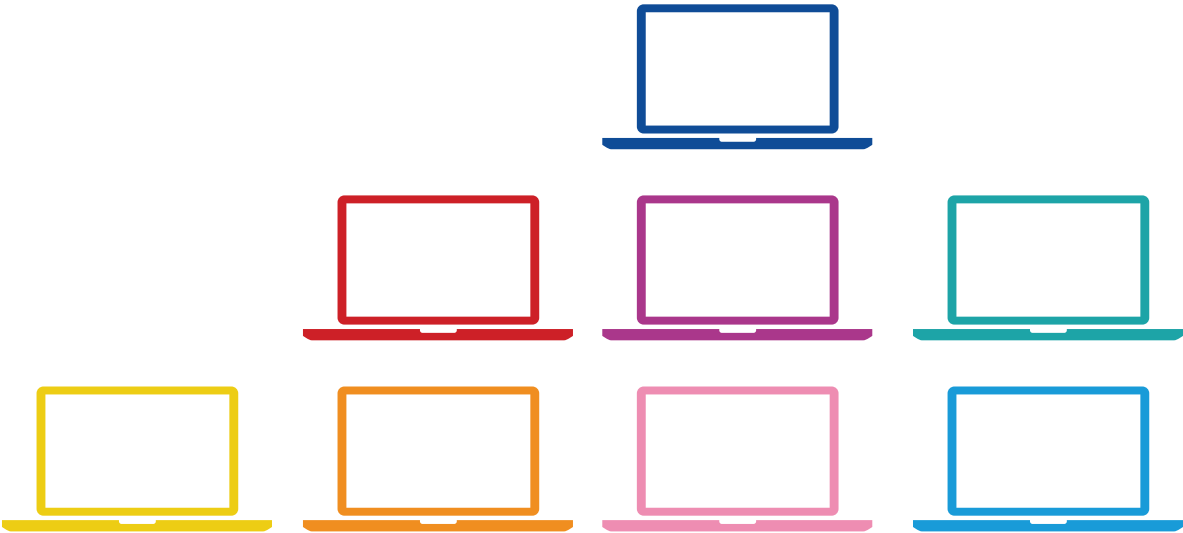


Implementing Online Learning Labs in Schools and Districts:

Lessons From Miami-Dade's First Year



November 2011



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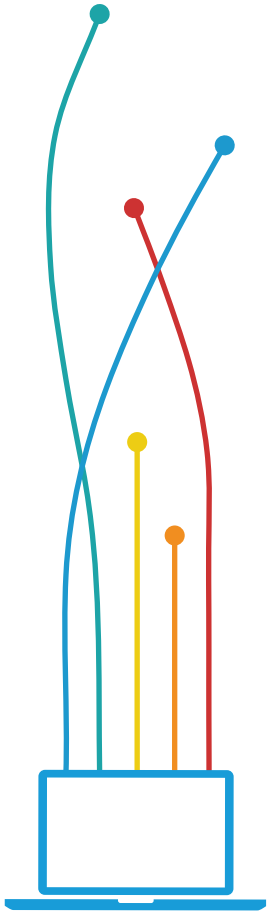
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SRI International
333 Ravenswood Avenue
Menlo Park, CA 94025
Phone: 650.859.2000

www.sri.com



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By

Marianne Bakia

Kea Anderson

Eryn Heying

Kaeli Keating

Jessica Mislevy

November 2011

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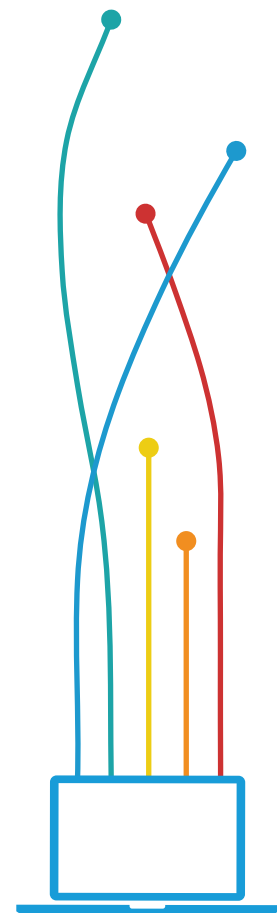
We also thank the lab facilitators in all Miami-Dade schools who completed our online survey and encouraged their students to complete the student version of the survey as well as all of the Virtual Learning Lab students who took the time to share their thoughts with us through the survey.

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All of these people shared their experiences in the pilot year of the Virtual Learning Lab program with courage and candor, and their contributions made this guide possible. It is our hope that, through this guide, other educators will learn from their experiences.

Lastly, we thank the following staff at SRI International who also supported this guide. Barbara Means provided guidance and insights throughout. Nyema Mitchell conducted site visits and contributed analysis. Allison Steele provided research and analytic support. Sara Vasquez contributed quantitative data management and analyses. Mimi Campbell edited the guide, and Kate Borelli provided document design and production.

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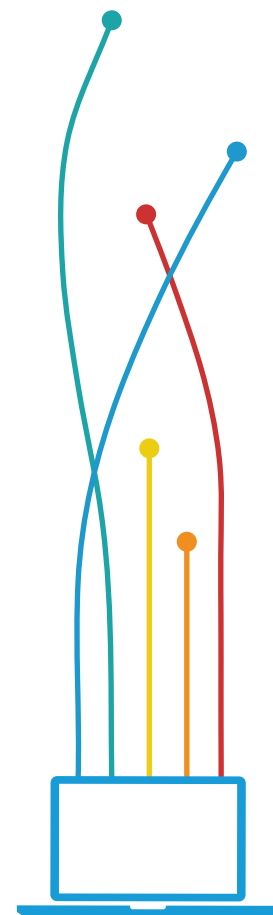
About This Guide

This guide is for district and school leaders who are considering starting online learning lab programs in their high schools. State education leaders—especially in states that are pursuing online learning initiatives—may also find this guide useful. It offers recommendations and vignettes to help paint a picture of what online learning labs can be like in schools.

The guidance is based on a review of the research as well as on lessons learned and promising practices developed during the pilot year of the Miami-Dade County Public Schools Virtual Learning Lab (VLL) program, a collaborative effort between the Miami-Dade County Public Schools (referred to as Miami-Dade or the district throughout this guide) and the Florida Virtual School (FLVS®).¹ Miami-Dade is the fourth largest school district in the country, serving more than 340,000 students each year. A total of 56 middle and high schools—including 38 of the District's 54 non-charter, public high schools—participated in the VLL program in the 2010-2011 pilot year. Our study focused on the program as implemented in those 38 high schools, where it served about 5,500 students. FLVS was founded in 1997 and was the country's first, state-wide Internet-based public high school. FLVS provides courses for students in grades kindergarten through 12. In the 2010-11 school year, FLVS provided nearly 260,000 ½ credit course enrollments to students in Florida and beyond.

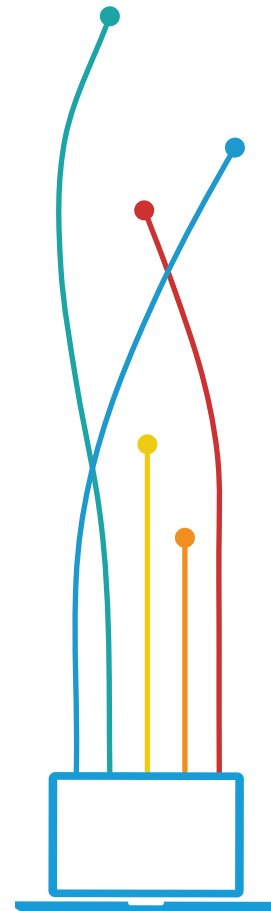
The VLL program is a specific implementation of online learning labs that certainly has relevance beyond Miami-Dade. Miami-Dade's lessons learned will be valuable for any state or district, even in very different contexts, because many of the challenges faced in Miami-Dade are to be expected when establishing new online learning lab programs. It is important to keep in mind, however, that online learning labs represent a relatively new approach to instruction and that many distinct approaches to blended learning are rapidly emerging (Horn & Staker, 2011). As educators gain time and experience with online learning labs, implementation models will continue to evolve along with insights into what works, when, and with whom. The lessons in this guide are based on one case study in the context of the latest available research about use of online learning among secondary school students.

¹ A more detailed overview of Miami-Dade's VLL program is provided in Appendix A.



Organization of This Guide

This guide recommends putting the needs of students first in planning an online learning lab program. Understanding both the potential benefits to students of online learning and the new expectations students will face in online courses is critical to implementing a successful program. This understanding will prepare district and school leaders to consider in tandem which students are likely to succeed in online learning labs and which courses (and what level of courses) to offer those students. This guide offers recommendations for designing a lab that is conducive to learning and describes the role of the lab facilitator and other school staff members, such as guidance counselors, who will contribute to the program. We then zoom out to district-level planning considerations to suggest essential preparatory steps such as establishing relationships with online content providers, informing students and parents, and ensuring program-related policies are in place. We use all this information to outline the types of costs administrators should anticipate.





Introduction to Online Learning Labs

Online learning lab programs like Miami-Dade's are a type of blended learning, which means that elements of place-based education (education that takes place in brick-and-mortar schools) are blended with online instruction. Fully online and blended instructional programs use the Internet to provide digital content and varying degrees of interaction with instructors, peers, and content experts in order to replace or enhance place-based instruction. In Miami-Dade's VLL program, the blending occurs across courses rather than within courses. Instruction for select individual courses is provided entirely online in a school-based computer lab. Students log in to online courses taught by off-site FLVS instructors. Students take one or more of these online courses during regular class periods within the school schedule. Lab monitors, called lab facilitators in Miami-Dade, are present in the labs to support students on site. (We adopted the term lab facilitators for this guide.)

Growth of blended learning

Enrollments in online and blended instruction are on the rise. One recent report estimated that 1.5 million K–12 students were enrolled in online and blended courses during the 2009–10 school year (Wicks, 2010), and continued growth is expected. Several states recently passed laws requiring students to have an online learning experience before graduating from high school, further demonstrating the growing national interest in online and blended learning.²

Blended instruction is also gaining ground in Florida because state legislation limits class sizes in many academic classes, but it does not limit student enrollments in online courses—even online courses offered at school. Miami-Dade launched its VLL program to comply with class-size requirements while providing students with valuable learning opportunities under budgetary constraints.³

² Michigan students graduating from high school in 2011 were required to participate in some form of online learning to complete their education (Michigan Department of Education, 2010). Similarly, the Idaho legislature recently passed an initiative to establish an online course requirement for seniors graduating in 2016 (Goedde, 2011). Florida also enacted a law requiring high school students beginning with the class of 2015 to complete at least one (half-year) course through online learning in order to graduate (Florida Department of Education, 2011). Florida has a history of legislative support for online learning, including blended practices, most notably through the establishment of the Florida Virtual School (FLVS) in 1997. FLVS is now among the largest providers of online courses, serving 122,702 students in 2010–11 (2010–2011 FLVS Enrollment Summary, 2011).

³ In 2002, the Florida legislature passed a law requiring K–12 schools to cap class sizes, with the plan to be phased in until its full implementation in the 2010–11 school year (Diaz, 2010). The amendment placed financial pressure on schools to comply with class-size laws while simultaneously exempting virtual classes from these requirements.

Current research on online and blended learning

Research examining the impact of online and blended learning for elementary and secondary students is still emerging, in part because these approaches are relatively new and evolving rapidly. A recent review of the literature that included a wide range of students, including post-secondary and adult training, suggests that blended practices are more likely to be effective, on average, than either fully online or traditional place-based instruction that does not make significant use of Internet-based resources (Means, Toyama, Murphy, Bakia, & Jones, 2010). This literature review found five rigorous studies that include elementary or secondary students, which indicates that there is still much to be learned about specific outcomes for a young population of students. And it is important to note that blended learning is not automatically a superior instructional approach. “Studies using blended learning also tend to involve more learning time, additional instructional resources, and course elements that encourage interactions among learners” (Means et al., 2010, p. 52). Even when these elements are in place, some students, particularly those already at risk, may be more likely to struggle in online environments than in traditional instructional environments.

As demand for new online options grows among traditionally underserved students, schools and providers must make new, targeted efforts to help support student success. Underserved high school students are still relatively new to online learning, which historically has “tended to attract and serve college-bound, honors and academically advanced students” (Repetto, Cavanaugh, Wayer, & Liu, 2010, p. 96). Fortunately, instructional methods and supports for online learning are evolving to encourage success for a wide range of learners. Rocketship Education and Carpe Diem, for instance, have both received widespread attention recently for improving academic performance by using blended learning in a financially sustainable way (Schorr & McGriff, 2011; Wang & Woodworth, 2011).

Although there is emerging evidence of promising practices, overall implementations are of varying quality. This guide offers suggestions and recommendations that are intended to promote success in online learning labs for a wide range of student needs, but more research is needed to ensure equitable participation of all students in online learning labs, in terms of both effective supports districts and schools can establish and supports online course providers can offer or incorporate into digital content and services. New and existing online programs for elementary and secondary students are in a strong position to contribute to ongoing efforts to understand how to improve the online experience for these students. Continuous improvement processes like those recommended in this guide should help ensure that programs meet the needs of local students.

Implications for districts, schools, and students

Blended learning that incorporates fully online courses that promote independent, self-paced learning, like those offered by FLVS, introduces a whole new set of expectations for students and may require a very different set of skills than traditional classroom learning. It even changes the roles and responsibilities of district and school staffs that will now be coordinating with an outside provider to track students’ progress.

This guide walks district and school leaders through key planning considerations so they can launch a successful program that benefits as many students as possible, makes a positive impact on the school community, and uses staff time and other resources efficiently. It uses evidence from Miami-Dade’s first year implementing its VLL program. To gather Miami-Dade’s lessons learned and best practices, we analyzed demographic and enrollment data for students participating in the VLL program, visited seven participating schools, surveyed students and lab facilitators, and interviewed both district administrators and FLVS representatives.⁴

Given our findings, we preface our recommendations with a note of caution: There is no one-size-fits-all answer to tough questions about how, when, and with whom to use online learning. Readers will need to reflect on their specific program goals in order to meet both their students’ and schools’ needs. Successful implementation will require a significant effort, the specifics of which will depend on a district’s existing conditions and needs.

⁴ Detailed information on data sources and methods, including some limitations of our study, is in Appendix B.

Online Learning Lab Implementation Big Takeaways

Online learning labs bring the flexibility of online learning within the schedule and space of schools.

Committed leadership and planning are the foundations of a successful online learning lab program.

- Establishing clear communication channels among the selected online content provider, the district, and schools is essential.
- Districts and schools will need buy-in from parents, teachers, and other community stakeholders.
- Parents and students need program information in time to make an informed decision about enrollment.

Anticipated technology-related costs include hardware, software, and infrastructure improvements. The greatest recurring cost is staffing the lab facilitator positions. Content providers and associated online instruction could also represent a significant cost. Time from district and school leaders, guidance counselors, and IT staff also is necessary for program administration.

Online learning labs should be comfortable, quiet, dedicated spaces containing appropriate resources. They should be staffed with one facilitator and seat approximately 30-40 students.

Schools lacking strong support systems for students in blended programs should develop student enrollment criteria and carefully select course availability.

Lab facilitators coordinate communication among students and online teachers, manage the classroom, and monitor, motivate, and support students in their work. They work with district and school staff, as well as with representatives from online providers.

Comprehensive facilitator orientation is necessary.

- Consider involving guidance counselors, school leaders, and provider representatives who will work closely with facilitators throughout the year.
- Ongoing professional development will give facilitators a chance to network and share best practices.

A comprehensive student orientation program is a key student support. Strong ongoing support from facilitators and online teachers is beneficial.





Potential Benefits to Students

Online learning labs offer many of the benefits of online learning generally. Students in traditional schools who enroll in online learning lab courses may benefit from

- Access to more and different courses and teachers
- Scheduling flexibility
- More control over pacing and course sequence
- Opportunities to improve academic outcomes, for example, through credit recovery
- Opportunities to strengthen skills for learning independently
- A convenient opportunity to meet state graduation requirements (in those states requiring online learning experiences for graduation)

In addition, students enrolled in online learning labs benefit from free access to conveniently located technology and some school-based supports and structures not available to students who take a fully online course independently.

Access to more and different courses and teachers

Online learning labs can provide more course choices than can be offered in a single brick-and-mortar school. For example, through FLVS alone, Florida high school students have access to 63 courses, including 15 Advanced Placement® (AP) courses, all at no cost to them. VLL students in Miami-Dade enrolled in more than 50 different online courses.⁵ Administrators were particularly enthusiastic about offering a wider variety of AP courses online. In addition to more advanced courses, schools used the VLLs to offer students other types of courses that they were previously unable to offer, such as driver's education.

Access to more or different teachers is a related benefit of online learning labs. Often schools struggle to place qualified teachers in every course, even in those with the highest enrollments. High-quality online course providers will ensure that online instructors have appropriate qualifications. Another example of the benefits of access to different teachers occurred at one school visited, where students reported having trouble connecting with a particular teacher and they appreciated the opportunity to try a different teacher online.

⁵ A list of courses with their enrollments across Miami-Dade's program is in Appendix C.

“ I like to log in at any time, sometimes in the middle of the night.”

— Miami-Dade student

Scheduling flexibility

For students balancing multiple commitments—such as dual enrollment, school-based activities like athletics, or family or work obligations—online learning labs can ease scheduling challenges. Administrators and students alike found that the VLL program enabled students to take courses that might not otherwise have fit in their schedules. Several students appreciated the flexibility of anytime, anywhere access.

Students also appreciated the flexibility to try honors courses with the knowledge that they could switch out of the honors version of the course more easily in the online version than they could in traditional courses (since scheduling, class size and other factors are less of an issue in the online format).

Flexible attendance in online learning labs can offer additional options for students and reduce the program’s burden on school computer labs. Students in online courses scheduled for the first or last period of the day could be allowed to come late or leave early as long as they remain on track in the course. This approach seemed to be successful at one school, where school leaders were confident students could get to and from school by their own means and had sufficient computer access to do their online work outside school. (Flexible lab attendance aligns with how FLVS normally operates because its online teachers typically work with students who complete work on their own time rather than logging on during a fixed time slot, but it may not work as well with other providers.)

Improving academic outcomes

Academic outcomes encompass individual course grades and overall grade point averages, enrollment in and completion of advanced courses, and graduation rates. Online learning may contribute to improvements in each of these, at least for some motivated students. For instance, students gain increased access to AP courses (which accrue an extra point in calculating grade point averages).

Not so long ago, students who failed a course or who were not on pace to graduate could enroll in night or summer school to make up the credits. As educational budgets are squeezed, these opportunities are beginning to disappear. Online courses give students an opportunity to repeat courses or take additional courses needed to meet graduation requirements. In addition, because FLVS courses are structured as semester-length segments, a student who failed a course may be able to recover the lost course credit by taking only one segment, not the whole course. Research suggests that blended learning programs for credit recovery and at-risk students show promise when they combine flexible pacing and individualized instruction with face-to-face instruction and in-person supports (Watson & Gemin, 2008).

More flexible course pace and content sequence

Students may appreciate having some control over their own learning pace. Asynchronous courses like the ones offered by FLVS enable students to self-pace, adjusting their workload to meet day-to-day availability and longer term academic goals. For example, students can accelerate their pace to prepare for a scheduled absence from school or to catch up after an illness. Students may also like the sense of independence and freedom to choose the sequence of course content. Because students are able to progress to new courses once they have mastered the content, ambitious students can also use self-pacing to get ahead by completing multiple courses in a given class period. A 2011 survey found that 15% of students enrolled in their FLVS course for acceleration (FLVS Legislative Brief, 2011). In Miami-Dade's pilot year, however, only a small fraction of VLL students completed more than one yearlong course.

Improving skills for lifelong learning

As students gain more control over their learning pace, gain confidence learning independently, and gain more exposure to how technology can support learning, they develop habits that encourage learning later in life. Online learning experiences can help teach lifelong learning skills associated with postsecondary success, such as thinking critically, solving problems, and building collaborative relationships (Watson, 2007). The majority of VLL students and facilitators agreed that the students took more responsibility for their own schoolwork and gained time management skills, initiative, and self-direction, as well as improved communication and collaboration skills.



Supporting Student Success in Online Learning Labs

The first step in planning a successful online learning lab program is to think about students' needs when considering the types of courses to offer and the adjustments the new program will require for your facilities and staff. All students will require guidance in determining which online courses best fit their needs and goals, just as they do when they enroll in regular classes. In addition, students need to understand how learning online is similar to and different than their other courses. Students learning online are often asked to play a more active role in their learning and they may have more flexibility to determine what they learn and when they study. The following overview of skills that help students do well in online learning will provide useful context for developing that guidance for your program and will help prepare you to plan for student orientation and other necessary student supports.

Student skills that support online learning success

Students with strong self-motivation, self-direction, time management skills, and reading skills may be more likely to do well in online learning labs, according to the recommendations and observations of participating school leaders, guidance counselors, lab facilitators, and students.⁶

Time management skills are required to handle the responsibility of self-pacing.

Self-motivation and self-direction are required to remain engaged and on track without face-to-face guidance from a teacher.

Ability and willingness to learn independently are important for students who may not have any peers taking the same subject in their lab period. Students may have little occasion to interact with peers in the room and, depending on the course, may or may not interact much with classmates online.

Strong reading skills are needed to digest large amounts of on-screen reading—even in courses such as physical education.

- District leaders recommended that students enrolled in online courses read at least at grade level.
- The reading load may present additional difficulties for English language learners (ELLs). Both Miami-Dade leaders and FLVS discouraged enrollment of students with low levels of English language proficiency in online courses. Some ELLs who had been enrolled in the program were withdrawn; others were allowed to remain if they were performing well.

⁶ These findings are consistent with other studies; for example, Cavanaugh (2007) cited both survey and experimental data to indicate that “strong academic skills, motivation, discipline, and course structure compatible with one’s learning style are conducive to success in K-12 online learning” (p. 4).

“ I’m not so much of a reader. I tried to do it, but I don’t get it. Words are not going to explain it to me.”

— Miami-Dade student

Excellent written and oral communication skills are necessary for communicating with online teachers to receive support and to stay on pace. Students communicate frequently with their online teachers by email and telephone. FLVS courses also include discussion-based assessments, which students complete with their teachers by phone.

Strong academic records may also suggest student ability to succeed in online learning labs. In Miami-Dade’s VLL pilot, students who completed one or more segments (a semester’s worth of work) had higher reading and math scores on the Florida Comprehensive Assessment Test (FCAT) on average than students who completed none of their enrollments.

Comfort with technology, which not all high school students have.

- VLL students and facilitators reported that many students were not used to using computers and the Internet for educational purposes. For example, not all students understood how to attach documents to an email or how to upload files to a course website.
- Half of student survey respondents who did not successfully complete any of their VLL courses reported their skill level with computers and the Internet as “beginner” or “intermediate” compared with only a third of those who completed one or more courses.⁷

⁷ Similarly, a case study of a blended learning program in Chicago reported that students’ lack of familiarity with technology posed problems during program implementation. After spending considerable time in the first semester helping students learn basic technology skills, the program revised the freshman curriculum to include training on such skills (Sloan & Mackey, 2009).

How to do well in a VLL: Miami-Dade Students' Advice for Other Students

How to stay on pace

“Be persistent. Apply yourself. Pace yourself, and don't leave the work for the last few weeks or you won't finish.”

“If you leave everything to the last minute and then have to do a bunch of assignments at a time, it makes the weekend really challenging!”

“Make a calendar to mark your own deadlines. Treat it like a regular class, not playtime when you're in the lab.”

“You always have to do your work and be on your game.”

“You have to be very devoted to the class and focused on the task.”

Reaching out to online teachers

“If you get stuck, just text your teacher. Don't hesitate!”

“The teachers are really nice!”



Offering specific student supports can improve success rates for a broader range of students.

Focus on equity

As budget cuts restrict access to summer and night school programs and new legislation in some states requires that all high school students experience online learning before graduating, more students - especially more traditionally underserved students - are enrolling in online courses. Not surprisingly, credit-recovery enrollments are one of FLVS's fastest growing areas. However, our study found that male students, minority students, and students who were eligible for the federal free and reduced-price lunch program were less likely to complete their online courses than their

respective counterparts. Similarly, a recent review of research on community college students engaged in online learning found that low-income and underprepared students struggled in online learning courses, often as a result of 'technical difficulties, a sense of social isolation, a relative lack of course structure, and a general lack of support' (Smith Jaggars, 2011, p. 40). As a result, administrators implementing an online learning lab program with a diverse set of students should plan to provide supports for students who may otherwise struggle in online learning environments.

The supports described below are intended to give all students the information and skills needed to succeed in online learning and to level the playing field for students with diverse backgrounds and experiences. Continued research is needed to refine and improve this preliminary list.

Specific programmatic supports for students

Offering specific student supports can improve success rates for a broader range of students. Given our research into best practices within Miami-Dade, we strongly suggest that administrators put in place the following four supports to encourage student success:

- Mandatory orientation program to familiarize all students with online learning expectations, the online learning interface, and online tools
- Strong ongoing support from engaged lab facilitators and online teachers to help students adjust to the online format, take responsibility for self-pacing, and learn to communicate proactively with online teachers
- Opportunities for students to interact with peers in the lab
- Access at school to Internet-enabled computers for more than 2 hours per week outside of students' scheduled lab time

Student orientation

Orientation can help introduce students to unfamiliar expectations and provide them with a number of helpful tools and strategies. In Miami-Dade, more than half of the students surveyed indicated that they had not previously enrolled in an online course. In the summer of 2011, FLVS expanded its New Student Orientation sessions, which are led by experienced online learners several times a week to give new students an overview of their course and help them learn navigational tools. Other districts can expect a similar lack of student experience with online courses. See the adjacent sidebar for topics essential for a successful student orientation.

Essential topics for student orientation

From our discussions with program participants, the following topics should be covered in an orientation to prepare students for this new form of instruction and help students see themselves as learners who can thrive in this environment:

Introduction to online learning as it is implemented at the school

- Roles and responsibilities of students, online teachers, facilitators, and guidance counselors
- Introduction to the online interface: how to use grade book and other features; where to find provider resources, such as video tutorials
- Concept of pace
- Importance of understanding the expected pace of the particular course a student is taking
- Consequences of falling behind and incentives to stay on pace
- How to plan out work to stay on pace
- What students should do if they fall behind

Overview of academic, organizational, and communication skills that will help students succeed (as described above)

Overview of useful resources

- When and where students have access to computers at school outside lab time
- How students can store their work (USB drives or cloud space, either through the district or through free services available online)
- How to get help (e.g., contacting online teachers) through online chat, cell phone, or email
- Policies for online resource access (e.g., related to students' use of cell phones or online chat to communicate with teachers, school or district restrictions of online tools that may disable course resources)

Academic integrity

- What it means to use others' words and ideas as one's own
- When it is beneficial to collaborate and what students should complete independently
- Overview of the provider and district or school agreements students must sign
- Consequences of violating academic integrity rules



Leverage face-to-face opportunities for support

Facilitators are key in helping students contact their online teachers. They can encourage proactive communication strategies, share simple phone scripts to help students overcome initial fears when leaving messages for teachers, and maintain updated lists of teacher contact information and students' online learning interface and district passwords.

Support for self-pacing—displaying tracking charts in the lab

The FLVS model encourages individualized pacing—a novel concept for most students. School-based staff should be prepared to provide students with pacing guidance, clear consequences for falling behind, and possibly incentives for staying on or ahead of pace. In focus groups, some students reported misunderstanding the pace of their courses. For example, one student thought he was doing well in his online course because he had received good grades but was later surprised to see a low grade on his report card. He was behind pace and as a result received zeros on work he had not yet submitted without realizing it.

Lab facilitators should pay close attention to students' progress and use informal mechanisms to help them stay on track. For example, pace charts can be displayed on a bulletin board or kept in a binder in the classroom to create visual markers of students' progress in the lab. One facilitator had large colored sticky notes on the wall indicating students' progress in their classes. This provided external motivation and accountability for students and helped the facilitator quickly identify students not making adequate progress. Close collaboration with content providers can also help reinforce appropriate pacing for students operating on a traditional school schedule.

Ensure adequate access to technology

As discussed in the section “Functional Requirements of an Online Learning Lab” not all students have adequate access to a computer and/or Internet connectivity at home. To ensure that students who cannot access online courses outside the normal lab hours are not disadvantaged in a VLL program, consider ways to expand students' access to technology in significant ways. Efforts such as laptop programs, low-cost home Internet, library and community center partnerships, and extended lab hours can all ensure that students have technology needed to complete coursework.

Build in breaks for long class periods

Building in breaks will help students in an online learning lab remain focused, especially if your school is on a block schedule. Students and facilitators reported that students had difficulty remaining on task to read course materials online for 90 or 120 minutes at a stretch.

Possible student enrollment criteria

Enrollment in new blended learning programs may be open to all students or restricted to students who meet specific criteria. Online learning labs may be a viable option for all students, including struggling students, but only if those students are appropriately matched with the right courses and have adequate levels of support. Administrators may want to determine enrollment criteria for students interested in taking (or required to take) one or more courses in an online learning lab, particularly if an adequate system of support is not in place or if students are known to be underprepared for the courses they are enrolled

in. The following considerations can be used to help identify students likely to succeed in courses that require independent, self-paced work. Even with careful planning on the front end, school staff should plan to monitor student progress closely and be prepared to offer additional supports or alternatives for struggling students.

Many high school students—freshman and seniors alike—can succeed with online learning provided they meet established enrollment criteria, have access to necessary supports, and are taking courses appropriate to their needs. As one effective facilitator remarked, “Ninety-eight percent of the students can do it. They progress at different paces but they’re all getting there.” If students do not have these skills but it’s still determined that they should take a course in an online learning lab, the programmatic supports should target student needs.

Whether students want to be there and whether they have parental consent. Even when online learning is a state requirement for high school students, students’ and parents’ buy-in with regard to specific, local programs will be important contributors to success. One principal held assemblies to explain the program to students. Interested students then met with guidance counselors who vetted their enrollments.

Prior academic performance. As noted, prior academic achievement is related to achievement in online learning. Using test scores may be helpful when actively selecting students for courses or in setting minimum requirements for enrollment. Miami-Dade district leaders also recommend selecting students who have received a grade of B or higher in a prior course in the same subject.

Demonstrated independent learning and time management skills. Again, these skills are important for successful participation in many online courses. Supports such as the student orientation discussed earlier can help students learn new expectations and perhaps new skills as well.

Good behavior and strong attendance record. A clean disciplinary record and consistently good attendance may also be important to consider, according to FLVS staff.

Possible course selection

The ability of schools and districts to select courses for online learning labs will depend on local and state policy. An online learning program can complement school-based course offerings and provide scheduling flexibility that is difficult to achieve with a pure face-to-face model. Administrators will need to consider multiple factors when deciding which courses to offer, including current and anticipated face-to-face course offerings, students’ interests and preparation, and the availability of online courses to address gaps. School and district planning needs will also be a factor. We recommend offering a mix of academic and elective courses and strategically limiting course selection, especially in the first year of the program.⁸

Selection strategies for online learning lab courses

Miami-Dade school administrators had the ability to influence course selection, and the strategies administrators developed varied. Even in a district-wide program, the distinct needs of individual schools may dictate quite different approaches by school, as the following examples demonstrate.

- A couple of administrators noted that **electives can serve as introductions to the new online format** and expectations of online learning, helping students get off on the right foot. As one principal noted, “Students need to first become comfortable with [the provider’s interface]. You don’t want them to be

⁸ Appendix C provides details on student course enrollment in the first year of Miami-Dade’s VLL program.

turned off by taking geometry and struggling with the content and the interface.” Starting out with lower stakes courses or electives (e.g. driver’s education or web design) may also give school and district leaders time to iron out any kinks in a program without jeopardizing students’ opportunity to graduate.

- Because different types of students experienced varying levels of success in the online courses, one district leader recommends that **no course required for graduation be offered exclusively online**. Without an alternative, the stakes would be too high for students who find online learning environments too challenging or burdensome.
- Two principals reported that their **programs focused on credit recovery because budget cuts** had reduced access to credit recovery through summer or adult school.
- Another principal reported that by enrolling more students in VLL courses, he could **reallocate resources to offer more school-based AP courses**. He anticipated that this approach would garner associated per-course state funding, in addition to pleasing students and parents. Further, offering more AP courses increases the number of points a school earns on Florida’s school grading system.
- One school’s athletic facilities were undergoing major renovations that were slated to continue through the next school year, so school leaders decided to **offer health and physical education courses online** while construction made the facilities inaccessible.
- One Miami-Dade assistant principal reported that in future years, he would like his school to be more strategic in using online courses to **strengthen the school’s overall program**. He anticipated including department heads into future planning conversations.
- Some schools allowed students to enroll in any course after first completing an online course that met **graduation requirements**.

In summary, successful programs are likely to address both students’ interests and school and district planning needs. A mix of academic and elective courses and opportunities to strategically limit the number of courses provided (especially in the first year of the program) are likely to help minimize the implementation challenges that new programs are likely to encounter.

Deciding how many different courses to offer

The advantage of offering the full catalog of a provider’s courses is that it maximizes choice and flexibility for students. For example, schools that have historically offered only one or two AP classes can suddenly offer 15. The downside is that offering too many choices can create logistical headaches for school administrators and especially lab facilitators.

In Miami-Dade, facilitators had to coordinate with the online teachers of all the courses being taken in their lab(s). In addition, students looked to their lab facilitators for subject-matter as well as technology support. The more varied the courses being taken in the lab, the harder the facilitators must work to perform their functions effectively.

Administrators may want to consider working with providers to limit the number of online teachers serving their schools. This will minimize communication burden on facilitators and allow for more continuity of service. In addition, administrators may decide to group students taking the same or similar courses in a given period in the lab (e.g., science courses). These subject-specific labs could encourage interaction among students and promote opportunities for face-to-face instruction by in-lab facilitators or other knowledgeable school staff.



Functional Requirements of an Online Learning Lab

In the words of one information technology (IT) specialist interviewed, the computer lab required for VLLs is in some ways “just another lab.” The basic requirements are fairly standard—adequate facilities, hardware, software, and Internet connectivity. From the students’ perspective, however, the online learning lab also must work as their primary classroom, so it is important that it meet their learning needs. We start our list of functional requirements with a focus on student learning.

Create a quiet, comfortable lab environment with minimal distractions

Labs should be located in a designated space, as opposed to a common area, to minimize distractions and help students focus on coursework. Although media centers may have some advantages over classrooms (e.g., more space and additional resources), scheduling online learning courses in media centers can restrict student access to computers for other purposes, present distractions for the students, and make it more difficult for a facilitator to monitor students’ concentration on task.⁹

Offer sufficient Internet connectivity

Many students accessing online courses simultaneously, particularly those with rich multimedia, can strain Internet resources. If that strain prevents students from viewing and downloading materials in a timely manner, they will have a negative experience. As discussed in the cost section of this guide, many schools will need to consider infrastructural bandwidth upgrades to increase network access speed, in addition to extra data drops or wireless access in the lab. When testing functional requirements of bandwidth to accommodate a new program, be sure to test the program with peak loads in mind, including administrative and other uses of the network.

⁹ Although nearly 70% of student survey respondents agreed that they could concentrate in their VLL lab environment, just over half reported that they were easily distracted by things happening in the lab, and more than a third reported that the lab was too noisy. All facilitators whose VLLs were located in the media center or library reported that students got distracted by things happening in the lab, whereas only half the facilitators with VLLs located in computer labs reported student distractions. Students at a school where the facilitator monitored more than one room per period also complained that distractions interfered with their work, with one adding, “a lot more students would pass with closer monitoring.”

Supply computer accessories and communications technologies

Provide access to a printer, scanner, and fax machine

Technology options are emerging that make printers, scanners, and fax machines obsolete, but they may still be valuable tools in online learning lab programs. Printers allow students to mark up hard copies of their work or review coursework when they do not have access to a computer. Scanners and fax machines enable students to send handwritten documents (or documents otherwise only available in hard copy) to their online instructors.

Supply headphones and microphones

Headphones allow students to listen to audiovisual materials without disturbing other students in the lab and microphones are particularly useful to students in language courses. These are also necessary if the online provider offers the ability for students to voice chat with online teachers over the computer. School administrators should work with lab facilitators to establish headphone policies (e.g., checkout procedures, use of personal headphones) and expect that some will be lost or broken throughout the school year.

Allow students to access their work off site

Students will probably require some means of portable or cloud storage so they need not save their work to the lab computer and can access it outside class time.

In Miami-Dade, students were provided with USB drives and also had the option to save their work to district servers. The students tended to misplace the drives, however, and found that saving to the district server was often time consuming. Depending on their needs and on school or district policies, students may be able to take advantage of free access to web-based services such as Dropbox or Google Docs, particularly if they have access to a computer with Internet connectivity outside the lab.

Ensure hardware and software are up to date

Hardware and software requirements vary by online learning content vendor. Administrators should work with vendors as early as possible to identify these requirements and disseminate them to participating schools to encourage consistent setup across schools and labs, limit the burden on central IT staff, and reduce the risk of compatibility problems.

Most of the requirements for FLVS's VLL program are standard for school computers, although site visit schools did report that some courses, such as web design, required the purchase of additional software.¹⁰ The district also invested in desktop-monitoring software, such as Schoolview, so that facilitators could view students' screens and to promote on-task activity on the computers. School staff familiar with this type of software spoke highly of its value. If adopted, facilitators will need to be trained on the software to use it effectively.

¹⁰ See Appendix D for the 2011–12 hardware and software requirements for FLVS's VLL program.

Consider a range of communications options

Lab telephone access enables students to contact their VLL instructors with questions related to their coursework and to participate in discussion-based assessments, among other activities. In response to student reports during the pilot year, Miami-Dade administrators recommended providing a minimum of one phone line for every 10 students to ensure adequate access to online instructors. Ideally, students should be able to speak privately with their VLL teachers while viewing the lesson. Schools may consider other options, such as cordless phones, that do not tie students to a specific location in the room and allow them to access materials from their computer while speaking with their online instructor.

Students' personal cell phones could ease a shortage if landlines are in high demand, with appropriate school policies in place. A consideration, however, is that using their own cell phones to contact online instructors while at school costs students minutes and texts in their plans. Further, not all students have cell phones and their use should not privilege some students over others.

Another solution is free Voice over Internet Protocol (VoIP) services such as Skype. However, schools may limit access to such services because of concerns about bandwidth use and the possibility of students using them inappropriately. Bandwidth use can be minimized if students are restricted to the voice and chat features rather than video. Districts may want to investigate the availability of education-focused chat, instant messaging, or VoIP services when they plan their programs or ask for providers' recommendations.

Offer adequate technical support

Because computers with Internet access are critical for students taking courses in online learning labs, technical support must be adequate to keep the computers functioning properly and to solve problems that students and facilitators cannot. IT staff should be prepared to offer on-demand services or provide backup computers in the lab so that students' progress is not delayed when technical issues arise. Also, as with other computer-based labs in secondary schools, in addition to regular maintenance and repair issues, the IT staff will need to contend with students sometimes downloading unsupported content or otherwise manipulating machines. Miami-Dade lab facilitators reported sending help tickets to central IT support staff to unlock websites that were otherwise blocked by firewalls and to clean from computer hard drives games, movies, and the like that students had downloaded, and IT staff reported spending time each week removing non-instructional content.

Provide enhanced access to computers outside the normal lab hours

Access to Internet-connected computers outside class time increases students' chances of completing their online courses (SREB Educational Technology Cooperative, 2006; Tallent-Runnels et al., 2006). In Miami-Dade, nearly 80% of student survey respondents reported accessing course materials online outside their regularly scheduled lab times. Of these students, two thirds said they accessed course materials online in the lab during regular school hours but outside of their schedule lab period once a week or more and close to half reported using computers before or after school, either in the lab or in another location (such as the media center) to complete coursework.

Administrators will need to consider how to help ensure that all online learning lab students have sufficient access to Internet-connected computers to complete their coursework. This may include providing greater access to computers at school, establishing a laptop loaner program, or perhaps engaging nearby partners such as public libraries or youth centers.

Sufficient home access is not universal

Computer access at home helped Miami-Dade students complete online courses, but not all students had that access. Fifteen percent of respondents who did not complete any of their VLL courses said they did not have access to a computer at home, compared with only 8% of those who completed one or more courses. Overall, nearly a third of student survey respondents did not report having computer and Internet at home that would allow them to access VLL course materials and completing assignments.

District and school leaders should not assume that all students have access to Internet-connected computers at home, especially since “home access” means more than just having a computer in the house. If the computer is old, the Internet connection is slow, or the student shares the computer with other family members, completing coursework on that machine may be difficult—these were all challenges reported in student focus groups.

Extending computer access outside scheduled lab time

Because not all students will have sufficient home access, schools should consider allowing online learning lab students to use school computers outside their regularly scheduled class time. Depending on your local context, laptop loaner programs or other arrangements may be feasible. Districts in Florida will also need to review recent legislative mandates that require each district to provide students who qualify for free and reduced-price lunch and are enrolled in a virtual program with any necessary equipment and with Internet access (Florida Senate Education Committee, 2011).



Staffing to Support Student Success: Lab Facilitators

Online lab programs introduce a new staffing model in which several people share responsibility for ensuring that students are able to do their best work including: online instructors, lab facilitators, and other staff such as guidance counselors, IT staff, and administrators. Given this shared responsibility, administrators must provide clear expectations for the individuals in each role.

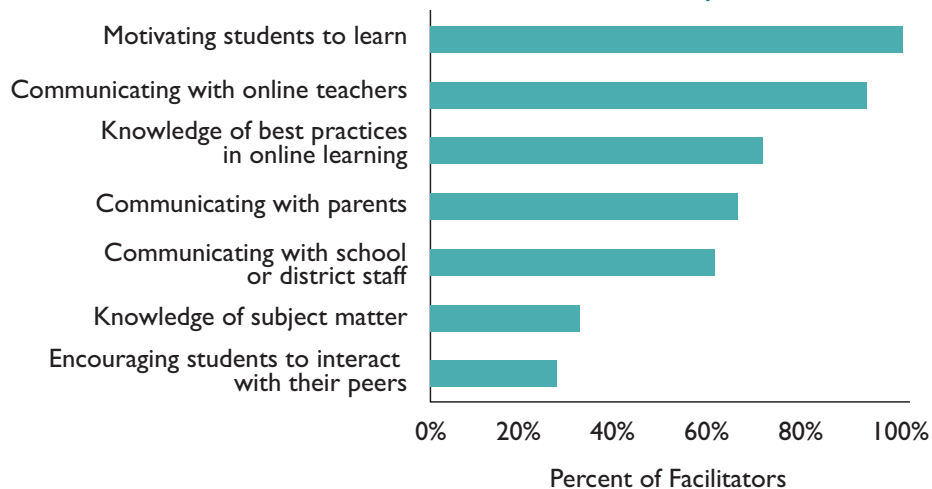
The facilitator is probably the most visible to VLL students, and their jobs turned out to be more complex than originally envisioned in Miami-Dade. Not only did the facilitators assist in starting up and running the program, but they also responded to questions from parents and students, monitored student progress, coordinated communication among as many as 300 students and, in a couple of extreme cases, more than 40 online teachers, supported students' work as they were able across a range of subjects, and managed classroom behavior (in some cases, multiple rooms during a single class period).

This section addresses the role of the lab facilitator—required skills and typical responsibilities—and methods to promote their effectiveness.

What makes a great facilitator

Teaching experience is helpful but not necessary to perform the online learning lab facilitator job well. Experience with classroom management and with creating a productive learning environment is a great asset for facilitators. Strong initiative, excellent organizational and communication skills, and basic technical skills are all required for the job. Great facilitators are also problem solvers who see trends in student needs and establish supports to address them. It was interesting that Miami-Dade facilitators reported that prior subject-matter expertise was not the most crucial asset for helping students.

Skills Miami-Dade facilitators identified as most important in their jobs



Support students using a variety of strategies

Supporting student learning is the most important part of the facilitator's role. Some examples of effective strategies used in Miami-Dade schools are presented here.

Review student progress several times a week or more. In Miami-Dade, well-organized facilitators used FLVS-provided reporting to keep running records of each student's progress—no simple task, given that pace varies by student and is structured differently for each course.

Collaborate with guidance counselors to identify appropriate academic supports for struggling students and to ensure that students who need to be rescheduled for a face-to-face version of a course are placed in a timely manner.¹¹ Depending on school policies, guidance counselors may play a role in tasks requiring contacting parents.

Motivate students, encourage them, and celebrate their successes. At one school, students appreciated that their facilitator knew them all by name and posted pace charts showing who had completed 50%, 75%, or 100% of their courses. Giving facilitators the ability to reward students for on-task behavior and promote course progress could prove to be a valuable incentive to students. In Miami-Dade, facilitators could view students' online grade books but could not input any grades themselves. Some facilitators felt their ability to motivate students in the lab was hindered because they could not assign grades or give credit for attendance or participation.

Provide content support. Facilitators who may not be certified in a given subject can still help students who become disengaged or who are waiting to hear from their online teacher move forward in the course. In Miami-Dade, some facilitators located online resources to supplement their content knowledge and used them with students, while others sat with students to review course materials with them.¹²

Serve as liaisons with district and school staff and between online teachers and students

Facilitators will need clear guidance on who to contact (e.g., guidance counselors, district or provider representatives, or IT support) for what type of issue and the appropriate procedures to follow when doing so. Having this guidance will enable facilitators to create and maintain an environment conducive to learning, even when many online course students are in the lab at the same time.

Facilitators will often need to collaborate with:

- Online teachers
- Guidance counselors
- Local or provider-based IT specialists
- District staff
- Provider representatives

¹¹ Administrators should be aware that online learning lab programs could create an additional burden on guidance counselors. For large schools, having a single counselor fulfill counseling needs for the new program might streamline communication with facilitators and providers.

¹² As a means of increasing face-to-face instructional support for students, FLVS instructors were encouraged to visit the VLLs and work with students at least once a month.

Communicating with online teachers

Facilitators need to be very organized to ensure student learning can occur. On average, about 150 students were assigned per facilitator. Although our data suggest that many facilitators coordinated among 20 or fewer online teachers, at least a few facilitators reported coordinating among more than 40 online instructors. Reducing the number of students facilitators are responsible for as well as the number of different online teachers facilitators must coordinate with will leave more time for supporting student learning. Labs that serve the same or similar courses may help ease the burden on facilitators.

Facilitators contact online teachers for a variety of reasons. Miami-Dade contacted teachers to convey students' needs, ask about course content or logistics, and also alert them to students' school-based obligations. Online teachers need to be aware that students occasionally have conflicts such as assemblies, extracurricular activities, or testing that can interfere with their scheduled class time.

Most common reasons for facilitator communication with online teachers

1. At what times and how to contact students
2. Details on course content
3. Explanation of course logistics
4. Discussion of individual student learning needs

Many facilitators reported making an effort to establish a relationship with each online teacher and to share relevant contextual information about the students and the school. FLVS also encouraged its online teachers to reach out to facilitators. This type of relationship building is obviously easier in programs where lab facilitators are responsible for communication with fewer online teachers.

A day in the life of lab facilitators

Day to day, facilitators have basic responsibilities to help students complete their work and maintain the functionality of the equipment.

Manage the classroom. Facilitators may be required to spend significant time correcting off-task behavior in the labs to enable students to concentrate and complete their work. (In Miami-Dade, this was especially true during long block-schedule periods.) At some VLL schools, facilitators relied on monitoring software, such as Schoolview, to view students' computer activities during class.

Maintain logistical information. At least a few facilitators in Miami-Dade quickly realized that students often had difficulty remembering their passwords and contact information for their online teachers. Facilitators can work with students to develop strategies to help them keep track of this type of information.

Monitor technology needs of the lab. Facilitators also monitor the functionality of lab equipment. Most of the time, this simply requires conducting basic troubleshooting and contacting district or provider IT specialists to obtain technical support as needed.

Recommended district policies to encourage facilitator effectiveness

Manage one room at a time

Facilitators should be responsible only for a single room at a time to maintain sufficient classroom management and be able to closely monitor and support students' progress. The number of students who can be assigned to a single lab period will depend on how much support the facilitator is expected to provide for each student, as well as on how many different online courses students are enrolled in during that period.

At one school, the facilitator was responsible for nearly 90 students in three different rooms during some periods. Not surprisingly, the facilitator reported having trouble tracking attendance, correcting off-task behavior, monitoring students' pace, and tracking communication with so many online teachers. As a result, many of the students in this facilitator's labs fell too far behind in their online courses to pass and were forced to enroll in a similar course in an alternative school.

Assign to a lab only the number students the facilitator can reasonably manage

The number of students who should be enrolled in a blended learning lab at any given time will vary depending on multiple factors including the size of the lab and the level of individual support the facilitator is expected to provide.

Administrators should be careful not to overenroll a lab beyond what a facilitator can reasonably manage. One facilitator noted that she struggled to support a lab of 40 students (most taking academic courses) because she did not have time to address their individual needs. She suggested that 35 students could be a reasonable cap for such a lab.

There may be other ways to lighten the academic support burden for facilitators to enable them to support more students in a single lab. Ideas that emerged from the study of Miami-Dade's program included allowing students enrolled in the same lab to support each other and registering students enrolled in the same lab period in classes with the same online teachers as much as possible to reduce the communications burden.

Consider the special requirements of programs with multiple facilitators per school

Depending on the size of the VLL program, schools may require several facilitators. In Miami-Dade, schools typically had one or two full-time facilitators, with additional school staff members covering one period per day in some labs. Most school leaders interviewed preferred to have dedicated staff fill the facilitator position rather than to rotate responsibility for the lab across different staff members throughout the course of a school day.

With several facilitators per school, clear communication channels must be established for them to share information with one another as well as with school and district staff. A facilitator in a school that had four facilitators suggested that one be designated the lead liaison, similar to a department chair, to streamline communication and ensure consistency across practices.

Hold facilitator orientation and periodic meetings

Online learning is likely to be as unfamiliar for new facilitators as it is for students enrolling for the first time. Facilitators, like students, should be required to attend a thorough orientation that covers all major aspects of the program. In addition, given the importance of classroom management and student support, facilitators should also receive training on a range of techniques to support student success in the online environment. Another best practice is to invite an online teacher to discuss his or her role, which should provide the facilitator with additional clarity about roles and responsibilities. See *Essential topics for facilitator orientation* on the next page for more information.

Most Miami-Dade facilitators interviewed expressed interest in more opportunities to learn from other facilitators. To address this need, districts may want to schedule periodic meetings with facilitators, particularly those in their first year, to share best practices and report any ongoing challenges. In addition to formal meetings, more experienced facilitators could also be assigned to provide guidance and support for those who are new to their roles.

The online course provider may also choose to hold training for facilitators and guidance counselors, as FLVS does through face-to-face meetings and recorded on-demand training sessions.

“ I’d like to hear how other facilitators motivate their students so I could help my two who aren’t getting there.”

— Miami-Dade facilitator

Essential topics for facilitator orientation

Introduction to the online learning program at the school

Roles and responsibilities of students, online teachers, facilitators, and guidance counselors: facilitator as learning support, motivator, and communication liaison

Expectations for students: overview of academic, organizational, and communication skills that will help students succeed

Introduction to interface

- Walk through parts of lessons if possible
- Start-up: how to enroll a student, look up passwords, etc.
- How to use grade book and other features; where to find provider resources such as video tutorials

Concept of pace

- How to monitor students' pace
- How pace differs for different courses
- What to do if students get off pace

Overview of useful resources for facilitators

- Reports from provider on student progress: how to interpret
- Directory of online teachers
- Student roster with FLVS and school passwords, course, and online teacher assignment
- Guidelines on who to call when (tech support, district, provider, etc.)
- Phone scripts for students to interact with their online teachers
- Template spreadsheets for tracking communication or pacing
- Storing students work (USB drives or cloud space)

Academic integrity:

- What it means to use others' words and ideas as one's own
- When it's beneficial to collaborate, what students should complete independently
- Overview of the provider and district or school agreements students may sign
- Consequences of violating academic integrity rules

Classroom management strategies

Review of **school procedures to resolve classroom issues** such as disciplinary problems





Planning a District-wide Program

Both Miami-Dade and FLVS administrators emphasized that online learning lab programs require careful planning by committed district and school leadership. A representative of FLVS suggested that schools and districts allot at least 3 months' lead time to solicit buy-in from staff, parents, and students and to develop and implement the appropriate policies. Further, district-level leadership will be needed throughout the year to ensure even, quality implementation across schools. Leaders need to have the vision and commitment to guide change and overcome the challenges likely to arise in the first year of implementation and beyond.

Reviewed here are essential planning steps for districts and schools. Many of these steps must be done before students can be enrolled in the selected courses. We recommend a centralized approach to planning and implementation because establishing new online learning lab programs through district-wide, rather than school-wide, efforts offers distinct advantages:

- **District-wide programs give a bird's eye perspective.** In Miami-Dade, close involvement in the pilot year of the VLL program has enabled district leaders to draw on the experiences of all participating schools to improve the program for the coming year and have the authority to see that improvements happen. A representative at FLVS identified the commitment of Miami-Dade leadership as vital to VLL implementation, noting "The success in Miami-Dade has occurred because we have people [at the district] pushing things." District staff and content providers both collected data in the first year to evaluate implementation and make adjustments as necessary.
- **District programs can leverage large numbers of enrollments in working with providers,** which could result in cost savings. Miami-Dade district administrators reported that FLVS worked with them to adjust the program to suit their students' needs. FLVS leaders concurred that they were eager to see Miami-Dade's program—totaling nearly 8,000 semester enrollments—run smoothly and continue into the following year. Providers would likely not offer as much flexibility when working with individual schools.
- **District programs can streamline communication.** It can be more efficient for districts, rather than individual schools, to communicate with providers. An FLVS administrator who served as the primary contact with districts and schools in the area noted that it made her job easier when communication was centralized as it was in Miami-Dade, where she communicated primarily with one district administrator who then passed updates along to individual school contacts.

Planning steps

As a starting place, districts should work with schools to help them define an academic model that meets their students' needs and an operational model that they can support. When schools decide that online learning labs are appropriate for their student populations, the planning steps below are intended to guide districts and schools through the start-up phase. For specific ways the district can work with the provider during start-up, see the next page.

Select online provider(s)

Selecting the right online provider(s) is crucial to the success of the program. Administrators may find that working with multiple providers is the best way to meet student needs. Miami-Dade's decision to choose FLVS as the sole provider for the VLL program was based on the fact that it was a known entity, the courses were readily available and met the district's academic requirements, and it was a cost-effective option.

All administrators should conduct a thorough analysis of the options available to them. In particular, we recommend that districts seek outcome data from providers that address the student population and course content of greatest interest. Ideally, comparable data would be available across vendors, but such data are still sometimes difficult to obtain.

Establish a clear sense of roles and responsibilities

Districts and schools need well-established lines of communication and clearly defined lines of authority between themselves and the vendor to effectively and efficiently identify and solve problems. Otherwise, time is wasted on both ends—and student outcomes could suffer meanwhile.

In Miami-Dade, designated high-level staff maintained close contact with facilitators and with FLVS representatives to ensure that important problems were addressed quickly. Miami-Dade and FLVS worked together to craft new policies and processes, such as weekly student progress reports for facilitators and to promote improved student outcomes.¹³ Both parties were committed to the program's success and were flexible in its implementation. As one FLVS representative stated, "We decided with Miami-Dade that when we encountered challenges we would not point fingers but do the best we could and try to improve."

Roles should also be clearly defined for how participating schools will communicate internally and with the district. As discussed in "Staffing to Support Student Success," facilitators will need to coordinate among themselves in schools with larger programs and work closely with guidance counselors in addition to liaising with online teachers. Depending on program and size, enrollments and monitoring associated with the online learning lab program could be handled by a single guidance counselor.

¹³ One model that outlines respective responsibilities is *FLVS's Virtual Learning Lab Handbook*. It describes the responsibilities of FLVS, online teachers, districts, schools, lab facilitators, parents, and students in a VLL program.

How districts can work with providers to support schools during the start-up phase of implementing a VLL program

Districts can support schools by working with providers to develop the following:

A productive working partnership

- Strong, two-way communication that gets providers and administrators working collaboratively will help to quickly identify and address opportunities for improvement
- Identify the right person or people to call when technical, administrative, or other challenges arise

Guidelines for policies about

- A Plan B for rescheduling some students into traditional classes
- Students who complete courses early

Clearly stated requirements or recommendations for

- Educating students and parents about online learning labs
- Student selection criteria
 - Parental consent?
 - Grade of B in prior course?
 - Limit enrollment to one period per day?
- Student tracking in data systems—flagging online learning lab enrollments and credit recovery
- Student use of cell phones in online learning labs

Templates and tools such as

- Parental notification letter template (in all appropriate languages)
- Materials for introducing the program to school staff
- Facilitator orientation materials
- Clear pace charts for each course and for each student as applicable
- Facilitator communication tracking tool, such as a spreadsheet
- Student orientation materials



Educating students and parents about online learning labs

Getting students and their families on board is key to creating a successful program. In Miami-Dade, FLVS administrators noted that student buy-in was crucial to their academic success, with student choice in taking a course playing a large role.

Set students' and parents' expectations

School leaders should provide both students and parents with detailed information before registration in a blended program so they can decide whether such courses are the right fit for students' needs. We recommend that districts require schools to give students options when enrolling in online learning lab courses or, at the very least, notify parents and students of online learning lab enrollment before school starts. Even in states where online courses are required for graduation, providing information in advance is still important to help determine how students can best use online courses to meet their needs.

Administrators should educate students and parents on the basic differences between online courses and traditional place-based courses before the start of the school year, not just once students have been enrolled. Existing open houses and information sessions can be expanded to include information about the new online learning lab program. Information sessions should cover potential benefits and risks to students, course structure and format, and student characteristics for success. An introduction to online learning is particularly important for parents who may not have had much access to or prior experience with technology.¹⁴

Miami-Dade leaders reported that much of the pushback they experienced from parents and students could have been avoided with more and better communication. Schools that proactively communicated with parents—asking them to sign approval forms in advance of student registration for VLL courses and translating notification letters into appropriate languages, for example—experienced less resistance than schools that did not communicate as well. In addition, allowing students to choose to enroll in an online course also has benefits in that it fosters a sense of responsibility and motivation.

Foster ongoing parental engagement

Once students are enrolled in a blended program, parental engagement helps to motivate and ensure adequate progress. Providers may offer parental accounts, complete with how-to resources such as tutorial videos, that enable parents to get involved in their child's learning by tracking progress and grades. For VLL courses, FLVS created a monthly progress report printout to track the progress of each student, which was signed by each student's parent and returned to the lab facilitator. Districts and schools will need to encourage parents to take advantage of such tools if available.

Have a Plan B in place for rescheduling some students

No matter how thoughtfully students and courses are selected for a new online learning program, school leadership should expect that some students will need to be transferred into traditional classrooms. Building in some flexibility by leaving some empty seats in classes affected by a state's class-size law, for example, will help rescheduling go more smoothly.

¹⁴ Students who do enroll in an online learning lab course will still need orientation as described in the "Supporting Student Success" section of this guide.

Facilitators must work closely with guidance counselors to ensure that students who need to transfer out of online learning lab courses can be withdrawn and scheduled in another course in a timely way, without negative repercussions for the student's report card.

Establish policies regarding students who complete courses early

One of the benefits of self-paced online courses is that some students will complete them ahead of schedule. If students complete a course early but near the end of the year, schools will need to offer clear guidance on what they should do next.¹⁵ One option, particularly for students who finish well before the end of the semester, is to encourage them to enroll directly in another online course. When a student finishes close to the end of the semester, enrolling in a new course may not be viable. Instead, other options that Miami-Dade offered included using the period as a study hall or a chance to work with computer-based tutorial programs such as Reading Plus.

In one instance, a Miami-Dade guidance counselor met individually with all early completers to offer targeted recommendations based on their academic records.

Demonstrate district support at the school level: soliciting school and staff buy-in

Districts should demonstrate their commitment to the blended program by providing schools with resources to promote student success. For the most part, Miami-Dade schools perceived that the VLL program would alleviate pressure created by the class-size laws and as a result did not view it as a burden from the district. The district administration also worked closely with schools to set up the program and to supply them with the necessary supplemental materials and resources.

Introducing school staff to the blended program is another vital step of implementation. By providing education and information on the different roles of school staff, as well as the provider, districts and schools can create clear lines of responsibility and promote communication.

Orientation for school leaders, guidance counselors, and facilitators

An orientation for all staff members whose job responsibilities will be affected by the blended program will ensure that communication is efficient and that roles are clearly defined. In Miami-Dade, school personnel reported initial growing pains among school leaders, facilitators, and guidance counselors who had to negotiate responsibilities as they went. FLVS decided to offer an orientation for all involved parties in the 2011–12 school year to create defined roles and lines of communication. Districts or schools should consider including other school staff members in the portions of facilitator orientation that involve them. (See our recommendations for facilitator orientation above.)

¹⁵ There are implications for how students enroll in a new course (through the school or independently through FLVS) and how and when the new course will appear in the school's system, so care should be taken to provide students with sound advice.

Gaining buy-in of other staff

Other school staff—namely, teachers—who are not directly involved in it may feel threatened by the implementation of a program that incorporates the use of online learning. School leaders can educate uninvolved staff about the program and its role as a supplement to, rather than a replacement of, regular academic instruction. In Miami-Dade, district administrators predicted they would have encountered more resistance from school staff if the VLL program been implemented on a larger scale or if it had been used to replace place-based courses.

Adjust bell schedules as needed

Miami-Dade instructed schools to schedule VLL courses in additional periods in order to maintain state funding for full-time equivalent (FTE) students. Twenty participating schools had block schedules that accommodated putting an extra class period in place before VLL implementation. The remaining 18 changed their bell schedule to accommodate an extra course period. Other districts considering adopting online learning labs will need to examine funding implications and may benefit from adopting similar strategies (given the current rules governing Florida class-size requirements).

Data systems: student tracking mechanisms and continuous improvement

Several key steps ensure that districts and schools track enrolled students sufficiently:

- **Flag online learning lab enrollments in student data systems** to differentiate school-based enrollments from online enrollments and monitor program performance. This will facilitate monitoring of individual students' progress while also providing valuable school-level information about the program.
- **Differentiate credit recovery enrollments from other enrollments.** Schools should work with the provider to let online teachers know which students have previously failed a course and may need additional support.
- **Monitor students' progress throughout the year,** including early completion, drops or withdrawals, and course failures. Guidance counselors in Miami-Dade reported that the FLVS system was not compatible with schools' grade reporting systems. This created an additional tracking burden and made students' progress more difficult to monitor. Guidance counselors as well as facilitators should be aware that students will need to be carefully tracked in the early part of the term because students who are not making adequate progress may also need to be rescheduled.



Financial and Other Resources Needed to Sustain Online Learning Labs

In the current economic climate, it is important to consider whether online learning programs like VLL will help reduce schools' cost per student or per course completion. The answers to questions about costs and sustainability are likely to vary across locations and across stakeholders. This section of the guide provides information to help districts administrators think through the incremental (additional) costs associated with the introduction of online learning labs in existing schools. We include in the discussion both **start-up costs**, the anticipated costs for setting up a blended program that uses online learning labs within an existing school, and **ongoing costs**, the anticipated recurring costs of running such a program from year to year.

This section is organized around two key questions that every administrator will face when budgeting for an online learning lab program:

- What investments in technology are needed to start up and maintain an online learning lab?
- What personnel costs (in time or money) can be expected for setting up and running the lab?

Our study found that the following are the major costs associated with the VLL program in these two categories:

- **Technology**— Costs associated with the hardware, software, and Internet connectivity necessary for students to complete their coursework online
 - Although existing technology configurations and the level of prior technology investments will vary by school and district, technology and infrastructure investments are likely to be the largest start-up cost.
 - Many content providers require additional infrastructure within labs, such as printers, scanners, individual headsets with microphones, and telephones with long-distance calling plans, if necessary (Miami-Dade recommends a ratio of 1 telephone per 10 students).
- **Personnel**— Costs associated with planning the program as well as running the program day-to-day at the district and school levels
 - The personnel needed to monitor and manage students as they work in the school-based labs are the greatest ongoing cost.
 - IT specialists will need to set up labs, maintain computers, and provide technology support to students and facilitators in the lab.

Other incidental costs such as communication charges for telephone and Internet as well as ink and paper for printers should also be considered.

In the discussion that follows, we include the major cost categories in terms of the types and range of investment to consider when planning and implementing an online learning lab. We also discuss financing strategies for the long-term sustainability of new online learning lab programs like Miami-Dade's.

Technology investments needed to start up and maintain an online learning lab

Infrastructure, equipment, and other technology investments are not a great concern if lab space that meets most or all of the specifications described in the “Functional Requirements of an Online Lab” section exists and can accommodate the anticipated number of online learning students. Yet schools and districts must still account for increased use of computers and bandwidth that the new program will generate.

The reality for most schools and districts is that *some* infrastructure investments will probably be needed to upgrade computer and Internet access to support online learning labs.

Estimating ongoing bandwidth costs

To estimate monthly bandwidth costs, FLVS recommends a minimum of 128 kbps per student. Multiplying that by the number of students in a lab technically produces the bandwidth requirements for an online learning lab. However, when planning for an online learning lab, administrators need to remember to aggregate demand across users (e.g., administrators, staff, and other students) who may be online for other reasons (e.g., online assessments, in-school research for face-to-face courses, and emailing) in other parts of the school, such as the central office, the media center, and other labs in the school. Site visit data suggest available infrastructure at Miami-Dade (estimated to be about 1 gigabyte per school) was insufficient to meet demands of the VLLs in the context of other demands at school.

In general, bandwidth requirements and costs associated with filling any gaps between user needs and current availability are based on too many factors to allow the presentation of firm estimates here. Tools are available on the web to measure current Internet connectivity speed in terms of download and upload speeds, which are most important from a user's perspective.¹⁶ Further, some good resources on the web are designed to help estimate the total bandwidth requirements needed in schools, depending on the type of use.¹⁷

The technology and associated costs of upgrading technology are changing rapidly. Many districts are still running dedicated hardwire connections from one point to another, in essence creating their own network, but this is expensive and perhaps unnecessary. An emerging strategy in many economic sectors is “cloud-based computing.”

¹⁶ See, for example, <http://www.dslreports.com/stest> and <http://wdc.speakeasy.net>

¹⁷ See, for example, http://etoolkit.org/etoolkit/bandwidth_calculator/about, which provides both a spreadsheet for aggregating demand for bandwidth across applications and users and a set of case studies that describe other districts' bandwidth needs and how they implemented solutions to address them.

In the following table, some of the relative costs of different approaches are provided. The costs listed are ongoing charges for bandwidth and are in addition to the other infrastructure costs described below.

Bandwidth cost comparisons

Here's a comparison of various bandwidth costs. These are average monthly bandwidth prices on a national basis. Prices can vary widely; they are likely lower in major metropolitan areas and higher in rural areas.

Cloud-based networks, such as MPLS (multi-protocol label switching), have dramatically eased the cost of high-quality network transport... MPLS customers incur two types of costs; a local access fee for the connection (sometimes called the "last mile" or "local loop") between their building and the cloud and a network access fee (called a port fee) for the traffic they'll be routing through the provider's backbone. Combined, these costs are typically much lower than the cost of creating your own end-to-end data network.

— AV Technology (2009, p. 1).

Service	Bandwidth (MBPS)	Monthly Cost	Price Per MB
DSL	1.54	\$100 to \$150	\$65 to \$97
T1	1.54	\$450	\$292
DS3 (or T3)	45	\$5,000	\$111
Ethernet over copper	10	\$950	\$95
Faster Ethernet	100	\$3,000	\$30
Gigabit Ethernet	1,000	\$18,000	\$18

Source: AV Technology, 2009, retrieved from <http://avtechnologyonline.com/article/27196.aspx>.

Retrofitting buildings

Once administrators have an understanding of bandwidth requirements, they will have a better sense of how much retrofitting will be needed in the schools. Older buildings are likely to require more costly renovations than newer ones because modern school designs often provide for better access to electrical outlets and may include cabling to classrooms. Required upgrades in some schools we visited included one or more phone line drops, electrical outlets, and Internet cabling and access points for wired connections. If building a lab from the ground up, "a 30' by 30' computer lab costs \$150,000 or more to construct, including the extra wiring, furniture, and air conditioning, for an amortized annual cost of about \$17 per student, not including the computers" (Greaves, Hayes, Wilson, & Gielniak, 2011).

Another issue affecting cost of retrofitting building will be whether to use wired or wireless connections of individual computers to the Internet. A school district in Tucson, Arizona, used a wireless implementation that cost about \$100,000, which included about \$10,000 for hardwiring (Schaffhauser, 2011). Still, adding the wireless features will be much less expensive than hardwiring entire buildings for Internet access.

Equipment and hardware costs

Miami-Dade’s program required computers, software, printers, scanners, headphones and microphones, telephones, and server space for students to store their work. In addition to dedicated lab equipment, districts may find that they need to upgrade central IT services and central office administrative computers, printing, and supplies.

Schools and districts may have to purchase new computers to implement online learning lab programs like the VLLs. In Florida, where end-of-course exams are transitioning to computer-based formats, the total cost of computers may be shared across multiple programs. In Miami-Dade, the district purchased computers for some of the larger programs, although most schools reported having sufficient numbers of computers to implement the program on their own. Some schools did report having to take computers intended for other programs in order to meet the online learning need.

The following table shows estimated equipment costs per lab serving 30 students.

Estimated equipment start-up costs for an online learning lab

Start-up: Equipment for a lab serving 30 students	No. of Units	Estimated cost (\$)	
		Per unit	Total cost
A new computer that meets VLL program requirements, including basic software (see Appendix D for list of requirements)	30	\$600	\$18,000
Printer with fax and scan capability (not including ink and paper)	1	\$500	\$500
Cordless telephone, if required by instructional model	3	\$20	\$60
Headphones with microphone	30	\$12	\$360
TOTAL			\$19,420

Note: These numbers cover only purchase costs, not “annualized” costs, the cost of equipment per year of use, or “total cost of ownership”. See resources provided by the Consortium for School Networking –CoSN- for more information about the total cost of ownership of school-based technology: <http://www.cosn.org/Default.aspx?TabId=5118>.

Online content and instructors

The cost of online instructional *content* and teacher time to provide *instruction* varies widely depending on provider and size of program, but most districts will need to budget instructional costs in their calculations. Digital educational resources have great appeal in terms of economies of scale because they can be easily reproduced and disseminated. In today’s educational market, however, large-scale providers like FLVS are more likely to reap these economies directly. The resulting cost savings should flow to districts in the form of lower prices and bulk discounts.

Districts in Florida, including Miami-Dade, are in a unique situation in that they can use FLVS instructional content at no cost to the district through Florida state education financing. However, state costs are likely to be informative for districts and schools outside Florida regarding the scale of cost that can be expected for a turn-key online course. The average cost to the state per FTE in the 2010–11 school year was \$5,183 (FLVS Legislative Brief, 2011), or roughly \$880 per yearlong enrollment per student completed with a passing grade.¹⁸ This suggests an estimated state investment in instruction by FLVS through the VLL programs in Miami-Dade at about \$2.8 million.¹⁹

School administrators in Miami-Dade also recommended monitoring software to enable lab staff to supervise students' computer-based activities. The estimated cost is about \$500 per lab.

Personnel costs in time or money

At every stage of program planning and administration, there will be personnel costs.

Planning and administration

To launch an online learning program, staff time is needed for program planning. Administrators will need time to design a program that meets local needs. Districts staff will need time to coordinate with schools and vendors to develop policies and implementation procedures, ensure compatibility of data systems, and plan and deliver the staff training, student orientation, and possibly community outreach. District leaders will need to continually monitor program quality, making adjustments as necessary.

Three senior district administrators reported allocating about 20% of their time to launch the program leading up to and during the first year of operation. (Other districts should expect start-up to require more time. Miami-Dade put their program together in only a few weeks!)

Planning and administration costs are somewhat fixed, not varying substantially with size of program or as a program grows. Even small programs require similar policies and procedures to be developed. However, large programs will require some additional effort to establish because logistics and coordination will be more complex.

¹⁸ Assuming each course is approximately 0.17, or one-sixth, of a full FTE, which is calculated on seat time.

¹⁹ There were 5,469 semester-long courses completed in Miami-Dade's VLL program in 2010–11, or the equivalent of 2734.5 yearlong courses, equal to 546.9 FTEs by FLVS's state funding formula. FLVS received \$5,183 per FTE, or approximately \$2.8 million.

School administrators should expect to spend some time supporting program start-up, typically in the following activities:

- Reviewing needs to be met by the online learning lab and selecting suitable vendors to meet those needs (schools may work in partnership with their districts)
- Identifying the location of the lab or labs in the school
- Ensuring the selected spaces meet facilities and technical requirements
- Ensuring that the registration system properly tracks online students and allows attendance, grades, and related enrollment data to be properly incorporated into general enrollment procedures
- Training school staff about implementation policies and practices
- Recruiting and orienting students to the program
- Engaging parents and the community in the development and implementation of the program
- Providing other supports for the integration of the learning lab program within the school community

These activities will most likely involve the principal (and vice principal in larger schools), guidance counselors, registrars and other front office staff, and possibly lab facilitators.

Technical staff

School-based IT staff reported that the VLLs required the same amount of time and effort as any other school computer lab. Existing staff or contractors will be necessary to physically set up new or upgraded labs. An IT specialist we interviewed estimated that 60 hours of work is required to set up a single lab in one school. Given this investment in time, many districts, including Miami-Dade, choose to use existing technical staff to do renovation work in schools, so IT labor expenses are included in existing cost structures. Program implementation may require time from other district personnel, such as district IT services, although we were not able to estimate the time required from district technology staff.²⁰

Lab facilitators

As we discussed in our Staffing section, staffing every learning lab with a qualified and effective facilitator is an important ingredient for success in overall implementation of program. Because VLL facilitators are not required to be certified instructors, they can accommodate students taking courses in any subject. This reduces the need for schools to hire additional teaching staff otherwise needed to accommodate Florida's state-mandated class-size limits.

²⁰ For example, Miami-Dade County Public Schools has a centralized technology staff that includes many school-based technology coordinators.

Student-facilitator ratios

Miami-Dade operated at a ratio of about 150 students per facilitator, with between one and two facilitators working full time at a school. The total cost in salary and fringe benefits for 39 district-funded facilitators was \$3,137,270, or approximately \$80,000 per facilitator.²¹

One temptation for administrators will be to increase the number of students per facilitator to reduce per student costs. Increasing the number of students each facilitator serves would reduce staffing costs but could also negatively affect student outcomes. The “Staffing for Student Success” section describes the hazards associated with increasing the number of students in a lab during any given period beyond 30 or so. Creating larger labs may also be physically impossible because of facility constraints.

Funding lab staff positions over time

In 2010–11, Miami-Dade funded lab facilitator positions with American Recovery & Reinvestment Act (ARRA) stimulus funds, reducing the financial burden on schools. In future years, it will be a challenge to fund the positions without access to stimulus funds or other outside sources, district leaders reported.

One strategy for implementation in a time of budget shortfall would be to model the staffing after that of Miami-Dade schools whose VLL programs did not receive a district-funded facilitator. Several of these schools were able to find as many as six regular teachers to facilitate the VLL program. These teachers took on extra instructional periods to monitor the labs, for which they received supplemental pay. Although this approach could minimize staffing costs for schools, it would also increase the logistical burden on administrative staff and complicate communication among facilitators, the school, the district, the provider, and online teachers (see details about the facilitator position in the staffing section).

Supplemental pay may also be needed to cover additional staff time to monitor students who use school computer labs outside the regular school day. Staggering staff work schedules may help maximize coverage without incurring additional costs.

²¹ This includes fringe benefits and health insurance costs. District administrators report that the cost per employee fluctuated widely by school because the positions were predominantly filled by employees moved from positions at the district's central office.

Financing Online Learning Labs in Florida

This section describes some of the unique circumstances in Florida and their effect on the costs of online learning labs and provides more general reflections on sustaining online learning labs over time. The information is provided for district administrators in Florida to help them better understand recent legislative requirements. District administrators in other states will also be interested in how Miami-Dade made its VLL program work in this legislative context.

State Education Funding in Florida

Florida has unique characteristics that affect the financial sustainability of blended learning programs like the VLL program, including a state-based system that provides additional funding to districts for AP courses and calculates funding for FLVS differently than for traditional districts. Finally, Florida has class-size requirements from which online courses are exempt.

In Florida, the state revenue accounts for roughly half the funding available to school districts, while the other half comes from local property tax revenue. What is noteworthy about Florida's formula is that, in essence, local property tax rates are set by the State to encourage equity across districts. Funding is based on the number of FTE students served. Because VLL courses in Miami-Dade were scheduled into an additional period beyond the FTE seat time requirements, its VLL program is not expected to result in any reduction in FTE funding from the state.²² Because the state currently pays for FLVS instruction above and beyond core FTE requirements, it bears a large portion of the cost for FLVS's VLL program. Administrators in Florida or a state with a similar system should seriously consider revising the bell schedule also to keep FTE funding stable in the context of an online learning lab program.

Class-Size Requirements Exempting Online Courses

Miami-Dade was motivated to create the VLL program in response to legislated class-size limits because online courses are exempt from the limits. A 2010 Florida TaxWatch report on the class-size legislation estimated that the state spent nearly \$19 billion to meet class-size requirements since the mandate's implementation in 2003, adding that the costs associated with reducing class size could exceed \$40 billion by 2020. The major costs were classified as "operational" and represented the costs associated with expanding the teaching workforce to meet class-size reductions (Diaz, 2010). Reports suggest that Miami-Dade invested about \$50 million to reach 96.5% compliance with the class-size law in the 2010–11 school year and would have needed an additional \$30 million to reach 100% compliance (Teproff, 2011).

Weighing on Miami-Dade's cost ledger were the potential fines associated with class-size amendment violations that would result if it did not implement a program like VLL. According to district officials, the state fine to districts for noncompliance in the 2010–11 school year was \$2,738 per student per course in grades 9–12. Through course instruction provided by FLVS, Miami-Dade officials reported a reduction in state fines for class-size overages. Informal estimates suggest the district may have saved more than \$3.5 million in state fines.²³

²² In Florida, part of state education funding to districts is calculated on FTEs. One FTE is defined for regular public districts as 300 minutes of *district-provided* daily instruction. Miami-Dade scheduled VLL courses, provided by FLVS, in supplemental periods outside the 300-minute minimum. Some schools were already on an eight-period block schedule. Others were asked to change their bell schedules to a seven-period day to accommodate the VLL program.

²³ With more than 7,800 enrollments, each representing 0.17 FTE, multiplied by the state fine of \$2,738, the savings add up quickly and total more than \$3.5 million. (Costs were incurred, however, to reschedule VLL students who did not complete their online courses.)



References

- 2010–2011 FLVS Enrollment Summary. (2011, June 30). Florida Virtual School. Retrieved from <http://www.flvs.net/areas/aboutus/Documents/EnrollmentSummary.pdf>
- Cavanaugh, C. (2007). *Effectiveness of K-12 Online Learning*. In Moore, M., (Ed.), *Handbook of Distance Education*. 2nd ed. Mahwah, NJ: Lawrence Erlbaum Associates.
- Diaz, C. (2010). Amendment 8 is the right investment for Florida: Evidence shows modifying the Class Size Reduction Amendment will save billions for Florida taxpayers. Florida TaxWatch Research Report. Florida TaxWatch. Retrieved from <http://www.floridataxwatch.org/resources/pdf/07232010Amendment8CSR.pdf>
- Florida Department of Education. (2011). *Virtual instruction programs (2011-2012) Questions and answers*. Retrieved from <http://www.fldoe.org/schools/virtual-schools/pdf/DistrictVIP-FAQ.pdf>
- Florida Senate Education Committee. (2011). *Digital Learning Act*. 2011-137. Retrieved from <http://www.flsenate.gov/Session/Bill/2011/7197>
- FLVS Legislative Brief. (2011). Florida Virtual School. Retrieved from <http://www.flvs.net/areas/aboutus/Documents/2010-2011%20Legislative%20Brief.pdf>
- Goedde. (2011). *Students come first*. RS20650. Retrieved from <http://www.legislature.idaho.gov/legislation/2011/S1184.htm>
- Greaves, T., Hayes, J., Wilson, L., & Gielniak, M. (2011). *The technology factor: Nine keys to student achievement and cost-effectiveness*. The Greaves Group in collaboration with The Hayes Connection and One-to-One Institute.
- Horn, M., & Staker, H. (2011). *The rise of K-12 blended learning*. Innosight Institute. Retrieved from <http://www.innosightinstitute.org/innosight/wp-content/uploads/2011/01/The-Rise-of-K-12-Blended-Learning.pdf>
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Washington, DC: U.S. Department of Education, Office of Planning, Evaluation, and Policy Development Policy and Program Studies Service.
- Michigan Department of Education. (2010). *MDE - High school*. Retrieved from <http://www.michigan.gov/mde/0,1607,7-140-38924---,00.html>
- Repetto, J., Cavanaugh, C., Wayer, N., & Liu, F. (2010). Virtual high schools: Improving outcomes for students with disabilities. *The Quarterly Review of Distance Education*, 11(2), 91–104.
- Schaffhauser, D. (February 2011). From zero to wireless in 4 essential steps. *THE Journal*. Retrieved from <http://thejournal.com/Articles/2011/02/11/From-Zero-to-Wireless-in-4-Essential-Steps.aspx?Page=1>
- Schorr, J., & McGriff, D. (2011). Future schools. *EducationNext*, 11(3). Retrieved from <http://educationnext.org/future-schools/>
- Sloan, J. & Mackey, K. (2009). *Voise Academy: Pioneering a blended-learning model in a Chicago public high school*. Innosight Institute.

- Smith Jaggars, S. (2011). *Online learning: Does it help low-income and underprepared students?* (CCRC Working Paper No. 26). CCRC Assessment of Evidence. New York, NY: Teacher's College, Columbia University.
- SREB Educational Technology Cooperative. (2006). *Cost guidelines for state virtual schools: Development, implementation and sustainability*. Southern Regional Education Board. Retrieved from <http://www.sreb.org/page/1295/publications.html>
- Tallent-Runnels, M., Thomas, J., Lan, W., Cooper, S., Ahern, T., Shaw, S., & Liu, X. (2006). Teaching courses online: A review of the research. *Review of Educational Research*, 76(1), 93-135. Retrieved from <http://rer.sagepub.com/content/76/1/93.abstract>
- Teproff, C. (2011, January 7). Failure on class sizes could cost \$10 million - Miami-Dade - MiamiHerald.com. *Miami Herald*. Miami, FL. Retrieved from <http://www.miamiherald.com/2011/01/07/2005991/failure-on-class-sizes-could-cost.html>
- The Cost of Bandwidth. (March 6, 2009). *AV Technology*. Retrieved from <http://avtechnologyonline.com/article/27196.aspx>
- Wang, H., & Woodworth, K. (2011). *Evaluation of Rocketship Education's use of DreamBox Learning's Online Mathematics Program*. Menlo Park, CA: Center for Education Policy, SRI International.
- Watson, J. (2007). *A National Primer on K-12 Online Learning*. International Association for K-12 Online Learning (iNACOL). Retrieved from http://www.inacol.org/research/docs/national_report.pdf
- Watson, J., & Gemin, B. (2008). *Using online learning for at-risk students and credit recovery*. Promising Practices in Online Learning. International Association for K-12 Online Learning (iNACOL). Retrieved from http://www.inacol.org/research/promisingpractices/iNACOL_CreditRecovery_PromisingPractices.pdf
- Wicks, M. (2010). National primer on K-12 online learning, Version 2. International Association for K-12 Online Learning (iNACOL). Retrieved from www.inacol.org/research/docs/iNCL_NationalPrimerv22010-web.pdf



Appendix A: Overview of Miami-Dade's Online Learning Labs

Miami-Dade County Public Schools, in collaboration with Florida Virtual School, developed the VLL program in the 2010–11 school year as one element of the district's larger effort to comply with Florida's class-size legislation and to provide students with expanded opportunities for virtual learning.

Through the VLL program, students logged on to FLVS courses from a school computer lab or school media center during a regular period of the school day. Off-site FLVS teachers taught online courses, and students received additional support from on-site lab facilitators.

The VLL program is a type of blended learning, combining elements of placed-based education and online learning. Students enrolled in the VLL may be taking the online course with other students in their school or independently, and other students in the online course could be VLL students or students enrolled independently anywhere in the country. While VLL students typically log in at an assigned time and day, other students may participate in the course anytime. FLVS instructor hours are typically 8am to 8pm Monday through Saturday.

A total of 56 middle and high schools—including 38 of the district's 54 non-charter public high schools—participated in the program during the pilot year, 2010–11.²⁴ Participating high schools are listed in Exhibit A-1. All told, about 5,500 high school students enrolled in nearly 8,000 half-year online courses,²⁵ about 150 students participated per school on average, although program sizes ranged from 34 students to 270 students.

In most schools, VLL enrollments counted for a small fraction of overall student enrollment. However, at a few smaller magnet programs, all students were taking one or two courses each through the program. Thus, total VLL enrollments accounted for between 2% and 81% of a school's total enrollments (9% on average).

An estimated 63 lab facilitators served in a VLL for at least one class period in 2010–11, and on average one to two facilitators served in a school.

²⁴ Miami-Dade Public Schools is the fourth largest school district in the country, serving more than 340,000 students each year.

²⁵ FLVS courses are divided into segments that roughly cover the same amount of material as a conventional semester (a full-year course, such as Spanish II, consists of two segments).

Exhibit A-1: Miami-Dade Senior High Schools with VLLs, School Year 2010–11²⁶

American	Alonzo & Tracy Mourning
Barbara Goleman	Booker T. Washington
Coral Gables	Coral Reef
Design and Architecture	Dr. Michael M. Krop
Felix Varela	G. Holmes Braddock
Hialeah Gardens	Hialeah
Hialeah-Miami Lakes	Homestead
iPreparatory Academy	John A. Ferguson
Miami Beach	Miami Carol City
Miami Central	Miami Coral Park
Miami Edison	Miami Jackson
Miami Killian	Miami Norland
Miami Northwestern	Miami Palmetto
Miami	Miami Southridge
Miami Springs	Miami Sunset
New World School of the Arts	North Miami Beach
North Miami	Ronald Reagan/Doral
South Dade	South Miami
South Dade	Southwest Miami
South Dade	Westland Hialeah

²⁶ Thirty-nine schools participated in Miami-Dade's pilot program. However, the study only includes 38, since data was not obtained for one school.



Appendix B: Expanded Data Sources, Methods, and Results in the Miami-Dade Case Study

This appendix describes the data sources, dataset construction, and analytic methods used for a single case study of the Miami-Dade County Public Schools (Miami-Dade) district.

Data Sources

The study drew on a number of data sources, including Miami-Dade and FLVS demographic and enrollment data for students participating in the VLL program, site visits to seven VLL schools, and surveys of student and facilitator.

Miami-Dade and FLVS Datasets

We constructed a database using two sources: enrollment-level data from FLVS and student-level data from Miami-Dade. Student-level enrollment and demographic data were obtained from both FLVS and the district for students enrolled in the VLL program in Miami-Dade in the 2010–11 school year.

The FLVS file contained all active, completed, and attempted high school-level VLL enrollments over the course of the year, along with each student's unique district-assigned identifier (SID), course name, course ID, segment number, school name, activation date, withdrawal date, current grade, and final grade. Activation dates ranged from May 18, 2010, to June 30, 2011, with the majority of enrollments activated during September and October 2010. The district file contained all Miami-Dade high school-level VLL enrollments over the course of the same year, as well as each student's demographic information, IEP (individualized education plan) status, grade point average, FCAT reading and math scores, and grade level.

See Exhibit B-1 for detailed definitions of student demographic and achievement indicators.

Exhibit B-I Definitions of Student Demographic and Achievement Indicators

Data Source	Variable	Definition	School Year
District /FLVS	SID	Unique, district-assigned student identifier used to key the files	
District	Grade level	Student grade level in the current academic year	2010–11
District	Free or reduced-price lunch	Student qualified for free or reduced-price lunch in the previous academic year	2009–10
District	ELL	Flag for limited English proficiency students	
District	Gifted	Flag for students with a primary exceptionality code indicating gifted status	
District	Disabled	Flag for students with a primary exceptionality code indicating any disability, including a mental, emotional, physical, or cognitive disability	
District	Gender	Flag for gender, male or female	
District	Race	Categories were African American, Hispanic, white, or Other (Other included students identified in Miami-Dade files as "Asian," "Islander," "American-Indian" and "Multi").	
District	Test scores	FCAT Developmental Scale Score in reading for English 1 or mathematics for Algebra 1	2009–10
District	GPA	Cumulative GPA of the student as of January 2011 (Note that grades from the first half of the 2010–11 school year were included, capturing VLL course grades for any segments completed before January 2011.)	
FLVS	School	Miami-Dade high school of the enrollee	
FLVS	Course	Name of the VLL course	
FLVS	Course credit	Credit level (0.5 or 1) for the enrollment	
FLVS	Segment	Segment 1 or Segment 2 of a course	
FLVS	Activation date	Date on which the enrollment was activated	
FLVS	Withdraw date	Date on which the student withdrew from the enrollment, if applicable	
FLVS	Completion date	Date on which the student completed the enrollment, if applicable	
FLVS	Enrollment status	Status of the enrollment as of July 1, 2011. Categories were Active, Classroom Assigned, Complete, Complete Failing, Contact Instructor, Course Request Incomplete, Never Activated, Never Assigned, Withdrawn Failing, and Withdrawn No Grade.	
FLVS	Enrolled in course	Student persisted in course past the initial withdrawal period (computed from FLVS data).	
FLVS	Course completion	Student completed the FLVS online course with a passing grade (computed from FLVS data).	2010–11

Student and Facilitator Surveys

To supplement demographic and enrollment data from the district and FLVS, researchers surveyed both VLL students and lab facilitators. Student surveys, designed to take approximately 30 minutes, were delivered using a link to a Web-based survey tool to students' district email addresses on May 4, 2011. The student survey closed on June 21, 2011, with a 15% response rate (818 completed the survey of 5,461 VLL students total). The low student survey response rate was in part due to initial challenges in identifying the target population of VLL students and creating the sampling frame by obtaining accurate contact information for students.

The facilitator survey was offered using the same Web-based tool and was sent to facilitators' district email addresses on May 26, 2011. The facilitator survey closed on June 28, 2011, with a 59% response rate (37 of 63 total).²⁷ The target population of Miami-Dade facilitators was defined as any school staff member who was responsible for a VLL during one of more periods of the school day. As the study's definition of a facilitator was the most inclusive, district and FLVS lists did not include some facilitator contact information. The study team, as a result, was required to compile the sampling frame for facilitators by contacting schools directly. Given the limitations of this sampling frame (unlike the student survey), we cannot make statements about the representativeness of the facilitator survey respondents in terms of (unknown) population demographics.

VLL School Site Visits

The study team conducted site visits to seven schools in Miami-Dade where the VLL program was piloted. Site visit schools were nominated on the basis of a range of demographic characteristics, with a particular focus on free and reduced-price lunch (FPRL), and ELL populations, and the size of their VLL programs. The final selection of schools was then conducted after recommendations from FLVS and Miami-Dade leadership were considered. Seven of the 11 schools invited by Miami-Dade leadership in collaboration with SRI agreed to participate in the site visit data collection. They were Coral Gables Senior High School, the Design and Architecture Senior High, Dr. Michael M. Krop Senior High School, Hialeah Gardens Senior High School, Miami Senior High School, Miami Palmetto Senior High School, and Westland Hialeah. Site visits took place during the weeks of May 2 and 9, 2011. Two members of the study team visited each school to collect data including interviews with school staff members such as principals, IT specialists, and others involved with managing the program at the school level, one or more focus groups typically including eight or more students involved in the program, and observation of the VLL classrooms.

The study team also conducted one site visit each to the Miami-Dade district office in Miami as well as to the FLVS central office in Orlando. Informal discussions about study logistics and site visit selection took place in March 2011, and formal interviews with leadership took place from June 28 to June 30, 2011.

²⁷ Many of the facilitator survey non-respondents were staff members who were determined not to be the primary facilitator at their school.

Dataset Construction

The files from Miami-Dade and FLVS were matched using a unique district-assigned identifier. Analysts were able to match 90% of the district records to FLVS records submitted. The initial merged file contained 9,295 records representing all active, completed, and attempted enrollments. Records were considered *failed enrollments* if the course request was never completed (“course request incomplete”), the course was never activated (“never activated”), or the course was never assigned (“never assigned”). Failed enrollments were excluded from the dataset, leaving 7,882 *course enrollments* for which (1) the student successfully completed the FLVS online course request process and (2) persisted in the course past the withdrawal period.

Each of the 7,882 course enrollments was further coded as complete or failed. Courses were defined as *complete* if the student completed the course with a passing grade. Analysts coded the enrollments as *failures* if a student withdrew (“withdrawn failing”) from the course after the withdrawal period, completed the course with a failing grade (“complete failing”), or remained actively enrolled (“active”) but had not completed the course by June 30, 2011. Note that out of consideration for the pilot year implementation, FLVS extended the course completion deadline for Miami-Dade VLL students to July 1, 2011, and therefore the final course completion percentages may be slightly higher than data used in the development of this guide.

Because students could enroll in more than one course, represented in the 7,882 course enrollments were 5,641 unique students; these 5,461 students comprised the VLL student population. Students were defined as a *completer* if they completed one or more of their course enrollments. The *percentage of courses* completed was defined at the student level as the number of total courses the student completed divided by the total number of his or her course enrollments. A yearlong course completion was defined as the successful completion of both segments of a yearlong course (e.g., Algebra I, Spanish I).

As previously noted, of the 5,461 students in the VLL population, 818 completed the survey for a 15% response rate. Analysts identified several key demographic variables for which survey respondents were not representative of the total VLL student population, necessitating the weighting of survey results. The composition of the respondent pool differed significantly from the population with regard to grade level and ethnicity. Additionally, completers (i.e., students who completed one or more of their enrolled courses) were overrepresented in the respondent pool compared with the population (Exhibit B-2). Weighting resulted in a respondent pool with demographics that did not differ significantly from the population along these variables. The academic profile of survey respondents, on average, was also higher than that of the VLL population. However, the academic profile associated with the weighted survey data more closely reflects the population than the unweighted data.

Exhibit B-2. Profile of Students enrolled in VLL Courses in Miami-Dade County Public Schools, 2010–11

Demographic		VLL Student Population (n = 5,461)		Unweighted Respondents (n = 818)		Weighted Respondents (n = 818)	
		Number	Percent	Number	Percent	Number	Percent
Grade	9	842	15.4	191	23.3	126	15.4
	10	975	17.9	228	27.9	146	17.9
	11	1582	29.0	222	27.1	237	29.0
	12	2062	37.8	177	21.6	309	37.8
Ethnicity	Black	1343	24.6	132	16.1	201	24.6
	Hispanic	3354	61.4	539	65.9	503	61.5
	White	630	11.5	121	14.8	94	11.5
	Other	134	2.5	26	3.2	20	2.4
Gender	Male	2691	49.3	392	47.9	397	48.5
	Female	2770	50.7	426	52.1	421	51.5
ELL Active	No	5291	96.9	792	96.8	791	97.7
	Yes	170	3.1	26	3.2	27	3.3
FRPL	No	1850	33.9	299	36.6	275	33.7
	Yes	3611	66.1	519	63.4	542	66.3
IEP Disability	No	5173	94.7	776	94.9	781	95.5
	Yes	288	5.3	42	5.1	37	4.5
		Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
GPA		2.87	0.95	3.15	0.94	3.05	0.97
FCAT reading		315.03	46.85	326.83	44.47	319.18	46.34
FCAT math		329.02	35.66	335.34	36.36	332.61	34.14

Methods

Interview and focus group summaries were analyzed using standard qualitative procedures. Analysts coded site summaries and in some cases interview notes using a pre-established set of themes. These initial themes were refined after a meeting with all site visitors. Themes were further refined after an initial coding process.

Using the survey data, analysts ran descriptive statistics for all items on the student and facilitator instruments to determine the number and percentage of respondents selecting each response option. Weighted frequencies were produced for the student survey, and unweighted frequencies were produced for the facilitator survey.

VLL student population data for the 5,461 students were examined to generate descriptive profiles for completers (i.e., students who completed one or more of their enrollments) and non-completers (i.e., students who completed none of their enrollments). Analysts also used regression techniques to predict (1) the number of courses enrolled, (2) percentage of courses completed, (3) completer status, and (4) VLL course satisfaction; student demographics, measures of prior academic achievement, and in some cases responses provided on the survey were included as predictors in the model. The student demographics included gender, ethnicity, ELL status, FRPL status, IEP disability status, and grade level. Measures of prior academic achievement included FCAT math and reading scores. GPA was not included in analyses because it was collected concurrently with rather than before students' VLL enrollments.

Regression techniques were also applied using the VLL enrollment data from the 7,882 course enrollments. Characteristics of the course, such as whether it was a full-credit or half-credit course, and characteristics of the course enrollee, such as whether the enrollee was male or female, were used to predict completion.



Appendix C: Course Selection and Enrollments

FLVS enrolls students in one semester increments, which it calls “segments.” Full year courses like Algebra I or American History require two segments to complete the full-year course. The following table lists student enrollments in segments.

FLVS Course Segments	Enrollment Count	Percentage of Total Enrollment
Spanish I	902	11.4
American Government	838	10.6
Spanish II	704	8.9
American History	623	7.9
World History	621	7.9
English IV	361	4.6
English III	357	4.5
Algebra II	301	3.8
Computing for College and Careers	253	3.2
Economics	223	2.8
Web Design I	202	2.6
Earth-Space Science	200	2.5
Personal Fitness	200	2.5
Driver Education/Traffic Safety	190	2.4
Pre-Calculus	165	2.1
Biology I	141	1.8
Geometry	139	1.8
Physical Science	135	1.7
Psychology I	136	1.7
Liberal Arts Mathematics	114	1.4
Algebra I	102	1.3
Life Management Skills	106	1.3
Chemistry I	97	1.2
Marine Science	97	1.2
English I	86	1.1
Spanish III	87	1.1
English II	81	1.0

FLVS Course Segments	Enrollment Count	Percentage of Total Enrollment
AP Macroeconomics	59	0.7
Physics I	52	0.7
AP Biology	38	0.5
AP Environmental Science	33	0.4
Latin I	30	0.4
Critical Thinking and Study Skills	22	0.3
Fitness Lifestyle Design	22	0.3
AP Art History	14	0.2
AP Calculus AB	18	0.2
AP Eng. Lang. and Composition	12	0.2
AP Eng. Lit. and Composition	12	0.2
AP Statistics	15	0.2
AP United States Government and Politics	12	0.2
AP Calculus BC	7	0.1
AP Computer Science A	10	0.1
AP Microeconomics	8	0.1
AP Spanish Language	4	0.1
AP United States History	8	0.1
Calculus	6	0.1
Chinese I	11	0.1
Chinese II	7	0.1
Global Studies	9	0.1
Latin II	6	0.1
Computer Programming I	2	0.0
Reading for College Success	2	0.0
Web Design II	2	0.0
Total	7882	100



Appendix D: FLVS Hardware and Software Requirements for Setting Up a Virtual Lab²⁸

Software

Sun Java 1.4.2 JRE or higher
Sun Java 3D 1.3 or higher - Required in some courses
Flash 9.0 or higher
Shockwave (operating system-dependent)
Acrobat Reader 7.0.9 or higher
Microsoft Office, Open Office or Google Docs (Some business courses require Microsoft Office, which is noted within course registration)
Recent version of Internet browsers

Hardware

PC Requirements

Pentium III (500 MHz minimum, higher recommended)
Minimum of 10 gigabytes free HDD space
Windows XP, Vista, or 7
512 MB Ram
12x CD-ROM (CD/DVD Recommended; Some courses require CD/DVD which will be notated within course registration)
Students need a method to save work to a portable medium (e.g., USB drive)
Display setting 1024x768 resolution

Mac Requirements

Power Mac G3 (350 MHz)
OSX
256 MB Ram
Minimum of 10 gigabytes free HDD space
12x CD ROM (CD/DVD Recommended)
Students need a method to save work to a portable medium (e.g., USB drive)
Display setting: 1024x768 resolution

²⁸ Adapted from the *VLL Handbook* (2011). Florida Virtual School.



SRI International

333 Ravenswood Avenue
Menlo Park, CA 94025
Phone: 650.859.2000

www.sri.com

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