency of their support for teachers and for school leadership

teams did not approach the targeted levels; Phase 2B schools in particular received infrequent support. VLCFs spent substantial amounts of time supporting deployment and providing technical support.

The Year 1 report noted that the district had challenges with providing digital instructional resources to schools; the Pearson CCSoC was not complete at all grade levels, and schools encountered other technical problems in using it. In 2014–15, the consensus of district staff was that the Pearson CCSoC remained incomplete with respect to certain types of content and that schools encountered technical problems of varying severity in different grade levels. These technical problems undermined the desire of school staff to use the app. Thus, the district did not meet its target for providing teachers and students with digital content at all grade levels.

In 2014–15, the district implemented its plans for supporting school leaders with organizational change management. District staff supported schools in completing the ADKAR survey, and based on these data, developed and shared change management plans with schools. There was no evidence from site visit schools that schools are using these plans, although one school indicated it was planning to act upon recommendations in the plan.

Technical Support. As noted in the Year 1 report, many schools perceived insufficient levels and timeliness of technical support, and some school staff stated that the process for requesting help was unclear. The Year 1 report recommended that the district ensure a sufficient number of MCSAs and assist ITI schools in building school capacity to provide technical support. In 2014–15, the district increased the number of MCSAs assigned to the project from 14 (in the previous year) to 23 but did not meet its targeted ratio of support staff to schools. MCSAs are able to provide on-site help about once per week per school, which they describe as not sufficient to address the school's help requests. Nevertheless, the district approached its target for timeliness in responding to help requests.

The district has made progress toward building school capacity to assume responsibility for technical support. The district approached its target for preparing staff to serve as IDMs (to use the asset management system) and mobile device managers; few Phase 2B schools have developed this capacity, however. With district support, schools are implementing several promising approaches to building capacity to respond to technical problems; schools that have implemented some of these approaches report satisfaction with access to technical support.

3. Classroom Technology Use in ITI and Other Initiatives

This chapter addresses EQ 2, *How is the technology being used by teachers and students in ITI schools and in other school-based technology-integration initiatives?* To examine classroom technology use across all ITI schools, the evaluation team analyzed data on device activity from October 2014 to April 2015 exported from the MDM system and time-on-task records exported from Pearson CCSoC usage logs. We also analyzed classroom observations focusing on technology use by teachers and students in a small sample of ITI and non-ITI schools that participated in the Year 2 site visits. We used all of these data sources to examine the overall question about technology use along with the following subquestions:

- *What were the most frequently used applications?*
- *To what degree and how was the Pearson curriculum used in different grades in ITI schools?*

This chapter addresses four topics, in four respective sections: level of technology use in 2013–14 (including analysis of data that were not previously available), level of technology use in 2014–15, types of technology uses and their relationship with students' instructional experiences, and observed use of different apps. The first section summarizes the 2013–2014 device usage data from last year's Interim Report and adds new findings from the 2014 School Experience Survey, which was administered to students in LAUSD schools in spring 2014. The survey findings were not included in last year's report because the survey data were released by the district in December 2014. Even though they only speak to technology use in the prior year, we report these data in the current report because they are—importantly—from the perspective of students and were not available for the last report. In the second section, we describe levels of technology use and how the technology was being used during the second year of the initiative (2014–15), drawing from device usage data for all ITI schools as well as classroom observations conducted in a sample of visited schools in winter/spring 2015. In addition to describing the primary uses of iPads and other technology in classroom activities, the third section also includes findings that examine the association between technology use and instructional quality (as measured with the CLASS rubric) in the observed classrooms. In the fourth section, we describe the types of applications observed in use and their frequency of use among teachers and students. In the fifth section, we examine the degree to which the Pearson curriculum was used in ITI schools in 2014–15. The final section summarizes the findings on technology use in ITI schools.

3.A. Technology Use During Year 1 (2013–14)

We begin this chapter with an overview of technology use in Year 1 (2013–14) in order to contextualize use during Year 2 (2014–15). We begin by reporting the results of the 2014 student School Experience Survey, for which data were not available at the time of the Interim Report. (As noted in Appendix B, the spring 2014 survey data were released by the district in January 2015.) These data provide a description of technology use in all LAUSD schools—including but not limited to all Phase 1 schools—from students' perspectives. Because the survey was conducted in all LAUSD schools, we are able to compare student reports about technology use in Phase 1 ITI schools with those of students in a matched comparison sample of schools. We then compare these self-reported data in ITI schools to the district's device usage records that we

summarized in the Year 1 Interim Report. Finally, we summarize the types of technology use we observed in a subset of Phase 1 ITI schools during Year 1.

2013–14 Level of Technology Use: Classroom Observations From a Sample of Phase 1 ITI Schools

In May 2014, we conducted 245 classrooms observations in 15 ITI schools. We noted the presence of at least one iPad in 79 percent of visited classrooms and observed them in use by at least one teacher or student in 48 percent of visited classrooms. We also visited four non-ITI schools, where we noted the presence of laptops—the most prevalent form of technology in non-ITI schools—in 60 percent of visited classrooms and observed the laptops in use in 28 percent of visited classrooms. Observed use was higher in elementary schools than in middle or high schools.

2013–14 Level of Technology Use: Usage Records From All ITI Schools

As reported in the Year 1 Interim Report, we conducted an analysis of 30-day periods sampled three times during the 2013–14 school year (December 20–January 18, March 7–April 5, and May 7–June 5). We found device usage ranging from 47 percent to 97 percent, with most usage near the upper bounds of the range.[35] There was variation among school levels, with higher usage found in elementary than in secondary schools. This finding was related to the fact that some high schools had put away devices for the year in spring 2014, and some did not have or use iPads much if at all during the 2013–14 school year.

2013–14 Level of Technology Use: Comparison of Student Reports in ITI and Non-ITI Schools

Student responses to the 2014 School Experience Survey (SES) describe students' perceived level of technology use in specific subjects and for specific instructional purposes during the 2013–14 school year (see Appendix B for more information about LAUSD's annual SES and the items used for this analysis). To ascertain whether perceived technology use was higher in schools participating in the ITI than in other LAUSD schools, we compared student responses on the technology-related survey items in Phase 1 ITI schools to a matched comparison sample of non-ITI schools with similar characteristics (e.g., Annual Performance Index score, total enrollment, student characteristics; see Appendix B).

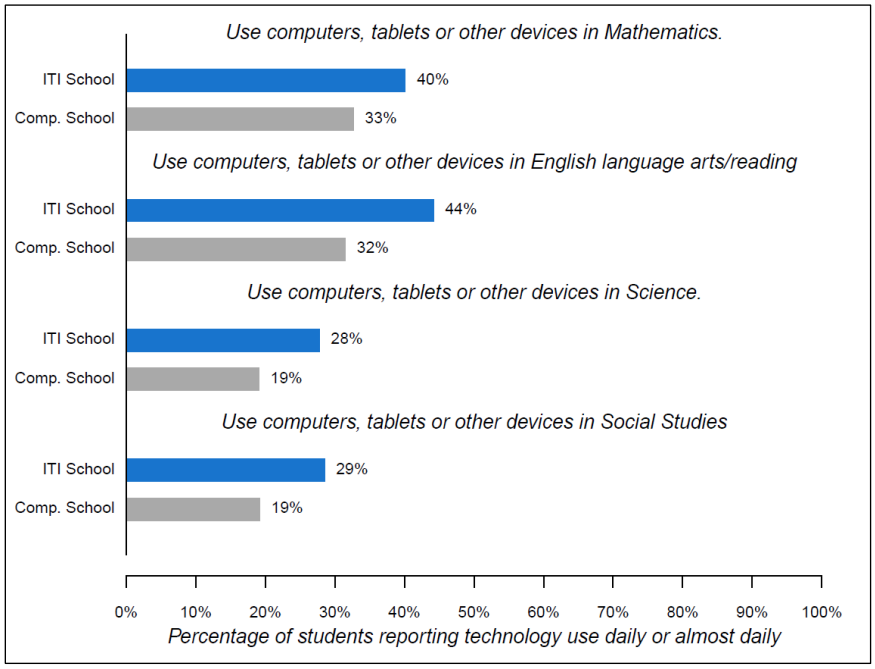
Findings show that students in Grades 3–12 attending Phase 1 ITI schools reported more technology use in 2013–14 than students in non-ITI schools. Figure 3 summarizes the proportion of students reporting daily or almost daily technology use in specific subjects.[36] Across all core academic content areas, more students in ITI schools reported daily or almost daily use of technology than students in non-ITI comparison schools, by 7–12 percentage points. For example, 44 percent of students in Phase 1 ITI schools reported using technology daily or almost daily to support ELA instruction, and 32 percent of students in non-ITI comparison schools

[35] Usage was defined as the proportion of deployed devices per school connected to the network in the given time period.

[36] We first calculated school-level proportions and then found the mean proportion for both Phase 1 and non-ITI schools.

reported such use. Although usage was higher in ITI schools than matched comparison non-ITI schools, it is notable that fewer than half of the students in ITI schools reported daily or almost daily use of technology during the first year of the initiative. A greater proportion of students reported daily or almost daily usage in mathematics and ELA than in science and social studies. Although not depicted in Figure 3, elementary students reported greater frequency of daily or almost daily use than did middle or high school students, most notably in math and ELA. These results are in Table G-1 of Appendix G, along with response frequencies for all students in the district.

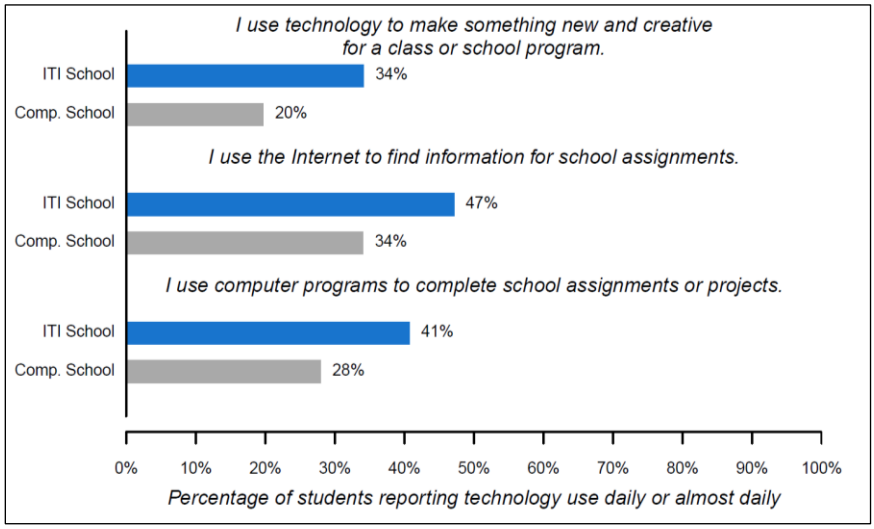
Figure 3. Proportion of Students Reporting Daily or Almost Daily Technology Use for Specific Subjects During the 2013–14 School Year in ITI and a Matched Comparison Sample of Non-ITI Schools



N = 33 for ITI and comparison schools, respectively.
Source: 2014 School Experience Survey, Elementary and Secondary Student Data.

As shown in Figure 4, a greater percentage of students in Phase 1 ITI schools than students in non-ITI schools reported using technology daily or almost daily for specific purposes: (1) to make something new and creative, (2) to find information, or (3) to complete school assignments or projects. These results did not differ notably by grade level. A full table of results, including breakouts by school level and frequencies for all students, is provided in Table G-2 in Appendix G.

Figure 4. Student-Reported Technology Use for Specific Activities During the 2013–14 School Year in ITI and a Matched Comparison Sample of Non-ITI Schools



N = 33 for ITI and comparison schools, respectively.
Source: 2014 School Experience Survey, Elementary and Secondary Student Data.

In sum, students attending Phase 1 ITI schools as of spring 2014 were more likely to report daily or almost daily use of technology across content areas and to report using technology to accomplish classroom activities and document their learning than students attending non-ITI comparison schools. However, fewer than half of the students in ITI schools reported daily or almost daily use of technology in any given subject, and fewer than half reported using technology for the specific classroom activities about which the survey asked. These results cannot be compared to those for 2014–15 because the SES survey data from spring 2015 are not yet available. They do, however, add to the context that the Year 1 levels of use provide for our analysis of Year 2 use.

3.B. Technology Use During Year 2 (2014–15)

In this section, we describe 2014–2015 technology usage. First, we summarize iPad usage in Phase 1 and 2a ITI schools broadly as documented through MDM data. We then examine levels of technology use in more detail in a subset of Phase 1, 1L, and 2a ITI schools through analyses of classroom observation data.

iPad Usage in Phase 1 and Phase 2a Schools in 2014–15

We examined the level of technology usage from October 2014 through April 2015 in 54 ITI schools (43 Phase 1[37] and 11 Phase 2a) as the proportion of devices that were in use (i.e., switched on and connected to the district's network) using data from the MDM system. Specifically, we calculated the proportion of devices per school that were active each week,

[37] One Phase 1 school was excluded in these analyses because iPad devices were not deployed in this school.

averaged across all weeks between October 2014 and April 2015 for each school (post-deployment) and then averaged across schools overall and by phase and school level.[38]

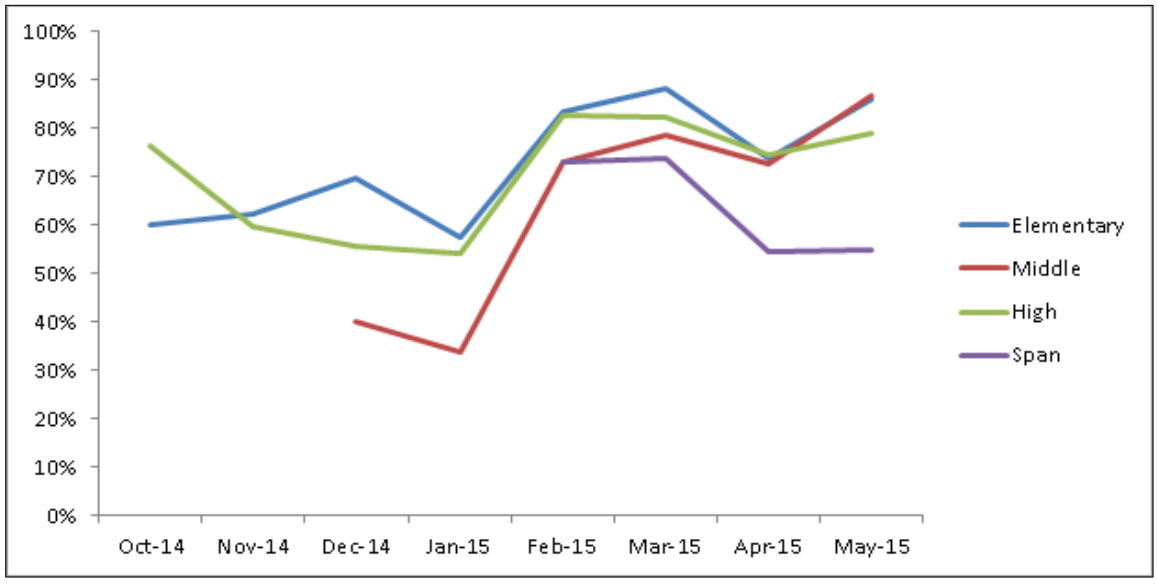
We found that on average, just over two thirds (69%) of student iPads in Phase 1 and 2a ITI schools were active between October 2014 and April 2015. Variations by phase were minor; usage of student devices was similar in Phase 1 schools (68%, *N* = 43) and in Phase 2 schools (70%, *N* = 11). As displayed in Table 24, student iPad usage was similar in elementary, middle, and high schools. Device activity seemed to be somewhat lower in the three span schools that serve Grades K–8.

Table 24. Student Usage by Grade Level

	Mean	SD	*N*
Elementary	69.6%	14.6%	29
High	67.3%	14.7%	12
Middle	71.4%	17.2%	10
Span	56.7%	9.4%	3
Total	**68.7%**	**14.9%**	**54**

In addition to averaging weekly activity across the school year, we also examined monthly average device use over the year, by grade level (Figure 5). There was little variation in the patterns across time by grade level; however, device activity decreased to a greater extent in span schools (Grades K–8) in April and May than in other schools, accounting for the lower overall proportion of device activity in these schools.

Figure 5. Proportion Deployed Student Devices Active Per Month, by School Level (*N* = 54)



Note: Phase 1 schools, *n* = 43; Phase 2 schools, *n* = 11. Device deployment did not begin in middle schools until December 2014.

[38] Taking the weekly average percentage active flattens out any spurious fluctuations in this measure and provides an overall depiction of activity in each school.

Data from the MDM records indicate that use increased in the middle of the school year when most of the ITI schools had received their devices, and that in the second half of the year, the proportion of deployed devices in use was similar in elementary, middle, and high schools. These findings differ from device usage findings in our previous year's analysis from December 2013 through May 2014, when device activity tended to be higher overall (up to 97 percent active devices in a 30-day span) but lower among high school students.

Technology Usage in Observed Classrooms

This section supplements our analysis of overall device usage with a more in-depth examination of classroom-level use. Here, we present findings from classroom observations in our site visit sample of 11 schools. We examine the types of technology observed as present and in use in the classroom. In the subsequent section, we also examine ways technology was used in observed classrooms, as well as apps observed in use by teachers and students.

Findings in this section are from observations of a sample of classes in 11 schools in winter/spring 2015. Ten of the 11 schools were ITI schools (six Phase 1 schools, three Phase 2A schools, and one Phase 1L school); one school was a non-ITI school with a several-year technology initiative of its own. The sample included four elementary schools, two middle schools, and four high schools. In total, we visited a total of 85 classrooms. We observed 40 elementary school classrooms (47% of all observed classrooms), 32 middle school classrooms (38%), and 13 high school classrooms (15%). Within these classrooms, we observed a range of subject areas: 38 ELA lessons (45%), 20 math lessons (24%), 14 science lessons (17%), 12 social studies lessons (14%), and 12 other (e.g. health, career awareness, art, computer, etc.) lessons (14%).[39]

On average, we found that a higher percentage of classrooms observed in 2015 were using technology than in our first round of site visits and observations in 2014. However, this apparent increase in technology use may be due at least in part to the different time frame at which we visited schools and different methods used for conducting the observations. Regarding time frame, in the first-year evaluation we conducted site visits in May 2014 during the final weeks of the school year.[40] In 2014–15, we conducted site visits between January and April 2015, earlier in the spring semester when, generally speaking, more instruction was occurring. Regarding methods, in 2014, the evaluation team observed a total of 245 classrooms in 19 schools for 10- to 15-minute "snapshots," whereas our 2015 classroom observations were 40 minutes in length. This longer period of observation permitted for more opportunity to observe transitions in classroom activities that were and were not supported by technology use. The differences in methodology were part of the original evaluation design, wherein we intended to capture a broad picture of technology use in Year 1, and a "deeper dive" into a smaller set of "case study" sites in Year 2. These differences limit the extent to which we can compare level and type of use in Year 1 and Year 2; we would need to collect another round of data using the same methods in further follow-up years to actually track change over time in technology use in ITI schools.

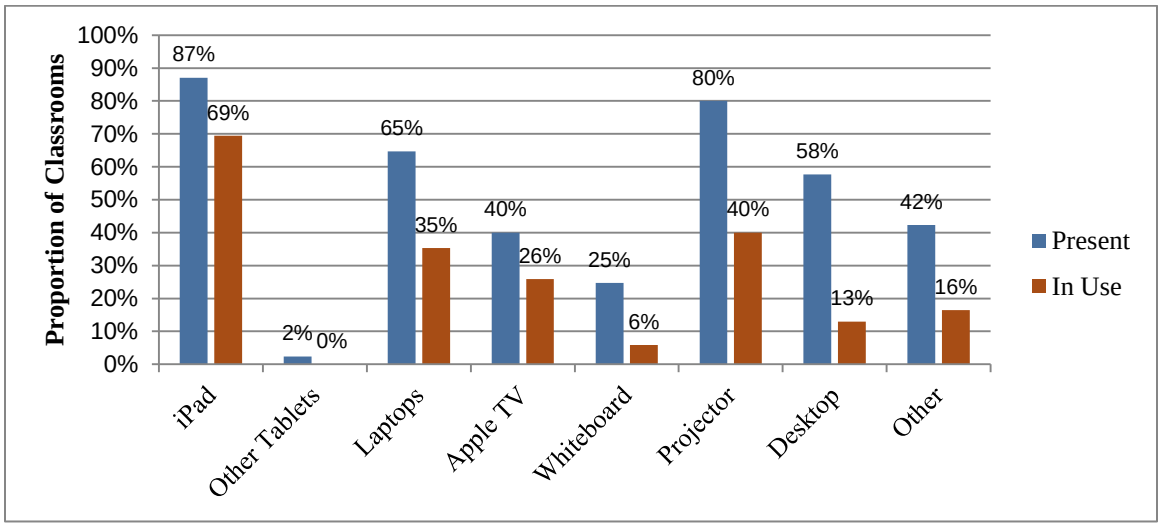
[39] Subject area percentages exceed 100 percent across all subject areas because multiple subject areas were sometimes observed within a single classroom observation.

[40] The reason for visiting schools in May 2014 was that the evaluation had begun only in March 2014, and we sought to collect a first round of site-based data before the end of the 2013–14 school year.

Figure 6 depicts the proportion of classrooms visited in Year 2 in which the following types of technology were present and in use: iPads, other tablets, laptops, Apple TV, interactive whiteboard, document camera/projector, desktop computer, or "other" such as mobile phones or printers. iPads were the most frequently observed type of technology observed; one or more was present in 87 percent of observed classes, and one or more was in use in nearly 70 percent of observed classes. (In 2014 we observed iPads present in 67 percent of 245 observed classes and in use in 39 percent of classrooms.) We also saw document cameras/projectors used in 40 percent of observed classes and laptops in use in 35 percent of observed classes. Interactive white boards and desktop computers were seldom observed in use (6% and 13% respectively, similar to 2014).

In general, our data suggest that technology use was relatively high in the ITI schools visited by evaluators in 2015. These data are consistent with the MDM records for the site visited schools, whose average weekly activity was 71 percent. (During the months in which we conducted the site visits, average weekly activity in site visited schools was 82 percent.)[41]

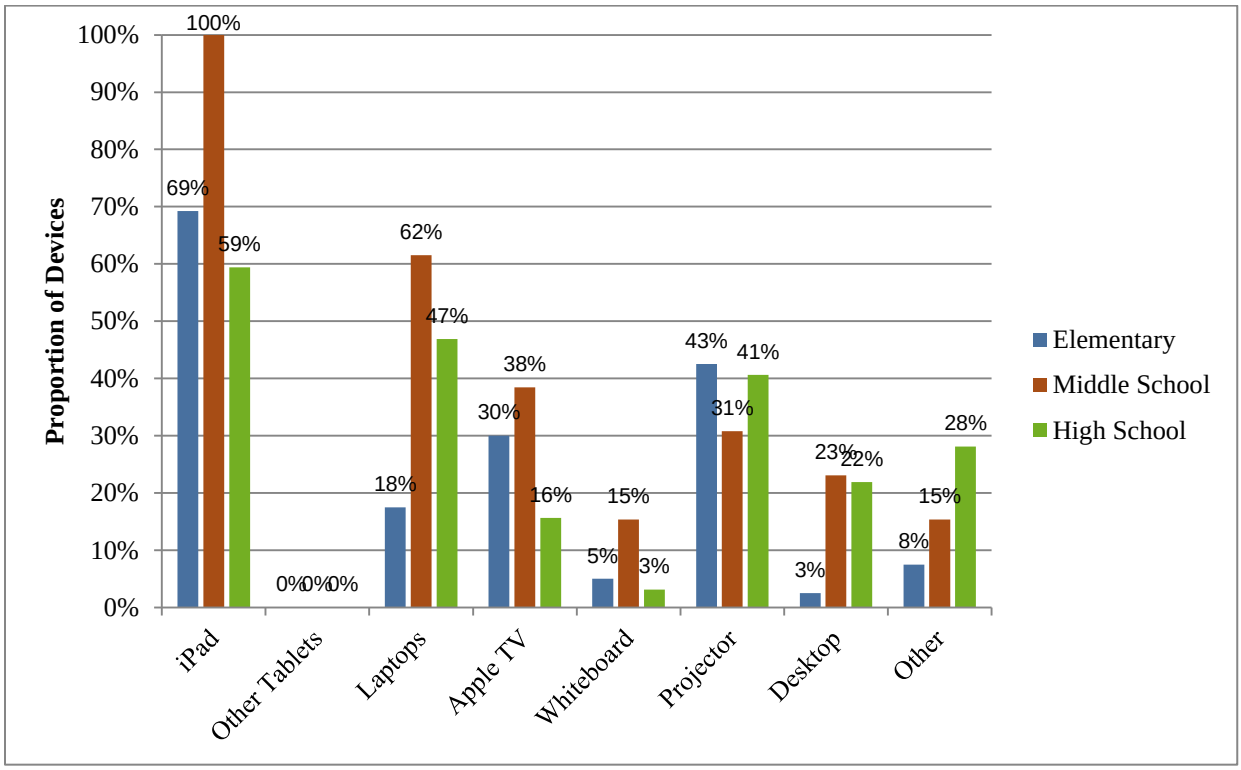
Figure 6. Proportion of Classrooms in Which Different Types of Technology Were Observed as Present or in Use in Winter/Spring 2015, *N* = 85



We also disaggregated the classroom observation technology use data by school level. As shown in Figure 7, we observed iPads (one or more) in use in nearly 70 percent of elementary school classrooms, all middle school classrooms, and almost 60 percent of high school classrooms. At all grade levels, this is a notable increase over the iPad use observed in 2014 where we observed one or more iPads in use in fewer than half of elementary school classrooms, a only one fourth of middle school classrooms, and about one third of high school classrooms. However, as noted previously, the classroom observation time frames were different from year to year, and more time was spent observing each classroom in 2015.

[41] The one Phase 1L school and the one non-ITI school are not included in the device-activity calculations using MDM data because their technology usage data are not included in the MDM records. We note that although our sampling procedure excluded ITI schools with minimal to no usage, the average usage in site visited schools was similar to that of Phase 1 and 2A schools overall (69%) (see Appendix B for more information about sampling for site visits/case studies).

Figure 7. Proportion of Classrooms Using Different Types of Technology, by Grade Band, *N = 85*



Note: Elementary *n* = 40; Middle School *n* = 13; High School *n* = 32.

The next section describes how the devices were used in observed classes.

3.C. Uses of Technology

This section describes the ways in which teachers and students used technology in the 85 classrooms observed by the evaluation team in 2015. We first describe the types of technology use we observed in classes visited in 2015, with brief comparisons to the types of use we observed the year prior, in spring 2014.

Next, we present two types of analysis that begin to address the relationship between technology uses and the quality of students' educational experiences. First, we examine whether instructional quality, as measured by the Classroom Assessment Scoring System (CLASS) rubric, varies as a function of technology use. We categorize some of the technology uses as reflecting "transformative use that leverages the 1:1 device configuration" and compare CLASS scores in classrooms where those technology uses were observed in 2015 with scores in classroom where those uses were not observed. In a second analysis of how technology use might be associated with students' instructional experiences, we draw on the 2014 SES data to examine correlations between student-reported technology use, their perceptions of instructional relevance, and student motivation. We remind the reader that these analyses are not intended to suggest causal relationships between technology use and instructional quality; instead, they

provide initial considerations about the how these factors might interact, and they form the basis for further study in this area.

Type of Technology Use

This section describes the ways in which teachers and students used technology in the 85 classrooms observed by the evaluation team between January and April of 2015. First, we present the classroom activities for which technology was used and then describe in greater detail how technology was used to support classroom instruction within the most frequently observed classroom activities.

Table 25 lists the numbers and percentages of classrooms in which technology was observed in use by type of classroom activity (for definitions of the classroom activities, please refer to Appendix B). Teacher use of technology to support whole-class instruction was the most frequently observed activity. Out of the 85 classrooms observed, observers witnessed teachers using technology to support and enhance whole-class instruction[42] in 52 classrooms (61%) and students using technology during whole-class instruction in 30 classrooms (35%).[43] Other prevalent classroom activities included students conducting Internet research (42%) and individual student use of supplemental digital programs (e.g., using ST Math or Lexia Core 5 to practice math or ELA skills, 32%). These findings were consistent with 2014 observations in which the most frequent technology uses included teacher use of technology for whole-class instruction, students conducting Internet research, and student use of supplemental digital programs.

We observed nonacademic use of technology by students in nearly 32 percent of the classrooms in the 2015 observations. In interpreting this percentage, it is important to note that nonacademic use included listening to music when students were working on classroom projects and activities as well as playing games during teacher provided "free-time," not just as distraction during instructional time.

Table 25. Number of Observed Classrooms in Which Technology Was Used for Academic and Nonacademic Classroom Activities, *N* = 85

Classroom Activity	Number	Percent
Teacher use of technology for whole-class instructional delivery	52	61.2%
Students conducting Internet research	34	40.0%
Student use of technology for whole-class instructional delivery	30	35.3%
Nonacademic use by teachers or students (e.g., music, games, social media)	27	31.8%
Individual student use of supplemental digital program	27	31.8%
Administrative use by teachers or students (e.g., taking attendance, inputting grades)	15	24.7%
Students writing a paper	14	20.0%

[42] Definition of *whole-class instruction:* Attention of students is focused in the same place, on the same activity, at the same pace.

[43] As explained in Appendix B, Classroom Observations, the categories of technology use are not mutually exclusive, and some classrooms are counted for multiple classroom activities.

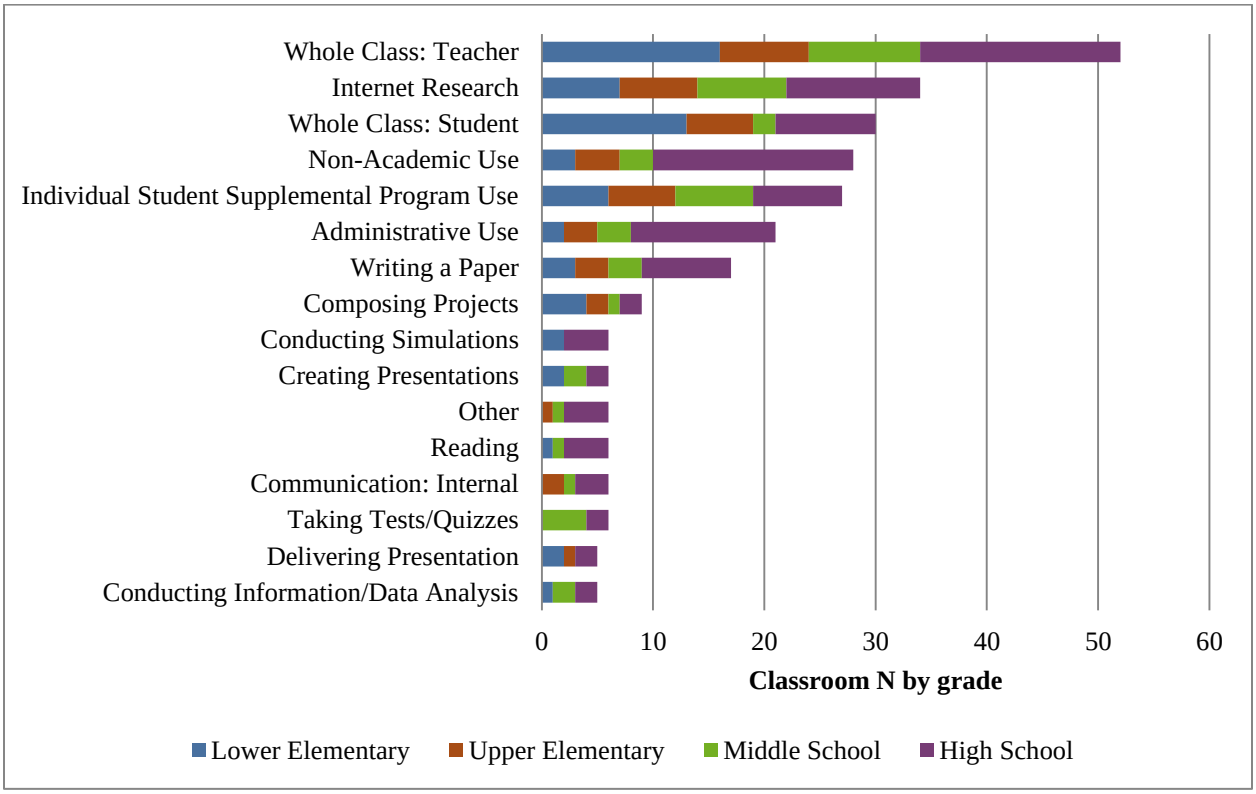
Classroom Activity	Number	Percent
Students composing projects (including multimedia), **not** presentations	9	10.6%
Students conducting math/science simulations	6	8.2%
Reading (e-books)	5	7.0%
Communicating among classroom peers, teacher, and/or parents	5	7.0%
Students taking tests or quizzes	5	7.0%
Other use by teacher or students (e.g., use of calculator or printer)	6	7.0%
Students creating presentations	6	7.0%
Students delivering presentations	5	5.8%
Students conducting information/data analysis	5	5.8%
Students participating in an online course	0	0
Teacher or students communicating among individuals outside the classroom (e.g., Skype, Google Hangouts)	0	0

Note: Column percentages do not add to 100 percent because multiple activities could be recorded per classroom.

Figure 8 illustrates the percentage of classrooms in which each type of technology use was observed, by grade level. For this analysis, we broke elementary classrooms into lower elementary (Grades K–3) and upper elementary (Grades 4–5) because we assumed that the ways in which technology was used might be different for these grade bands. Use of front of the room technology by the teacher to support whole-class instruction (e.g., lecture) was consistently high across all grade levels and was most common in the lower elementary grades (observed in 65 percent of these classrooms). A higher percentage of lower elementary students than other grade levels also used their devices during whole-class instruction (student use of technology in whole-class instruction), including to participate in interactive lesson content (52%). Other key findings by grade band include the following:

- Using devices to conduct Internet research was observed even in the early grades (27% of observed classes) and increased throughout the upper-elementary (44%) and middle (54%) grades.
- In 15 percent of the middle school classrooms, we observed students using iPads to create projects. Teachers in about one fifth of the classrooms in elementary schools were facilitating student use of iPads to compose projects (20% of observed lower-elementary classrooms, 16% of observed upper-elementary classrooms).
- We observed teachers using technology to support administrative tasks in a higher percentage of classes in middle and high schools (23% and 41%, respectively) than in elementary schools (13%).
- Nonacademic use of technology was observed in more than half of the high school class observations; we observed nonacademic use in less than one fourth of the observations in elementary and middle schools.

Figure 8. Number of Classrooms Observed With Different Uses of Technology, by Grade Level, *N* = 85



Note: Lower Elementary *n* = 21; Upper Elementary *n* = 18; Middle School *n* = 14 High School *n* = 32.

Next, we describe each of these types of technology uses in more detail, including teacher and student uses, listed in the order of prevalence.

Whole-Class Instruction: Teacher Use. Teacher use of technology during whole-class instruction was the most commonly observed type of technology use, observed in 61 percent of classrooms (52 out of 85). In the 2014 observations, whole-class instruction with teacher use of technology was a prevalent use, but was only observed in 27 percent of classrooms. Whole-class instruction was defined as a classroom activity in which the teacher used technology as a tool, but the students were not concurrently using devices.

- In 40 of these 52 classrooms (77%), teachers used technology to display instructions, activity prompts, or other information students needed to complete the lesson, or to have students show their work (e.g., solving a math problem).
    - Among these classes, teachers displayed information with an LCD or overhead projector in 30 classrooms, Apple TV in 13 classrooms, and a document camera in seven classrooms.
- In 12 of these 52 classrooms, teachers were using technology to demonstrate an application. Two of those were demonstrations for Internet research strategies.
- In eight of these 52 classrooms, teachers projected a video or movie.

Whole-Class Instruction: Student Use. In 30 of the 85 observed classrooms (35%), students used technology as a whole class, in which the attention of the students was focused in the same place, on the same activity, at the same pace.

- In just under half of these classrooms (14 of 30), students used their iPads to complete interactive activities or lessons using platforms such as Nearpod, Notability, Popplet, or Edmodo. Student use of the Pearson CCSoC app was observed in six of these classrooms.
- In 12 of the 30 classrooms in which this kind of technology use was observed, students were following along together on personal devices as a teacher gave instructions or demonstrated how to complete an activity.
- In six of the 30 classrooms, students used devices to participate in checks for understanding (e.g., polls). (*Note.* These embedded assessments occurred in some classrooms in which students were using their devices for interactive activities such as Nearpod or the Pearson CCSoC.)
- Other ways in which students were observed using technology as a whole class included watching a video and presenting work to the class.

Students used technology in a whole-class setting more frequently in elementary school classrooms (52%) than in high school (25%) or middle school classrooms (14%).

Internet Research. Consistent with last year's findings, the second most commonly observed form of technology use observed in classrooms was Internet research, which was observed in 34 out of 85 classrooms (40%) in 2015. Students used the Internet to search for facts or images as part of a class activity or to add to a project or written assignment. We observed students using devices for Internet research in 54 percent of the observed classrooms in middle schools, in 38 percent of the observed elementary school classes, and in 44 percent of the observed high school classrooms.

Individual Use of Supplemental Digital Program. In about one third (32%) of sample classrooms (27 of 85), students were observed using supplemental digital programs to practice specific content or learn new skills, also consistent with last year's finding that this was the third most common academic use.

- In 67 percent of these classrooms (18 of 27), student use of supplemental digital programs was integrated into the curriculum by the teacher. For example, students used apps such as Newsela and Popplet to work on the same activity, but at a differentiated pace and level.
- In 48 percent of the classrooms (13 of 27), students were observed working individually during free time or after they finished their work, using apps such as ST Math and Lexia Core 5 to practice math or ELA skills.
- This use of supplemental digital programs was observed more frequently in the middle school classrooms (46%) than in elementary school (33%) or high school classrooms (25%), in contrast to last year when this use was observed mostly at the elementary school level.

Writing a Paper. In about 20 percent of classrooms (17 of 85), we observed students using technology to take notes or brainstorm, to complete written classroom assignments, and to write a paper or report. In 12 of the 17 classrooms (71%), students were using traditional word processing programs, such as Microsoft Word or Pages, to write reports or essays and to finalize their writing product. In five of the classrooms (29%), students were using apps such as iPhoto, Keynote, and Notability to take notes or complete ELA classroom assignments such as constructing sentences, practicing vocabulary words, or describing a character from a book. Technology was observed for writing a paper somewhat less frequently in elementary school classrooms (15%) than in middle school (23%) or high school classrooms (25%).

Composing Projects. In about 11 percent of observed classrooms (9 of 85), students used technology to create a project, not including presentations. Students were observed using a variety of apps, including iMovie, Keynote, Sketchbook, and Notability, to develop creative products. In multiple classrooms, students were observed creating a book or movie about the topic they were studying in class. Other projects included posters, digital collages, and individually built websites. This type of technology use was mostly observed in the elementary schools, (approximately 18% of classrooms). It was observed in only about 6% of high school classrooms and not seen at all in middle school classrooms.

Administrative Use. In about 25 percent of observed classrooms (21 of 85), we observed technology use for administrative purposes, which included both teacher use and student use.

- Teacher administrative use most often included taking attendance. Other instances included classroom management, recording grades, and using clock or timer apps.
- Student administrative uses included setting up or managing accounts on apps, logging in to accounts, and taking pictures of notes on the board.
- Administrative technology use was observed more frequently in high school classrooms (41%) than in middle school (23%) or elementary school classrooms (13%).

Nonacademic Uses. Technology was used for nonacademic purposes in 34 percent of observed classrooms (29 of 85), the third highest use of technology. In last year's findings, nonacademic uses were the fourth highest use of technology. Nonacademic uses included the following:

- In 10 of the 29 classrooms, students were observed listening to music while working on classroom activities or assignments, with the teacher's permission.
- Other observed examples of nonacademic use of technology included students playing on smartphones and using chat and texting apps to communicate with friends. Sometimes these uses were allowed by the teacher after students had completed their assigned tasks.
- Nonacademic use of technology was observed in 56 percent of high school classrooms, more than twice the proportion of elementary (20%) and middle school classrooms (23%) in which we observed nonacademic technology use.

Other Uses. Other uses of technology that did not fall into any of the a priori categories were observed in 7 percent of classrooms (6 of 85). These uses included using calculators (hand-held and app-based) and printers (e.g., to print a paper copy of completed projects).

In summary, findings from observations conducted in 2015 indicate that technology was being used in 2015 in many of the same ways as in 2014, but that it was being used more frequently than in 2014 to support a range of classroom activities. However, again, a number of differences in how and when the observations were conducted make it impossible to draw direct comparisons that allow us to conclude that technology use has increased from 2013–14 to 2014–15. More rounds of data collection that mirror the methods used in 2014–15 would be necessary for tracking technology use over time in LAUSD schools.

CLASS and Technology Use

Each classroom observation had two observers: One completed the technology use protocol, and the other, a trained CLASS observer, completed the CLASS rubric (see Appendix B). The purpose of this dual approach to the observations was to obtain a measure of instructional quality to correspond to descriptions of different types of technology uses. In this section, we examine the association of CLASS ratings with the presence and absence of different uses of technology—including the strong caution that these analyses are strictly correlational and cannot establish any causal links between technology use and classroom quality. Following a brief overview of our methods for these analyses (see also Appendix B), we summarize the findings.

Using the CLASS protocol, each observer completed two consecutive 20 -minute observations segments in each classroom, whereby a segment is defined as the period during which the observer completes the ratings. The CLASS protocol focuses on four domains: Emotional Support, Classroom Organization, Instructional Support, and Student Engagement. During each of these 20-minute CLASS observation segments, the other observer completed two 10-minute observations segments using the Classroom Technology Observation Protocol.

To conduct the analysis, we compared the average CLASS ratings of segments in which particular types of technology use were observed versus not observed. The types of technology use on which we focused for this analysis were academic uses that leveraged the 1:1 student devices and went beyond simple replacement or substitution of newer technology for older technology (e.g., overhead projector, paper). The uses that we categorized as "potentially transformative 1:1 uses" for this analysis included the following:

- Whole-class instructional delivery: student use (including interactive lesson content/ activities, following along with individual devices, checks for understanding, etc.)
- Conducting Internet research
- Individual use of supplemental digital program
- Composing projects or creating presentations
- Conducting math/science simulations
- Conducting information/data analysis

A total of 120 segments in 69 classrooms were categorized as using the potentially transformative 1:1 types of technology for the CLASS comparison analysis.[44]

A total of 47 segments from 33 classrooms were categorized as having none of the potentially transformative types of technology use for the CLASS comparison analysis. These other observed uses of technology include whole-class instructional delivery–teacher use (mainly, use of technology as overhead projector); nonacademic use; administrative use; writing a paper, reading, communicating among classroom peers, teacher, or parents; taking tests or quizzes; delivering presentations; and other (e.g., use of calculator or printer). Although many of these technology uses were made possible with ITI-provided devices, they do not reflect the more transformative use of 1:1 technology in which the device makes possible a task or experience that otherwise would not be possible.

Results comparing CLASS scores by domain and dimension are shown in Table 26. The findings indicate that those classroom observations segments in which we observed potentially transformative uses of technology had, on average, higher CLASS scores in two dimensions of the Emotional Support domain: Positive Climate and Regard for Student Perspectives. CLASS scores in the other dimensions did not differ as a function of whether transformative uses of technology were observed. However, in three other dimensions, the difference between segments with and without transformative uses of technology was marginally statistically significant: Instructional Learning Format, Content Understanding, and Student Engagement (see Table 26).[45]

[44] As a reminder, more than one technology use could be observed in any given segment, and there were four 10-minute segments observed per class.

[45] Again, we note that these analyses examine correlational relationships between types of technology use and CLASS scores, not causal links. The patterns may be driven by any number of other factors related to the classroom context.

Table 26. Average CLASS Scores of Segments With and Without Transformative 1:1 Technology Use

			CLASS Domain: Emotional Support				CLASS Domain: Classroom Organization		
	Number of Classrooms	Number of Segments	Positive Climate	Negative Climate	Teacher Sensitivity	Regard for Student Perspective	Behavior Management	Productivity	Instructional Learning Formats
Transformative 1:1 tech use	69	120	5.12***	1.22	4.83	3.76***	5.87	6.09	4.28
Other tech use or no tech use	33	47	4.38	1.11	4.49	2.83	6.02	5.98	3.74
t-test *p*-value			0.00	0.17	0.19	0.00	0.47	0.56	0.07

			CLASS Domain: Instructional Support				CLASS Domain: Engagement
	Number of Classrooms	Number of Segments	Content Understanding	Quality of Feedback	Analysis and Inquiry	Instructional Dialogue	Student Engagement
Transformative 1:1 tech use	69	120	2.44	2.47	1.90	1.82	5.54
Other tech use or no tech use	33	47	3.02	2.68	2.02	2.11	5.11
t-test p-value			0.09	0.43	0.62	0.25	0.09

Note: ****p*-value < .001.

In sum, our data from 2015 classroom observations suggest some interesting and potentially important links between technology use and measures of instructional quality. In particular, scores on some dimensions of Instructional Quality (Positive Classroom Climate, Regard for Student Perspectives) were higher in classrooms in which we observed more transformative student uses of technology than those in which we did not. Although these relationships are strictly correlational and may result from other contextual factors (e.g., teacher effectiveness may drive both technology use and instructional quality), they provide a basis for continued effort in and study of technology integration in LAUSD schools.

3.D. Most Frequently Observed Apps in Use

This section draws on data from our purposively selected sample of 10 ITI schools and one non-ITI school to examine application use on devices. Data on app use were collected through two main sources: observed app use during classroom visits and reported app use shared during focus groups and interviews. The additional information on app use gathered through focus groups and interviews enables us to more fully capture the range of apps used across classroom teachers in the schools.[46]

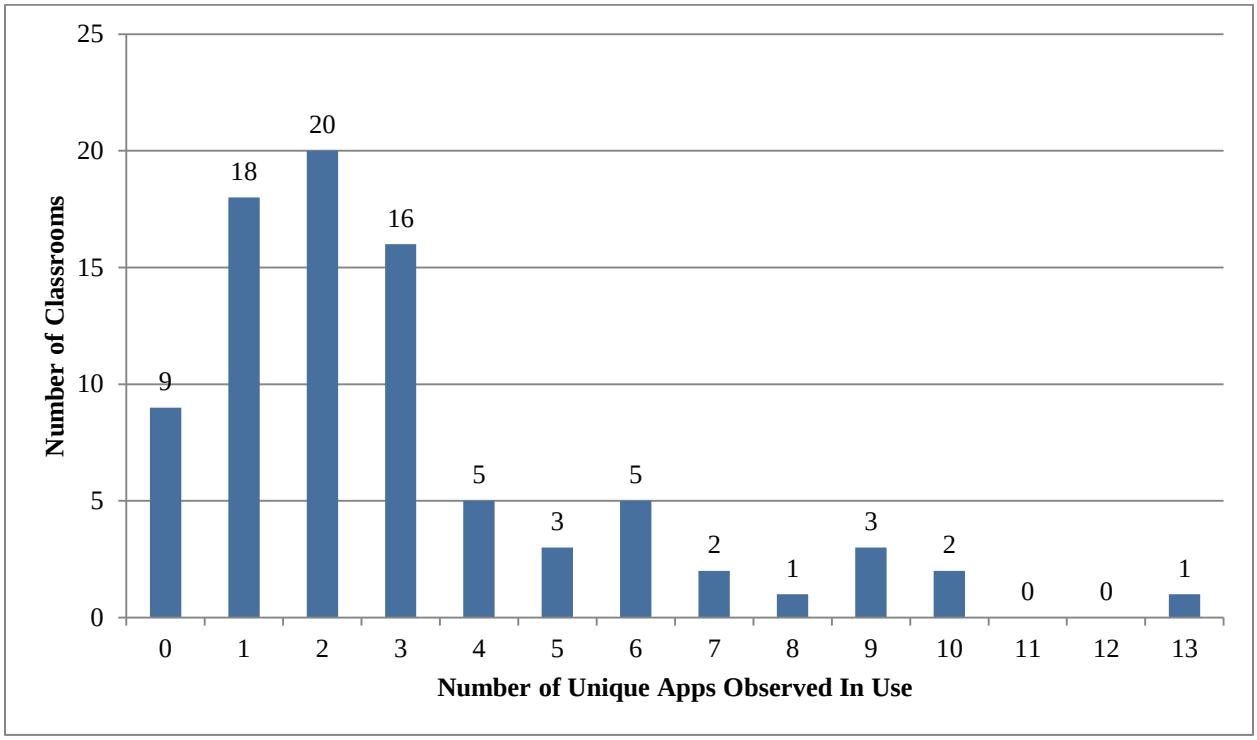
Observed App Use

Of the 85 classrooms we observed, students were observed using apps in nearly all of them (76 out of 85 or 89%). When apps were in use, and when possible, the observer using the Classroom Technology Observation Protocol (not the CLASS protocol) identified the name of each app. Each observed use of a specific app, whether by a single student or multiple students, was counted as one incident of unique app use. For example, if an entire classroom of students was observed using PowerPoint, this was counted as one incident of unique app use (PowerPoint).

In the 76 (of 85) classrooms in which we observed any app use, we observed 78 unique apps and 253 incidents of unique app use. As shown in Figure 9, the number of unique apps observed in use in any one classroom ranged from zero (in 9 classrooms) to a high of 13 distinct apps observed in one high school classroom. Nearly two thirds of all the classrooms visited (across all school levels) were found to be using between one to three different kinds of apps during the observation period.

[46] App-level usage data, which would be far preferable for this analysis, were not available from the MDM or any other system (aside from the Pearson CCSoC, described in section 3.E).

Figure 9. Number of Unique Apps In Use in the 85 Observed Classrooms



Most Commonly Observed Apps

The majority of app use was limited to a small subset of apps. The top five most commonly observed apps were Safari, Google, Word, Notability, and Pearson. These five apps accounted for more than one third of the 253 apps observed. The top ten apps observed accounted for nearly one half (49%) of all apps observed.

An examination of the top 20 apps within elementary, middle, and high school classrooms indicated distinct differences in the prevalence of specific apps by school level (Table 29). For instance, Safari was observed in 11 of the 13 (85%) middle school classrooms visited but was observed in only nine of the 37 (24%) elementary school classrooms. The Pearson app was observed in 10 of the 37 (27%) elementary classrooms visited but was not seen in any of the middle school or high school classrooms.

Table 29. Proportions and Frequencies of Top 20 Most Commonly Observed Apps, by School Level

App	Proportion of All Observed App Use (*N* = 253)	Elementary (*N* = 37 Classrooms)		Middle School (*N* = 13 Classrooms)		High School (*N* = 26 Classrooms)	
		Actual Freq	% of ES	Actual Freq	% of MS	Actual Freq	% of HS
Safari	13%	9	24%	11	85%	12	92%
Google	9%	10	27%	3	23%	9	69%
Word	5%	4	11%	1	8%	8	62%
Notability	4%	4	11%	0	0%	7	54%
Pearson CCSoC	4%	10	27%	0	0%	0	0%
Pages	4%	0	0%	2	15%	7	54%
Sketchbook	3%	1	3%	0	0%	7	54%
Email	3%	2	5%	0	0%	5	38%
Keynote	2%	3	8%	0	0%	3	23%
Edmodo	2%	0	0%	1	8%	4	31%
Pandora	2%	1	3%	0	0%	4	31%
YouTube	2%	1	3%	2	15%	2	15%
iMovie	2%	3	8%	1	8%	1	8%
AirPlay	2%	3	8%	1	8%	0	0%
Biography.com	2%	3	8%	0	0%	1	8%
Lexia	2%	4	11%	0	0%	0	0%
Popplet	2%	3	8%	1	8%	0	0%
PowerPoint	2%	0	0%	2	15%	2	15%
iMessage	2%	0	0%	0	0%	4	31%
iPhoto	2%	2	5%	1	8%	1	8%

Note: ES = elementary school; MS = middle school; HS = high school.

App Use by Type

To better understand the kinds of apps being used in classrooms, each unique app observed was coded and assigned to one of 11 categories related to app purposes and functions. See Table 30 for definitions of the categories and examples of applications within each category.

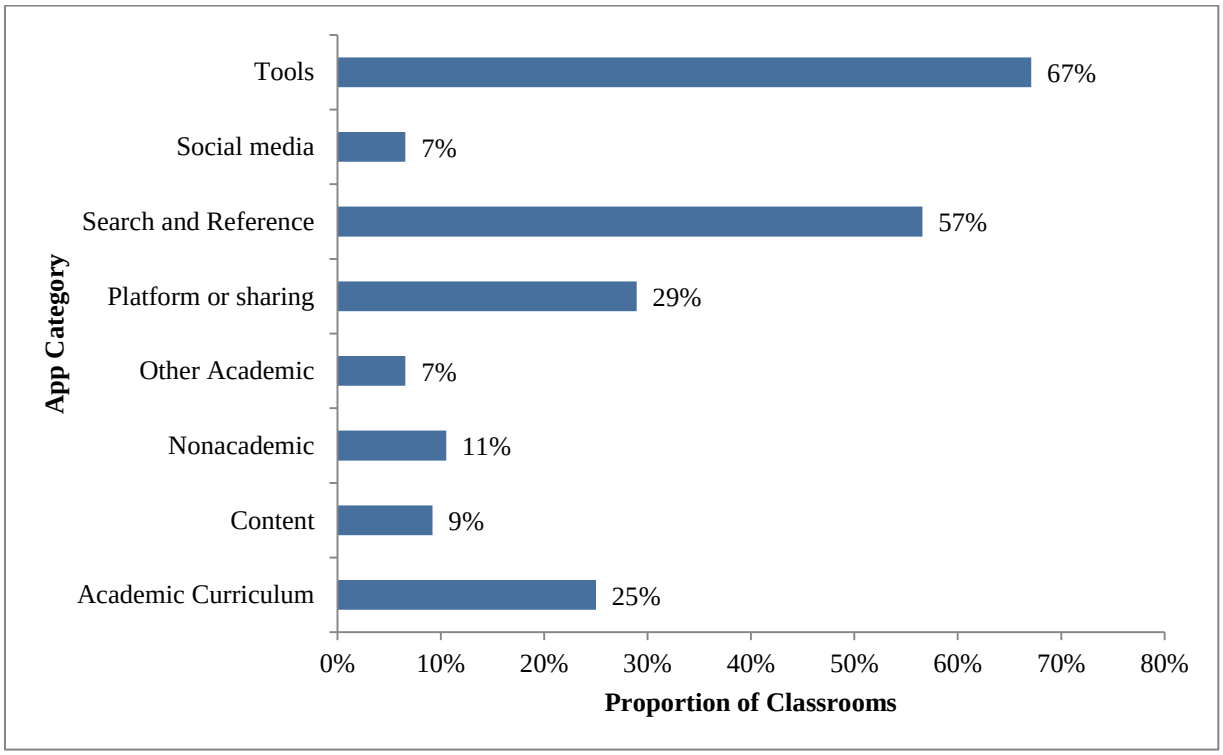
Table 30. Definitions of App Use Categories

App Category/Type	Description	Examples of Apps
Tools	Productivity tools such as word processing, presentations, calculators and editing	Word, Notability, Power Point, iMovie
Search and Reference	Search engines and other apps that help find needed information and resources	Safari, Google, Wikipedia
Platform or Sharing	Manage class content and share resources	Edmodo, Drop Box, Google Docs, NearPod
Content	News, information, digital books	PBS Kids, TED, Storia, Reading Rainbow
Other Academic	Serves academic purpose not covered in other categories	
Social Media	Allows users to create and access social networks	Facebook, Twitter
Nonacademic	Games, music	Pandora, Netflix
Academic Curriculum Apps		
Academic Core	Curriculum content and skills practice in multiple core academic areas	Pearson, IXL
ELA	ELA content and skills practice	Lexia
Mathematics	Mathematics content and skills practice	HooDa Math
Science and Other	Content and skills practice in other content areas	BrainPop, Jr.

Counting each incidence of app use falling into a given category resulted in a total of 160 incidents. For example, if an observation noted classroom use of Word, Notability, and Power Point, these unique app uses were counted as one incident of *tool use* because all three of these apps fall into the same Tools category of app use.

An examination of app incidences by category revealed that productivity tools (67%), search and reference (57%), and platform and sharing (29%) apps were the most commonly observed app uses across the 76 classrooms in which apps were used. Academic curriculum apps, which include four of the 11 categories in Table 31 (Academic Core, ELA, Mathematics, Science and Other) were observed in one fourth of observed classrooms (see Figure 10).

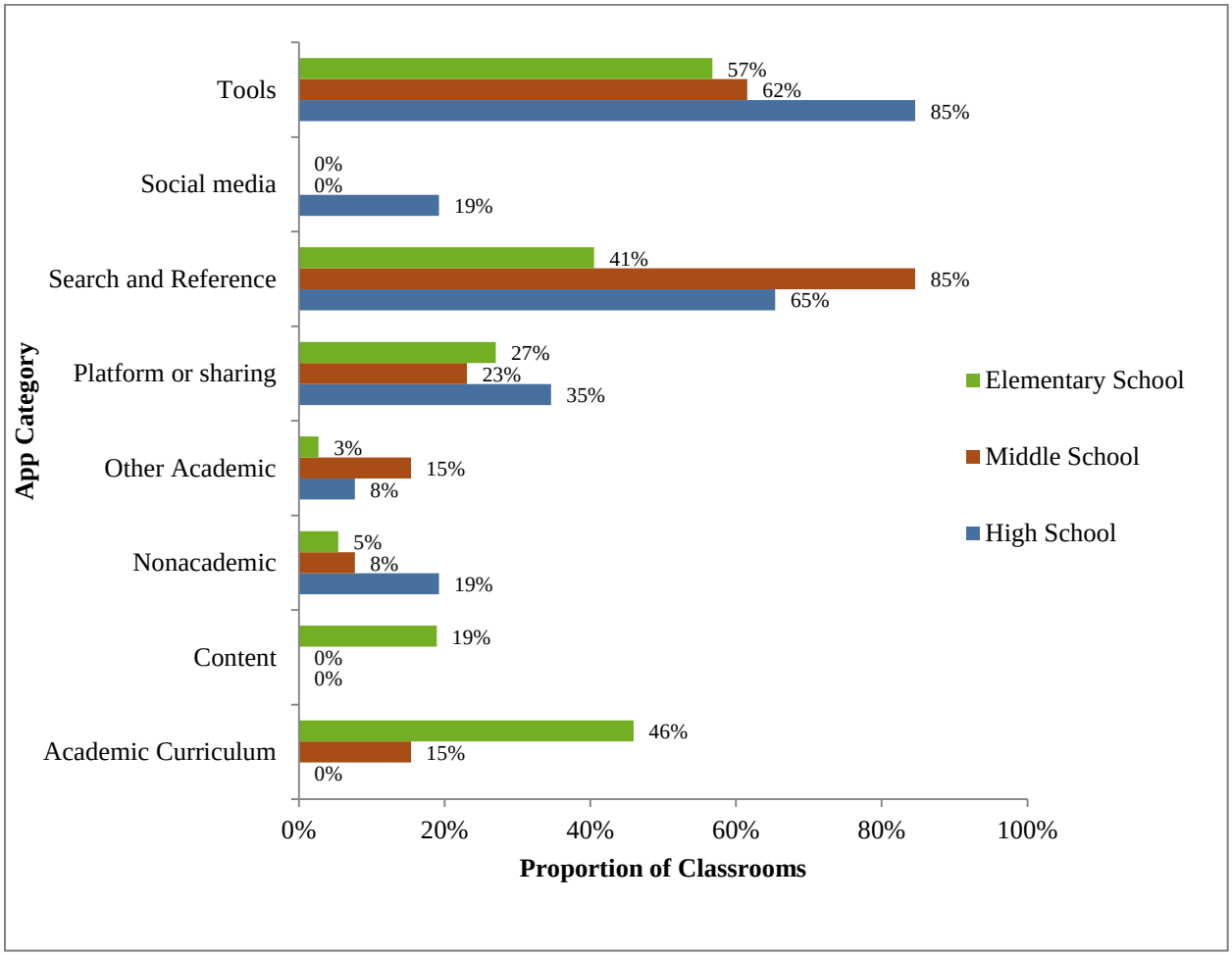
Figure 10. Proportion of Classrooms in Which Incidences of Application Use Were Observed, by App Category (*N* = 76 classrooms)



Note: Academic Curriculum category includes ELA, math, science, and social studies.

An examination of incidences of app use by category across school levels (elementary, middle, and high school) revealed two notable differences. First, the use of social media was observed in 19 percent of all high school classrooms but was not observed at all in elementary and middle school classrooms. Second, applications that offer content or provide academic curriculum (i.e., content and skills practice in academic areas) were more prevalent in elementary than in secondary classrooms. For example, academic curricular apps in ELA, math, science, and other core content areas were observed in nearly half (46%) of all elementary school classrooms, but were not observed in high school classrooms, and were observed in only 15 percent of middle school classrooms. See Figure 11 for an illustration of the prevalence of app use incidences by category within each of the three school levels.

Figure 11. Proportion of Classrooms by School Level by App Category



Reported App Use

Classroom observations provided only a brief snapshot of application use in classrooms during the observations that may not be representative of app use throughout the year. Therefore, reports of app use by school focus groups and interview respondents were used to supplement the observation data. During interviews and focus groups, respondents noted using 98 unique apps. The 10 most commonly reported apps included KeyNote, Notability, iMovie, Edmodo, Nearpod, Pages, Lexia, Airdrop, Brain Pop, and Google Suite. These 10 apps accounted for nearly half (47%) of all apps reported by school site respondents. As outlined in Table 31, these 10 most popular apps were reported across multiple respondent groups (administrators, school leadership team members, teachers, students, and parents) and sites. Overall, iMovie was the most consistently reported app. iMovie was reported across all respondent groups and was mentioned in nine of the 11 schools we visited (82%).

Table 31. Top Ten Most Commonly Reported Apps

App	Number and % of Sites Reporting Use of This App	Included in Top 20 "Observed" Apps	App Use Category
iMovie	9 of 11 schools (82%)	✓	Tools
KeyNote	8 of 11 schools (73%)	✓	Tools
Notability	7 of 11 schools (64%)	✓	Tools
Pages	7 of 11 schools (64%)	✓	Tools
Google Suite	6 of 11 schools (55%)	✓	Tools/Search and Reference
Airdrop	6 of 11 schools (55%)		Platform or Sharing
Brain Pop	5 of 11 schools (46%)		Other Academic
Edmodo	4 of 11 schools (36%)	✓	Platform or Sharing
NearPod	4 of 11 schools (36%)		Platform or Sharing
Lexia	2 of 11 schools (18%)	✓	Academic Curriculum

In total, 133 unique apps were identified between those observed in classrooms and those reported by respondents during interviews and focus groups. Thirty-six of these 133 unique apps (27%) were both reported and observed in classrooms, and five of the top 10 apps reported by respondents (KeyNote, Notability, Edmodo, Pages, and Google Suites) also were among the top 10 most commonly observed apps in the classrooms. Two other commonly reported applications, iMovie and Lexia, were in the top 20 most commonly observed apps.

3.E. 2015 Use of Pearson Digital Curriculum

In order to understand the prevalence of use of the Common Core System of Courses (CCSoC), we counted the number of schools that used each course within the app. There were 25 ITI schools that used at least one course within the CCSoC.[47] The courses where use was most prevalent were those intended for elementary grades (K–5).

Table 32 shows the number of schools that used each course and the proportion of schools that potentially could have used that course and in fact did so. This proportion was calculated by dividing the number of schools using the course by the total number of deployment schools

[47] As noted in Appendix B (Methods), schools with fewer than 10 users per course or fewer than 24 minutes of average course use were excluded from the analysis. Also noted, we conducted sensitivity analyses to determine how the results would change using different criteria for minimum number of students and minimum average usage time. We found there was a large dropoff in number of schools considered to have used a CCSoC course when the minimum average time was increased from 24 (roughly half a class period) to 45 minutes (roughly one class period)—that is, if *course use* is defined as requiring that at least 10 students in a school spent, on average, at least 45 minutes in a CCSoC course, the number of schools considered to have used a course was far lower than our set criterion of 24 minutes. We also found there was a minor drop in number of schools when increasing the criterion from 10 to 20 students in a school, and a larger drop when increasing the criterion to 30 students in a school, who had used a CCSoC course for an average of at least 24 minutes. Therefore, our criteria of 10 students, 24 minutes should be considered inclusive and to represent a fairly low bar for use of the Pearson resources.

covering the grade range of that course. The table also provides the average time spent on each course per student and the average number of students who accessed the course per school. Although there was a total of 23 courses, there was little use of courses covering material beyond Grade 6 (and in fact no use beyond Grade 8). As a result, there were 23 elementary schools, only two middle schools, and no high schools that had records of course use. The following were the most highly used courses:

- The kindergarten course was used in 47 percent of schools, and the Grade 1 course was used in 40 percent of schools that serve the lower elementary grades.
- Among the ELA courses, Grades 2–5 were the most highly used, with usage ranging from 20 percent to 47 percent of schools with applicable grade ranges.
- Among the mathematics courses, Grades 2–6 were the most highly used, with usage ranging from 25 percent to 63 percent of schools with applicable grade ranges.

These findings indicate that the Pearson curriculum is being used primarily in elementary schools, and that math courses are used more broadly than ELA courses.

Table 32. Level of Use of Each CCSoC Course (Number of Schools per Course, Average Time per User, and Number of Users per school)

Course	Number of Schools That Used Each Course	Number of Deployment Schools in Grade Range	Percentage of Potential Schools Using Course	Average Duration of Use (Hours)	Average Number of Users per Course
Kindergarten	14	30	46.67%	0.7	104.0
Grade 1	12	30	40.00%	1.3	79.3
ELA - Grade 2	11	30	36.67%	2.1	45.6
ELA - Grade 3	14	30	46.67%	1.7	36.9
ELA - Grade 4	6	30	20.00%	3.1	53.7
ELA - Grade 5	10	30	33.33%	3.7	54.1
ELA – Grade 6	0	16	0.00%	N/A	N/A
ELA - Grade 7	1	14	7.14%	0.6	81.0
ELA - Grade 8	1	14	7.14%	1.1	78.0
ELA - Grade 9	0	26	0.00%	N/A	N/A
ELA - Grade 10	0	26	0.00%	N/A	N/A
ELA - Grade 11	0	26	0.00%	N/A	N/A
ELA - Grade 12	0	25	0.00%	N/A	N/A
Math - Grade 2	9	30	30.00%	5.7	64.3
Math - Grade 3	19	30	63.33%	3.5	55.9
Math - Grade 4	15	30	50.00%	3.6	58.1
Math - Grade 5	14	30	46.67%	4.2	58.4

Math - Grade 6	4	16	25.00%	1.9	25.3
Math - Grade 7	0	14	0.00%	N/A	N/A
Math - Grade 8	0	14	0.00%	N/A	N/A
Math - Grade 9	0	26	0.00%	N/A	N/A
Math - Grade 10	0	26	0.00%	N/A	N/A
Math - Grade 11	0	26	0.00%	N/A	N/A

Note: Schools with fewer than 10 users per course or less than 24 minutes of average use per course are not counted in the Number of Schools column because they were considered to have not used any given course. They also are excluded from the calculation shown in the Average Duration of Use and Average Number of Users columns.

3.F. Summary of Technology Use in ITI Schools

In summary, technology use was fairly prevalent in the classrooms we observed in the 10 ITI and one non-ITI schools we visited in winter/spring 2015. The rates of device usage seemed higher than in the previous year; however, this difference may be due at least in part to timing, as our site visits were at the end of the year in 2014.

Teachers and students seemed to use technology in fairly similar ways in 2015 as in 2014. In the 85 classrooms across 11 schools visited in 2015, the use of technology by teachers to support whole-class instruction was the most common and did not leverage the 1:1 device availability for students. (In most cases, teachers used technology to simply display instructions or have students show their work.) Students used devices for interactive lessons or activities in more than one third of the classrooms; some of these included embedded assessments/checks for understanding. Students also used devices to conduct Internet research in many of the classrooms we visited (40%). As in the prior year, nonacademic use of technology was fairly prevalent (nearly 30%), particularly at the high school level (more than 50%). Other more prevalent uses included students using supplemental digital programs (32%), administrative use by teachers or students (25%), and students writing a paper (20%). We did not observe as much use of iPads for creating or presenting projects as in the prior year; again, this was likely to do the difference in timing.

We defined some types of technology use as more "potentially transformative" than others, in that their use leveraged the 1:1 availability of devices and potentially provided a learning experience that otherwise would not be possible (i.e., was not just substitution per the SAMR model). We found that CLASS scores for the Emotional Support domain—Positive Climate and Regard for Student Perspectives—were higher in classrooms in which technology was used for more transformative use in a 1:1 format than in classrooms in which it was not. Other dimensions of instructional quality did not differ significantly by type of technology use.

As noted elsewhere in this report, the district did not meet its own expectations for providing digital instructional resources in both Years 1 and 2. The apps observed or reported in use in Year 2 seem limited in the degree to which they were highly aligned with LAUSD standards and had the potential to inspire new learning opportunities. The use of the Pearson app in particular was generally low; ITI schools used the Pearson digital curriculum most in upper-elementary mathematics.

4. Case Studies of Technology Implementation

This section provides information about the end users of the technology provided by the ITI project. Specifically, it examines the experiences and perceptions of administrators, teachers, and students, as well as parents, teacher leaders, and school-based technology service providers. This chapter addresses Evaluation Question 3, *In what ways did schools differ with respect to models and strategies for technology integration?* This chapter also takes a case study approach to address the following subquestions:

- *What were the activities, experiences, and perceptions of stakeholders regarding the technology applications in schools with differing levels of technology integration?*
- *What supports for technology integration were enacted at the school level? To what extent did schools at different levels of technology integration provide the following supports? (vision and clear expectations for technology use, active and ongoing support from school leadership team, technical support, opportunities for teacher collaboration, support for data-driven personalization of teaching, staff-led deployment and monitoring, and parent education opportunities)*
- *What were the most common barriers to achieving implementation goals for schools at different levels of technology integration?*

This chapter presents findings from school stakeholder interviews and focus groups by school and across schools, with a focus on the perceptions and experiences of stakeholders in schools at different levels of technology implementation (as defined by the researchers): Early-Emerging, Early-Bridging, and Developing. These levels serve as a structure to examine stakeholders' experiences at different stages of implementation, including the particular strategies they employ and challenges they face. It allows us to identify differentiating conditions that emphasize the fact that schools achieve similar stages of technology implementation in different ways. The schools included in these analyses are the 10 ITI schools and the one non-ITI school in which we conducted site visits in winter/spring 2015.

The chapter is organized as follows: First, we describe three levels of technology implementation employed here and how we categorized schools by level. Next, among schools at each level, we describe stakeholders' experiences related to technology implementation. We also provide an overall picture of stakeholder perceptions in the subsequent section, with a discussion of findings across all schools related to family engagement and general strengths and challenges of the initiative. We end the section with a summary of overall findings across the schools.

4.A. Levels of Technology Implementation

LAUSD was in only the second year of the ITI project at the time of data collection between January and April 2015, and robust technology implementation is a multiyear process (e.g., Shapley, Sheehan, Maloney, & Caranikas-Walker, 2010). Therefore, although several frameworks exist for describing a continuum of technology implementation in districts, schools, and classrooms (e.g., EdTEch Locator, ISTE standards), we employed a finer grained approach in order to capture implementation activities early in the process. We developed and used a rubric that groups schools into three levels of early technology implementation: Early-Emerging,

Early-Bridging, and Developing. We categorized the site-visited schools into these levels on the basis of their scores on 12 dimensions associated with successful technology implementation, grouped into four overarching categories called domains. These domains and the research that supports the dimensions they contain include the following:

- **Support.** Three essential areas of support provided to teachers for classroom technology integration include ***school leadership support*** (Kurki, Aladjem, & Carter, 2005; Penuel, 2006; Pitler, 2005; Valiente, 2010); ***technical support*** (Argueta, Huff, Tingen, & Corn, 2011; Center for Promise, 2013; Valiente, 2010; Zucker & McGhee, 2005); and ***professional development*** (Center for Promise, 2013; Fixsen, Naoom, Blasé, & Wallace, 2007; Staples, Pugach, & Himes, 2005; Vernez, Karam, Mariano, & DeMartini, 2006). The latter should build teachers' knowledge of both how to use technology and how to integrate it successfully into instruction (Davies & West, 2014).
- **School Culture.** Related to support, a school culture with an expectation of technology use and integration is an important factor in successful technology implementation, including a strong ***shared school vision*** (Valiente, 2010; Vernez et al., 2006) and broad ***parent engagement*** (Kington, Harris, & Leask, 2002). ***Students' online safety and engagement as digital citizens*** is also an important component of a school culture that embraces technology (Hollandsworth, Dowdy, & Donovan, 2011).
- **Instructional Integration.** The instructional integration domain includes the extent to which ***schools and teachers use technology in ways that are considered "transformative"*** according to the SAMR model (i.e., providing an educational experience that would not be possible without the technology), mediated through ***extensive use of technology in instruction*** (Argueta et al., 2011; cf. Shapley et al., 2010). This domain also includes ***teacher collaboration***, an important factor in widespread classroom integration of technology (Bebell & Kay, 2010; Bebell & O'Dwyer, 2010; Kurki et al., 2005; Center for Promise, 2013; Zucker & Hug, 2007).
- **Infrastructure.** This factor reflects the importance of continuous access to technology that is easy to use and works well (Pitler, 2005; Zucker & McGhee, 2005). This includes student and teacher ***access to devices***, ***instructional resources***, and ***device connectivity*** (Argueta et al., 2011; Center for Promise, 2015; Valiente, 2010).

Descriptions of the dimensions within each domain are provided in Table 33, along with data sources used to determine how schools rated in each dimension. We assigned dimension ratings numerically on a scale of 0–2. A score of zero indicated minimal presence of the dimension, 1 indicated some presence of the dimension, and 2 indicated full presence of the dimension at the Developing level; a full rubric in Appendix C provides details about scoring for each dimension. Data for scoring were drawn primarily from the interviews and focus groups we conducted with stakeholders at each school, including interviews with 11 administrators (principals or assistant principals); interviews and focus groups with 34 school leadership or technology team members; and focus groups with 72 classroom teachers, 64 parents, and 60 students (Grades 3 and above). We also drew some evidence from the classroom observations described in Chapter 4 and district training and technology support records. A researcher used these data sources to score each dimension for each school. A second researcher reviewed the scores, and the evaluation team discussed and resolved any discrepancies. The next section describes the results of the scoring.

Table 33. Domains, Dimensions, and Data Sources for Technology Implementation Scores

Domain	Dimension	Criteria	Data Sources
Support	Leadership support	School leaders guide and support efforts to integrate technology by identifying needs, coordinating professional development, and providing resources and encouragement to staff. School leaders seek district support as needed.	▪ Responses to leadership support questions in school administrator and SLT interviews ▪ Attendance records from district change management professional development ▪ School instructional readiness survey completion records
	Technical support	Each school has access to district technology support staff (e.g., MCSAs). ITD Help Desk support is available to all staff. School staff provide technology support to each other. The school instructional device manager (IDM) uses Destiny to update the location and status of devices, and a mobile device manager to monitor student and teacher usage and to manage apps.	▪ Responses to technical support questions in school administrator and SLT interviews, teacher focus groups ▪ MDM and asset management training records
	Classroom technology integration support	Teachers participate in district-offered or other professional development on how to integrate technology into instruction. Each school has access to district instructional support staff (e.g., VLCFs). School staff provide technology instructional integration support to each other.	▪ Responses to questions about professional development and collaboration in school administrators and SLT interviews, teacher focus groups ▪ VLCF logs ▪ Attendance records from technology integration professional development
School Culture	Shared school vision	The school communicates its vision and expectations for use of technology and teaching practice.	▪ Responses to questions about school vision and expectations in school administrator and SLT interviews, teacher focus groups, student focus groups
	Digital citizenship	Students have engaged in digital citizenship lessons and adhere to its tenants.	▪ Responses to questions about digital citizenship in school administrator and SLT interviews, teacher focus groups, student focus groups

Domain	Dimension	Criteria	Data Sources
	Parent engagement	School staff facilitate parent meetings and education groups about technology. Parents understand the school's visions for and uses of technology. Parents' concerns about technology are addressed.	▪ Responses to questions about parent engagement in school administrator and SLT interviews, teacher focus groups, parent focus groups
Instructional Integration	Transformative use of technology	Technology facilitates innovative instructional methods, including project-based learning, personalized learning, differentiated instruction, and adaptive assessment.	▪ Responses to questions about instructional use of technology in school administrator and SLT interviews, teacher focus groups, student focus groups ▪ Classroom technology observations
	Extent of technology use in instruction	Most teachers and students use technology most days for instruction.	▪ Responses to questions about amount of technology use in school administrator and SLT interviews, teacher focus groups, student focus groups ▪ Classroom technology observations
	Collaboration	School staff participate in collaborative groups or professional learning communities focused on technology integration and lesson planning using digital resources.	▪ Responses to questions about collaboration in school administrator and SLT interviews, teacher focus groups
Infrastructure	Instructional resources	All teachers and students have access to digital instructional resources.	▪ Responses to questions about instructional resources in school administrator and SLT interviews, teacher focus groups
	Bandwidth and connectivity	Wireless bandwidth is sufficient for reliable Internet access. Classrooms have received the necessary infrastructure enhancements needed to support a one-to-one computing environment	▪ Reports of connectivity challenges in school administrator and SLT interviews, teacher focus groups, student focus groups ▪ LAUSD bandwidth reports ▪ 1:1 site readiness report
	Device access	All students and teachers have access to a device. Devices are distributed to students daily. Students are able to take devices home and use them successfully.	▪ Responses to questions about device access in school administrator and SLT interviews, teacher focus groups, student focus groups ▪ Classroom technology observations

4.B. Site-Level Results

Schools vary in the ways they approach technology implementation and the resources on which they draw. Nonetheless, we expected the schools at the earliest stages of implementation to have more experiences in common with each other than with schools at more advanced stages of implementation. For the purposes of our analysis, therefore, we grouped schools by their overall scores into three levels of implementation. Cut scores were defined a priori by tertile, as follows:

- **Early-Emerging (0–8 points).** At the Early-Emerging level of implementation, the school exhibits rare or sporadic technology use, with no functional change in instruction. There may be some planning and support initiatives in place, but they are not systematic or widely communicated. Infrastructure is insufficient for widespread technology use.
- **Early-Bridging (9–16 points).** Schools at the Early-Bridging level of implementation have basic structures in place to plan for and support technology use, with technology integration into instruction occurring in limited ways (e.g., among some teachers or within some subjects). Infrastructure is generally sufficient for classroom technology use but exhibits some limitations that must be addressed to maintain daily, widespread use.
- **Developing (17–24 points).** At the Developing level, technology is used to supplement and transform instruction in a broadening range of topic and grades. Planning and support structures still may be evolving, but have been implemented and widely communicated. Infrastructure is sufficient for most desired technology uses. There is still abundant room for broader implementation and transformative classroom use of technology at this level, but the school has a strong foundation in place.

Table 34 shows each school's scores by domain and overall and also provides information about the school's phase and deployment date (Year 1 and Year 2 for Phase 1 schools). Subsequent sections show individual dimension scores for each school. Each school in our sample has been assigned a number to protect the identities of interview and focus group participants.

Table 34. School Levels of Implementation, Domain Scores, and Overall Technology Implementation Scores

Level	School	Phase and Device Deployment Date	Domain Scores		Overall Score
Early-Emerging	School 01-HS	Phase 1L/February 2015	Support	1	2
			School Culture	0	
			Instructional Integration	1	
			Infrastructure	0	
Early-Bridging	School 02-ES	Phase 1 Y1: November 2013 Y2: October 2014	Support	0	9
			School Culture	3	
			Instructional Integration	2	
			Infrastructure	4	
	School 03-HS	Phase 1 Y1: September 2013 Y2: November 2014	Support	3	12
			School Culture	4	
			Instructional Integration	3	
			Infrastructure	2	
	School 04-MS	Phase 2a/February 2015	Support	4	13
			School Culture	1	
			Instructional Integration	4	
			Infrastructure	4	

Level	School	Phase and Device Deployment Date	Domain Scores		Overall Score
	School 05-ES	Phase 1 Y1: November 2013 Y2: October 2014	Support	5	14
			School Culture	4	
			Instructional Integration	3	
			Infrastructure	2	
	School 06-MS	Phase 1 Y1: December 2013 Y2: December 2014	Support	3	14
			School Culture	4	
			Instructional Integration	4	
			Infrastructure	3	
	School 07-ES	Phase 2a/October 2014	Support	4	15
			School Culture	4	
			Instructional Integration	5	
			Infrastructure	2	
	School 08-HS	Phase 1 Y1: September 2013 Y2: November 2014	Support	4	15
			School Culture	3	
			Instructional Integration	5	
			Infrastructure	3	
	School 09-ES	Phase 2a/October 2014	Support	4	16
			School Culture	6	
			Instructional Integration	3	
			Infrastructure	3	
Developing	School 10-HS	Phase 1 Y1: September 2013 Y2: October 2014	Support	6	21
			School Culture	5	
			Instructional Integration	6	
			Infrastructure	4	
	School 11-ES	Non-ITI	Support	6	24
			School Culture	6	
			Instructional Integration	6	
			Infrastructure	6	

Note: The initials following school names (ES, MS, and HS) indicate school level (elementary, middle, and high).

Most of the schools classified as Early-Bridging received technology during the fall 2014 semester or earlier. However, School 04-MS, a Phase 2A school that received devices in February 2015, also falls into this group. One of the Phase 1 high schools is categorized in the Developing level, along with the non-ITI school in our sample, which has been implementing its own technology initiative for several years.

We examine the schools' levels of implementation in more detail in the following sections, which describe the characteristics of the schools at each level, as well as stakeholders' perceptions of and experiences with technology implementation.

Early-Emerging-Level School

School 01-HS, a Phase 1L high school that received devices approximately one month before our site visit in March 2015, is the only school in our sample categorized as an Early-Emerging school. School 01-HS received a total of two points in the rubric: one in Support in the technical support dimension, and one in Instructional Integration under extent of technology use in instruction. The school was engaging in activities in the other areas, but these activities were at

an initial stage, so no points were assigned. Table 35 shows the school's scores in each dimension. Details are provided in the subsections below.

Table 35. Early-Emerging-Level School's Dimension and Domain Scores

Domain	Dimension	Dimension Score	Domain Score
Support	Leadership Support	0	1
	Technical Support	1	
	Classroom Technology Integration Support	0	
School Culture	Shared School Vision	0	0
	Digital Citizenship	0	
	Parent Engagement	0	
Instructional Integration	Transformative Use of Technology	0	1
	Extent of Use in Instruction	1	
	Collaboration	0	
Infrastructure	Instructional Resources	0	0
	Bandwidth and Connectivity	0	
	Device Access	0	

Leadership Support

The school scored zero points in the leadership support dimension because we did not find evidence that the school had a leadership team that engaged in planning for technology implementation, and the principal reported that the VLCF had not engaged in assisting with goal setting or planning. In addition, district records indicated that the school did not complete the instructional readiness survey; the principal reported that the school started working on the survey with its first VLCF, who was reassigned, and the school did not finish it.

However, the school did appear to be progressing toward additional leadership support. For example, the principal reported engaging in initial stages of planning and completing the ADKAR survey. In addition, LAUSD records showed that the principal attended three of the five district principal workshops for which LAUSD kept attendance, although he or she reported that the meetings were held at inconvenient times when it was difficult to leave the school and that the meetings were not particularly helpful for learning about implementation. The principal stated, "I want more knowledge about how to get it [the technology program] going and so forth, and so far it doesn't seem a lot of that is happening [at the ITI principal meetings]."

Technical Support

The school received a score of one point for technical support because the principal had designated staff to assist other staff with technical issues, and the school had an IDM with full access to the Destiny asset management system. An MCSA provided some technical support.

However, according to school staff, the MSCA was available only one hour per week. The principal and teachers also noted that they were aware of the process for putting in a Help Desk ticket but had only recently learned about it. Overall, they reported that their specific technical support needs were not being met consistently.

Classroom Technology Integration Support

There was very little evidence of classroom technology integration support. The administrator and teachers reported that teachers participated in a professional development course when they received their devices. However, teachers reported that the course was very basic and didn't meet their needs; it focused primarily on how to use the device but did not give them information about classroom integration. The principal reported that the VLCF had not yet provided any instructional support (no reasons were given). No other professional development was reported. One teacher explained:

> "I feel like [the technology program] has just kind of been tossed at us with very little understanding of how we are to implement it or use it. [The devices] just showed up—we were told in a meeting that they were coming, and they finally showed up. We really didn't have any kind of training on it."

Shared School Vision

The school was assigned no points in this dimension because school leaders reported that they are still developing a vision, and teachers did not express a shared vision, as illustrated in the previous quotation.

Digital Citizenship

Zero points were assigned because stakeholders reported that students had not yet received digital citizenship training, a key element of this dimension. The principal reported that the VLCF sent information about the training, and they had set dates for the training, but "it just didn't happen." The principal went on to say:

> "To get it going and everything, you know, I've got about 60 things on my plate and that's one more. And it's not that we shouldn't do it. It's a good thing. But I think [the VLCF] could have come in, got the teachers going with it, and they would have taken time to do it. But that didn't happen yet."

Nonetheless, teachers did not report any concerns about student safety with the technology. One teacher said, "It's like a big family here. Everybody knows everybody.…They don't blast or disrespect each other in any way. So I don't think that safety's an issue here."

Parent Engagement

The school scored zero points in the parent engagement dimension because communication with parents about technology had so far included only sending them the district required forms and letters in the mail and had not yet included any meetings or education groups where parents could learn about the initiative and have any concerns addressed.

Transformative Use of Technology

School leadership, teachers, and students reported that some students used technology in science to complete labs that were available online. Teachers also reported that students had used technology to engage in interactive tasks to build geography knowledge. However, this dimension was rated zero because potentially transformative use appeared sporadic, and an administrator reported that teachers were not yet ready to integrate technology into instruction.

Extent of Technology Use in Instruction

The school received a score of one for the extent of technology use in instruction because teachers and administrators reported that the devices were being used by teachers and students for some tasks such as word processing and sharing assignments via Dropbox. We also observed small numbers of students using technology for Internet research in four of the six classrooms we visited, and for word processing in three classrooms. However, the principal noted that school staff had elected not to make widespread use of the devices until the 2015–2016 school year, and observed technology use was limited.

Collaboration

There were no reports of formal teacher collaboration around technology integration, resulting in a score of zero. However, the teachers in the focus group reported that they frequently talk to each other about technology.

Instructional Resources

Teachers reported they had not yet received any instructional resources from the school or district, although they did report that they had sought out some resources on the Internet (e.g., interactive geography lessons, science labs).

Bandwidth and Connectivity

The school received a zero for bandwidth and connectivity because the school did not meet sufficient bandwidth levels as defined by LAUSD and because staff described frequent connectivity issues. One teacher said, "The Internet here is slow, even on days where there aren't things like [districtwide testing]. It comes and goes." None of the respondents discussed strategies for reporting or addressing connectivity issues.

Device Access

The device access dimension was rated zero because the number of devices present in the six observed classrooms varied and were seldom observed in use. Students did not take devices home, and widespread access to technology was not reported by school staff.

Reported Technology Implementation Strengths

Technology use and support was not widespread at School 01-HS, so reported strengths were few thus far. Nonetheless, teachers expressed enthusiasm about the potential of the technology to

facilitate deeper student learning through differentiated lessons, personalization of instruction to students' learning styles (e.g., using animation to visualize math problems), and freedom for students to delve more deeply into topics of interest. Both the teachers and the principal reported that implementing widespread use of Dropbox was an early success, because teachers and students were able to exchange assignments more easily than they had without the technology.

Reported Challenges

Challenges with technology implementation reported by School 01-HS stakeholders were primarily related to a lack of planning and systems to support technology use, which stakeholders attributed to late deployment and the fact that the school was not part of a larger cohort of schools using the same device. The principal reported that the deployment date was postponed frequently, and the district provided a range of dates rather than an exact delivery date. The principal also said that because the devices arrived during the spring semester rather than in early fall, the school was unable to use the more abundant summer planning time to prepare. He or she said, "This school year is two thirds of the way over, and to start implementing something is very difficult." The principal and teachers also reported planning challenges related to having devices different from other schools they collaborate with, so they were unable to share training or advice. The principal reported that it would have helped to know in advance what other schools were choosing, saying, "I liked that we had the ability to choose, but we were all in isolation choosing."

Early-Bridging-Level Schools

Eight of the 11 schools we visited during the 2014–15 school year fell into the Early-Bridging category. The following subsections provide a summary of the technology implementation and supports evident in schools in this category, organized by domain and dimension.

Support Domain

Table 36 shows the Early-Bridging-level schools' dimension scores for the support domain. Findings indicate that there were support structures in place in these schools, but the availability and success of these structures varied. On average, these schools scored one out of two points for leadership support, indicating some activities by school leadership to guide and coordinate efforts to implement technology, but not a fully operational, systematic approach. There was much variation in this dimension among this group of schools. The technical support dimension showed similar variation among schools, although it scored a higher average dimension score of 1.4 points (out of 2), indicating broad, systematic access to technical support within the schools rated the highest. Classroom technology support showed the most consistency in the support domain; most schools scored one point, which was also the average dimension score. A score of one point in this dimension indicates that some staff accessed district- and school-level professional development, but there were barriers to full staff participation. Additional details for each of these dimensions are provided.

Table 36. Early-Bridging-Level Schools' Dimension Scores for the Support Domain

School	Leadership Support	Technical Support	Classroom Technology Integration Support	Domain Score
School 02-ES	0	0	0	**0**
School 03-HS	0	2	1	**3**
School 04-MS	1	2	1	**4**
School 05-ES	2	2	1	**5**
School 06-MS	0	2	1	**3**
School 07-ES	1	1	2	**4**
School 08-HS	2	1	1	**4**
School 09-ES	2	1	1	**4**
Average	**1**	**1.4**	**1**	***3.4***

Leadership Support. As noted, schools in the Early-Bridging category exhibited mixed levels of leadership support. Three schools received zero points. At these schools, there was no leadership team engaged in planning around technology implementation, and the principal and staff had been minimally engaged with district readiness activities, as evidenced by low attendance at principal workshops and the four-day Education Strategic Planning Course. Low engagement with district leadership activities appeared to be the result of a variety of factors. At one of these schools, the principal was new to the school and had not yet had the opportunity to engage in these district activities. At another school, School 03-HS, the principal reported that the workshops were not very helpful, describing them as "complaint sessions" rather than forums to share best practices. And at the third school, the principal attended one principal meeting according to district records but reported that the district did not continue to offer trainings for principals on technology after an initial meeting. When asked about principal meetings, the principal referred to them as "meetings/training" and said, "The trainings, they started off really well, and then they kind of dwindled."

Two of the Early-Bridging schools received one point in the leadership dimension; these schools had a school leadership team that focused on technology use and attended the district Education Strategic Planning Course, but they reported planning was in initial stages, and as with the lower scoring schools, the principals exhibited limited participation in principal workshops. The principal at one of these schools, School 04-MS, indicated that the workshops were not relevant to them as a Phase 2A school with a late deployment schedule, saying "To take the time to go downtown was not an effective use of my time. The information that we were getting was not necessarily new information, and because we didn't know when the devices were coming, that made it hard, too."

The final three schools, School 05-ES, School 08-HS, and School 09-ES, received two points for leadership support because stakeholders reported that they had leadership teams actively planning for technology implementation. At these schools, the VLCF was also involved in technology planning, and their School Leadership Teams attended the Education Strategic Planning Course. The principal at School 05-ES reported that the principal workshops were

particularly useful for collaborating with other principals with similar technology programs and similar populations of students, in contrast to principals at schools such as School 03-HS and School 04-MS, who had not found these meetings helpful.

Technical Support. Four of the seven schools in the Early-Bridging category received two points for technical support, indicating that multiple types of technical support were available to teachers, and that teachers reported knowing how to access this support. In order to offer a comprehensive support structure, these schools employed local assets in addition to district technical support, including the following:

- Designating a technology coordinator or team (3 schools).
- Designating a staff member or members who had full access to the Destiny asset management system (3 schools).
- Encouraging a school culture in which staff freely assisted each other with technology issues whenever possible (2 schools).
- Training students and forming a student technology team to assist with technology issues (1 school).
- Forming a partnership with an outside organization that augmented the school's technical assistance staff with three additional people (1 school).

The three schools receiving one point had some support in place, including an MCSA and designated school staff, but teachers in the focus groups reported different and sometimes conflicting school systems for accessing the support, indicating general confusion about established methods for accessing support in these schools. In the school that received zero points in this category, the principal reported that a single person volunteered to assist with technical issues, and the principal and teachers reported there was not an organized system in place at their school to handle technical issues and concerns.

Classroom Technology Integration Support. The average score for classroom technology integration support was one point, the score received by six of the eight schools in the Early-Bridging level. (The other two schools received zero and two points.) Stakeholders in the schools that received one point reported that teachers had received some training about integrating technology into instruction from the district, but that they need more training and support, especially on selecting appropriate programs and applications (one school) and mastering the basics as foundation for more sophisticated uses (two schools). To the latter point, teachers at both schools requested that professional development be differentiated for teachers with different technology comfort levels. Other reported barriers to district ITI training included the fact that some trainings were offered on Saturday and general lack of awareness about training opportunities. One principal said, "Early on there were some fundamental professional developments that all staff had to attend when we were in the pilot phase. Since that time, the only professional development at district level was basically in device management."

The VLCFs were able to overcome many of these barriers and were therefore an important factor in classroom technology integration support in many of the Early-Bridging schools. According to VLCF logs, a VLCF visited two of the eight Early-Bridging schools at least once a week, and the other six schools at least once every two weeks. VLCF instructional integration support activities

included whole-staff professional development in four of the schools, individual staff coaching in three of the schools, and lesson-modeling in two of the schools. At the school receiving two points for classroom technology integration support, the VLCF was on-site weekly and provided much of the reported professional development to teachers.

The importance of VLCFs to meeting schools' needs for technology integration support is also evident in schools that did not receive adequate support. Stakeholders at the school receiving zero points, School 02-ES, reported no formal professional development on technology integration, including from the VLCF, who said that he or she had not been given time on the school calendar to offer professional development. VLCFs also provided no professional development support in three other schools, all of which received one point in this dimension; in two of these schools, administrators reported that VLCF support had been primarily focused on technical issues, not instruction.

School Culture Domain

Table 37 shows the Early-Bridging schools' scores for the three School Culture dimensions. As with the Support domain, there was variation in the School Culture dimensions in the Early-Bridging schools, with higher overall scores in the Digital Citizenship dimension than other dimensions. Details about the variation in each dimension are provided below.

Table 37. Early-Bridging-Level Schools' Dimension Scores for the School Culture Domain

School	Shared School Vision	Digital Citizenship	Parent Engagement	Domain Score
School 02-ES	1	2	0	**3**
School 03-HS	1	1	2	**4**
School 04-MS	0	1	0	**1**
School 05-ES	1	2	1	**4**
School 06-MS	0	2	2	**4**
School 07-ES	1	2	1	**4**
School 08-HS	1	1	1	**3**
School 09-ES	2	2	2	**6**
Average	**0.9**	**1.6**	**1.1**	***3.6***

Shared School Vision. Five of the eight schools received one point in the shared school vision dimension, with two schools receiving zero points and one school receiving two, for an average of 0.9 points among Early-Bridging schools in this dimension. A score of one point on the rubric indicates that the school has a vision for technology implementation, but the vision is not fully developed or actionable, and not all staff are aware of what it is. Administrators at the five schools receiving one point reported that their vision for technology was that it would be integrated completely throughout the curriculum.

At the school receiving two points, School 09-ES, the administrator explained that the vision was to use technology as one of the school's tools for instruction. The school leadership team

reported that they had created "universal benchmarks" for Grades K–5 iPad use, including basic handling, accessing the Internet, being able to cut and paste, and knowing which applications are on the iPad. It is important to note that although this school received the full two points in this dimension, stakeholders in this school described the vision as evolving.

Digital Citizenship. Digital citizenship was an area of strength for the majority of schools in this group. Five of the eight schools were rated two points in this dimension. All of the schools offered digital citizenship training to students, and in the five schools that received two points, students demonstrated adherence to digital citizenship principles. (Evidence included teacher reports of students' levels of digital citizenship and students' descriptions of the topic.) Three of the schools received one point in the area because although students received digital citizenship training, both teachers and students expressed concerns about students using their school-issued devices inappropriately nonetheless (e.g., bullying other students, posting pictures on the Internet).

At the three schools in the Early-Bridging group where participants discussed the quality of the district digital citizenship training, respondents described the training as very basic. A school leadership team member at one of the elementary schools described it as more "acceptable use" training than truly digital citizenship training, and students at one high school recalled that the training covered "basically common-sense things." Schools receiving two points in this dimension appeared to have treated the district trainings as a launching point for ongoing discussions and trainings in classrooms. For example, at School 09-ES, students said that they usually talked about Internet safety in class for a few minutes each morning, and at School 06-MS, students reported learning in class about accessing credible resources and websites.

Parent Engagement. Parent engagement levels in this group of schools were mixed, with two schools receiving zero points, three schools receiving one point, and the remaining three schools receiving full points, for an average of 1.1 points for schools in the Early-Bridging category. At the schools receiving zero points, both elementary schools, parents expressed concerns that had not been acknowledged or addressed by their students' schools, including who would be liable for lost or broken devices and how Internet safety was addressed. For example, parents at School 02-ES wondered if all "bad" sites were blocked and if students might download viruses from clicking on the wrong website. One of these parents said, "When you open up something, there is something always attached to it before you get to what you need. At least on my computer—the pop-ups." At these schools, administrators reported meeting with parents only to provide information about the ITI, and school staff noted that opportunities for parents to interact at these meetings was minimal.

At the three schools receiving one point, two elementary schools and a high school, parents expressed similar concerns about student Internet safety and keeping the devices safe. However, in addition to conducting informational meetings, these schools presented occasional opportunities for parents to ask questions and pose concerns.

Parents of students at the three schools receiving full points in this area reported that the school is open to meeting with them to discuss questions or concerns, and none of the parents expressed concerns that had not been addressed by the school. Administrators at these schools noted that engaging all of the parents is challenging, but they are employing multiple, targeted approaches

to interacting with parents, including informational meetings, workshops to learn about the devices and software, e-mails, and when necessary, calling parents or meeting with them individually. School leadership team members at one of these schools noted that the district provided a PowerPoint presentation for parents and they used that, but they also engaged parents in other meetings and workshops to discuss and explain technology.

Instructional Integration Domain

As shown in Table 38, most Early-Bridging schools scored at least one point in most of the Instructional Integration dimensions. Overall, this group of schools scored highest in the extent of use in instruction dimension, with all schools scoring at least one point, and half of the schools scoring two points. More variation was seen in the transformative use of technology and collaboration dimensions. Details are provided below.

Table 38. Early-Bridging-Level Schools' Dimension Scores for the Instructional Integration Domain

School	Transformative Use of Technology	Extent of Use in Instruction	Collaboration	Domain Score
School 02-ES	1	1	0	**2**
School 03-HS	1	2	0	**3**
School 04-MS	1	2	1	**4**
School 05-ES	0	1	2	**3**
School 06-MS	1	1	2	**4**
School 07-ES	2	2	1	**5**
School 08-HS	2	2	1	**5**
School 09-ES	1	1	1	**3**
Average	**1.1**	**1.5**	**1**	***3.6***

Transformative Use of Technology. Most of the schools in the Early-Bridging group received one point in transformative use of technology; only one school received zero points, and two schools received two points. One point in this area indicates that students engage in some project-based learning and personalized learning tasks, but it is limited in structure or content area. The five schools receiving this score showed some inroads into transformative technology use. Teachers and students at these five schools reported that students frequently engaged in online research, an activity that also was observed at three of these schools. However, administrators and teachers in these five schools reported that these uses of technology are not yet implemented widely.

Reported student uses of technology besides online research in the Early-Bridging group of schools included the following:

- Taking formative assessments and receiving immediate feedback (6 schools).
- Accessing differentiated content (e.g., through Newsela, IXL math, Lexia) (5 schools).

- Making movies to present summaries of learned material (3 schools) and watching other students' movies to learn and provide feedback (1 school).
- Collaborating with other students on project work (2 schools), even when not in the same room or building (1 school).
- Moving through online and teacher-designed lessons at student's own pace (2 schools).
- Using a mathematics application and digital manipulatives to visualize problems and calculations (2 schools) and using iPad and digital pictures to visualize grammar problems in an ELA lesson (1 school).
- Accessing instruction via video for homework and subsequently completing problem sets or participating in discussions with the teacher during class (i.e., "flipped" classroom) (1 school).
- Developing dialectal journals in Notability or Pages (1 school).
- Sharing information with students and teachers (1 school).

Extent of Use in Instruction. Although transformative use of technology is only just emerging in schools in the Early-Bridging category, these schools received a relatively high average score of 1.5 points for extent of technology use in instruction, which indexes any type of academic technology use in schools. This outcome was not unexpected because widespread use of technology may in general precede transformational technology use. In other words, we might expect teachers and students to use the devices frequently and for many tasks before engaging in instruction and learning in previously inconceivable ways. We saw technology in use in most of the classrooms we observed among schools in this group, including whole-class instruction (7 schools), Internet research (3 schools; also previously noted), individual student uses of supplemental digital programs (4 schools), and formative assessment (1 school). In addition, administrators, school leadership team members, and teachers in all of the schools in this group reported that most teachers use technology for some instructional or classroom-related purpose.

The four schools receiving one point rather than two were about average in device usage, measured as percent of devices active on a weekly basis (according to MDM data). Four schools in the Early-Bridging category received two points in this dimension, indicating evidence of widespread use of technology by most teachers and students in the school. For example, we noted device use for academic purposes in the majority of classrooms that we observed in these schools, and stakeholders reported that most teachers in these schools use technology for multiple instructional and administrative purposes.

Collaboration. Staff collaboration around technology integration seemed to be relatively low overall in the Early-Bridging schools. Although the overall average was one point, two of the eight schools received zero points, and four schools received one point (the remaining two schools received two points for collaboration). Teachers in the schools receiving zero points reported that they do collaborate informally about technology, but there were no formal structures for ensuring regular or systematic collaboration. Schools scoring one point reported some formal structures, such as intentional sharing with teachers from another school, using Cloud-based files to share ideas and information, and sharing ideas about technology integration during grade-level team meetings. However, regular teacher collaboration for all grade levels or

subject areas around technology appeared to be minimal at these schools. In contrast, the two schools receiving two points had instituted formal collaboration structures with administrator support. At one school, the administrator adjusted schedules so teachers could collaborate on technology in grade-level teams. At the other school, the school leadership team instituted "Appy Hour" during the 2013–14 school year, where teachers learned about different applications and programs after school. Appy Hour was discontinued in 2014–2015 because teachers had become more comfortable with technology integration and attendance fell off, but tech collaboration still occurred in grade-level teams, and 15–20 teachers meet with school leadership team member weekly to discuss technology use.

Infrastructure Domain

Overall, infrastructure was the lowest domain for the Early-Bridging schools. As show in Table 39, there was a range of scores for the instructional resources and bandwidth and connectivity dimensions, but the overall average for each of these dimensions was below one point. Device access tended to be higher, with all schools in the group receiving at least one point, and one school receiving two points. Details are provided below.

Table 39. Early-Bridging-Level Schools' Dimension Scores for the Infrastructure Domain

School	Instructional Resources	Bandwidth and Connectivity	Device Access	Domain Score
School 02-ES	2	1	1	**4**
School 03-HS	0	1	1	**2**
School 04-MS	1	2	1	**4**
School 05-ES	0	1	1	**2**
School 06-MS	1	1	1	**3**
School 07-ES	1	0	1	**2**
School 08-HS	0	1	2	**3**
School 09-ES	2	0	1	**3**
Average	**0.9**	**0.9**	**1.1**	***2.9***

Instructional Resources. On instructional resources, Early-Bridging schools scored an average of 0.9 points; three schools scored no points, three schools scored one point, and two schools scored two points. Points in this dimension were assigned on the basis of student and teacher reports about access to digital instructional resources, which may be evidenced by regular use. In the two schools that scored two points, one elementary school reported regularly using the Pearson application. Teachers and administrators reported that teachers use Pearson ELA for one hour per day and Pearson Math for one hour each day.) The other school reported that it was unable to access the Pearson apps; instead, the school purchased Lexia Core 5, and teachers reported receiving training on it and using it. None of the schools that received one point reported that they used the Pearson application regularly (teachers at one school reported sporadic use); some teachers at these schools reported using other curricular resources such as Lexia Core 5, Accelerated Reader, and Symphony Math, but these resources were not systematically available to or used by teachers.

Bandwidth and Connectivity. Bandwidth and connectivity was also a low-scoring dimension, with an average score of 0.9 among the Early-Bridging schools. Six of the eight schools met sufficient bandwidth levels as defined by LAUSD, but of these six, five schools scored one point because stakeholders reported frequent problems with connectivity. At one of these schools, the principal said that problems with bandwidth made the excitement for the initiative lose momentum. At another school, teachers reported not using iPads as often this year due to Internet reliability concerns. The two schools that scored zero points did not meet sufficient bandwidth levels as defined by the LAUSD district and stakeholders; primarily teachers and students reported frequent connectivity issues. A school leadership team member at one of these schools said that the only major need the school has for support is "more technical support for major, large issues like WiFi issues."

Device Access. Seven of the eight schools in the Early-Bridging category received one point for device access because stakeholders reported that every student had daily access to a device in school (classroom observations corroborated this finding). In six of the schools, students were not allowed to take their devices home, thus access was provided only during school hours. In the seventh school, students were allowed to take devices home. However, this school received one point for device access because the administrator reported that devices are taken away from students as a punishment for infractions; as a result, not all students had daily device access. The final school in the group, School 08-HS, received two points because students had extended, regular access to the devices, including being able to take devices home.

Reported Technology Implementation Strengths in Early-Bridging Schools

Overall, stakeholders in schools at the Early-Bridging level reported that the technology initiative would give their students opportunities to learn and access information in new and varied ways. One school leadership team member said that the value of the technology is that it "opens the doors to what our students can experience." This respondent said that in lieu of going on fieldtrips or having expensive science equipment to use, students can experience places and experiments virtually. Students also are able to communicate what they have learned in new ways, for example, by producing a podcast or a video. At three schools, stakeholders expressed the value of giving students opportunities to learn about technology. Access to technology in general was an important strength of the program; stakeholders at five schools expressed that students may not have opportunities to use computers at home.

Reported Challenges in Early-Bridging Schools

Despite general excitement about the opportunities afforded by incorporating technology into instruction, the primary challenge reported by schools in the Early-Bridging level related to how this could be accomplished. Stakeholders in six of the seven schools in this level discussed teacher facility with technology as a challenge, and stakeholders in four of the seven schools said that teachers lacked adequate opportunities for professional development in this area. As noted previously, stakeholders requested professional development differentiated by participants' comfort with technology, with targeted assistance for selecting appropriate programs and applications.

Stakeholders in three of the schools added that teachers needed more time to learn about technology and figure out how to integrate it into their instruction. One administrator said:

> "Where do we get the time to do the necessary front-loading so the teachers will feel conversant and comfortable enough to actually build it into their lesson plans, not as an additive, but as an integral part of delivering that instruction for that day or working toward that essential question or outcome goal for that day?"

The other primary challenge reported by stakeholders in the Early-Bridging schools related to technical issues. Stakeholders in five of these schools reported that technical issues, including connectivity problems and issues with the Apple IDs, made the excitement for the initiative lose momentum. Although school stakeholders in this group were generally aware of the district Help Desk for assistance with these issues, they expressed impatience with the amount of time it took to get issues resolved, for example, teachers in one school reported that it takes at least a week, and teachers at another school said it can take two to three weeks to get a response. In the meantime, they are unable to move forward with their plans. One school leadership team member said, "If you don't have all those pieces [i.e., network, Apple IDs] together, there's not much you can do."

Stakeholders in five schools also said the district was too heavy-handed in blocking sites, such that teachers were unable to access educational sites like the NASA space station or educational videos on YouTube. Stakeholders in a different set of four schools within this group also noted problems with the Pearson application, reporting that it did not function properly or that it was unfinished.

Finally, stakeholders in four schools expressed concern about students' access to devices. In two of these schools, stakeholders noted that when devices were broken, when students failed to bring the devices to class, or when devices were taken away (i.e., for disciplinary reasons), teachers were unable to incorporate technology into their instruction as planned. Teachers in three of these schools also expressed concern that the devices could be removed from the school at some point, wasting the time they had spent planning to use them, or that students would get used to using technology in elementary school but would not have access to technology in later grades. Teachers at one of these schools reported that this fear was based on other district contracts that had not been renewed, causing them to lose work. For example, one teacher said, "For two years we had NBC Learn, and now that contract is over, [so] now I can't get into it to use the video clips or primary documents or photos any longer."

Developing-Level Schools

Two of the 11 schools we visited during the 2014–15 school year fell into the Developing category. Table 40 shows their dimension scores and average domain scores. Schools at this level exhibited high dimension scores in all four domains, especially Support and Instructional Integration.[48] The lowest scoring domain was Infrastructure, where School 10-HS received only one point in both the instructional resources and bandwidth and connectivity dimensions; note

[48] One of the schools in this group, 11-ES, is a non-ITI school that began implementing technology several years ago. This school received the maximum number of points in each category and may exhibit a ceiling effect. In other words, it is possible this school would receive additional points if that were possible.

that these were also low-scoring dimensions for the Early-Bridging schools. Details about the stakeholder experiences contributing to these scores are provided in the following subsections.

Table 40. Developing-Level Schools' Dimension and Average Domain Scores

Domain	Dimension	School 10-HS Dimension Score	School 11-ES Dimension Score	Average Domain Score
Support	Leadership Support	2	2	6
	Technical Support	2	2	
	Classroom Technology Integration Support	2	2	
School Culture	Shared School Vision	2	2	5.5
	Digital Citizenship	2	2	
	Parent Engagement	1	2	
Instructional Integration	Transformative Use of Technology	2	2	6
	Extent of Use in Instruction	2	2	
	Collaboration	2	2	
Infrastructure	Instructional Resources	1	2	5
	Bandwidth and Connectivity	1	2	
	Device Access	2	2	

Leadership

Both schools in the Developing group received two points for leadership support, indicating that there was a technology leadership team established at the school that planned for technology implementation, supported teachers, and encouraged participation in professional development. At the ITI school in this group, stakeholders reported the VLCF assisted the leadership team with technology planning. District records showed that the principal at this school did not attend the district principal workshops for which attendance was taken. This principal reported that the meetings were interesting but not worth the time away from school: "It didn't give me enough anything that I could bring back and use logistically on campus."

Technical Support

Both Developing schools received two points for in this dimension because they provided multiple types of technical support to teachers, and teachers reported ready access to this support. According to district records, the ITI school had an IDM with full access to the Destiny asset management system. The administrator from the non-ITI school reported that they hired a person to provide on-site technical support, and that this support was a key to the success of their technology program.

Classroom Technology Integration Support

Both Developing schools received two points for classroom technology integration support. Although both schools reported accessing off-site district-provided professional development in this area, the most frequently reported professional development was on-site. As with the schools in the Early-Bridging level, VLCF involvement was a key factor in classroom technology integration for the ITI high school. The principal at this school reported that the VLCF spent time in classrooms with teachers, helping them and their students. The principal shared the following anecdote:

> "Recently, we had a class that was working to develop an app for locating farmers markets in the area for helping to educate the community on healthier habits, and we didn't know who to turn to. We first had asked Apple, and they gave a little help but then [the VLCF] found somebody from another high school and arranged for him to come over, and the two of them went into a classroom and spent many hours working with the kids."

At the non-ITI school, the full-time technology lead assessed staff needs and provided professional development on technology.

Shared School Vision

Both of the schools at the Developing level received two points in the shared school vision dimension because stakeholders reported a developed, actionable vision for technology implementation. At School 10-HS, the school vision included using technology for project-based learning, and stakeholders noted that technology is an integral part of preparing students with 21st century skills. Teachers reported an additional focus on providing technology as social justice—providing equitable access to technology to "English learners, risk students, low-performing students, low-socioeconomic students." The principal and teachers at School 11-ES wanted to ensure that students become active and creative users of technology in their learning. The principal said, "Without a doubt, our focus is that our students are the creators and producers, that they use technology to show their learning as well as develop and construct meaning, and then share what they've learned."

Digital Citizenship

Both Developing-level schools received two points for digital citizenship. These schools offered digital citizenship training to their students, and teachers expressed satisfaction that students adhered to its tenets. Similar to the schools in the Early-Bridging group that received two points in this dimension, these schools provided ongoing training in addition to the district digital citizenship training. For example, at School 10-HS, teachers spent time during advisory talking to students about safety. At School 11-ES, third graders used their devices to make videos about digital citizenship, which were then shown to students in the other grades.

Parent Engagement

Both Developing-level schools offered meetings to parents before device deployment in fall 2014, and the technology lead at one of the schools reported that some meetings were offered in

both English and Spanish. However, at the ITI high school, a take-home school, parents reported that they were given insufficient opportunities to provide feedback about technology implementation and rules pertaining to student device use; as a result, this school received one point. At the school receiving two points, School 11-ES, parents and students were required to attend in-person meetings to discuss technology use, and these meetings were offered at many different times to accommodate parents' schedules. Parents also were included on the school technology committee and helped make decisions about technology with school staff.

Transformative Use of Technology

Both of the Developing-level schools received two points for the transformative use of technology dimension, indicating frequent use of technology to facilitate innovative instructional methods across grade levels and content areas. Reported student uses include the following:

- Conducting online research, including in real time during class discussions in order to contribute to the conversation or to better understand teacher instruction (2 schools).
- Producing videos to showcase learning, and adding music and sound effects to enrich the experience (2 schools); stakeholders reported that students used videos for a variety of purposes, including a school film festival.
- Taking assessments that provide instant feedback and help differentiate both online and teacher-led lessons (2 schools); teachers in one focus group expressed that the technology allowed them to differentiate lessons for students privately.
- Moving through online and teacher-designed lessons at students' own pace (2 schools).
- Developing signature projects (i.e., longer term research projects) or digital portfolios of work (2 schools).
- Engaging in educational communication outside of the school (1 school); teachers at one school reported that students used devices to participate in an event as panelists and as audience members with students from other schools.
- Blogging to communicate and collaborate with peers (1 school).
- Developing their own tablet applications (1 school).

Extent of Use in Instruction

Both of the Developing-level schools received two points for extent of technology use in instruction. Teachers, students, and parents at the two schools reported that most teachers and students use technology frequently for instruction and communication. Observations corroborated these reports, with observers noting the following range of activities occurring even in the short observation time frame:

- Whole-class instruction (2 schools)
- Internet research (2 schools)
- Conducting math or science simulations (2 schools)
- Delivering presentations (2 schools)

- Composing papers (2 schools) or projects (2 schools)
- Communicating among classroom peers (2 schools)
- Engaging in progress checks or formative assessment (2 schools)
- Creating presentations (1 school)
- Reading e-books (1 school)
- Conducting data analysis (1 school)

Collaboration

Both of the Developing-level schools received two points for collaboration because they developed formal structures to ensure that teachers regularly collaborated on issues of technology integration. At the non-ITI elementary school, teachers were strategically paired for lesson planning such that a teacher with more experience in technology integration assisted a teacher who needed more support in this area. This school also implemented Tech Time, a monthly forum for staff discussions about technology uses.

Instructional Resources

The two Developing-level schools received mixed scores in the instructional resources dimension. One school received one point because some teachers were observed using supplemental digital programs, but there was no reported evidence that all or most teachers and students in the school had access to them. The other school (the non-ITI school) received two points because teachers, parents, and students reported widespread use of multiple digital instructional resources.

Bandwidth and Connectivity

School 11-ES, the non-ITI school, received two points for bandwidth and connectivity, but the other school in the Developing level received one point. This school met sufficient bandwidth levels as defined by the district, but multiple stakeholders complained of slow Internet and connectivity issues.

Device Access

Both schools in the Developing level received two points for the device access dimension. These schools provided daily, extended device access to their students, and students (above a specified age at the elementary school) were allowed to take devices home. Parents expressed concerns about sufficient home Internet access, but this, while an important point, did not affect the schools' ratings in this dimension.

As previously noted, one of the schools in the Early-Bridging category allowed students to take devices home but received one point because students lost device access for disciplinary reasons. In contrast, at School 10-HS, the principal reported that if students are caught doing something inappropriate with their device, they retain their device, but the policy is that the student must engage in service to the school community.

Reported Technology Implementation Strengths

Administrators and leaders at the Developing-level schools reported that staff were excited by the many opportunities afforded by technology. Similar to stakeholders at the schools in other groups, teachers at both schools reported that technology gave their students access to more information and more learning resources. One teacher said, "There's an authenticity to the student being able to make a choice and create something or pursue something on their own that I think didn't exist before." A student echoed this sentiment, saying, "I like the freedom it gives you because when you hold your iPad, you're kind of holding the world in your hands. Like I said before, it's infinite. You get to explore anything you want, any topic you want." Having 1:1 access also allows teachers to incorporate technology seamlessly, as one teacher described: "If kids have to go home to e-mail or you have to wait to schedule the computer lab, it's not in the moment, and that's where a lot of learning occurs.…The iPads allow that."

On a related note, teachers at both schools also expressed that students' enhanced opportunities for communicating with each other and with teachers was a positive aspect of implementing technology at their schools. At the elementary school, an administrator noted that students and teachers collaborated to learn new technology skills, such as how to use new applications or how to code, which has improved their relationships and skills. Indeed, at this school and the other, giving students opportunities to develop 21st century and career-ready skills was said to be an important aspect of the technology initiative.

Reported Challenges

Among the Developing-level schools, reported challenges at the ITI school differed from reported challenges at School 11-ES, the non-ITI school. At School 11-ES, the primary reported challenge was keeping the technology up-to-date.

At the ITI school, the primary reported challenges were technical problems, including issues with Apple IDs and connectivity. This high school allowed students to take devices home and also encountered challenges in this area. In particular, stakeholders reported that students were blocked from sites at home to which they had access at school, and that some students had difficulty accessing the VPN. A school leadership team member said, "There doesn't seem to be any rhyme or reason to it. It's just some of the iPads are actually able to access the Wi-Fi through the VPN off campus, and some of them can't." The result is that students are unable to upload work to Edmodo and other applications. In reference to these issues, one teacher explained:

> "[Students] can't get things done in the way that we are telling them that they need to get them done. So I am always having to adjust my expectations…The issue is the fact that they are not the same devices here as they are at home. They're just not. They're not the same devices."

4.C. Cross-Site Perceptions and Experiences

Previous sections in this chapter focused on the perceptions and experiences of school stakeholders by level of technology implementation at their school. We now shift focus to examine overall perceptions and experiences among stakeholders at the 11 schools that

participated in site visits in order to capture overarching themes about parent engagement, overall program strengths, and ongoing challenges.

Parent Engagement

Parent engagement was addressed by school level of technology implementation. This section provides more details about school attempts to engage families and parent perceptions of their involvement in the 11 schools we visited in winter/spring 2015.

As described in Chapter 3, schools employed multiple methods of family communication, including meetings, e-mail, websites, newsletters, flyers, and one-on-one conferences. As noted, the most commonly reported means of family outreach was parent meetings. In order to increase attendance at these meetings, school leaders at three schools (two elementary schools and one high school) reported that they scheduled multiple meetings or held them on non-school days (e.g., Saturday) and in both Spanish and English. Stakeholders at one of these elementary schools as well as another high school also noted that parents were welcome to visit classrooms, observe, and ask questions about the technology use. The elementary principal stated:

> "You educate parents or teachers or students, making sure that they know that there are always advantages and there are always disadvantages. We don't paint a pretty picture because that's when you have problems. So yes, we are going to use the iPad; no, it's not going to be all day. Yes, students are going to be trained. Well, you are welcome to come in the classrooms and see what's going on."

Although the measures taken at these four schools (two elementary and two high schools) represented good practice, it is unclear how they affected parent engagement. Staff at one of these schools discussed attendance, reporting that parent attendance and engagement was good, and parents at two of these schools reported that parent opinions and concerns were heard. However, these stakeholders did not attribute the parent engagement specifically to the schools' measures. Staff at four other schools (all grade levels) that did not take these measures reported poor attendance at parent meetings. However, at another middle school where similar measures were not reported, parents nonetheless reported engagement, saying that a parent representative answers questions and is open to their concerns.

A sticking point for parent involvement appeared to be school take-home policies. In three schools (two high schools and a middle school) where parents reported concerns about not having sufficient involvement in decision-making about the initiative, the decision in question was whether or not students should take home devices. At one of these schools, the middle school, one parent said that she had been asked whether her child would be allowed to take the iPads home, and another parent said that the decision had been made unilaterally by the district.

Home use of technology was an important theme in general for parents and other stakeholders. A principal in one elementary school said, "Parents are the right-hand side to us because they are here to support us. Not in the sense of helping us in the classroom, but making sure they buy in and they support teachers and students at home." However, staff at two high schools expressed concern about potential challenges for students if home infrastructure could not support academic uses of school devices (e.g., lack of Internet). Parents at two high schools also expressed concerns about students using the devices for nonacademic purposes, including music

or games. Parents in an elementary school expressed concerns about the effects of technology on students' ability to learn. One parent said, "Would they be able to explain how they got it without a calculator? It's like if everything shut down tomorrow, and it just went 'Woomp' and we don't have it for a whole month, would your child be able to function without technology?"

Reported Technology Implementation Strengths

School-level stakeholders in the 11 schools we visited mentioned several promising aspects of implementing technology. Most of these perceived strengths were related to opening new horizons for students. For example, students at two schools and teachers and parents at two additional schools said that the technology allowed students to follow their interests and explore new information. A student said, "It's infinite; it's an infinite font of information. You don't always have to rely on a teacher to teach you the things that she's supposed to." It also gives them access to new skills. A parent said, "When they finish the elementary school and go to middle school or high school, they will have more information and they will not need to learn how to use the tablet. They already know and they have learned that very early in school." Similarly, a leadership team member at one of these schools said, "I think that the technology in general… gives the students access to tools that they didn't have before and allows them to become more responsible for their own learning and allows them to think beyond what they learn in the classroom."

Relatedly, teachers and students at four schools expressed that the technology has better engaged students in learning. One teacher said, "Our teachers have incredible management, so you do see children on task, but the difference has been the active learning and the willingness. The children are really engaged."

Another reported positive aspect of the technology has been expanded horizons for special and diverse populations of students, including English learners (ELs), students with disabilities, and other traditionally low-performing students. One elementary school student said, "The best thing about having technology at school is if something is really hard and you don't have good eyes to look at the small books, you can look it up on the Internet." Teachers in one high school focus group reported that visually impaired students are able to take pictures of the board and expand it, and one elementary school leadership team member said that some vocally impaired students have been able to use the devices to engage in more communication. At the same elementary and high school, teachers reported that ELs use the devices to look up unknown words or translate lessons.

Teachers also have reportedly used technology to increase communication with students and to facilitate collaboration among students, even when not all parties are present. In one student focus group, the students said, "When the substitute [teacher]s come over, they don't know what to do with us, so in the iPads—the teachers send us an assignment." At another school, a student said, "It's also easier if like you're absent, you could also just say, 'Oh, this is due,' so you can do it while you're absent. Or the teacher can just send you the course material that's online already, so it's easier."

Finally, stakeholders perceived positive effects of the technology on instruction. Teachers and students reported that they have been able to be more creative and therefore better at

communicating academic concepts (teachers) or representing their learning (students). For example, one teacher used animation to help students visualize math problems, and another experimented with flipped classroom instruction, having students watch a lecture for homework and working on problem sets in the classroom. Students at several schools were given opportunities to represent their learning using alternative media, including movies and blogs.

Reported Program Challenges

The largest reported overall challenges of the LAUSD technology initiative were technical issues and challenges associated with consistently integrating technology in instruction. Technical issues surrounding Apple IDs and connectivity were described in detail in Chapter 3. Other reported technical issues included difficulties with printing from iPads, the fact that upgrades to the device wiped out saved work, difficulties with charging the devices, and incompatibility with other classroom technology, including other Apple products such as Apple TV. Stakeholders at three schools noted that such challenges can be detrimental to teacher motivation to integrate technology. One school leader stated:

> "That's really where it's more scary, right? That you've done all this really good planning, you feel like you have this awesome thing going, and then when you run into your problem in the middle of it. It's like, 'Oh, I don't have the skills to troubleshoot or I don't know who I can call or—' That's where it's like, 'Okay, well, maybe I just won't plan on using the iPads at all because then I know that I'm not going to run into those problems.'"

As discussed in previous sections, school stakeholders also expressed concerns about teachers receiving sufficient support to meaningfully integrate technology into instruction. Although there were no instances of teachers stating that they did not believe in the value of technology implementation in the schools, stakeholders at four schools noted that some teachers are better poised than others to implement an initiative such as ITI. At one of these schools, students noticed that sometimes their teacher did not know about technology: "She has a computer on her phone, but sometimes she just doesn't know what really—she don't know what to do." As mentioned in the discussion of Early-Bridging classroom technology integration support, staff at two schools requested differentiated professional development for teachers with different levels of experience with technology.

Sufficient support in the form of time was also a challenge. One SLT member said, "With there being so much flux in education right now—you know, new assessments, new standards—it's like we're already figuring out a lot of things. So then on top of that to figure out technology; it's at the bottom of the list." Administrators in two schools noted that teachers need more time than they had been given to create new lessons.

Deployment delays, as discussed in Chapter 3, also posed a challenge in some schools, including Apple IDs that had expired by the time the devices arrived and loss of teacher and parent engagement as excitement waned. However, staff in two schools reported that the slow deployment time frame actually provided some of the time they needed to prepare for and get used to the technology. For example, the principal at one Phase 2A elementary school said, "We were kind of lucky not to get the devices in March when they were promised to us, and we got

them in October. So we were ready and the plumbing went beautifully. We were organized, we had everything set. Our teachers knew exactly what to do."

Finally, teachers and administrators at four schools discussed challenges with students being off task on the devices. A teacher noted that this off-task behavior starts at a young age: "The second graders have figured out that if you're on a screen, that screen doesn't go away, so I'm always battling for them to stay on the screen that we are focusing on because they will flip to eBay or something else that they've been looking at. I walk past, they flip back really quick."

4.D. Summary of Technology Implementation Case Studies

This chapter has described findings from site visits conducted in 10 ITI schools and one non-ITI school in winter/spring 2015, with a focus on stakeholders' experiences with and perceptions of the technology implementation process. In Year 1 of the evaluation, we reported that most schools we visited appeared to be in the early stages of adopting and integrating technology into instruction. This still appears to be the case in Year 2. However, most schools in this year's sample, including those that received devices this year, can be categorized at an Early-Bridging level, indicating that they are on the higher side of the early stage of technology integration. In addition, one of the Phase 1 schools is at the Developing stage, characterized by strong school supports, wide use of technology, and at least some integration of the technology into instruction.

The supports that school stakeholders identified as important moving forward included more professional development and time to learn about the technology. In Year 1, we reported that educators required more robust professional development and instructional support for technology integration, and this trend continued in Year 2, with seven of the 11 schools scoring zero or one point in classroom technology integration support on our technology implementation rubric. Evidence from the higher scoring schools suggests that VLCFs are an integral part of on-site technology integration support. One important factor appears to be that they be present at the school and available to school staff. On the other hand, administrators also play a key role in involving the VLCFs in planning, making sure they are on the school professional development calendar, and giving them latitude to work with teachers.

School stakeholders also expressed that teachers needed more time to learn about devices and figure out how to integrate them into instruction. As with professional development, school leadership appeared to be crucial in this regard. In some schools, administrators built time into teachers' schedules to collaborate about technology and learn from each other. In other schools, administrators made good use of deployment delays to put plans in place, so that teachers would be ready for the technology when it arrived (although the delays also had the effect of stymying enthusiasm in other schools). Another aspect of the time factor is reassuring teachers that the initiative will last and that their work will not be lost in the face of a new initiative; this aspect requires transparency and communication at the district level.

Technical support appeared to be better in Year 2, with schools drawing on on-site resources to solve simple issues. However, larger systemic issues (e.g., problems with connectivity and Apple IDs) remained. Addressing these issues will be essential to keeping teachers motivated to continue using the technology.

5. Discussion and Recommendations

The evaluation of the Instructional Technology Initiative (ITI) focused on the nature and effectiveness of LAUSD's effort to achieve its goal to transform teaching and learning through provision of technology devices, curriculum tools, and supports to schools. The Year 2 evaluation examined the degree to which the district implemented its planned strategy for ITI during the 2014–15 school year, depicted the progress of schools in implementing local support for technology use, and observed the degree to which technology was integrated into classroom instruction. The evaluation drew upon several sources of information, including interviews and focus groups with district staff, extant data on ITI activities, site visits to 11 schools, and additional data about technology usage.

In this chapter, we summarize the key findings of the Year 2 evaluation. In general, we found that the district and ITI schools made steady progress relative to the previous year. During 2014–15, the district made progress with building infrastructure for deploying devices, training teachers, engaging with parents, and providing technical support. Ongoing challenges and areas where less progress occurred include: deploying devices in a timely manner, communicating with schools, coordinating efforts with other instructional initiatives, and clarifying a vision for technology use in instruction. The district has publicly acknowledged these challenges and has initiated several efforts to address them. Some schools also made progress with implementing key support structures for technology, and classroom technology use appeared to be more frequent than during the previous year. However, the ways in which technology was used in the classroom were similar to the last year, and access to and use of high-quality digital resources remained limited.

In the following sections, we highlight key findings related to major components of the initiative. The General Discussion section reflects on the lessons learned from LAUSD's ITI and puts the evaluation findings in the context of previous research on technology implementation, including other 1:1 computing programs.

Deployment and Readiness

Deployment of devices to schools was a major focus of the initiative. A critical challenge was the need for iPads to be personalized to individual students. Personalization was necessary for students to gain access to storage space and free apps available through Apple, but it required several minutes of district staff handling each device. These steps were not sufficiently automated to allow devices to be deployed in a timely manner. Many schools' deployment dates were pushed back, some to as late as January or February 2015; the district had difficulty with communicating deployment dates in advance because of uncertainty about when its staff would have devices set up and ready for distribution. Deployment consumed considerable time of MCSAs and VLCFs, and delays in receiving devices discouraged some teachers from making the commitment to integrate technology into their classroom activities. Furthermore, the district did not have a clear policy regarding how to set up Apple IDs, leaving schools to select among different approaches with different costs and benefits.

Despite these challenges, in 2014–15, the district deployed 35,781 iPads to 54 Phase 1 and Phase 2A schools, and 10,879 devices to 12 Phase 1L schools. The district made some progress with

increasing the efficiency of deployment relative to Year 1, and with ensuring school readiness for deployment. The district improved coordination with schools regarding the logistics of device distribution, involved students and school staff in the personalization and inventorying of devices, improved the organization of the deployment team, reduced the number of steps necessary for device setup, and arranged for storage of devices at schools in advance of the coming school year. In the coming 2015–16 school year, the district will need to deploy approximately 70,000 devices to students, according to recent report to the superintendent. To ensure that schools and students receive these devices in a timely manner, **we recommend that the district consider and implement additional steps to automate the provisioning of devices and that it shift greater responsibility for deployment to school staff who are trained and have adequate time allocated to deployment tasks.** This will require working with device vendors to eliminate the technical challenges involved with personalization. Also, the district should provide training to school staff to prepare them to assume responsibility for personalization and inventorying during deployment, with fewer district staff needed on-site to lend assistance.

In Year 2, ITI schools were, for the most part, technically ready for deployment. Most schools received infrastructure upgrades to their wireless networks, and all secondary schools met the district's criterion for sufficient bandwidth; however, 40 percent of elementary schools did not meet the district's bandwidth criterion, an issue that needs further attention by district technology leaders. Furthermore, school-based staff reported frequent difficulties with wireless connectivity.

The district developed two resources to ensure schools' instructional readiness: an Instructional Technology Planning Course through which school leaders would develop a school instructional technology plan and the Technology Readiness Checklist. The district did not communicate to schools that completion of these resources was a requirement for deployment in 2014–15; no schools in fact completed the readiness course, and many schools did not complete the checklist prior to deployment (although nearly all did so at some point during Year 2). By spring 2015, the district had made the development of a school instructional technology plan a condition for deployment for the 2015–16 school year and had begun to offer a four-day summer planning institute during which school teams would develop their plans. **We recommend that the district make completion of the Technology Readiness Checklist an additional condition for deployment,** inasmuch as this checklist includes specific details that may not be included in school instructional technology plans.

Safety and Security

Our findings indicate that the district's safety and security strategies in Year 2 were largely a continuation of strategies in place during the first year of the initiative to monitor devices and provide an Internet firewall, with some important additions. One addition was a clear device take-home policy. The new policy included a checklist of mandatory steps that schools would need to take to allow students to take the devices home. These mandatory steps included obtaining signed parent/guardian opt-in for at least 90 percent of students in the school. Twenty-six ITI schools implemented device take-home during the 2014–15 school year, beginning in November 2014. All but one of these schools were secondary schools. Our Year 2 evaluation findings suggest that device take-home was generally successful; there were no major negative incidents noted among any of our data sources, parents generally had few concerns about device

take-home, and school staff saw two benefits: it alleviated the burden of distributing devices on a daily basis, and it enabled students to use the devices for homework. However, the actual benefits of device take-home were not clear; our data did not indicate the degree to which teachers and students made use of device take-home for out-of-school learning experiences. This is largely because device take-home was implemented late in the school year; future evaluation efforts should examine the ways devices are used outside of school for academic and nonacademic purposes.

The district expanded its digital citizenship education strategy by including it in the take-home and instructional readiness checklists and promoting it during Digital Citizenship Week. Nearly all of the case study schools (10 out of 11) offered digital citizenship training to staff and students, and in most of these schools, stakeholders reported that students were responsible users of technology (although there were some exceptions to this sentiment). Some stakeholders continued to express concern about the physical safety of the devices—parents especially worried about their liability for lost or stolen devices—or the physical safety of students carrying the devices, but others, including parents and students, expressed the opinion that student training and district tracking greatly reduced risks to the devices or students. Through the take-home checklist, the district made it mandatory for schools to provide students with introductory lessons on Internet safety and cyberbullying. **We recommend that the district encourage schools to go beyond the introductory lessons and to treat digital citizenship as an ongoing conversation among staff and students**. The district should encourage schools to share these resources with parents and engage them in conversations about device liability and student safety, especially when implementing take-home policies.

Finally, the district adapted an existing asset management system to allow school-based staff to manage its inventory of devices (i.e., to track device location and student assignment) and provided training for school staff that was attended by many schools (with the exception of those in Phase 2B). The district also developed and offered training sessions for school staff on using the MDM system to manage apps and device security settings. The district has not yet developed training in device management targeted at users of devices other than iPads. **We recommend that the district develop a comparable device management training for those schools that have chosen devices besides iPads (e.g., laptops and Chromebooks)**.

Coordination With Other Initiatives

The ITI was not well coordinated with other, related initiatives during the first two years of implementation. To coordinate well, the ITI team would have needed to work across existing district organizational structures. Instead, the ITI team was siloed, in the sense of not being integrated with other offices within OCISS or with Education Service Centers (ESCs, now referred to as local districts). District leaders did not set the expectation that ITI and other district offices or ESCs should coordinate with each other. Due to their lack of ownership, these existing units did not coordinate with ITI on concurrent instructional initiatives; in some cases, these initiatives were actually at cross-purposes with ITI. In particular, professional development for initiatives such as Common Core implementation and Growing Educators did not reflect ITI content, and vice versa. Leaders of other initiatives believed it was impractical to integrate content related to ITI because of the relatively small number of ITI schools that would find the content relevant.

According to recent ITI communications from the superintendent, the district is devolving to local districts the responsibility for supporting schools with managing device inventory and overseeing their technology integration. Presumably, there still will need to be central office-level coordination and direction for the initiative. **We recommend that the district reorganize the ITI team so that it is no longer a separate entity within OCISS, and that it becomes integrated within existing offices.** Improved coordination with ongoing initiatives would improve the coherence of the initiative, and would provide additional opportunities for reinforcing ITI goals and strategies.

Within the ITI team itself, the instructional and technical staff had difficulty coordinating their response to technical challenges such as whether and how to assign Apple IDs to students. Current structures, such as weekly team meetings, were not seen as useful in fostering cooperation across instructional and technical staff. ITI functional teams were not held accountable for meeting deadlines for completion of tasks, with repercussions for other teams (a finding reported in Year 1 as well). This lack of accountability reflected a project plan that was not sufficiently developed with respect to roles and responsibilities. **We recommend that the ITI director and team leads, under the guidance of the initiative's executive sponsors, develop a detailed project plan that specifies tasks, roles, and responsibilities.**

Communication

District communication with schools was realized primarily through direct interaction with principals, through weekly e-bulletins and monthly principals' meetings. In addition, VLCFs were expected to communicate information about ITI through direct interaction with staff. However, despite implementing a system of communication to schools, the district did not succeed in providing up-to-date information and guidance to school staff, for two key reasons. First, this system relied on principals to pass along information, but if they did not participate actively (e.g., through attending monthly meetings or passing on information to staff), the system broke down. Indeed, in Year 2, principal participation in meetings varied. Second, stakeholders reported that some of the information the district conveyed was not sufficiently clear (especially information about deployment and security policies), and the information presented at principals' meetings was not sufficiently relevant. On the other hand, VLCFs were seen as an important avenue of communication; overall, school stakeholders reported knowing their VLCF and noted that the VLCFs were knowledgeable and helpful. **Considering the importance placed on the monthly principals' meetings, we recommend the district enhance the usefulness and relevance of these meetings by targeting presentations to different school levels and phases.** This could involve offering breakout sessions for different phases, school levels, or schools in pre- or post-deployment. Finally, the district should continue to use VLCFs as an avenue for communication and should provide them with the information they need to update school staff about the initiative (e.g., during standing grade-level or departmental meetings).

The district also made progress in communicating about the initiative with parents, through the development of a set of slides and resources to support 10 parent engagement meetings. These presentations described the goals of ITI, addressed the parents' role in keeping students safe online, and tutored parents on the use of particular apps and resources. Most of the schools in the

case study sample held parent meetings, and more than half of the schools also offered technical training to parents; some of these schools used or adapted the district materials in engaging with parents. However, as with communication with teachers, parent engagement was largely the purview of school principals, who could choose whether or how much of the district materials to pass on to parents; thus, parent engagement activities varied by school.

In general, relying on school leaders to convey information to teachers and parents is not an unreasonable strategy, as long as the district makes its expectations clear. **We recommend that the district state its expectations to school leaders for their role in communicating with parents and teachers about the initiative, and monitor whether and how schools are meeting these expectations.** For example, the district could ask the school's point of contact for the initiative to submit a brief quarterly report summarizing school progress with various communication tasks. The district would then have feedback about whether school leaders are communicating with teachers and parents as expected.

In its communication about the initiative to the general public during Year 2, the district has emphasized its change in vision for the initiative and its willingness to consider changes to its procurement of devices and funding source. Administrators believe that the public still has misperceptions about the initiative's purpose and value, stemming in part from the district's own lack of a clear vision for the initiative. Administrators further believe that a clearer message about the initiative's vision will follow from the recommendations of the ITI task force.

Technology Use in ITI Schools

Evaluation findings indicate that classroom technology use was more prevalent in 2014–15 than found in 2013–14, although these differences may reflect the fact that observations were conducted at different times of the school year. What did not seem to change was the way in which teachers and students were using technology. In both years, teachers primarily used technology for whole-class instruction (e.g., projecting an assignment on a screen in front of the class); this use did not take advantage of the 1:1 device availability for students. The next most frequent technology use, observed in 40 percent of classrooms, was students searching the Internet. Students used devices for interactive lessons or activities in about one third of the classrooms; this use did leverage the 1:1 device availability, and some of these interactive lessons included embedded assessments/checks for understanding. We did not observe as much use of devices for creating or presenting projects as in the prior year; again, this was likely due to the difference in timing of the site visits. The apps we observed or that teachers reported to have used seemed limited in their potential to engage students in new or exciting learning opportunities. The use of the Pearson digital curriculum apps was generally low; ITI schools used the Pearson digital curriculum most in upper-elementary mathematics. In summary, teachers and students frequently used the technology, but mostly not yet in ways that transform teaching and learning as envisioned by the initiative. Our recommendations for improving classroom technology use are included in the following sections on instructional and technical support.

Instructional Support

The Year 1 evaluation reported that educators required more robust instructional support for technology integration. The district made progress with enhancing instructional support in 2014–15, although our findings indicate that teachers require substantially more support to use technology effectively. In this section, we summarize findings related to three types of supports.

Teacher Training. The district developed and offered five centralized professional development workshops focused on technology integration, meeting its own targets for expanding such offerings. A common sentiment among district and school staff was that the current set of centralized workshops were not sufficient to prepare teachers to use technology in the ways envisioned by the district. Some district- and school-level respondents expressed the need for workshops on additional topics that were geared toward teachers with differing levels of expertise. Most of these workshops were focused on iOS-based tools, thus excluding schools using devices other than iPads. **We recommend that the district develop and offer additional workshops that meet the needs of schools using devices other than iPads, and that are differentiated with respect to the level of technology expertise expected of participants.** Relatively few teachers per school attended the workshops offered, particularly among schools in Phase 1L (which for the most part had no teachers attend any workshops). Reasons for low attendance included accessibility of training sessions, which occurred outside of contractual time and at sites other than the teachers' home schools. To address the latter concern, the district began offering on-site workshops to schools that registered 15 or more teachers. **We recommend that the district consider offering training webinars to enable teachers to participate during contractual time at their school.**

Consistent with the recommendations of the Year 1 evaluation, in Year 2 the district enhanced VLCF capacity to provide instructional support by expanding their ranks, formalizing their training, and providing additional supervision. VLCFs and school staff concurred that VLCFs provided on-site coaching and professional development to teachers. Moreover, in schools with higher levels of technology implementation, school staff considered the VLCF to be an integral part of on-site integration support. The frequency of this support, however, did not meet district expectations during Year 2. Moreover, the lack of VLCF availability was a frequent complaint among school staff. A continued constraint on the VLCFs' time for instructional support was the number of operational and technical responsibilities that required their attention. **We recommend that the district consider ways to maximize VLCFs' time spent on instructional support.** Given the number of schools that will be joining ITI in coming years, it is crucial to encourage schools to eventually build their internal capacity for supporting and coaching technology use, so that VLCFs can devote greater attention to supporting schools new to the initiative. One approach would be to provide released time to a teacher at each school to serve as the instructional technology coach in addition to the VLCF. The district, or local districts, may consider giving schools latitude to decide the extent to which they require on-site VLCF support as opposed to some other resource (e.g., funds for released time).

Instructional Resources. One of the biggest challenges for teachers was a lack of high-quality, previously vetted instructional resources. At least some teachers were overwhelmed by the number of choices available to them and unable to devote the time necessary to choose the best ones. The district did not procure digital instructional resources as intended, and our findings

from site visits indicated that teachers and students used only a limited set of apps. **We recommend that the district seek ways to provide access to high-quality digital resources, aligned to standards and curricula, to teachers in varying grade levels and subject areas.** At a minimum, teachers could benefit from a list of recommended applications and programs. Better integration of the ITI team within OCISS, as previously noted, could potentially put more resources at the disposal of the initiative to assist with the vetting of digital resources.

Time. In some schools, we found that administrators built time into teachers' schedules to collaborate about technology and learn from each other. **We recommend that the district encourage principals to provide teachers with opportunities to try new resources and strategies, to discuss them with teacher teams, and to observe technology implementation in each other's classrooms.** Also related to the issue of time was the concern, voiced by VLCFs, that concurrent instructional initiatives competed for the time and attention of school staff. As mentioned in a previous section, further integration of ITI into the local districts appears to be a strategy that the district is pursuing for bringing increased coherence among initiatives in the coming years.

Also related to the issue of preparation time was the concern expressed by teachers that their time spent planning with the technology would be lost if the initiative were to be discontinued. It is important that the district establish and enact procedures to help teachers save data and resources they create and transfer these resources to any new technology or programs.

Technical Support

Consistent with recommendations in the Year 1 evaluation, the district provided resources for technical support to ITI schools along with training opportunities to build internal school capacity. The district assigned each school an MCSA to provide on-site support and increased the number of MCSAs assigned to ITI schools from 14 (in 2013–14) to 23 (in 2014–15). However, the ratio of MCSAs to schools did not meet district targets for appropriate staffing. Only about half of Help Desk tickets were resolved in less than one week (the district's target for response time), and staff in some schools expressed concern about delayed response to requests. MCSAs provided on-site help about once per week per school, which they described as not sufficient to address the school's needs for technical support.

The district has encouraged schools to develop internal technical support systems, and schools have begun to do so in different ways. Many schools reported drawing upon a dedicated technology lead or team to solve simple issues. Schools that had established these internal support systems generally reported satisfaction with technical support.

As in Year 1, we found that technical problems—especially obtaining Apple IDs, updating apps and connecting to Wi-Fi—were barriers to teachers' integration of technology. Teachers expressed fears that lessons they planned would fall short if the technology failed to work for any reason. It is therefore crucial for establishing and maintaining teacher buy-in to ensure that adequate technical supports are in place in every ITI school, with systems in place for teachers to access appropriate support resources. It also should be acknowledged that some technology problems experienced by teachers reflected larger systemic issues and must be addressed at a level higher than school-focused technical support. One important example was the difficulty

with acquiring and managing Apple IDs. **We recommend the district develop a coordinated response to systemic technical issues. In particular, the district should work with device vendors to develop a process for device personalization that is manageable for schools and districts**.

Cross-Cutting Themes

School Leadership. As expected based on a large body of research on the importance of school leadership, ITI schools in our case study sample that showed the greatest progress in implementation tended to have principals who communicated a clear actionable vision, established a technology leadership team and secured strong technology support, and supported ongoing professional development and collaboration around integrating technology into instruction. These principals relied on district resources (including VLCFs) to some degree but also secured locally based support. The sources of this support varied: In some cases, the principal secured technological and professional development support from outside entities, but in other cases relied on teachers or even students for assistance and information. However, the strongest support systems were those that were well-established and clear, so that school staff knew how to access them. Strong leadership was a facilitating factor that tended to outweigh other barriers to technology implementation. One striking example was a Phase 2A school that experienced a delay in deployment, and whose school leadership team made use of the delay to prepare for devices through planning and staff training. **We therefore recommend that the district continue to support school leaders with workshops that develop their understanding of and capacity to lead technology implementation and that these workshops be evaluated as to their quality and usefulness.**

Underutilization of Resources. One theme that runs throughout several of the key findings is the apparent underutilization by ITI schools of tools and resources the district developed to support technology implementation. The district provided tools and resources for schools to use for communicating with staff, engaging parents, developing students' digital citizenship awareness for online safety, and developing building-specific technology plans. The district also provided instructional supports such as professional development workshops and VLCFs. As in any instructional initiative, successful implementation depends on the willingness of schools to use these resources and tools. We found that at least some schools used the parent engagement materials (although parent participation was unclear), and most schools provided introductory digital citizenship lessons, yet the extent to which schools used the full range of these materials is not known. Furthermore, few ITI schools had high teacher participation in professional development, and many schools did not take advantage of train-the-trainer sessions, Apple strategic planning workshop, and MDM and asset management training opportunities. **As ITI moves forward and continues to evolve, it will be important to refine the district (central office or local districts') supports to ensure that they are high quality and perceived to be relevant for school leaders and teachers.**

Vision for Technology Integration. According to district staff, a lack of clear vision for instructional technology use was perceived to hinder communication of the importance and value of technology in schools to the general public, and as a result, the focus of much public discourse was about the device itself rather than on how technology can transform learning. Parallel to this issue, some district administrators believed school staff lacked clarity about how they were

supposed to be using technology in instruction. The relatively infrequent "transformative" use of technology that leveraged the 1:1 device allocation to students may be symptomatic of this lack of guidance. In spring 2015, the district began to address this issue by convening its ITI Task Force to develop the district's vision. In the meantime, the district expected schools to develop their own vision as part of their School Technology Plan; each ITI school will be required to complete such a plan by October 2015. The importance of a school vision for technology use was underscored by the case study findings, which indicated that schools that had the most advanced level of technology implementation tended to have a more specific vision for how the technology would be used in their own school. The district is to be commended for its effort to articulate its vision for technology use and should continue to support schools as they develop their own vision and plan for technology use.

Equitable Resources for Non-iPad Schools. The district has not yet developed as extensive a set of resources for schools with laptops or Chromebooks as it has for iPad schools. Most of the professional development workshops offered by the district targeted only users of iOS-based devices (i.e., iPad users), some of the parent engagement presentations were applicable only to iPad users, and the district had not yet developed device management training sessions (i.e., for management of apps and security settings) for users of Windows-based devices and Chromebooks. Given the multiplicity of devices available to Phase 1L schools, the district will be challenged to provide resources and trainings that are applicable to them. **We recommend that the district evaluate the different experiences of users with different devices in order to understand whether the district is providing appropriate supports to all types of users and to understand the benefits and limitations of different devices.**

General Discussion

With the Instructional Technology Initiative, the Los Angeles Unified School District launched an ambitious effort to address persistent concerns about equity and access to 21st century learning opportunities for students in the district. At the end of two years of implementation, the initiative is at a point of transition. The district has restructured the leadership of the initiative, is reframing its vision, and has negotiated new contracts with vendors while reconsidering its funding sources. At this point, it is appropriate for the district as well as other interested and invested stakeholders to reflect on a number of important lessons learned from the evaluation of ITI in its first incarnation, to inform their subsequent technology initiatives.

Progress With Implementation. In general, the district showed progress in several areas related to supporting the deployment and integration of devices into pilot schools between spring 2014 and spring 2015 (the time frame for our evaluation). During 2014–15, much of the district's time and effort went into deployment, safety and security, and take-home policy. These areas of attention were absolutely necessary for the rollout to happen, but yet, attention to these areas left too little time and resources to be directed toward coordination with other initiatives and supporting integration into instruction. A lack of alignment with instructional initiatives, curricula, and other professional development in the district (particularly in the local districts) seemed to be a key barrier—at least some school-level educators could not reconcile the competing pressures on their time and instructional foci in the classroom, in ways that allowed them to maximize the use of technology.

Still, technology **was** used by many teachers and students in ITI pilot schools, and this finding is important. From both the MDM records and our classroom observations, we know that the devices were not locked away all school year in schools in which devices had been deployed. Levels of use appeared to increase from 2013–14 to 2014–15, and it is reasonable to expect that use will continue to rise if the devices remain in the schools, as long as they are kept in working order. As for how the devices are used, our results suggest that the uses of devices in 2014–15 were similar to how they were used the year prior. A small proportion of teachers within ITI schools seemed to use them for interactive instruction that leveraged the 1:1 configuration. More common was use of the devices for Internet research to support the creation of projects and presentations. Although these are each potentially promising uses of technology when integrated into broader learning goals, it does seem that ITI schools lacked access to clear information about innovative, high-quality apps and digital lesson content to incorporate into their instruction (a notably common problem in other studies of technology implementation; Enyedy, 2014). In the absence of a recommended set of apps or digital curricula, some teachers will find ways to sort through the expansive content available online (including open educational resources) to build into their lesson plans. But many will not, due to time constraints and other barriers. LAUSD teachers could benefit from a more concentrated, centralized effort to identify and curate high-quality, standards-aligned digital content to use in their classrooms.

In addition to increasing use of devices generally, our case study analysis reveals several pockets of promise related to school culture and teacher collaboration around technology use. VLCFs became true partners to teachers and school leaders in some schools, where they seemed to encounter greater openness to trying new approaches with technology. In our site visits, we uncovered a number of exciting and promising examples of teacher sharing and professional learning and student involvement in device rollout and upkeep, suggesting that the development of school technology culture was well underway in at least some schools during the 2014–15 school year. Interestingly, some of the schools that were further along in their implementation of technology and the development of collaboration and culture to support technology integration were those whose deployment dates had been delayed. It was not necessarily that additional time with the devices made the differences; it is possible that in a few cases, having some time and space to plan together, within their own local context, was beneficial.

Challenges Encountered. The ITI encountered a number of operational challenges, as well as challenges with public perception about the initiative. While the overarching vision for the initiative—to provide LAUSD students with access to technology—remained the same, the goals for rollout and scale-up shifted often over the course of this 1¼-year evaluation. To gain more traction and public support during these very early years of implementation, the ITI would have needed to take root in pilot schools quickly enough to allow them to show more uptake and progress. This is not unique to technology implementation; this is true for any educational reform under pressure to demonstrate its worth to stakeholders essentially immediately.

The existing research base provides some hypotheses for the pieces that needed to be in place in order for the ITI to take root in pilot schools quickly enough to show more progress. For example, Penuel (2006) and Valiente (2010) emphasize the importance of school leadership to champion one-to-one computing and a shift toward student-centered pedagogy enabled by technology. Essential infrastructure includes connectivity to the wireless network, the devices themselves, and technical and instructional support for teachers (Argueta et al., 2011; Center for

Promise, 2013; Valiente, 2010). Other prior research suggests that that essential components of technology integration into the classroom include professional learning (Center for Promise, 2013; Fixsen et al., 2007; Staples et al., 2005); school culture (Billig, Sherry, & Havelock, 2005; Glazer, Hannafin, & Song, 2005); and organizational support (Abbott, Greenwood, Buzhardt, & Tapia, 2006; Fixsen et al., 2007). Of critical importance is the development of a clear vision shared among educators (Valiente, 2010) and that the vision is tied to concrete strategic plans.

LAUSD's approach to the ITI demonstrated awareness of these necessary factors—and formal or informal structures were in place to address all of them (e.g., change management, VLCFs, technology and instructional readiness planning, professional development courses). But the district's efforts and schools' own ITI-related activities did not result in the establishment of these necessary factors within and across the pilot schools, as our case study analysis from 2014–15 makes clear. At the district level, LAUSD's ITI team worked to put into place many of the key supporting ingredients that would enable schools to make use of the devices they were provided as powerful tools for teaching and learning. But in the early stages of the initiative, ITI's project management strategies were not able to concurrently address all of the aspects of deployment, training, support, coordination, and alignment.

At its heart, ITI is about both technology and instruction, and effective management of it required coordination and communication between technical and instructional teams and leaders. The structure of LAUSD (and many other districts) is such that the instructional division is separate from the technical division. These divisions did not seem to reach a level of collaboration that would be needed to avoid the challenges ITI encountered, and on some issues seemed to be unable to resolve differences in perspective (e.g., on issues related to Apple IDs). The significant role of the local districts in setting instructional goals created still greater need for coordination in order for the ITI to be seen as a priority—and an opportunity for teaching and learning—at the school level. The plan to decentralize the ITI out of central office and to the local districts for school year 2015–16 may alleviate some of these challenges but is sure to raise others. The key ingredients—alignment, coordination, communication—will remain essential.

Benefits of Technology Integration. Aside from the cost of the initial investments, there are many reasons for the district to continue the work of technology integration, particularly in high-need schools. Correlational analyses suggest there is a positive link between technology use and student outcomes (Bebell & Kay, 2010; Shapley et al., 2010). Findings from our 2015 classroom observations and our analysis of LAUSD's spring 2014 School Experience Survey data suggest a similar link. First, classrooms in which we observed technology use that leveraged the 1:1 provision of devices had higher CLASS scores for "positive climate" and "regard for student perspective" than classrooms that did not. Second, we found that students who reported using more technology (in both ITI and non-ITI schools) also reported stronger indications of positive school outcomes (perceptions of instructional relevance in their classes, and motivation in school).[49] Although there is clear need for more rigorous evidence, some evaluations of technology initiatives have documented suggestive positive impacts on student engagement (Argueta et al., 2011; Bebell & Kay, 2009) and skills related to communication, research, and

[49] This finding emerged from an exploratory analysis of the student School Experience Survey data that was beyond the scope of this evaluation report. A summary of these findings is available upon request from the authors.

writing (Bebell & Kay 2009; Silvernail, 2005; Valiente, 2010), and others suggest mixed effects on English language arts and mathematics (Bebell & Kay, 2010; Murphy et al., 2014; Surh, Hernandez, Grimes, & Warshcauer, 2010). Some of the available research suggests that 1:1 computing can change how teachers approach instruction, as both teachers and students are given an opportunity to teach, creating a "student-centered pedagogy" (Bebell, Clarkson, & Burraston, 2014; Lowther, Inan, Ross, & Strahl, 2012). A student-centered focus can allow students to guide their own learning process, with the teacher serving as a facilitator or coach (Argueta, Huff, Tingen, & Corn, 2011). Prior research studies suggest that with professional development; technical and instructional support; and support from leadership, their colleagues, and their own students, teachers can meaningfully integrate technology into instruction (Argueta et al., 2011, Penuel, 2006; Valiente, 2010).

ITI in Context: Comparison With Other 1:1 Initiatives. Even in "highly connected" schools (including schools with 1:1 laptop or mobile device initiatives) achieving meaningful technology integration is difficult and takes time (Davies & West, 2014; Shapley et al., 2010). Although the desire is for positive change to be immediate, the reality is that educational settings are complex, and implementation processes take time. Evidence suggests successful implementation of technology (and nontechnology) initiatives require a cyclical process of systematic planning, implementing, and refining processes to foster change in the system (Center for Technology Implementation, 2013; Fixsen et al., 2007). Leveraging technology for transformational change in schools and classrooms requires more than a commitment to purchase and disseminate the equipment (Penuel, 2006; Valiente, 2010). Rather, it is a process that unfolds over time through the sustained efforts of district and school leaders and teachers.

Although LAUSD's ITI is unique in its size and scope, recent educational technology initiatives in other districts and states help to put the early evaluation findings into perspective. Other technology programs, including other 1:1 programs, also encountered challenges related to deployment and technical and instructional support in the first years and reported slow progress in changing teaching and learning practices in the early stages. One widely publicized example is Guilford, North Carolina, where hardware problems were encountered after approximately 18,000 tablets were deployed to 28 schools, causing a halt to Guilford's 1:1 initiative in 2013 (Herold, 2015).

Going back to the earliest 1:1 initiative implemented at scale, early findings from Maine's Learning Technology Initiative (MLTI) suggested that after one year only 50 percent of the MLTI teachers used their laptops for lesson planning and 57 percent used them to create new instructional lesson plans or personalize student learning; by Year 3, these percentages were 58 and 64 percent, respectively, and only 42 percent of teachers reported using their laptops to provide classroom instruction. Ongoing study of the MLTI showed consistent increase in the use of laptops for developing instructional materials and providing instruction over eight years (2003–2010) (Silvernail, Pinkham, Wintle, Walker, & Bartlett, 2011).

More recently, in a study of 21 middle schools in Texas, Shapley et al. (2010) found that even with sufficient infrastructure and access to 1:1 technology, within four years, no schools reached what had been defined as "full implementation," and only six of 21 schools had reached "substantial implementation." Teacher support seemed to be a key factor related to school progress in implementation. Notably, no schools reached full or substantial levels of student

access and use at the end of four years, and their level of use (particularly for out-of-school learning) was predictive of their reading and math scores. (Again, the link between technology use and student achievement seems to hold up in schools without technology initiatives.)

In addition to variable levels of use in the early years of implementation, the lack of what might be considered truly transformative use of technology in the ITI also echoes observations made in other studies of 1:1 computing initiatives. Shapley et al. (2010) report that students most often used technology for information gathering or word processing, and teachers most frequently used technology for administrative purposes, such as attendance and grade keeping, and for personal productivity, such as locating resources, and communicating with other staff and parents. Similarly, Suhr, Hernandez, Grimes, & Warschauer, (2010) report finding the most common uses by students of 1:1 technology in their study of upper-elementary classrooms were writing papers, Internet research, creating presentations, using iCal's calendar and photo features, using iMovie, and taking quizzes (Suhr et al., 2010; see also Bebell & O'Dwyer, 2010). Davies & West (2014) similarly point out that the benefits of educational technology have largely been in communication and information access, not changing teaching and improving learning outcomes. These findings emphasize the challenge of implementing technology initiatives that move from deployment at scale to demonstrable changes in teachers' instruction and students' learning experiences at the classroom level.

Critical to the success of technology programs in these cases seemed to be support systems, clear and shared school goals, and access to high-quality digital resources. Teacher buy-in appeared to be essential, and initiatives in which teachers are involved in making decisions about software and have opportunities to collaborate, plan, and review student data and progress together seem to be more likely to succeed (Bebell & Kay, 2010; Bebell & O'Dwyer, 2010; Center for Promise, 2013; Shapley et al., 2010; Zucker & Hug, 2007). These and other implementation factors noted earlier seem to have been in place in earlier 1:1 initiatives that have been considered successful at least to some degree, for example, in Henrico County, Virginia, and in Mooresville, North Carolina (Argueta et al., 2011; Lautzenheiser & Hochleitner, 2014; Schwarz, 2012).

However, the size and scope of the LAUSD 1:1 initiative is unparalleled, even with the initial phases. There were 47 schools in Phase 1, and 101 schools involved in some way with the initiative in Year 2—a large pilot by any standard and one that stretched the resources of the team assigned to implement it. Some large urban districts are opting to implement technology initiatives on a much smaller scale, involving only a handful of schools in any given year (e.g., DC Public Schools' Blended Learning program; see Lautzenheiser & Hochleitner, 2014). Garnering support from all of the right stakeholders (particularly teachers and school leaders) may be more feasible in the initial stages when focusing on a small number of schools. LAUSD, of course, is past the point of starting small, but the challenges of conducting a large pilot may yield some lessons learned for other districts grappling with rollout decisions. Within LAUSD, as ITI or related technology strategy moves forward, new program features may benefit from smaller scale rollouts in any given year in the future. Rolling out potentially promising program features with deliberate planned variation within a set of schools would enable the district to assess its effects on student outcomes more readily and with greater confidence than wide-scale rollout allows.

Even though the latter phases of ITI did not occur as planned, the initiative was still a large and ambitious program from which many lessons learned can be derived. LAUSD is to be commended for acting on its large-scale, future-looking vision to promote equity and access for its students and for conducting what was, in essence, a large-scale trial and error effort, almost entirely in the public eye. Throughout this evaluation, the district demonstrated willingness to learn by doing, and to work to improve. LAUSD's efforts constitute a contribution to the field as districts, schools, and teachers continue to grapple with the best ways to make use of technology to serve their goals for educating students. Many barriers—both related and not related to technology itself—are in the way of doing this seamlessly: from changing standards, assessments, and curricular contexts, to competing pressures related to teacher evaluation, to high-cost hardware, variable access to high-quality software and apps, existing privacy policies, and more. A goal as seemingly simple as providing electronic devices to teachers and students is fraught with obstacles in complex educational settings. LAUSD's work to implement its vision at scale raised a host of critical issues that will need to be addressed by any district with similar plans. The early findings related to ITI implementation, particularly at the school and classroom levels, were not unexpected, given previous research on initial implementation. Educators within and beyond LAUSD can draw upon the experiences over the last two years as they continue to seek ways to teach, inspire, and prepare their students for a technology-rich future.

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Appendix A. Participating ITI Schools

School Name	Level	Phase	ESC
42ND ST EL	Elementary	Phase 2A	XP
54TH ST EL	Elementary	Phase 1	W
59TH ST EL	Elementary	Phase 2A	W
74TH ST EL	Elementary	Phase 2B	W
ALONZO COMMUNITY DAY SCHOOL	Span	Phase 1L	XS
AMBLER EL	Elementary	Phase 1	S
ANGELOU COMM HS FINE PER ARTS	High	Phase 1	E
ANNALEE EL	Elementary	Phase 1	S
APPLE ACADEMY	Elementary	Phase 1	XR
AUDUBON MS	Middle	Phase 2B	W
BALBOA G/HA MAG	Elementary	Phase 2B	XP
BALDWIN HILLS EL	Elementary	Phase 1	W
BERNSTEIN HIGH SCHOOL	High	Phase 1L	XP
BRADLEY GLBL AWR MAG	Elementary	Phase 2B	W
BROADACRES EL	Elementary	Phase 1	S
BURROUGHS MS	Middle	Phase 2B	W
CANOGA PARK EL	Elementary	Phase 2A	N
CANOGA PARK HIGH SCHOOL	High	Phase 1L	N
CARNEGIE MS	Middle	Phase 2A	S
CELEBRITY NASCENT CS	Span	Phase 2B	XR
CENTURY PARK EL	Elementary	Phase 2B	W
CHAVEZ LEARNING ACAD ARTES	High	Phase 1	XP
CHEVIOT HILLS CONTINUATION HIGH SCHOOL	High	Phase 1L	W
CIMARRON EL	Elementary	Phase 1	W
COCHRAN MS	Middle	Phase 2B	W
COLISEUM EL	Elementary	Phase 2B	XP
COUGHLIN EL	Elementary	Phase 2A	N
COWAN EL	Elementary	Phase 1	W
CRENSHAW ARTS TECH CS	High	Phase 2B	XR
CURTISS MS	Middle	Phase 1	S
DREW MS	Middle	Phase 2B	XP
EINSTEIN CONTINUATION HIGH SCHOOL	High	Phase 1L	N
ELA PERFORMING ARTS ACADEMY	High	Phase 1L	XP
ELA RENAISSANCE ACADEMY	High	Phase 1L	XP

School Name	Level	Phase	ESC
ENGINEER & TECHNOLOGY ACADEMY	High	Phase 1L	XP
FLEMING MS	Middle	Phase 1	S
GARDEN GROVE EL	Elementary	Phase 2B	N
GARDENA HIGH SCHOOL	High	Phase 1L	XP
GAULT EL	Elementary	Phase 2A	N
GRIFFIN EL	Elementary	Phase 2A	E
HAMILTON HIGH SCHOOL	High	Phase 1L	W
HARTE PREP MS	Middle	Phase 1	XP
HILLCREST EL	Elementary	Phase 1	XP
HUMANITAS ACADEMY OF ART & TECHNOLOGY	High	Phase 1L	XP
HUMPHREYS EL	Elementary	Phase 2B	E
KENTWOOD EL	Elementary	Phase 1	W
KING-DREW MED MAG	High	Phase 2B	S
LEAPWOOD EL	Elementary	Phase 1	S
LIZARRAGA EL	Elementary	Phase 1	E
LOS ANGELES EL	Elementary	Phase 2B	E
LOS FELIZ EL	Elementary	Phase 2B	E
LOYOLA VILLAGE EL	Elementary	Phase 2A	W
MAGNOLIA SCI ACAD #3	Span	Phase 1	XR
MAGNOLIA SCI ACAD #4	Span	Phase 1	XR
MANCHESTER EL	Elementary	Phase 1	S
MANHATTAN PLACE EL	Elementary	Phase 1	W
MANN MS	Middle	Phase 2B	XP
METROPOLITAN CONTINUATION HIGH SCHOOL	High	Phase 1L	XP
MIDDLE COLLEGE HS	High	Phase 1	W
MONETA CONTINUATION HIGH SCHOOL	High	Phase 1L	XS
MONROE SENIOR HIGH SCHOOL	High	Phase 1L	XP
MUIR MS	Middle	Phase 1	XP
MURCHISON EL	Elementary	Phase 2B	E
NEVADA EL	Elementary	Phase 1	N
NIMITZ MS	Middle	Phase 2A	XP
NUEVA VISTA EL	Elementary	Phase 2A	S
OBAMA GLOBAL PREP ACAD	Middle	Phase 1	XP
OCEAN CHARTER	Span	Phase 1	XR
ODYSSEY CONTINUATION HIGH SCHOOL	High	Phase 1L	XS

School Name	Level	Phase	ESC
OWENSMOUTH CONTINUATION HIGH SCHOOL	High	Phase 1L	XS
PALMS MS	Middle	Phase 1	W
PEARY MS	Middle	Phase 2B	S
PINEWOOD EL	Elementary	Phase 2B	N
PURCHE EL	Elementary	Phase 2B	S
RANCHO DOMINGZ PREP SCH	Span	Phase 1	S
REVERE MS	Middle	Phase 1	W
RIVERA LC COM & TECH	High	Phase 1	XP
RIVERA LC GRN DESIGN	High	Phase 1	XP
RIVERA LC PERF ARTS	High	Phase 1	XP
RIVERA LC PUB SRV	High	Phase 1	XP
RIVERSIDE DR CHT SC	Elementary	Phase 2B	N
ROOSEVELT SH	High	Phase 1	XP
ROSEMONT EL	Elementary	Phase 2B	E
SAN PASCUAL EL	Elementary	Phase 2B	E
SCIENCE TECHNOLOGY ENGINEERING & MATH	High	Phase 1L	XP
SHERMAN OAKS EL CHTR	Elementary	Phase 2B	
SOCIAL JUSTICE LEADERSHIP ACADEMY	High	Phase 1L	XP
SOTOMAYOR LA RIVER SCH	High	Phase 1	XP
SOTOMAYOR LEARNING HIST & DRAMA ARTS	High	Phase 1	XP
SOUTH GATE HIGH SCHOOL	High	Phase 1L	S
VALLEY ACAD ARTS/SCI	High	Phase 1	
WADSWORTH EL	Elementary	Phase 2A	E
WEBSTER MS	Middle	Phase 1	
WESM HLTH/SPORTS MED	High	Phase 1	
WESTERN EL	Elementary	Phase 1	
WESTPORT HEIGHTS EL	Elementary	Phase 1	
WESTSIDE INNOV SCHOOL HOUSE CS	Elementary	Phase 2B	XR
WINDSOR M/S AERO MAG	Elementary	Phase 1	
WOODCREST EL	Elementary	Phase 1	
WRIGHT ENG DES MAG	Middle	Phase 2B	W
YOUNG EMP SCH ACAD	Elementary	Phase 1	

Appendix B. Methods

District Leadership Data Sources

To address EQ 1 and its subquestions, the evaluation team collected data on the district's leadership of the initiative, progress with implementation, and consideration of and response to recommendations from the Year 1 evaluation Interim Report with respect to deployment, safety and security, coordination with related initiatives, communication, instructional support, and technical support. The evaluation team interviewed district staff involved in leading and implementing the initiative (e.g., ITI team leads, VLCFs, and MCSAs, as well as other district administrators), reviewed key documents (e.g., professional development agendas, change management plans), and analyzed extant data (e.g., rosters from professional development sessions; Help Desk records).

District Staff Interviews and Focus Groups

During January and February 2015, we conducted semistructured interviews with 14 ITI team members and district administrators, as well as with a focus group with the five ESC superintendents. In March 2015, we conducted two focus groups with VLCFs and one with MCSAs. The two VLCF focus groups comprised staff assigned to elementary and secondary schools (respectively) from the sample of 10 ITI schools that we selected for site visits during winter/spring 2015. Four to eight staff participated in each MCSA or VLCF focus group. These interviews and focus groups addressed the major topics within EQ 1. We developed a protocol template that included items aligned to the major topic areas of district leadership and adapted this template according to each respondent's areas of responsibility or expertise. Each interview or focus group was roughly 45 minutes in duration. Interviewers took notes during the interviews, and all sessions were recorded with permission and transcribed. The 14 interviews were conducted with the following types of staff:

- Four interviews were with ITI team leads housed in OCIS, including the ITI director; these are referred to as instructional leads. One of the interviews involved two staff, for a total of five instructional staff.
- Five interviews were with ITI team leads housed in ITD; these are referred to as the technical team leads.
- Two interviews were with ITI team leads or team members affiliated with neither ITD nor OCIS, including one member of the Los Angeles School Police Department and one senior district administrator.
- Three interviews were with district administrators whose responsibilities involved coordination with ITI.

Evaluation interview and focus group transcripts were reviewed by one researcher and coded to a prespecified framework based on the evaluation questions. The researcher's coding was reviewed in its entirety by a second researcher to ensure accuracy.

Document Review

The evaluation team obtained and reviewed a variety of documents depicting the activities of the ITI. These documents included the following:

- Artifacts of professional development sessions (e.g., agendas and presentation notes)
- Artifacts of communication efforts (e.g., monthly newsletter, weekly principal updates)
- Materials from monthly principal meetings
- Artifacts of school-based activities (parent education workshop agendas, school leadership team agendas)
- Artifacts of change management support (school plans, survey records)

These documents were used to substantiate implementation of planned activities (e.g., completion of change management plans) and to better understand district policies (such as school requirements for device take-home). In addition, the evaluation team reviewed public documents pertaining to the project developed by the district, including LAUSD Board of Education documents (board reports, board resolutions, stamped orders of business, board presentations, and additional documents submitted as part of presentations) and ITI news releases and memoranda archived on the LAUSD website. These documents were used to understand key milestones in the project.

Extant Data

AIR requested a variety of extant electronic data and records pertaining to ITI implementation, including device and app usage data, Help Desk reports, bandwidth records, VLCF weekly logs, and professional development participation records. Each of these data sources is described next, with respect to its main data elements and how these were used to describe ITI implementation.

Participating Schools. An ITI team lead provided a list of ITI schools as of the end of the 2014–15 school year. There were 132 schools on this list, including 31 colocated schools (typically, magnet school programs at the same physical location of a larger school). We combined colocated schools with their host schools for the purpose of counting schools within phases and also for the purpose of analysis of extant data sources. Our final list of ITI schools used in the extant data analyses includes 101 schools at separate locations.[50] Appendix A lists ITI schools following this aggregation.

Teacher and Student Enrollment. One district administrator provided a file that indicated the number of students and teachers at each ITI school. These enrollment and staffing numbers were current as of the end of the 2014–15 school year. These totals were used throughout the analyses when it was necessary to calculate percentages of staff or students (e.g., proportions of teachers participating in professional development).

Deployment Schedule File. One of the instructional readiness facilitators provided a file indicating the date on which devices were deployed at each school. We used these data to

[50] One magnet school (at Roosevelt High School) was collocated with another ITI school but had its own principal. As a result, we excluded the magnet school from our analyses.

describe deployment and also to refine our analyses of MDM data indicating proportions of devices in use. This file included deployment dates for schools in Phases 1, 1L, and 2A (74 schools in total). Nine of these 74 schools had no deployment date, either because deployment did not take place or, in one case, because of missing data.

1:1 Ready School Site Report. The 1:1 Ready School Site Report is a spreadsheet we received from IT Capital Projects that lists each LAUSD school that meets the district's criteria for being 1:1 ready; this file reflects capital improvements made through April 2015. The district considered a school to be 1:1 ready if it had a scalable fiber network with the ability to increase bandwidth up to 1 gigabyte in response to spikes in demand and if the site has wireless density coverage to provide up to 6 megabytes per user.

Bandwidth Reports. One of the technical leads provided a bandwidth report to indicate, for each school and for each month (January through April, 2015), the average and maximum daily bandwidth used by each school. The school bandwidth reports also indicate the total bandwidth allocated to these schools. We received bandwidth data on 68 of the 74 schools in Phases 1, 1L, and 2A. We examined data only from months following the deployment date of each school, to focus on bandwidth after implementation of the 1:1 model. We used these data to determine whether each school in which devices were distributed had sufficient bandwidth. The criterion we used was suggested by one of the technical team leads: A school was considered to have sufficient bandwidth if the average bandwidth used across all months exceeded 70 percent of the maximum bandwidth allotted.

Educator Strategy Planning (ESP) Workshop Participation Records. We received a list of schools that sent at least one staff member to participate in the ESP training workshops offered by Apple Professional Development. This list was provided via email communication with one of the ITI instructional leads in May 2015. We excluded Phase 1L schools from analyses involving these trainings because this workshop was not relevant to schools that received non-Apple laptops. The measure derived from this data source was a variable indicating whether or not each school sent a principal (or some other representative) to attend the trainings.

Learning Zone Records of Participation in Centralized Professional Development. We received a file exported from LAUSD's Learning Zone registration system indicating registration for centralized professional development workshops offered by ITI. The data file covers the period of July 2014 through April 2015. Each record lists the course name and participant information (employee ID and school affiliation). We used this file to calculate for each ITI school the proportion of its teachers who participated in ITI workshops on technology integration. We calculated the number of teachers per school who attended at least one such workshop and divided this figure by the total number of teachers at the school. Using a similar approach, we determined the proportion of schools that sent at least one staff member to participate in a train-the-trainers workshop for facilitating device training. We calculated these measures for schools in all phases.

VLCF Records. VLCFs used a daily activity log that allowed them to select from different categories of activities to represent their work on a particular day and location. We used the data from the VLCF logs to determine the number of activities of each type recorded by VLCFs at different school locations and the duration of each. For all analyses that examined duration, we

excluded records with greater than 12 hours indicated because these are likely cases in which the VLC forgot to log out and this represents inaccuracies in the data (there were 58 such cases).

VLCFs used two versions of a daily activity log. The first version, which was used from August 2014 to January 2015, included 15 specific activity codes, and a revised version, which was used from February 2015 onward, included 21 specific activity codes. Each activity code belonged to one of the following domains: Operations and Technical (e.g., helping schools complete their take-home checklists, providing technical support), Instructional (providing onsite coaching and modeling of lessons), or Deployment (helping schools prepare for and execute deployment).[51]

To further understand VLCF activities, we merged the activity codes into eight broader topic-area categories. These eight categories included the following: (1) Attendance at planning, professional development or training;[52] (2) Creation of resources;[53] (3) Facilitation of professional development;[54] (4) Initial support/training for deployment; [55] (5) Instructional support;[56] (6) Leadership support; (7) Parent engagement support;[57] and (8) Technology support.[58] Table B-1 provides a description of each of the activity categories.

We used the VLCF logs to calculate two implementation measures: frequency of support for school leadership teams and frequency of instructional support for teachers. For the former, we simply counted instances of the activity category of the same name. For the latter, we counted instances of specific activity codes within the categories of Creation of resources, Facilitation of professional development, and Instructional support that corresponded to direct onsite support for teachers.

Table B-1. VLCF Activity Categories Derived From VLCF Logs

Activity Category	Description
Attendance at planning, professional development, or training	Activities in this general category are cases in which the VLC attended PD themselves. PD included Common Core, pedagogy, subject matter, technology integration and conferences and seminars.
Creation of resources	Activities in this general category involve the VLC creating initiative resources. Resources could include lesson plans to be used to integrate technology, professional development content, or materials for operational deployment.

[51] The Deployment domain was not included in the earlier version of the logs, but we recoded the "Initial support/training for deployment" activity category as belonging to this domain to maintain consistency across the two versions.
[52] This category comprised the following activity codes from the more recent log: Attend CCTP Planning Meetings, Attend PD, Attend Planning Meeting, and Attend Training.
[53] Comprising the following activity codes: Create Central Resources, Create [Deployment] Resources, and Create School Resources.
[54] Comprising the following activity codes: Deliver Central PD, Deliver Customized PD, and Deliver PD.
[55] Comprising the following activity codes: Initial Support, Initial Training, and Other Deployment Support.
[56] Comprising the following activity codes: Other Instructional Support, Other Support, and Provide Coaching.
[57] The leadership support and parent engagement support categories each were specific activities codes.
[58] Comprising the following activity codes: Other Technical Support, Post-Deployment Windows Tech Supp, and Technology Support.

Activity Category	Description
Facilitation of professional development	Activities in this general category involve the VLC delivering professional development to teachers and principals.
Initial support/training for deployment	Activities in this category involve the VLC helping with technical issues of deployment as well as onboarding trainings.
Instructional support	Activities in this category include the VLC providing coaching in the designing of action plans, goal setting, implementation, observation, feedback, and reflection as well as other instructional support.
Leadership support	Activities in this general category involve providing support to school leadership such as: supporting leadership team with all activities related to preparing for the delivery and distribution of devices; supporting logistics and coordination with vendors to fulfill Readiness Checklist (e.g., Take-Home Checklists).
Parent engagement support	Activities involve: planning, developing and participating in the creation of parent support materials, the delivery of parent support materials and planning of and participation in parent events.
Technology support	Activities included providing support in resolving technical issues including: working on devices (acting as the technical staff); submission of Help Desk tickets and reporting technical problems; collecting inoperable devices; providing assistance for lost, stolen or damage procedures; and post-deployment Windows technical support.

VLCF and MCSA staffing Records. An ITI team lead provided a school-level file that indicated, for each school, which VLCF and which MCSA was assigned to each school as of January 2015. There were a total of 23 MCSAs and a total of 27 VLCFs assigned to the 101 ITI schools (all phases) during the 2014–15 school year. We used these VLCF and MCSA assignments to determine the number of schools and students for which each VLC and MCSA was responsible. There were six schools (one Phase 1 and five Phase 1L) for which the MCSA assignment was either missing or marked as "to be determined," and there were two schools (one each of Phase 1 and Phase 1L) for which the VLC assignment was missing.

Help Desk Records. The Help Desk records list all requests for technical support or help with devices. The Help Desk logs, provided by the initiative's technical lead, covered requests from August 1, 2014 through April 30, 2015 and included over 6,000 records. Each Help Desk request was uniquely identified and time-stamped for the date of request and resolution (or other change in request status). There is also a field that indicates the location the request originated from. We used the location identifier in the Help Desk records to map the file onto our 101 ITI schools and disregarded all records not originating in one of the ITI schools; there were 3,680 requests originating at ITI schools, and all but two of the 101 ITI schools originated at least one Help Desk request (one Phase 1L and one Phase 2B school did not). For each request, we determined

the duration for which the request was open and then calculated the average time to resolve ITI schools' requests for technical support.

MDM Training Files. The MDM training list was provided by a member of the district's MDM technical staff. The list indicated, for each school, the number of attendees of MDM training sessions offered through April 2015. Phase 1L schools were excluded from this analysis because MDM training was relevant only to schools with iPads. We used this file to determine the proportion of schools in which at least one staff person received MDM training.

Destiny Asset Management Files. The district exported a list of staff at each school that had access to the Destiny asset management system as of the end of April 2015, as well as their level of access. We used this file to determine the proportion of schools that have local administrator access to the Destiny asset management system, which allows staff to manage their inventory of devices by updating device status, location, and condition.

Case Study Data Sources and Methods

The evaluation team visited 11 schools between January and April 2015 to address questions related to classroom technology integration (EQ 2) and school-based support for implementation (EQ 3). The purpose of these in-depth case study site visits was to examine the enactment of school supports, such as a vision for technology use, the presence and activities of school leadership teams, professional development opportunities, and parent education. The case studies also examined classroom technology use to understand how school implementation of these supports is associated with transformative uses of technology.

We drew a case sample of 10 schools participating in ITI and two schools not participating in ITI,[59] purposively including schools representing different levels and phases. The sample of 10 ITI schools included four elementary schools, two middle schools, and four high schools. By phase, the sample included six Phase 1 schools, three Phase 2a schools, and one Phase 1L school. Because elementary and secondary schools differed considerably in their deployment dates, we sampled elementary schools in November 2014 for site visits conducted in January and February 2015 (including one non-ITI elementary school), and secondary schools in February 2015 for site visits conducted in March and April.

The goal of the case studies was to understand how technology was being used in schools that were using devices, so we selected elementary schools that had higher than median levels of device activity according to available MDM data. To calculate device activity, we took the weekly average (across four data points in October) of the proportion of active devices at each school. We sought to balance the four elementary schools by phase. In addition, we intended to return to the Phase 1 schools that we visited as part of the Year 1 evaluation. We selected two elementary schools at random from the eight previously visited Phase 1 schools and the nine Phase 2a schools.

In sampling Phase 1 and 2a secondary schools, we took into account several factors:

[59] One of the non-ITI schools withdrew from the study prior to the site visit and was not replaced.

- We excluded schools that deployed after December 2015, in order to visit schools that had several months of experience with devices in the current school year.
- Usage data were not available because many schools had only recently deployed at the time of sampling and therefore did not have a sufficient number of data points.
- We included one Phase 1 high school based on prior knowledge about its strong levels of implementation. Its inclusion addressed the evaluation goal of identifying promising practices.

The application of these criteria yielded one middle school from Phase 1, which was then included. It also yielded two middle schools from Phase 2a, and five Phase 1 high schools (besides the one high school selected based on its strong implementation). We selected one middle school from Phase 2a and one Phase 1 high school.

We selected one Phase 1L school based on its early deployment date. Most Phase 1L schools did not deploy in advance of the site visit window in March 2015.

We selected one non-ITI school at both the elementary and secondary level. We selected these schools at random from a list of district schools implementing 1:1 technology programs. This list included three elementary and two secondary schools. Shortly before the planned site visit, the secondary school withdrew its participation due to commitments to other outside groups visiting the school. This school was not replaced.

Table B-2 summarizes site visit schools by school level and phase.

Table B-2. Count of Site Visit Schools by School Level and Phase

	Phase 1	**Phase 2a**	**Phase 1L**	**Non-ITI**	**Total**
Elementary	2	2		1	5
Middle	1	1			2
High	3		1		4
Total	**6**	**3**	**1**	**1**	**11**

Participant Recruitment

For each school site, the research team worked with a school point of contact (POC) to identify school participants and schedule interviews, focus groups, and observations. In each case, the research team provided participant specifications and requested bell and class schedules. We then developed site visit schedules, including timeframes for interviews and observations, and either e-mailed the schedules to the school POCs for review or discussed the schedule with the POC by telephone. We also verified with the POC participants' roles, grade levels attended or taught (if applicable), and subject(s) taught (if applicable). Most invited staff members participated. The POC asked the school's parent coordinator to recruit participants for the parent focus group. The research team provided parent coordinators with parent recruitment flyers in both English and Spanish. Teachers, parents, and students were recruited with the following parameters and incentives:

- In each parent focus group, we sought 10–12 parents of students representing multiple grade levels and offered $10 gift cards as incentives for participation in the 45-minute session.
- In each student focus group, we sought 5–6 students (from Grades 3–5 at elementary schools and from the complete range of grades at secondary schools). Students were told to bring the devices assigned to them and were offered a pizza lunch or snack. The session was approximately 45 minutes.
- In each teacher focus group, we sought 8–10 teachers representing multiple grade levels and core subject areas. Teachers were offered a $25 gift card for participating in the 45-minute session, which took place outside of instructional time.

No incentives were offered to SLT members or principals, who were told that their interview or focus group would be approximately one hour in duration. In total, participants in focus groups included 34 school leadership team members, 72 teachers, 64 parents, and 60 students.

For observations, we specified that we would need to spend at least 45 minutes observing core content classes at different grade levels, with time between observations to complete our scoring and move to the next classroom. In order to observe classrooms during a similar time of day across all schools, we requested scheduled observations during morning period, completing four observations per day during each two-day site visit. Details about the observations are provided next.

Classroom Observations

Two trained observers conducted each observation, with each employing a different observation protocol. One used the Classroom Technology Observation Protocol (CTOP) developed for this project, and the other used the Classroom Assessment Scoring System (CLASS) rubric (Pianta et al., 2008) to record instructional quality. The CTOP was designed to be completed in 10-minute segments, and the CLASS was designed to be completed in 20-minute segments. Therefore, observers typically completed four segments of the CTOP and two segments of the CLASS within each 45-minute classroom observation. Observers coordinated their start and end points so that the ratings from the two different protocols could be linked for analysis.

Classroom Technology Observation Protocol. The evaluation team developed the CTOP to capture the ways in which the technology was being used, along with which types of technology were present in the classroom. The CTOP was initially developed in Year 1 to document teacher and student use of technology to support and enhance teaching and learning throughout classroom activities. Grounded in the findings from the 285 classroom observations conducted in 2014 and interviews with school and district staff, Version 1 of the protocol was enhanced and revised to capture a fuller breadth of technology usage for use in Year 2. The following were the categories of technology use:

- **Whole-class instruction:** Attention of students is focused in the same place, on the same activity, at the same pace. Usually the teacher is presenting content (e.g., lecturing).
    - ***Teacher use of technology:*** Teacher uses technology to support whole-class instruction—e.g., use of a interactive whiteboard, overhead projector, video presentation.

    - ***Student use of technology:*** Students use technology during the whole-class lesson, such as using technology to complete teacher-guided activity, checking for student understanding (e.g., polls), and using interactive whiteboard.
- **Interactive curriculum/lesson content:** Students use computer app/software designed to provide content without intervention from the teacher.
- **Online course:** Student(s) participate in an online course such as Apex or Class.com.
- **Reading (e-books):** Student(s) are reading an e-book.
- **Supplemental digital programs:** Student(s) use a supplemental curricular app/software program that presents problem sets or other items for practicing specific skills in math or English Language Arts (ELA).
- **Internet search:** Student(s) use a search engine to find information or images.
- **Information/data analysis:** Teacher and/or student(s) use technology app/software program to store and analyze information or data.
- **Math/science simulations:** Teacher and/or student(s) use technology app/software program to facilitate simulations in mathematics and science.
- **Composing projects:** Students use technology to organize information and text and/or images to demonstrate their learning of a topic. This represents construction of student-based learning projects and is usually conducted over multiple class periods.
- **Creating presentations:** Students use technology to develop a presentation.
- **Delivering presentations:** Student(s) use technology to deliver presentation(s).
- **Writing a paper:** Student(s) use technology apps/software programs for taking notes, completing written classwork, drafting, revising, and finalizing writing assignments.
- **Communicating:** Teacher and/or student(s) use technology to communicate electronically.
    - ***Among classroom peers, teacher, and/or parents:*** Students and/or teacher use technology to communicate.
    - ***Among individuals outside the classrooms (e.g., experts, other school-age peers):*** Students use technology to communicate with experts, stakeholders, peers in other cities/states/countries.
- **Tests:** Teacher uses technology to assess student learning with formal tests or quizzes.
- **Administrative use:** Teacher and/or student(s) uses technology for administrative tasks—e.g., changing passwords, recording grades, taking attendance.
- **Nonacademic use:** Teacher and/or student(s) use technology unrelated to classroom instruction or the content areas—e.g., listening to music while working on assignments, participating on social media sites, viewing YouTube videos unrelated to classroom content, or "free play" time provided by the teacher.

Uses of technology that did not fit into these categories were coded "Other."

Observers took descriptive field notes on classroom activities and recorded use of all classroom activities throughout the observation period. For example, if the teacher began the lesson using a document camera to present lesson content and then transitioned to having students use their iPads to use an app to complete an in-class assignment, both the code of "Whole-class instructional delivery–teacher use" and the code of "Whole-class instructional delivery–student use" were marked, and an explanation of activity was described. Thus, the categories of technology use were not mutually exclusive.

Observed Apps. When applicable, the Technology protocol directed observers to identify the name of apps being used during each category of technology use and to describe the way the students and teacher were using the app. If observers could not determine the name of the app, they would describe the way it was being used (e.g., for ELA or mathematics practice). A total of 78 apps were noted in 76 of the 85 observed classrooms. Coders sorted these apps into the following categories:

- **Academic core:** Programs and curriculum content that includes more than one disciplinary area (e.g., ELA and Mathematics)
- **Content:** News, information, books, or other sources (e.g., TED, Storia, Reading Rainbow)
- **ELA:** ELA curriculum content and practice (e.g., Lexia Core)
- **Mathematics:** Mathematics curriculum content and practice (e.g., IXL Math)
- **Nonacademic:** Games, music, entertainment (e.g., Candy Crush, Netflix, Pandora)
- **Platform or sharing:** To manage class content and share resources; also for learning management (e.g., Edmodo, Dropbox, Nearpod)
- **Science and other:** Science and computer science–related curriculum content (e.g., BrainPOP Jr.)
- **Search and reference:** Assists in finding information (e.g., Google search, dictionary)
- **Social media:** Allows users to create social networks and share updates, pictures, video, and other information (e.g., Facebook)
- **Tools:** Productivity tools, such as calculators, word processing, presentation, movie editing, and music editing (e.g., NoteAbility, iPhoto, iMovie, QR Reader)

In addition, observers noted whether the following types of technology were available and in use: iPads, other tablets, desktop and laptop computers, Apple TV, interactive whiteboards, document cameras or projectors, student response devices, and TVs.

CLASS Protocol. The CLASS rubric includes 12 dimensions that are grouped into domains of Emotional Support, Classroom Organization, Instructional Support, and (for some grade levels) Student Engagement. The dimensions of the CLASS differ somewhat by grade; there are separate protocols for lower elementary (K–3), upper elementary (4–5), and secondary (6–12), reflecting the different educational and developmental needs of students in these grades. The dimensions included in each domain are as follows:

1. Emotional Support

- Positive Climate
- Teacher Sensitivity
- Regard for Student/Adolescent Perspectives
- Negative Climate

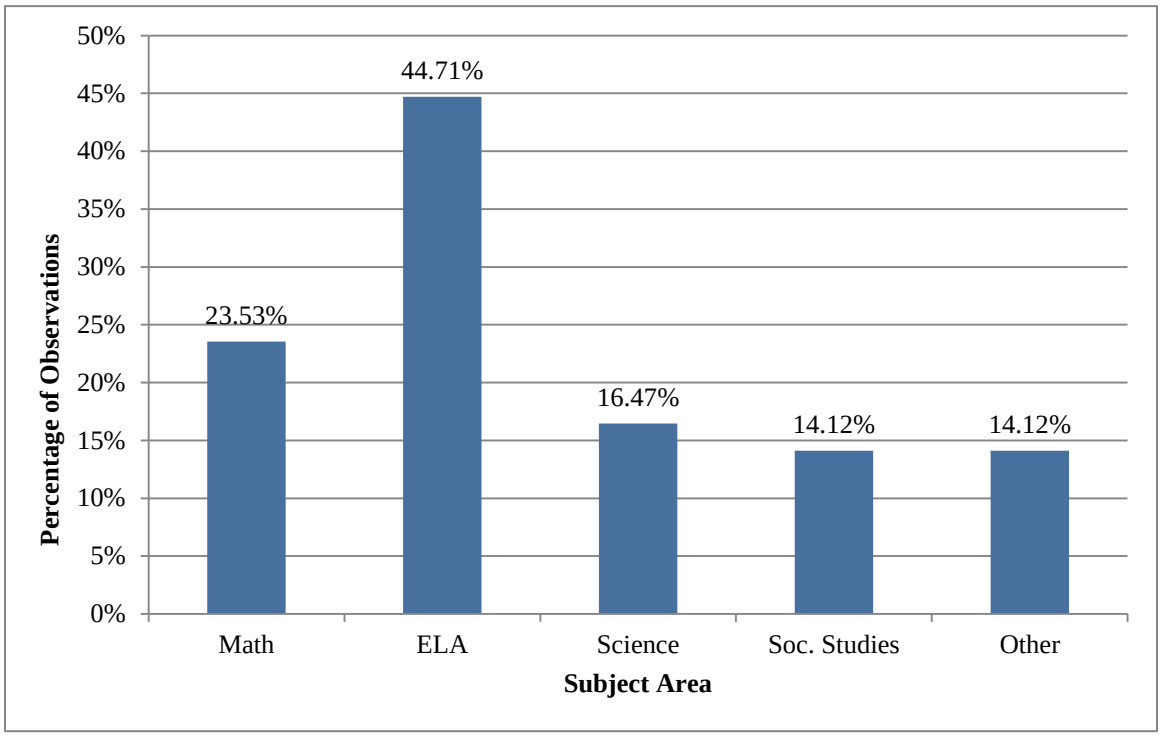
2. Classroom Organization
   - Behavior Management
   - Productivity
   - Instructional Learning Formats
3. Instructional Support
   - Content Understanding (upper elementary and secondary)
   - Analysis and Inquiry (upper elementary and secondary)
   - Concept Development (grades K–3)
   - Quality of Feedback
   - Instructional Dialogue (upper elementary and secondary)
   - Language Modeling (Grades K–3)
4. Student Engagement (upper elementary and secondary)

All observers were trained officially to use the CLASS.

Observation Data Analysis

The evaluation team conducted approximately eight in-depth classroom observations in each case study school. We visited a total of 85 classrooms across the 11 sampled schools; we observed 40 elementary school classrooms (47.1% of all observed classrooms), 32 middle school classrooms (37.7%), and 13 high school classrooms (15.3%). Forty-five percent of the observed class periods addressed ELA topics, roughly one quarter (23.5%) addressed math, and roughly 15 percent addressed science and social studies, respectively. Figure B-1 displays the frequency of each subject area.

Figure B-1. Percentage of Observations by Subject Area



Note. Subject area percentages exceed 100 percent within rows because multiple subject areas could be observed within a single classroom observation

Prior to analysis of technology observation data, two senior members of the evaluation team reviewed the technology use codes from the observation protocol to determine areas of inconsistency across raters (using field notes as a basis to judge the appropriateness of codes). These reviewers conferred on category definitions and revised the codes where necessary. A researcher reviewed the field notes for each technology use to identify subtypes of uses where they were present. The researcher also compiled the name of the apps for each technology use and categorized these apps using the coding scheme described previously. A second researcher reviewed the coding of apps for accuracy. Observation data were aggregated by grade band (lower elementary [K–3], upper elementary [4–5], middle school [6–8], and high school [9–12]).

Merging CLASS and Technology Use Data. To examine the association between classroom technology use and classroom quality, we merged the technology observations and the rating of the CLASS observations, matching up each 20-minute CLASS segment with the two corresponding (synchronous) 10-minute technology observation segments. To do so, we created a single 20-minute technology segment, such that if a given technology use was observed in one of the two 10-minute segments, it was coded as being in use during the 20-minute segment. We observed a total of 85 classrooms; in most of these, we completed two (20-minute) segments of CLASS observations and four (10-minute) segments of technology observations. For four classrooms, observers completed only one CLASS segment. Thus, there was a total of 168 segments.

As noted previously, the dimensions of the CLASS differ somewhat by grade, and there are separate protocols for lower elementary (K–3), upper elementary (4–5), and secondary (6–12).

For the domains of Emotional Support and Classroom Organization, the three protocols share the same dimensions (with minor variation in the name of one dimension). We did not distinguish among the protocols for our analyses of these dimensions. For the domain of Instructional Support, there is only one dimension (Quality of Feedback) that is common across all three protocols. For the analysis of the remaining Instructional Support dimensions, we used only data collected with the upper elementary and secondary protocols (and made no further distinction between these two protocols). We did not analyze the dimensions that appear only in the K–3 protocol (Concept Development and Language Modeling) because our sample size was not large enough. Table B-3 summarizes the number of classrooms and segments by protocol type.

Table B-3. Number of Classrooms and Observation Segments by Protocol Type

Protocol Type	Number of Classrooms	Number of Segments
K–3	21	41
Upper Elementary	18	35
Secondary	46	91
Total	85	167

School Stakeholder Interviews and Focus Groups

We conducted all school stakeholder interviews and focus groups at their respective school sites using semistructured protocols developed for the evaluation, building on the protocols for the Year 1 evaluation. Protocols differed by participant group, but all addressed topics related to expectations for technology use, how teachers use technology in classrooms, parent and family engagement, and barriers and promising practices. School staff were also asked about infrastructure, technical support, and professional development. Parent protocols were translated into Spanish, and parent focus groups were conducted in Spanish by a bilingual researcher in five schools with high proportions of Spanish-speaking families.[60]

All interviews and focus groups were recorded with participant permission and transcribed. The study team then coded and analyzed the interviews using an analysis program to identify crosscutting themes and key details of technology implementation. The coding scheme aligned with the evaluation questions, protocols, and report outline. To ensure intercoder reliability, each coder blind double-coded two of the transcripts during an initial round of coding. We used the coding software to identify coding discrepancies, and the coders met to resolve any substantive differences in coding.

Technology Use Data Sources

Whereas the case study methodology described here provided an in-depth examination of individual schools, the evaluation also sought to provide a broader view of the extent and ways in which ITI schools used technology in the classroom (EQ 2). To address this topic, we collected data on technology use in ITI and non-ITI schools, drawing upon the classroom

[60] The researcher was prepared to conduct the focus group in Spanish or English at each of these sites; the focus group language depended on parent preferences.

observation data collected as part of the case studies and analyzing it in the aggregate (i.e., across all 11 schools). We also examined extant records of device and app usage in Phase 1 and 2a ITI schools. To extend the technology use findings from the Year 1 evaluation, we obtained data from a student survey administered to students in all LAUSD schools in spring 2014 (data released in December 2014). Inasmuch as this data included ITI and non-ITI schools, we were able to observe differences in student responses on technology use–related items between schools participating and not participating in ITI. Although the observation data was described previously, the remainder of this section describes the methods for collecting and analyzing the survey and extant data related to technology use. The section concludes with a description of procedures for school matching when creating a comparison group.

School Experience Survey

The evaluation team obtained student-level data from the School Experience Survey (SES) administered by LAUSD to all students in the district in Grades 3–12 in May 2014. The survey asked students to report their perceptions of a broad range of topics about their school during the 2013–14 school year, including the availability and use of technology. The evaluation team adapted these technology-related items for inclusion in the spring 2014 survey from previously published surveys. Other items on the survey were developed by the district.

The following items addressed subject-specific technology use:

- How often do you use computers or tablets or other electronic devices in *mathematics*?
- How often do you use computers or tablets or other electronic devices in *English/language arts*?
- How often do you use computers or tablets or other electronic devices in *science*?
- How often do you use computers or tablets or other electronic devices in *social science/history*?

These items included five response options: never, less than 1–2 times a month, 1–2 times a week, and daily or almost daily. The evaluation team adapted these items from the student technology survey included in the evaluation of the Maine Learning Technology Initiative (Lane, 2003). One additional item adapted from this instrument asked, "Does your school provide you with your own laptop computer or iPad/tablet?" with response options of *No, iPad or laptop, laptop computer*.

The SES also included three items that asked about technology use for different purposes. These items were as follows:

- How often do you use technology in school to make something new and creative for either a class or another school-based program?
- How often do you use the Internet to find information for school assignments?
- How often do you use computer programs to complete school assignments or projects?

These items had the same frequency response scale as the subject-specific items. The evaluation team adapted these items from the *My Voice, My School* student survey administered in 2011 in the Chicago Public Schools (see Ehrlich, Sporte, & Sebring, 2013).

The SES included other items not developed by the evaluation team that we used to examine potential links between student perceptions of technology use and other aspects of their learning experiences. Specifically, we used two item sets to examine in relation to technology use: (1) student perceptions of "instructional relevance" and (2) student motivation.

Instructional Relevance Items. The survey asked students two or three subject-specific questions for the subject areas of English language arts, mathematics, science, and social studies. These items typically related to instructional practices that enhance the relevance of the subject to the student, such as student discussion or connections to the real world. These items were as follows:

- In English language arts . . .
  - We do a lot of writing
  - We work together to edit our writing to make it better
  - We connect what we read to real-life people and situations
- In mathematics . . .
  - We write sentences to explain how we solve math problems
  - We discuss possible solutions to math problems with other students
  - My teacher shows us how math is used in everyday life
- In science . . .
  - We make hypotheses and test them
  - My teacher shows us how science can help understand the world around us
- In Social Studies . . .
  - My teacher asks us to think critically about why certain events took place
  - My teacher connects what we are learning with things that are happening in the world now

Each item had five response options: disagree a lot, disagree a little, neither agree nor disagree, agree a little, and agree a lot. We constructed scales for each subject-specific group of items. To construct the scales, we used a partial-credit Item Response Theory (IRT) model, with the discrimination parameter fixed across items in the same scale. We converted each student's estimated latent score to the student's expected response on an average item for that scale, which ranges from 1 (disagree a lot) to 5 (agree a lot). The scale reliability coefficient (alpha) ranged from 0.70 to 0.80 for these four scales.

Motivation Items. The SES included seven items about student academic motivation. These items were as follows:

- I study hard for tests and quizzes.

- I come to class with my homework completed.
- I pay attention in class.
- I get to work right away, instead of waiting until the last minute.
- I finish whatever I start.
- Even if I don't do well at first, I keep trying.
- Even when I have difficulties or stress outside of school, I continue to work hard in school.

These items used the same response scale as the student-centered instruction items. Using the IRT method described previously, we created a scale score composed of these items to represent the construct of student motivation. The scale reliability coefficient (alpha) was 0.86.

Pearson Common Core System of Courses (CCSoC) Time on Task Data

Technical staff from Pearson Education provided a data file describing usage of the Pearson CCSoC app by LAUSD students from August 2014 through April 2015. The Pearson Time on Task file describes usage by students and teachers of the Pearson application installed on devices. The Pearson curriculum has a hierarchical structure in which lessons are nested within units that are nested within courses. A total of 675 unique lessons are embedded within 23 unique courses in the Pearson curriculum. These courses are defined by grade level and subject (the kindergarten and Grade 1 courses are not subject specific, and there are ELA courses for Grades 2 through 12 and math courses for Grades 2 through 11).

The data reports usage time within each hierarchical level, including lesson, unit, and course, where course reflects both curriculum area (ELA or math) and grade level. At the most granular level, the data indicate the number of students who viewed a given lesson at a given school (lessons are specific to a particular unit, and units are specific to a given course). Our analyses involved data aggregated to the course level (i.e., curriculums within schools). We selected this level of granularity to depict the extent of use of courses across schools. Information about the extent of use of each course includes the count of unique actors/users accessing the course and the average time each of these users spent interacting with the course, as well as other summary statistics on the duration of use (e.g., maximum, minimum, and standard deviation).

The primary goal of this analysis is to assess the extent of use of the Pearson application—namely, the number of schools that used particular courses. For the purpose of this analysis, we considered a school as having used a course if at least 10 students used the course for an average of at least half of a class period (24 minutes)—otherwise not. These criteria represent a low bar for inclusion; they represent usage within a single class period, rather than usage throughout the school year as one might expect from full implementation of these courses.[61]

[61] We conducted a sensitivity analysis to determine how the results would change using different criteria for a minimum number of students and a minimum average usage time. We found that there was a large drop-off in the number of schools considered to have used a CCSoC course when the minimum average time was increased from 24 minutes (roughly half a class period) to 45 minutes (roughly one class period). That is, if "course use" is defined as requiring that at least 10 students in a school spent, on average, at least 45 minutes in a CCSoC course, the number of schools considered to have used a course was far lower than our set criterion of 24 minutes. We also found that

MDM Activity Records

The MDM activity records summarize the number of devices that were active (online) within three time periods from any given date of a data pull: (1) active the day of the data pull; (2) not active that day but active in the past seven days; or (3) not active in the past seven days but active in the past 30 days). They also indicate the total number of devices per school. We began receiving this data each week starting in October 2014 by request but later transitioned to a method by which we were included in weekly MDM usage reports sent via e-mail. Our analysis for this report includes usage reports from October 2014 through April of 2015.

We included data only from those weeks following the deployment date for each school. We used the deployment dates file (described previously) to identify which weeks to exclude for each school. We conducted analyses of the MDM usage data among the 54 schools (43 Phase 1 and 11 Phase 1A) that had these data as well as a distribution date prior to April of 2015.

Our primary measure from the MDM usage files was the overall activity level in each school. We calculated the overall activity level as the average percent active across each weekly time period. Taking the weekly average in this way flattens out any spurious fluctuations in the data.

School Matching

To examine whether students' perceptions of technology use during the 2013–14 school year were different in ITI schools and non-ITI schools, we matched Phase 1 ITI schools with non-ITI schools with similar characteristics.[62] To be included in the matching procedure, each Phase 1 school needed to have a sufficient number of SES respondents (defined as having at least 50 student respondents and a response rate of at least 40 percent per survey question out of the total number of respondents). This reduced the total number of Phase 1 schools from 46 to 33. To match the 33 ITI schools with non-ITI schools, we used one-to-one nearest neighbor propensity score matching, where the propensity score was estimated with a logistic regression model that included the following types of school characteristics based on data from three baseline years (2010–11 through 2012–13): Academic Performance Index score (three-year average and change over three-year baseline period), total enrollment, student body composition (e.g., percentage by ethnicity/race, English learner, free/reduced-price meals, students with disabilities, gifted/talented participation, and parent education), average class size, average school-level SES ratings on different topics (e.g., school safety, school involvement), student and staff attendance rates, student suspension rate, educational service center, and presence of school programs (e.g., pilot, public school choice, and school improvement grant). Schools were only matched to other schools in the same grade level (i.e., elementary, middle, high, or span). Results from the school matching process are reported in Table B-4.

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there was a minor drop in the number of schools when increasing the criterion from 10 to 20 students in a school, and a larger drop when increasing the criterion to 30 students in a school who had used a CCSoC course for an average of at least 24 minutes.

[62] The original purpose for the matching of ITI schools to non-ITI comparison schools was to conduct analyses that would estimate the impact of the initiative on student outcomes (achievement scores and measures of noncognitive factors such as motivation and engagement) after several years of ITI implementation. These analyses are no longer planned, but we made use of the matched comparison group to examine student perceptions of technology use in Phase 1 ITI schools versus non-ITI schools.

Table B-4. School Characteristics Used for Matching: School Means by ITI (Treatment) and Non-ITI (Comparison) School

School Characteristic	Full Sample (Before Matching)			Matched Sample		
	C mean	T mean	SMD	C mean	T mean	SMD
Number of schools	605	33		33	33	
Academic performance index 2013	776.73	722.00	0.66	721.73	722.00	0.00
API change from 2011	10.43	27.93	0.66	29.06	27.93	0.04
Number of years with data	2.89	2.73	0.36	2.73	2.73	0.00
Total enrollment	833.00	632.77	0.39	745.44	632.77	0.22
Pct. female	48.65	49.34	0.18	50.27	49.34	0.25
Pct. African American	7.40	33.50	1.07	21.98	33.50	0.47
Pct. Asian/Pacific Islander	7.16	3.08	0.67	4.21	3.08	0.18
Pct. Hispanic	74.06	58.45	0.58	70.07	58.45	0.43
Pct. white	10.70	4.27	0.48	3.12	4.27	0.09
Pct. other race	0.68	0.69	0.03	0.62	0.69	0.13
Pct. English learner	28.21	18.49	0.66	23.09	18.49	0.31
Pct. RFEP	25.16	24.02	0.07	28.28	24.02	0.26
Pct. students with disability	11.84	11.60	0.06	10.75	11.60	0.21
Pct. GATE	11.74	10.54	0.14	10.89	10.54	0.04
Pct. NSLP	81.16	79.18	0.10	85.11	79.18	0.29
Parent education index	2.30	2.31	0.00	2.10	2.31	0.30
Pct. students with stable enrollment	94.75	93.17	0.54	93.40	93.17	0.08
Average class size	23.28	21.11	0.51	22.84	21.11	0.41
Opportunities for learning scale	0.10	-0.57	0.67	-0.47	-0.57	0.10
School cleanliness scale	-0.05	-0.55	2.33	-0.29	-0.55	1.22
School involvement scale	0.14	-0.59	0.83	-0.57	-0.59	0.02
School safety scale	-0.08	-0.45	0.37	-0.48	-0.45	0.03
School support scale	0.02	-0.67	0.83	-0.52	-0.67	0.18
Pct. students with high attendance	66.54	59.51	0.93	60.84	59.51	0.18
Pct. students suspended	1.70	3.69	0.64	3.75	3.69	0.02
Pct. staff with high attendance	69.44	65.81	0.40	67.10	65.81	0.14
ESC North	0.29	0.03	0.76	0.03	0.03	0.00
ESC East	0.21	0.03	0.62	0.06	0.03	0.10
ESC South	0.20	0.24	0.09	0.27	0.24	0.07
ESC West	0.15	0.27	0.31	0.18	0.27	0.22
ESC ISIS	0.14	0.42	0.68	0.45	0.42	0.07
ESC IC	0.01	0.00	0.15	0.00	0.00	0.00
Pilot school	0.05	0.21	0.48	0.18	0.21	0.09

School Characteristic	Full Sample (Before Matching)			Matched Sample		
	C mean	T mean	SMD	C mean	T mean	SMD
Public school choice school	0.14	0.48	0.81	0.52	0.48	0.07
Partnership school	0.03	0.09	0.27	0.15	0.09	0.27
Restructured/turnaround school	0.01	0.03	0.15	0.00	0.03	0.22
SIG school	0.04	0.09	0.22	0.15	0.09	0.25
Mean Absolute SMD			**0.51**			**0.19**
Max SMD			2.33			1.22

Note. SMD = standardized mean difference. Highlighted cells identify SMDs above 0.25, which is an indication of large group differences.

Appendix C. Technology Implementation Rubric

Domain	Variable	Criteria	Data	Bridging = 2	Intermediate = 1	Emerging = 0
Support	Leadership support	School leaders guide and support efforts to integrate technology by identifying needs, coordinating professional development, and providing resources and encouragement to staff.	School admin & tech lead interviews Teacher focus groups Extant data (change management course attendance records)	▪ A designated group of staff is planning and supporting technology. ▪ The school has completed technology readiness course and has a tech plan. ▪ A school leader coordinates and directs the work of the VLC. ▪ School leaders encourage attendance at PD (verbally or with released time). ▪ Teachers know that principal expects them to use tech.	▪ There is a designated group of staff with responsibilities for technology, but they have limited involvement so far. ▪ The school is working on a tech plan, but it is not yet complete. ▪ Coordination with VLC is limited and ad hoc. ▪ Teachers have mixed opinions about level of encouragement or support for PD attendance.	▪ There is no designated group of staff with responsibilities for technology. ▪ School is not working on a tech plan. ▪ No coordination with VLC; just direct requests from teachers. ▪ Teachers have little support or encouragement from leaders to attend PD. ▪ No expectations from principal for teachers to use technology.
	Technical support	Each school has access to district technology support staff (e.g., MCSAs). ITD support is available to all staff. School staff provide technology support to each other. There is a school instructional device manager (IDM) who uses Destiny to monitor student and teacher usage and manage apps.	School admin & tech lead interviews Teacher focus groups Readiness checklists	▪ The school has a designated MCSA. ▪ Most school staff know how to access district technical support. ▪ There is a designated person (or people) who provides technical support within the school. ▪ There is a designated person who uses Destiny to manage apps.	▪ Some school staff know how to access district technical support. ▪ There is someone in the school who provides technical support, but their formal support responsibilities are unclear. ▪ Technical support is not systematic. ▪ There is no one in the school who manages apps.	▪ Most school staff do not know how to access district technical support. ▪ There is no one in the school designated to provide technical support. ▪ Technical support is not systematic. ▪ There is no one in the school who manages apps. ▪ The school does not use Destiny to manage apps.

Domain	Variable	Criteria	Data	Bridging = 2	Intermediate = 1	Emerging = 0
	Classroom technology integration support	Teachers participate in district-offered or other PD on how to integrate technology into instruction. Each school has access to district instructional support staff (e.g., VLCs). School staff provide technology integration support to each other.	School admin & tech lead interviews Teacher focus groups	▪ School staff are aware of the VLC and his or her role. ▪ Most teachers participate in district-offered PD on tech integration. ▪ Most teachers report collaborating with other teachers to support tech integration.	▪ Some school staff are aware of the VLC and his or her role. ▪ Some teachers participate in district-offered PD on tech integration. ▪ Some teachers report collaborating with other teachers to support tech integration.	▪ Few school staff are aware of the VLC and his or her role. ▪ Few teachers participate in district-offered PD on tech integration. ▪ Few teachers report collaborating with other teachers to support tech integration.
School Culture	Shared school vision	The school communicates its vision and expectations for use of technology and teaching practice.	School admin & tech lead interviews Teacher focus groups Student focus groups	▪ School leadership express a clear, actionable vision for tech implementation. ▪ Most staff are aware of this vision.	▪ School leadership express a vision for tech implementation, but it is vague. ▪ Some staff are aware of this vision.	▪ School leadership do not express a vision for tech implementation. ▪ Few staff are aware of this vision.
	Digital citizenship	Students have engaged in digital citizenship lessons and adhere to its tenants.	School admin & tech lead interviews Teacher focus groups Student focus groups	▪ Students have received digital citizenship training and express awareness of its tenants. ▪ Most teachers express that students are good digital citizens.	▪ Students have received digital citizenship training but do not recall what it is. ▪ Teachers express some concerns about students' digital citizenship.	▪ Students either have not received digital citizenship training or have received it and do not recall what it is. ▪ Teachers express concerns about students' digital citizenship.

Domain	Variable	Criteria	Data	Bridging = 2	Intermediate = 1	Emerging = 0
	Parent engagement	School staff facilitate parent meetings and education groups about technology. Parents understand the school's visions for and uses of technology. Parents' concerns about technology are addressed.	School admin & tech lead interviews Teacher focus groups Parent focus groups	▪ The school offers meetings and education groups for parents. ▪ Parents engage in leadership around technology. ▪ Parents are aware of and agree with the school's vision for technology implementation. ▪ There are frequent avenues for dialogue with the school about parents' concerns.	▪ The school offers meetings and education groups for parents. ▪ Parents' visions for technology are roughly the same as the school's vision, though it may not have been communicated to them. ▪ There are sporadic avenues for dialogue with the school about parents' concerns.	▪ The school does not offer meetings and education groups for parents. ▪ Communication to parents about technology is limited. ▪ Parents have concerns about technology but feel there are no avenues for dialogue with the school about their concerns.
Instruction	Transformative use of technology	Technology facilitates innovative instructional methods, including project-based learning, personalized learning, differentiated instruction, and adaptive assessment.	Teacher focus groups Student focus groups Classroom tech observations	▪ Students' most frequent use of technology is to engage in project-based learning and personalized learning tasks across content areas. ▪ Most teachers use technology to provide adaptive assessment and lessons. ▪ Most teachers post information and assignments to a class website or shared network folder.	▪ Students engage in some project-based learning and personalized learning tasks, but it is limited in structure or content area. ▪ Some teachers use technology to provide adaptive assessment and lessons. ▪ Some teachers post information and assignments to a class website or shared network folder.	▪ The primary classroom uses for technology are those that could be achieved without technology (e.g., note-taking). ▪ Students engage in limited project-based learning. ▪ Technology is seldom used to adapt lessons or personalize learning. ▪ Teachers rarely or never use a class website or shared network folder to share information or post assignments.

Domain	Variable	Criteria	Data	Bridging = 2	Intermediate = 1	Emerging = 0
	Extent of integration into instruction	Most teachers and students use technology most days for instruction.	Teacher focus groups Student focus groups Classroom tech observations	▪ All students regularly use technology to engage in schoolwork. ▪ All or most teachers regularly use technology to provide instruction or communicate with students.	▪ Some students use technology regularly to engage in schoolwork, or all students use technology sometimes. ▪ Some teachers use technology to provide instruction or communicate with students, or all teachers use technology sometimes.	▪ Students use technology sporadically to engage in schoolwork. ▪ Few teachers use technology to provide instruction or communicate with students, or most teachers use it, but only sporadically.
	Collaboration	School staff participate in collaborative groups or professional learning communities (PLCs) focused on technology integration and lesson planning using digital resources.	School admin & tech lead interviews Teacher focus groups	▪ Collaborative groups or PLCs focused on tech integration and lesson planning using digital resources meet frequently in all grade levels/subjects. ▪ Teachers meet regularly to discuss student data.	▪ There are collaborative groups or PLCs focused on tech integration and lesson planning using digital resources, but they meet infrequently or do not exist for some grades/subjects. ▪ Teachers meet occasionally to discuss student data.	▪ There are no collaborative groups or PLCs focused on technology integration and lesson planning using digital resources. ▪ Teachers rarely meet to discuss student data.
Infrastructure	Instructional resources	All teachers and students have access to digital instructional resources.	Teacher focus groups	▪ Most core content teachers have access to digital instructional resources. ▪ Students regularly use digital instructional resources.	▪ Some core content teachers have access to digital instructional resources. ▪ Students sometimes use digital instructional resources.	▪ Most core content teachers do not have access to digital instructional resources or do not use them. ▪ Students rarely use digital instructional resources.

Domain	Variable	Criteria	Data	Bridging = 2	Intermediate = 1	Emerging = 0
	Bandwidth and connectivity	Wireless bandwidth is sufficient for reliable Internet access. Classrooms have received the necessary infrastructure enhancements needed to support a one-to-one computing environment.	School admin & tech lead interviews Teacher focus groups	▪ The school has sufficient bandwidth to meet Internet traffic demands even during peak usage. ▪ Students and teachers can access the Internet with minimal interruption in most places in the school.	▪ The school has sufficient bandwidth to meet most Internet traffic demands, but there is some slowing during peak usage. ▪ Students and teachers can access the Internet with minimal interruption in all classrooms, but not everywhere in the school.	▪ Bandwidth is insufficient to meet the school's Internet traffic demands, especially during peak usage. ▪ Students and teachers experience connectivity issues in some classrooms and in other places in the school.
	Device access	All students and teachers have access to a device. Devices are distributed to students daily. Students are able to take devices home and use them successfully.		▪ All students and teachers have access to a device. ▪ Most students receive a device daily throughout the school year. ▪ Most students take their devices home and are able to use them for schoolwork without technical or infrastructure issues.	▪ All students and teachers have access to a device. ▪ Most students receive a device at least three days/week, though sometimes less depending on the time of year. ▪ Most students take their devices home, but some experience issues completing schoolwork due to technical or infrastructure issues.	▪ Some students or teachers do not have access to a device. ▪ Students receive a device less than three days/week, and sometimes less depending on the time of year. ▪ Students are not able to take their devices home, or they frequently experience issues completing schoolwork due to technical or infrastructure issues.

Appendix D. Sample School Deployment Plan

[redacted] Elementary Distribution – CCTP Staff Schedule
Wednesday, August 27, 2014

Schedule

Time	VLCF Tasks
7:30	Assemble in Library, assist in setup as needed
7:45	Briefing on day's events
8:15	Centralized distribution grades 4-5 (scan + enrollment) In-class distribution grades K-3 (Personalization)
12:30-1:00	Lunch for VLCs
2:15	Debrief

GRADES 4-5 (library)

- [redacted] will assist teachers in Library the entire day

TENTATIVE LIBRARY SCHEDULE

Estimated Time	Room #	Teacher Name	Grade
8:15 - 9:15	24	Mrs. [redacted] (Mr. [redacted])	5
8:15 - 9:15	25	Mrs. [redacted]	5
9:15 - 9:40	26	Ms. [redacted]	5
9:15 - 9:40	27	Mr. [redacted]	4
10:30 - 11:30	28	Mr. [redacted]	5
10:30 - 11:30	34	Mrs. [redacted]	5
11:00 - 11:45	33	Mrs. [redacted]	4
12:00 - 1:00	LUNCH		
1:00 - 2:00	22	Mrs. [redacted]	4
1:00 - 2:00	23	Mrs. [redacted]	4

GRADES K-3

- Whole team goes with scanner
- The VLC assigned will assist with personalization, (wallpaper only, passcode will be 00 and room number)
- Help students record username on back of wallpaper form
- Report back to library when finished

Grades K-3 Schedule

8:15 to 9:00	Mrs. [redacted] Rm. 14 Gr. K [redacted] (VLC)	[redacted] Rm. 20 Gr. K [redacted] (VLC)	[redacted] Rm. 18 Gr. TK [redacted] (VLC)	Mrs. [redacted] Rm. 17 Gr. K [redacted] (VLC)	Mrs. [redacted] Rm. 12 Gr. K [redacted] (VLC)	Ms. [redacted] Rm. 19 Gr. K [redacted] (VLC)
9:00 to 9:40	Mrs. [redacted] Rm. 1 Gr. 1 [redacted] (VLC)	Mrs. [redacted] Rm. 2 Gr. 1 [redacted] (VLC)	Ms. [redacted] Rm. 6 Gr. 1 [redacted] (VLC)	Mrs. [redacted] Rm. 9 Gr. 1 [redacted] (VLC)	Mr. [redacted] Rm. 5 Gr. 1 [redacted] (VLC)	Mrs. [redacted] Rm. 8 Gr. 1 [redacted] (VLC)
RECESS	9:40-10:00 & 10:05-10:25					
10:30 to 11:30	Mr. [redacted] Rm. 10 Gr. 2 [redacted] (VLC)	Mrs. [redacted] Rm. 11 Gr. 2/3 [redacted] (VLC)	Mrs. [redacted] Mr. [redacted] Rm. 35 Gr. 41 [redacted] (VLC)	Mrs. [redacted] Rm. 15 Gr. 2 [redacted] (VLC)	Mrs. [redacted] Rm. 16 Gr. 2 [redacted] (VLC)	Mr. [redacted] Rm. 36 Gr. 2 [redacted] (VLC)
1:00 to 2:00	Mr. [redacted] Rm. 31 Gr. 3 [redacted] (VLC)	Mr. [redacted] Rm. 32 Gr. 3 [redacted] (VLC)	Mrs. [redacted] (Ms. [redacted]) Rm. 37 Gr. 3 [redacted] (VLC)	Mrs. [redacted] Rm. 42 Gr. 3 [redacted] (VLC)	Ms. [redacted] Rm. 41 Gr. [redacted] (VLC)	Ms. [redacted] Rm. 3 Sped. [redacted] (VLC)

Appendix E. ITI Parent Engagement Plan 2014–15

ITI Parent Engagement Plan
2014–15

LAUSD feels strongly that parents should be an integral part of the movement to integrate technology into education and believes that when schools, parents, and students all work together, redefining education is within our grasp. While administrators, teachers, and students are learning every day how to use these digital tools, many parents are not clear about how to help their children with technology that was a fantasy when they themselves were in school. The district is committed to engaging parents in this cutting-edge technology by creating opportunities for parents to learn and apply their knowledge to help their child and their school community. Following are the strategies developed by ITI to engage parents in our project, their school community, and their children's education.

Strategy One: Describe the components and goals of the Common Core State Standards and the Instructional Technology Initiative.

Strategy Two: Model effective communication strategies for school staff, ESC administrators, and district officials. Explain how to navigate the district's website.

Strategy Three: Provide baseline digital literacy skill; teach strategies that keep children safe online; demonstrate common technology problems/solutions.

Strategy Four: Tutor parents on various computing device apps/resources.

The chart that follows is a *general order* in which presentations can be given. Clearly, a school may choose to move sessions around as they see fit. We are emphasizing that the sessions be done consistently in order to maintain a level of parent engagement on an ongoing basis. Many of the sessions, teachers, coordinators, principals, or parent representatives can teach particularly the digital citizenship lessons. VLC facilitators, technology coordinators, or others who are very familiar with the Apple iOS will be able to present digital literacy.

Component	Purpose	Format	Audience	Strategy
1. "Our School"	Explains the Instructional Technology Initiative	PPT - Informational	Large parent group	1
2. "Digital Life"	Introduction to digital citizenship	PPT - Informational	Large parent group	3
3. "iOS Basics"	Device walkthrough for iPads	PPT - Interactive	Small parent group	3
4. "E-mail for Parents"	Parent e-mail setup	PPT - Interactive	Small parent group	3
5. "Internet Safety"	Parent tips to keep children safe online	PPT - Interactive	Small parent group	3
6. "Self-Expression"	Parents will help students stay true to themselves while online	PPT - Interactive	Small parent group in a classroom	3
7. "Privacy & Digital Footprints"	Parents will help their children make responsible choices while online	PPT - Interactive	Small parent group	3
8. "iOS Creativity"	Parents will learn how to help their children with creative projects using Garage Band, Keynote & iMovie	PPT - Interactive	Small parent group in a classroom	4
9. "Respecting Creative Work"	Parents will understand do's and don'ts of using the Internet for classwork	PPT - Interactive	Small parent group	3
10. "Cyberbullying"	Parent tips on identifying, preventing, and handling cyberbullying	PPT - Interactive	Small parent group	3
Internet Essentials by Comcast	Internet resources for parents (tutorials, jobs, finances, health care, etc.)	Website	Individual parents or small group	3
Commonsense Media	Online help for parents with various topics, including ratings for movies, games, apps, and TV shows	Website	Individual parents	3
Parent Community Services Branch	Additional resources from LAUSD for parents to assist their children	LAUSD website	Individual parents	3

Appendix F. VLCF Time by Domain and Activity Category

Table F-1. Proportion of VLCF Time Spent on Different Activities and Domains

General Activity	Deployment		Instruction		Operations & Technical		Total	
	No. Records	Duration (Hours)	No. Records	Duration (Hours)	No. Records	Duration (Hours)	No. Records	Duration (Hours)
Attend Planning/PD/ Training	.	.	97	2.6%	47	1.3%	144	3.9%
Create Resources	12	0.3%	481	11.9%	118	3.4%	611	15.6%
Deliver Professional Development	.	.	292	6.6%	.	.	292	6.6%
Deployment (Initial Support/Training-)	923	26.0%	.	.	.	.	923	26.0%
Instructional Support	.	.	459	10.7%	.	.	459	10.7%
Leadership Support	26	0.6%	529	10.7%	365	9.4%	920	20.8%
Parent Support	.	.	68	1.0%	.	.	68	1.0%
Technology Support	.	.	.	.	557	15.5%	557	15.5%
Total	**961**	**4,912**	**1,926**	**7,921**	**1,087**	**5,392**	**3,974**	**18,225**

Note: All percentages are predicated on the total number of hours spent by VLCFs (18,225).
Source: VLCF Activity Logs.

Appendix G. Student Experience Survey Tables

Table G-1. Student-Reported Technology Use for Specific Subjects

	All Students			Elementary Students			Middle Grade Students			High School Students		
	ITI	Comp.	All	ITI	Comp.	All	ITI	Comp.	All	ITI	Comp.	All
Number of Schools	33	33	638	15	15	461	7	7	98	12	12	103
Number of Students*	13,513	14,020	267,410	3,488	3,468	110,220	5,004	4,165	74,271	5,022	6,387	82,919
Math												
Never	20%	31%	25%	6%	16%	18%	26%	36%	39%	34%	47%	47%
Less than 1–2 times a month	8%	10%	9%	6%	6%	7%	10%	16%	16%	11%	14%	12%
1–2 times a month	10%	10%	8%	9%	8%	7%	10%	11%	11%	12%	11%	10%
1–2 times a week	22%	17%	21%	22%	20%	24%	23%	15%	15%	22%	13%	14%
Daily or almost daily	40%	33%	36%	58%	50%	44%	31%	21%	20%	22%	15%	16%
At least once per week	*62%*	*49%*	*58%*	*80%*	*70%*	*68%*	*54%*	*36%*	*34%*	*44%*	*28%*	*30%*
Language Arts												
Never	12%	19%	19%	5%	13%	15%	19%	26%	30%	17%	25%	29%
Less than 1–2 times a month	8%	15%	11%	5%	8%	8%	9%	20%	19%	11%	22%	18%
1–2 times a month	11%	14%	11%	8%	7%	8%	10%	17%	14%	15%	21%	17%
1–2 times a week	25%	21%	24%	24%	24%	27%	24%	16%	16%	27%	19%	19%
Daily or almost daily	44%	31%	35%	59%	49%	41%	38%	21%	21%	30%	14%	17%
At least once per week	*69%*	*52%*	*59%*	*82%*	*72%*	*68%*	*62%*	*37%*	*37%*	*56%*	*33%*	*36%*
Science												
Never	20%	31%	35%	16%	28%	33%	21%	38%	39%	23%	32%	38%
Less than 1–2 times a month	10%	15%	11%	11%	9%	10%	11%	16%	15%	9%	22%	15%
1–2 times a month	15%	16%	13%	14%	12%	12%	14%	15%	14%	16%	21%	17%
1–2 times a week	27%	20%	22%	28%	25%	25%	25%	15%	15%	28%	15%	16%
Daily or almost daily	28%	19%	20%	31%	27%	21%	29%	16%	17%	23%	10%	14%
At least once per week	*55%*	*39%*	*42%*	*59%*	*51%*	*46%*	*55%*	*32%*	*32%*	*51%*	*25%*	*30%*
Social Science/History												
Never	24%	33%	34%	16%	27%	31%	29%	41%	44%	31%	39%	42%
Less than 1–2 times a month	10%	14%	11%	11%	11%	10%	9%	16%	14%	10%	18%	14%
1–2 times a month	13%	15%	13%	13%	12%	12%	12%	14%	13%	13%	18%	15%
1–2 times a week	24%	19%	21%	27%	24%	24%	22%	13%	13%	23%	15%	16%
Daily or almost daily	29%	19%	21%	33%	26%	23%	29%	16%	16%	23%	11%	14%
At least once per week	*53%*	*38%*	*42%*	*60%*	*50%*	*47%*	*51%*	*29%*	*29%*	*46%*	*26%*	*29%*

Note: The "at least once per week" percentages are the sum of the "daily or almost daily" and the "1–2 times a week" percentages.
* Average number of students who responded to the survey items.

Table G-2. Student-Reported Technology Use for Specific Activities

	All Students			Elementary Students			Middle Grade Students			High School Students		
	ITI	Comp.	All	ITI	Comp.	All	ITI	Comp.	All	ITI	Comp.	All
Number of Schools	33	33	638	15	15	461	7	7	98	12	12	103
Number of Students*	13,514	13,873	264,089	3,524	3,487	110,248	4,933	3,973	71,589	5,057	6,413	82,252
Use technology to make something new and creative												
Never	23%	38%	42%	21%	42%	45%	29%	40%	40%	21%	30%	31%
Less than 1–2 times a month	9%	12%	10%	8%	8%	9%	9%	14%	13%	9%	15%	14%
1–2 times a month	13%	14%	11%	11%	10%	10%	13%	14%	13%	16%	18%	16%
1–2 times a week	21%	17%	18%	19%	17%	18%	20%	16%	16%	25%	18%	19%
Daily or almost daily	34%	20%	19%	41%	22%	19%	29%	16%	17%	28%	18%	21%
At least once per week	*55%*	*37%*	*37%*	*60%*	*40%*	*37%*	*49%*	*32%*	*33%*	*54%*	*37%*	*40%*
Use the Internet to find information												
Never	9%	16%	18%	8%	21%	20%	11%	16%	17%	8%	10%	11%
Less than 1–2 times a month	6%	10%	10%	5%	9%	9%	7%	14%	13%	5%	8%	8%
1–2 times a month	11%	14%	14%	11%	12%	13%	12%	17%	16%	12%	16%	14%
1–2 times a week	27%	26%	25%	26%	24%	25%	27%	25%	25%	29%	28%	28%
Daily or almost daily	47%	34%	33%	51%	34%	33%	42%	28%	30%	46%	38%	39%
At least once per week	*74%*	*60%*	*58%*	*76%*	*58%*	*57%*	*69%*	*52%*	*54%*	*75%*	*66%*	*67%*
Use computer programs to complete school assignments												
Never	14%	22%	26%	16%	30%	30%	17%	23%	23%	11%	12%	14%
Less than 1–2 times a month	7%	10%	10%	6%	8%	10%	9%	14%	14%	7%	10%	11%
1–2 times a month	15%	17%	15%	13%	12%	13%	15%	20%	19%	17%	21%	20%
1–2 times a week	23%	22%	21%	20%	20%	21%	21%	21%	20%	28%	26%	25%
Daily or almost daily	41%	28%	27%	45%	29%	27%	38%	22%	25%	38%	30%	31%
At least once per week	*64%*	*50%*	*48%*	*65%*	*49%*	*48%*	*59%*	*43%*	*45%*	*65%*	*56%*	*56%*
School provided student with laptop/iPad/tablet												
No	22%	81%	79%	18%	74%	79%	14%	80%	77%	31%	90%	84%
Yes	78%	19%	21%	82%	26%	21%	86%	20%	23%	69%	10%	16%

Note: The "at least one per week" percentages are the sum of the "daily or almost daily" and the "1–2 times a week" percentages.
* Average number of students who responded to the survey items.

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