



Wall mural at Wilmington Middle School

Impact Report

**Children's Environmental Literacy Foundation – Los Angeles Unified School District
Leadership Training in Sustainability Curriculum Pilot Project**

Updated May, 2018

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Impact Report - Executive Summary

Children's Environmental Literacy Foundation – Los Angeles Unified School District Leadership Training in Sustainability Curriculum Pilot Project

CELF Program Description: The Children's Environmental Literacy Foundation (CELF) is a non-profit organization dedicated to making sustainability an integral part of every child's K-12 learning experience. CELF offers a proven, systematic approach to sustainability education, including an annual four-day Summer Institute. At the Institute, participants are immersed in sustainability principles and best teaching practices, focusing on place-and project-based learning. Participants apply these principles and practices by designing lessons and units they will use in their own classrooms. Campus sustainability and community partnerships are also emphasized. Other services include ongoing professional development for teachers and administrators, site-based programs and consulting services, and citizen science projects. During its fifteen years of operation, CELF has worked with more than 9,000 teachers and school leaders and more than 900,000 students from 2,800 schools.

CELF-LAUSD Pilot Program: Three middle schools participate in LAUSD's three-year pilot program. The three schools have sent a combined total of twelve teachers and two principals to CELF's Summer Institute. After the Institute, CELF supports the teachers through additional local training, project and curriculum planning support, and regular update meetings. As participants gain experience and expertise, they provide training to the other teachers at their school and share their knowledge with other educators through professional workshops, LAUSD events, and social media.

As interest in the program has spread within the schools, sustainability teams have grown to include a total of twenty-three teachers, principals, assistant principals and other professional staff members. Each school has assigned a Sustainability Coordinator, who shares knowledge and skills gained from the Institute with colleagues, coordinates with school administration, and shares their school's sustainability accomplishments with the education community.

Phase 2 of the program has recently begun, with two new partner schools joining the program. The new elementary schools feed into one of the original Pilot Program middle schools. Together, the three schools have formed a mentor-mentee relationship, designed to yield long-term sustainability learning and practice by the staffs and students and support whole school change at all three campuses.

Pilot Program Results: The CELF-LAUSD program has produced very positive results in support of LAUSD and California Department of Education objectives. Based on a survey of participating teachers, the program has had the following outcomes, averaged over all teachers and campuses:

Effectiveness Measure	Teacher Rating (5 = very much, 1 = not at all)
Positive impact on student learning	4.1
Positive impact on student engagement	4.3
Positive impact on teachers' professional growth	4.0
Positive impact on coverage of state standards	3.6
Increase in teaching sustainability	32%

Student grasp of sustainability principles	3.5
Integration of sustainability with previous curriculum	3.8

These results strongly support LAUSD’s objectives, related to its goal of a 100% graduation rate. These objectives include parent, student, and community engagement; 100% attendance; and proficiency for all. Strategies that support these objectives, such as high quality instruction and high caliber teachers, are also achieved through CELF’s program.

The results also demonstrate progress toward LAUSD’s goal of becoming the most sustainable and environmentally-friendly large urban school district in the country. Finally, the program supports California’s Environmental Principles and Concepts and Environmental Literacy Blueprint, which outlines a strategy to teach every California student in, about and for the environment, fully integrating environmental literacy into science, social science, and language arts.

All of these benefits are achieved within a framework that aligns with academic standards, including Next Generation Science Standards and Common Core English Language Arts and Math standards.

Impact Report

Children’s Environmental Literacy Foundation – Los Angeles Unified School District Leadership Training in Sustainability Curriculum Pilot Project

The Children’s Environmental Literacy Foundation (CELf) is completing the third year of its three-year pilot program on Leadership Training in Sustainability Curriculum with the Los Angeles Unified School District. This report highlights program’s activities, accomplishments, and impact.

Program Overview

Program Description: The Children’s Environmental Literacy Foundation (CELf) is a non-profit organization dedicated to making sustainability an integral part of every child’s K-12 learning experience. CELf offers a proven, systematic approach to sustainability education, including an annual four-day Summer Institute that offers in-depth training on sustainability principles and ways to integrate them into existing curricula. At the Institute, participants are immersed in sustainability big ideas and best practices for teaching them, focusing on place-and project-based learning. Participants apply these principles and practices by designing lessons and units they will use in their own classrooms. Campus sustainability and community partnerships are also emphasized. Other services include ongoing professional development for teachers and administrators, site-based programs and consulting services, and citizen science projects. During its fifteen years of operation, CELf has worked with more than 9,000 teachers and school leaders and more than 900,000 students from 2,800 schools.

CELf-LAUSD Leadership Training in Sustainability Curriculum Pilot Program: Three middle schools are participating in the pilot program. Wilmington Middle School and Thomas Starr King Middle School are completing their third year in the program, and Sepulveda Middle School is completing its second year. Selected team members from each participating school attended the Summer Institute in New York. Teachers and administrators left the training prepared to give students real-world experience, strengthen their sense of place, teach them to take responsibility, and help them build a sense of agency.

After the Institute, CELf supports the teachers through additional local training, project and curriculum planning support, and regular update meetings. As participants gain experience and expertise, they provide training to the other teachers at their school and share their knowledge with other educators through professional workshops, LAUSD events, and social media.

Each school has designated a Sustainability Coordinator, who shares knowledge and skills gained from the Institute with colleagues, coordinates with school administration, and promotes their school’s sustainability accomplishments to the education community.

Supporting LAUSD’s Goals: Results of the CELf Pilot Program

The CELf-LAUSD Educating for Sustainability (EfS) program has produced impressive results linked to several LAUSD Strategic Goals and Sustainability Initiative Goals, the California

Department of Education Environmental Literacy Blueprint and Environmental Principles and Concepts, Next Generation Science Standards, Common Core Standards, and CELF program goals. To measure program results, CELF asked participating teachers to evaluate the program on a variety of measures in December, 2017. These accomplishments are summarized in Table 1 below. The alignment of these results with LAUSD objectives is discussed in the following section. Graphs showing more detailed results, including average responses by individual schools, are included in Appendix 1.

Table 1
Educating for Sustainability Implementation Survey Results,
Averaged for All Three Pilot Schools

Effectiveness Measure	Teacher Rating (5 = large impact, 1 = no impact)
Positive impact on student learning	4.1
Positive impact on student engagement	4.3
Positive impact on teachers’ professional growth	4.0
Positive impact on coverage of state standards	3.6
Increase in teaching sustainability	32%
Student grasp of Big Ideas of Sustainability	3.5
Integration of sustainability with previous curriculum	3.8

LAUSD 2016-2019 Strategic Plan: LAUSD’s 2016-2019 Strategic Plan describes the district’s single overarching goal: a 100% graduation rate. To support this goal, the district identified five objectives, three of which are directly related to CELF’s pilot program: Parent, Community and Student Engagement; 100% Attendance; and Proficiency for All.

Parent, Community and Student Engagement: With an average survey ranking of 4.3 out of 5, student engagement is a very positive outcome of the program. Particularly at King Middle School, parent engagement is also high. Teachers report that sustainability is a high value among many parents, who enthusiastically support the program. Community engagement is also strong, as CELF-trained teachers are developing partnerships with a wide variety of community partners. These partnerships are detailed in the following sections on each individual school. As one teacher noted, “Students are more motivated to learn when there is a purpose to what they are studying, for example, coming up with solutions to problems.”

100% Attendance: While attendance has not been specifically measured for students in the pilot program, the high level of student engagement reported by CELF-trained teachers supports improved attendance. Teachers felt that the students have become more involved in school.

Proficiency for All: Teachers rated the pilot program’s impact on student learning 4.1 out of 5. Teachers noted that using the big ideas of sustainability encouraged students to use their critical thinking and problem-solving skills to address real-world issues.

High Quality Instruction and High Caliber Teachers: To achieve the above strategic objectives, the strategic plan identifies high quality instruction as an essential element and points to high caliber

teachers as one of its fundamental strategies. Teachers rated the impact of the pilot program on their own professional growth 4 out of 5, indicating strong professional growth. Teachers noted that the EfS training invigorated their teaching and encouraged them to ask deeper questions.

Academic Standards: Teachers felt that the Next Generation Science Standards were the most closely linked to EfS. Because these standards are still being rolled out, some teachers noted that they plan to design units and lessons that incorporate sustainability big ideas as they implement the new program. Social Science and English Language Arts are being taught using sustainability content as informational text, using engaging content to teach important literacy skills.

As one science teacher wrote, “EfS fits very well within our state standards, so we were able to address our standards appropriately, and in a way that was relevant and engaging for students, thus enhancing their learning experience and internalization of learning/content.”

Sustainability and Environmental Literacy Goals: Two programs guide LAUSD’s sustainability efforts: their own Sustainability Initiatives and the emerging California Environmental Literacy Blueprint.

LAUSD Sustainability Education and Awareness Initiatives: LAUSD has adopted sustainability initiatives to implement its goal of “becoming the most sustainable and environmentally-friendly large urban school district in the country.”¹ CELF directly supports the Education and Awareness Initiative and its goals to raise awareness, develop partnerships, provide experiential and place-based learning opportunities, promote sustainability-based professional development, and encourage sustainability leadership and school-based sustainability efforts.

California Environmental Literacy Blueprint: The blueprint aims to educate “every California student in, about and for the environment.” Its goal is to fully integrate environmental literacy into the teaching of History-Social Science, Common Core and Next Generation Science standards, including experiential learning on school campuses and in local communities. Environmental literacy is organized according to Environmental Principles and Concepts, which parallel CELF’s Big Idea framework.²

In CELF’s survey, teachers reported that they felt they made significant increases in teaching sustainability based on their participation in the pilot program. Some teachers felt that they will be increasing the focus on EfS as they develop new lesson and unit plans based on the Next Generation Science Standards, which are still being implemented. In particular, they rated the program as follows:

- 32% increase in teaching sustainability-related concepts and topics
- 3.5 out of 5 for student grasp of sustainability big ideas
- 3.8 out of 5 for the degree to which they integrated sustainability into their existing curriculum

¹ Los Angeles Unified School District. (n.d.) Learning Green, Education and Awareness Initiatives. <http://learninggreen.laschools.org/education--awareness.html>.

² California Department of Education Environmental Literacy Task Force. (2015). *A Blueprint for Environmental Literacy*.

Most important of all, teachers report that the program is having a real impact on students and their commitment and ability to create positive change. The following EfS in Action pages, detailing accomplishments at each school, include representative remarks by participating teachers.

EfS in Action: Thomas Starr King Middle School

Curriculum: King Middle School is located near the Los Angeles River and has an arroyo running through the campus, so the school chose rivers as an annual theme. The place-based, interdisciplinary theme examined the local watershed, how humans have affected it over the past 150 years, and how rivers have influenced the development of civilization throughout history.

Science:

- Activities included mapping watershed topography, using systems thinking to understand living and nonliving systems at nearby Echo Park Lake, and identifying twenty-one species and their interactions at the Los Angeles River.
- Students increased their awareness of water as a necessity for life and ways to save water.

Social Science/Language Arts:

- Students created a timeline of major events in Los Angeles.
- Students read *A Long Walk to Water*, by Linda Sue Park, about an 11-year-old Sudanese girl who makes two four-hour round trips on foot to bring water to her family from a pond. The class discussed related sustainability big ideas, including community, place, and equity.
- Students read *The Epic of Gilgamesh*, analyzing it from the perspective of natural resource use.

Robotics: Students in the Robotics class entered a competition in which one of the categories was using robots to solve environmental issues.

Campus Projects:

- Students formed an Earth Savers club, using games to teach other students to recycle.
- The school garden is a central feature on campus. Students built bio-swales to collect and channel water into the garden, and created a hugelkultur garden that uses principles of ecology to recycle plant debris.

Community Engagement: The EfS team has enlisted help from community partners like TreePeople and Friends of the Los Angeles River to support their work.

Lessons learned:

- Create a sustainability team to lead the effort to integrate EfS. Spread the word throughout the school and community, showcasing your successes.
- Create measurable goals based on real needs.
- Enlist community and/or expert help and support.
- Reflect on accomplishments and celebrate successes.
- Starting an EfS program while implementing new academic standards added a layer of complication, as there was some resistance to making too many changes at once.

In a Teacher's Words: "CELf was great at keeping us on track. I felt we had to take our work up a notch and that was important for growth in environmental education for our school."



EfS in Action: Wilmington Middle School

Curriculum: Wilmington Middle School (WMS) is located near the Port of Los Angeles. They chose to focus on air and water quality impacts of the port, using robotics and other technology to take samples and measure contaminants. The year-long project will include investigating mitigation opportunities and informing the community of their findings and proposed solutions. Their Sustainability Big Idea theme is “Community.”

Science:

- Students identified campus community members, including natural and inanimate objects.
- Students are going out on tall ships to collect water samples throughout the year.

Social Science/Language Arts:

- Students defined a community and the value of sustaining their community.
- Students read multiple informational texts on the Pacific Gyre Garbage Patch, organized and categorized the information, and wrote short essays. They will propose engineering solutions and present them to other classes.
- Students are examining the economic and social benefits and costs of port operations.

Robotics and Other Technology: Students are exploring ways to use sensors and robotics to support their water and air quality analysis of the port.

Campus Projects:

- Students identified and pledged to practice specific community-focused actions.
- Students handle campus recycling. A Special Education class collects plastic containers from other classes and sorts them as part of their life skills training. Revenue is used for classroom art supplies. Classroom paper is collected by an after school club.
- School staff are very interested in creating more green space, installing solar panels, and creating a school garden.

Community Engagement:

- Nearby oil refineries have provided three STEAM labs.
- The Harbor Community Benefit Foundation awarded WMS a grant for using robotic sensors to research air and water quality.
- The Los Angeles Maritime Institute is taking students out on their brigantine ships to collect water samples. For many students, these outings are their first boat trips.

Lessons Learned:

- Build community partnerships.
- Support plans with specific funding sources and other resources.
- Engage colleagues through individual and small-group discussions – not just large meetings.



In a Teacher’s Words: “[The Summer Institute] provided me with both strategies I can use and information I did not know. I also appreciated the work time. It was an excellent balance of all areas.”

EfS in Action: Sepulveda Middle School

Curriculum: Sepulveda Middle School (SMS) developed a butterfly garden as a central project.

Math:

- Students used geometry to design the butterfly garden and presented their designs to the science class.
- Students charted and graphed growth of butterfly habitat plants that they had planted at home.
- Students analyzed the relationship between the number of plants and the number of butterflies.



Science:

- Science classes explored the area's biodiversity and researched which plants will best attract local butterfly species.
- Students sprouted seeds and planted the seedlings in the garden.
- Over the course of the project, they planned to design and conduct studies to measure the change in butterfly populations as the garden grows and matures.

Campus Projects:

- Students worked collaboratively to improve the school's recycling program, collecting and analyzing waste and identifying possible improvements. Recommendations included re-using one-sided printed paper as scratch paper and using game features like avatars to encourage students to recycle.
- The school has a wonderful garden area, including raised beds, irrigation, greenhouses, and composting areas, which has fallen into disuse. The CELF team is very interested in reclaiming the area as a school and community garden.

Community Engagement:

- Students formed the Project Butterfly Society to help SPM's Sustainability Coordinator write a grant for garden supplies.
- Students started an Ecology Club through Tree People, which is student-led. They are interested in working on the school garden.
- The Parent Teacher Student Association participated in a Heal the Bay beach cleanup .

Lessons Learned:

- Project-based learning has sparked a new way of teaching.
- Students have a more immediate sense of the meaning of an ecosystem and a deeper sense of responsibility and community.
- Projects involving the outdoors help students become more connected with nature.
- The students and teachers learned together to keep going in the face of challenges.

In a Teacher's Words: "[The Summer Institute] was an eye opener...very informative! A must for educators!!"

Recommended Next Steps

As King and Wilmington Middle Schools complete the third year of partnership with CELF, and Sepulveda completes its second year, it is a good time to consider next steps. The pilot program will continue at these schools as each campus holds turn-key training for other teachers and develops strategic plans for the schools to continue the ongoing process of creating sustainable schools. In addition, CELF will continue to support Sepulveda Middle School in its third year of the program.

Results of the program have been overwhelmingly positive, as reported by participating teachers. LAUSD objectives including increased student engagement and learning and teachers' professional growth have been achieved. LAUSD and California Department of Education objectives related to teaching sustainability have also been achieved through CELF's well-developed EfS program. Based on these findings and the continuing need for programs that support these important outcomes, CELF recommends the following possible next steps to expand sustainability education throughout LAUSD:

1. Bring CELF in to conduct training on EfS principles and pedagogy at district events, including district professional development workshops.
2. Include CELF as a partner in rolling out NGSS materials to ensure that sustainability principles, such as cycles, interdependence, long-term effects and the ability to make a difference, are included throughout the science curriculum.
3. Partner with Ten Strands as a professional development provider to fully implement the California Environmental Literacy Blueprint and embed California's Environmental Principles and Concepts throughout LAUSD curriculum. Work with CELF to develop a Los Angeles-based sustainability curriculum scope and sequence, which would provide guidance to teachers throughout the district on incorporating appropriate sustainability topics into curriculum, developing project-based learning experiences, and grounding course work in local natural and social environments.
4. Explore funding sources to expand CELF's support of LAUSD schools.
5. Identify and solidify collaborators and partnerships, including a teaching college.
6. Begin plans for a 2019 LA Summer Institute.

Appendix 1

CELf-LAUSD Educating for Sustainability Implementation Survey Charts

In late 2017, CELF conducted a survey of teachers who had participated in CELF training. The results are summarized in the report text. The graphs below show average results by individual school, as well as overall average responses by all responding teachers.

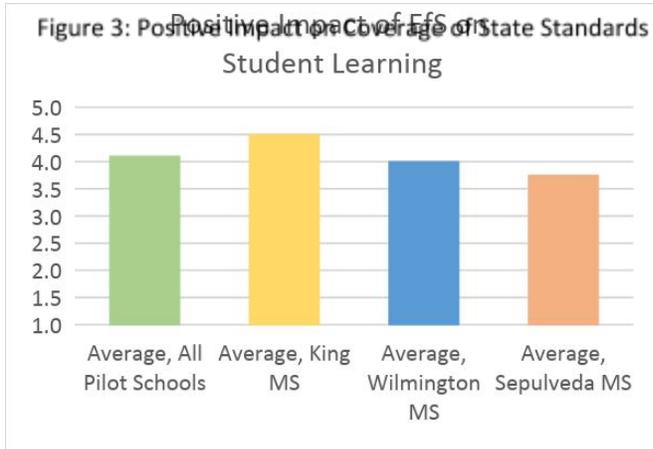


Figure 1: Positive Impact on Student Learning

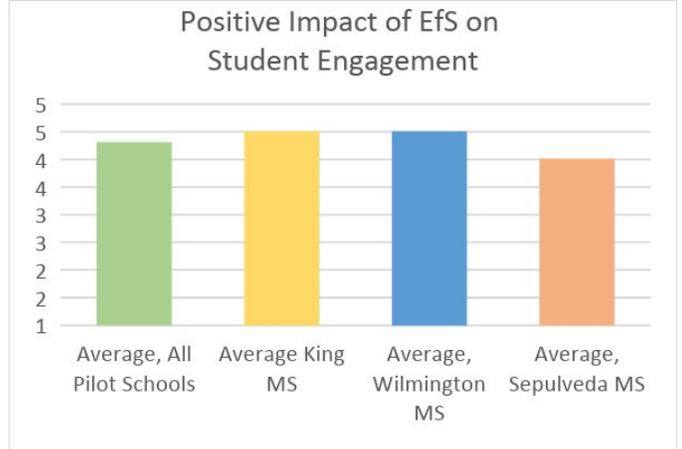


Figure 2: Positive Impact on Student Engagement

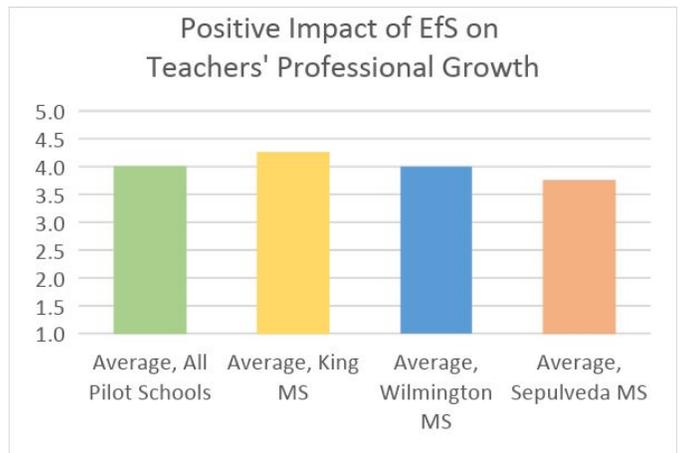
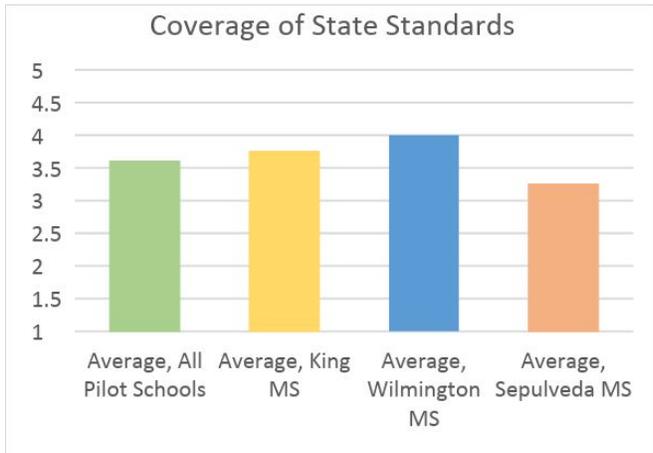


Figure 4: Positive Impact on Teachers' Professional Growth

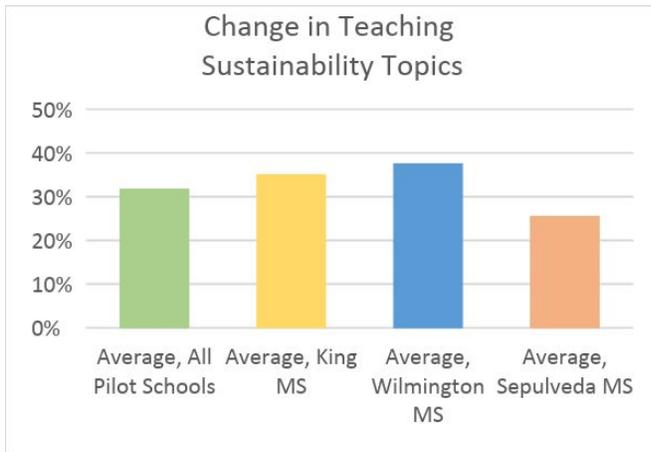


Figure 5: Increase in Teaching Sustainability Topics

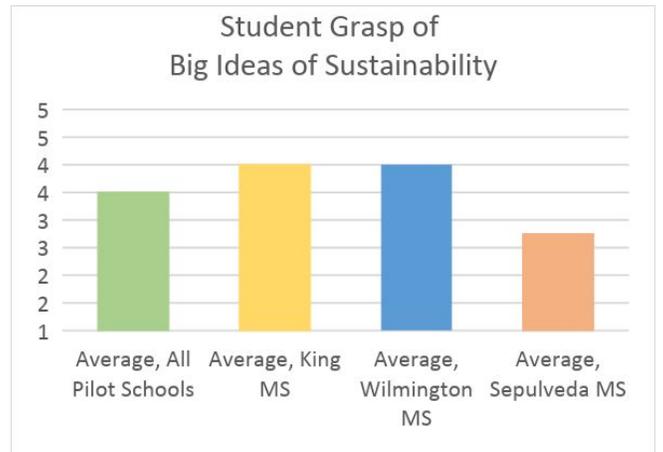


Figure 6: Increase in Student Grasp of Sustainability Big Ideas

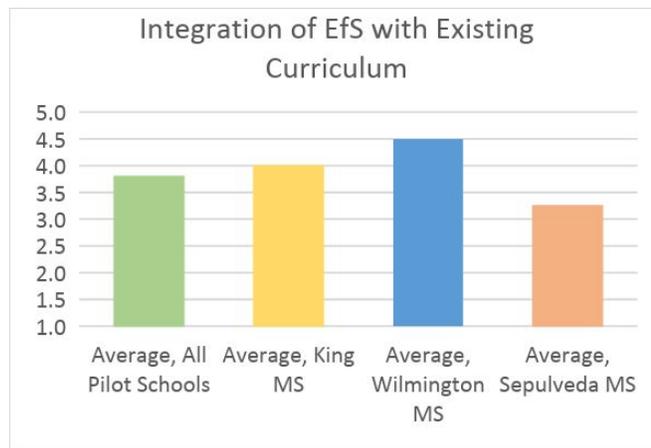


Figure 7: Integration of EfS with Existing Curriculum