



2019–20

OSPI/AESD Professional Learning Network Evaluation

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This report was prepared by Kauffman & Associates, Inc., for OSPI/AESD.



Introduction

Each school year, the Office of Superintendent of Public Instruction and the Association of Educational Service Districts (OSPI/AESD) provide guidance to the third-party, external evaluator, Kauffman and Associates, Inc., to evaluate the OSPI/AESD Professional Learning Network. The evaluation's primary focus is the Washington State Fellows Network (the Fellows Network), an integral part of the state's teacher professional development delivery model.

Using a mixed methods approach, quantitative and qualitative data are collected and analyzed to provide formative and summative information about the Fellows Network. Fellows and non-Fellows attend the professional learning experiences (PLEs) provided and facilitated by the Educational Service Districts (ESDs), which are also evaluated to support data-driven decisions.

This year, the Fellows Network¹, supported and guided by OSPI and AESD, enjoyed a strong membership of 1,153 Fellows (386 math, 276 science, 291 English language arts, and 200 early learning Fellows). After each PLE, the ESD Regional Coordinators use the online platform PDforUs to administer an evaluation survey. PDforUs launched in December 2019 and quickly gained popularity, growing from 274 users to 1,212 current users. Users comprise state and ESD leadership, Regional Coordinators, and Fellows. Regional Coordinators delivered 630 PLEs in the nine ESDs across Washington state, 158 of which were online.

Approximately 14,065 participants attended the PLEs during the 2019-20 school year. Survey data revealed that participants serve a wide variety of positions, including teachers, instructional coaches, district leadership, early learning providers, and college faculty. An overwhelming majority of participants indicated that the PLEs were of very high quality and deepened their knowledge about how to make instruction more inclusive for: (1) students of color, (2) English language learners, and (3) students with disabilities. The *OSPI/AESD 2019-20 Year-End Survey Report*² discusses the detailed survey results.

Lastly, this evaluation also studied aspects of the Fellows Network's Theory of Action³ through interviews with Fellows, Emeritus Fellows (i.e., Fellows who have completed the three-year program), AESD/OSPI leadership, and stakeholders. Key state leadership carefully prioritized and selected the focus of the three briefs, included in this report, to inform the continuous improvement of the Professional Learning Network. The next section of this report provides an executive summary of each of the three evaluation briefs followed by the full brief, challenges faced, and recommendations to inform continuous improvement.

¹ Please visit <https://www.k12.wa.us/educator-support/educator-leadership/washington-state-fellows-network> to learn more about the Washington State Fellows Network.

² For the *OSPI/AESD 2019-20 Year-End Survey Report*, please visit <https://www.waese.org/aesd-professional-learning-network/evaluation/>.

³ Theory of Action: https://www.waese.org/wp-content/uploads/2017/08/AESD_ToA_Logic_Model-8.17.17.pdf

Executive Summary of Evaluation Briefs

Each school year, the Office of Superintendent of Public Instruction and the Association of Educational Service Districts (OSPI/AESD) provide guidance to Kauffman and Associates, Inc., to evaluate the OSPI/AESD Professional Learning Network. The findings are disseminated through briefs on topics carefully selected by state education leaders. The three evaluation briefs for the 2019-20 school year cover: (1) the history of the Washington State Fellows Network (the Fellows Network) from its origin to becoming an optimized teacher professional development model; (2) how Emeritus Fellows use their talents and interests to contribute to local, district, and state work; and (3) the equitable advancement of statewide computer science teacher professional development.

Washington State Fellows: Lessons Learned and the Continuing Vision for a State-Level Instructional Leadership Network Evaluation Brief Summary

This brief traces the Fellows Network from its origin through to its evolution into an optimized teacher professional development model. Driven by Washington state's adoption of the Common Core State Standards (CCSS) and the Next Generation Science Standards (NGSS), the design of the model intentionally created a conduit between OSPI, the Educational Service Districts (ESDs), and local teachers. The Fellows Network has become an exemplary model for building academic content, pedagogical strategies, and leadership skills for early learning, English language arts (ELA), math, and science educators.

Through a phased approach, the Fellows Network expanded each year. Beginning in 2013, the math and ELA Fellows were on-boarded, followed by science Fellows in 2014, and early learning Fellows in 2015. The model fully leveraged the established and healthy relationship between OSPI and the ESDs. Further, the Fellows Network served to build a collective identity for the Regional Coordinators (RCs) across all nine ESDs where few opportunities to work collectively previously existed.

As RCs convened their local teachers, now called Fellows, and provided professional learning opportunities, the larger vision of the work needed to be communicated to a broader audience. The RCs said the Fellows Network needed the support of the ESD Assistant Superintendents to send a clear and consistent message across the state about the Fellows Network. To meet this need, the Fellows' Advisory Committee (FAC) assembled in 2016. The FAC is a responsive system that builds fidelity and consistency while effectively tackling challenges in program implementation.

A primary goal of the Fellows Network is to build the capacity of its members to improve student academic and non-academic outcomes. In 2016, OSPI and the AESD launched an ambitious goal to develop a comprehensive evaluation plan and Theory of Action to test assumptions, monitor implementation, and assess outcomes of the Fellows Network. The evaluation has provided strong evidence that the objectives and goals of the Fellows Network,

as articulated in the Theory of Action, are being met. The full brief shares the evolution of the Fellows' Program and documents the ways in which the Fellows Network exceeded its original goals.

Emeritus Fellows Leadership Pathways Evaluation Brief Summary

The Fellows Network implements a professional learning curriculum that cycles through three-year periods. After three years, Fellows graduate, and many have a strong desire for continued involvement in the Fellows Network. This desire drove the creation of the Emeritus Fellows in 2019. Emeritus Fellows have continued opportunities to grow and expand their expertise to lead regional, state, and national efforts.

Emeritus Fellows attribute their growth as leaders, in part, to the robust, research-based curricula and expertise offered through the Fellows Network. Synthesizing interviews, focus groups, and survey data, this study revealed the following traits of Emeritus Fellows:

- Savviness in selection and implementation of evidence-based practices,
- Awareness of the importance of moving slowly to affect change,
- Eagerness and enthusiasm to transfer professional knowledge to others,
- Strong interest in improving outcomes of learning for all students,
- Tireless work toward a shared vision of teaching and learning, and
- Willingness to take risks to learn and improve.

The ESD Regional Coordinators continue to be involved in Emeritus Fellows' professional lives. Regional Coordinators serve as "lifelines" and sounding boards for certain Emeritus Fellows as they implement tools like the Concerns Based Adoption Model (CBAM). Emeritus Fellows regularly use CBAM to gently guide peers to change their practice to improve student learning.

Emeritus Fellows engage outside of their classroom by:

- sharing and promoting the role of the Fellows Network in teacher growth,
- providing professional development in their regions and districts,
- transferring professional knowledge to peers,
- supporting the district-wide implementation of a curriculum,
- participating in building and district decision-making,
- writing grants, and
- collaborating with their Administrators to help set visions for their schools and districts.

The full brief explores, in detail, how Emeritus Fellows apply the knowledge, skills, and abilities they learn in the program. A case study of an Emeritus Fellow demonstrates how their assets can be used to accelerate the learning of Fellows who are just starting in the Fellows Network.

Advancing Equitable and Sustainable Computer Science Education

The Washington state legislature continues to support computer science education, which has resulted in over \$1.2 million dollars being awarded to the ESDs for this work over the last five years. Since 2017, OSPI and AESD have worked closely to bring computer science professional development to teachers and administrators.

Together, OSPI and the AESD have:

- led coordinated computer science education efforts across the state,
- increased the number of computer science teacher leaders statewide,
- increased the number of computer science professional development opportunities,
- increased access to computer science education among underserved populations, and
- increased the visibility and dissemination of computer science education efforts.

The full brief covers detailed interviews and focus groups with AESD computer science leads, teachers, principals, and OSPI staff who shared their perspectives on the impact of this effort at the state, regional, and local school levels.

One exciting aspect of this work is that *all* students get the opportunity to gain tangible benefits from engaging in computer science, with strong support from the OSPI/AESD partnership. Equity is infused throughout this work by dismantling gender stereotypes and widening participation to include English language learners. Teachers observed extraordinary learning taking place when students with disabilities and previously disengaged students were invited to build and code robots. Teachers were surprised that computer science can raise confidence and transform students' attitudes about school.

Recent legislation in Washington state requires all high schools to offer computer science courses by September 2020. To assist, OSPI took a proactive and innovative step to publish a document that defines computer science in K-12 schools. Entitled *Guidance on Teaching Computer Science in Washington State K-12 Public Schools*⁴, the document outlines the fundamental computer science knowledge that students should acquire at each grade level, from elementary to high school. It translates the definition and standards of computer science into instructional practices so teachers can provide robust computer science teaching and learning.

The brief underscores that a key determinant of success is school administrator support. Such support is predicated on larger efforts to communicate a cohesive, aligned vision of computer science across the district. Administrators must allot time for teachers to: (1) explore hands-on,

⁴ Retrieved September 15, 2020, from <https://www.k12.wa.us/student-success/resources-subject-area/computer-science>

computer-related activities; (2) build excitement and generate buy-in, and (3) practice ways to incorporate computer science content into their classrooms.

Finally, school closures due to COVID-19 highlighted the importance of teachers and students to develop strong computer skills. With the new virtual world, such skills are essential for personal security and professional careers. The ESDs are currently discussing how they can assist schools in expanding career connections and pathways for students to earn credit and degrees as the nation responds to and recovers from the COVID-19 pandemic.

Evaluation Briefs from the 2019-2020 School Year

This section includes the three full evaluation briefs from the 2019-2020 school year:

- Washington State Fellows: Lessons Learned and the Continuing Vision for a State-Level Instructional Leadership Network,
- Washington Emeritus Fellows leadership pathways, and
- Leading the Advancement of Equitable and Sustainable Computer Science Education.

Washington State Fellows: Lessons Learned and the Continuing Vision for a State-Level Instructional Leadership Network

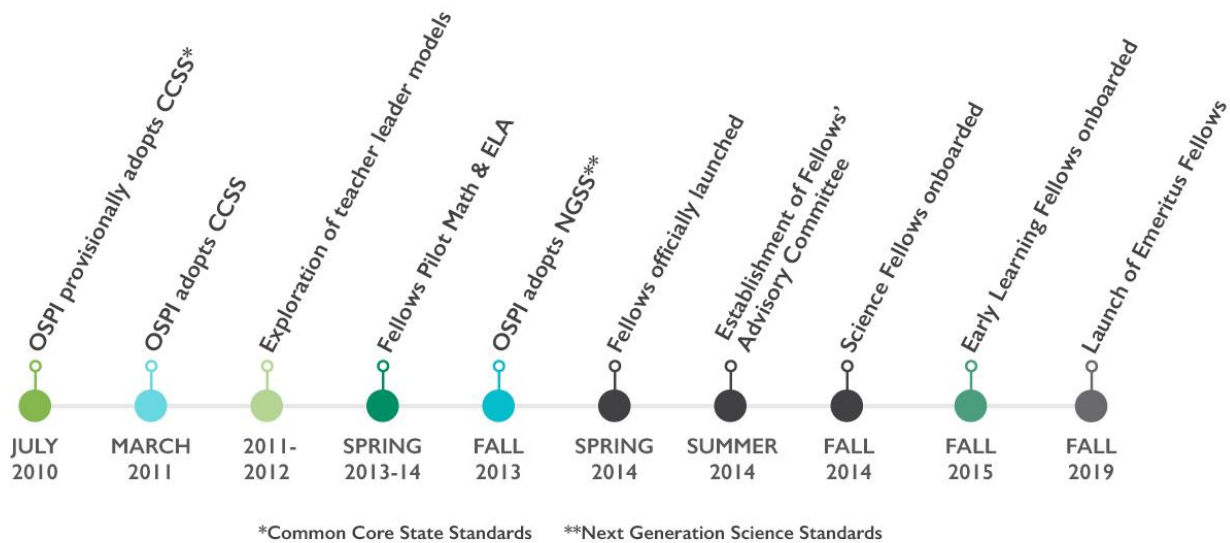
State education agencies (SEAs) across the United States are often challenged to implement key legislation around K-12 education effectively and efficiently with limited resources in a short timeframe. To assist in this effort, Washington state created and optimized a model that began as a modest pilot through a collaboration between the Office of Superintendent of Public Instruction (OSPI) and the Association of Educational Service Districts (AESD).

The Washington State Fellows Network (the Fellows Network) is an exemplary model for building academic content, pedagogical strategies, and leadership skills for early learning, English language arts, mathematics, and science educators and administrators⁵. The primary goal of the program is to build the capacity of its members to improve student academic and non-academic outcomes. Members in the Fellows Network are called *Fellows* and primarily work as teachers across Washington. They meet four times each school year to engage in rich collaborative activities with colleagues in the same academic content area. Topics covered in the meetings include equity, change management, data analytics, and assessment. Entrance into the program is achieved through completion of an application and assurances. Assurances include a commitment on the part of the Fellow to work collaboratively with an administrator to create goals that demonstrate leadership of self and others. Conversely, assurances also acknowledge that the district will support the Fellow to participate in the Fellows Network.

⁵ Retrieved May 4, 2020, from <https://www.k12.wa.us/educator-support/educator-leadership/washington-state-fellows-network>

This brief highlights how states can partner with their Educational Service Districts (ESDs) to create a similar professional learning model to implement state initiatives, build instructional leadership capacity, and positively influence student learning. To help document the journey from a bright vision in 2012 to sustainable reality in 2020, ten individuals participated in focus groups or interviews. These individuals played key roles at OSPI and the ESDs in the emerging phase of the work. This brief documents successes and lessons learned through the Fellows Network as a model for other SEAs and school organizations to consider for replication. The timeline below traces the major milestones from 2010 to present (Figure 1).

Figure 1. Major events, 2010–present



Process of Emergence

The Fellows Network launched in 2012, helped to meet the needs of educators implementing the new learning standards. OSPI and the ESDs already enjoyed a strong collaborative relationship and sought to develop an effective and efficient model to build capacity of teacher leaders to assist with statewide initiatives. The immediate initiative focused on the rollout of the CCSS and the Next Generation Science Standards (NGSS). OSPI Content Leads and the ESD Content Specialists—now called Regional Coordinators (RCs)—had a shared vision of the importance of strong teacher leadership for a successful implementation of the new standards.

Additionally, they wanted to offer a venue for teachers and leaders to collaborate and improve their professional practice. Especially in rural areas, teacher professional development and resources to improve pedagogical and content knowledge were largely unavailable. The OSPI Content Leads and ESD RCs were aware of the importance of teacher collaboration to learn content and practice pedagogical strategies to deliver rigorous and relevant instruction to all students.

Rolling out the new standards and providing an ongoing venue for professional learning were the impetus behind seeking out potential models for professional development delivery. Towards this end, OSPI and several RCs worked together to review research and attend education conferences nationwide to seek out and learn about various delivery models. This review enabled early program designers to land on an approach that they felt would work and began to plan a pilot implementation of the model.

PILOT PERIOD OF MATHEMATICS AND ENGLISH LANGUAGE ARTS

In 2012, OSPI Content Champions and RCs mutually decided to name the model the Washington State Network. The Fellows are unique to each of the four content areas: math, English language arts (ELA), science, and early learning. The initial pilot focused on the implementation of two content areas, math and ELA, followed by a phased sequential implementation for science and early learning Fellows.

In spring 2013, the first pilot occurred, and math and ELA Fellows assembled in one statewide convening. Before the convening, the OSPI Content Directors in math and ELA worked with the RCs to design the agenda and activities and assemble quality resources to support teachers as they implemented the Common Core standards. Both math and ELA Fellows attended the morning session for a collective message about the piloting of the new model and their shared work in implementing the Common Core. In the afternoon, math and ELA teachers broke out separately to focus on their specific content standards.

PROOF OF CONCEPT-DECISION TO ROLL OUT

The design team was pleased with the 2013-14 pilot and in 2014, the Fellows Network officially launched. The State Superintendent and OSPI teaching and learning departments made a formal announcement in support of the work and remained enthusiastic and engaged, providing direction when needed.

Focus group participants from the ESDs reflected on the collaboration throughout the endeavor. A participant shared: "I think what has been robust throughout this and a catalyst for the success of the Network is that OSPI already had a relationship with the [ESD Regional] Coordinators in each content area." This allowed for a smooth pilot and launch and a smart integration of initiatives in progress, such as the Washington State Comprehensive Literacy Plan and the Northern Cascades and Olympics Science Partnership. From these existing initiatives came the first candidates and cohort of Fellows in ELA, math and science. Established partnerships, such as one with the Center for Strengthening the Teaching Profession, provided a jump start and quickly bolstered the teacher leadership component of the Fellows Network.

While Fellows were building connections to other teachers, RCs were also strengthening connections as they aligned their work across the state. One RC interviewed pointed out, "I think each content area has its own culture and its own... approach to developing that sense of community and trust. Before the Fellows Network, the RCs did not have many common initiatives that brought them together. The Fellows Network served to build a collective identity for the RCs. As one math RC shared, "Fellows gave us a model for us to learn how to operate

together and do shared work across the state, which was not something we were doing prior necessarily.”

In 2013, OSPI officially adopted the NGSS and, in fall 2014, the first cohort of science Fellows assembled. A science RC recalled, “We were told through OSPI conversations and communication that science Fellows were coming. And then in one [science RC] meeting, I remember we made plans how [the Fellows Network] would work, what it would be made up of. We had a lot of conversations in terms of the different levels of leaders we were pulling from like classroom teachers. We viewed that as tier leadership, that it’s important to help [the teacher] focus on their own practice but also to consider the leadership of others later on.”

Washington’s early learning leadership observed the rollout of ELA, math, and science Fellows with great interest, and they reflected on the effectiveness of the Fellows program. Early learning leaders explained that this area is unique for several reasons. First, a private investment made by the Bill and Melinda Gates Foundation (BMGF) awarded to Puget Sound ESD, formalized a group of early learning leaders who had been collaborating for about a decade. The BMGF funded these leaders (ESD early learning RCs) to focus on early mathematics, racial equity, and family engagement. To accomplish this task, three smaller groups were created, and each group produced resources to share with each other.

Early learning is also unique because the work requires coordination with federal and state partners across diverse learning settings, such as K-12, Head Start, and private childcare centers. An interviewee shared, “Each ESD has really close partnerships and collaborative relationships in our community. We had an opportunity to think creatively about what it would look like to build a capacity model for early learning teachers across the state.” An intentional decision was made to use the existing model with some adjustments to accommodate program partners across a variety of early learning contexts. This option presented an easy leap to adapt the model for early learning, including a change in the application, outreach component, and recruitment process. The need to improve success in math for early learners became the impetus to add Early Learning Fellows and in fall 2015, Early Learning Fellows came onboard. By 2015, math, ELA, science, and early learning Fellows were up and running. In the next phase of work OSPI, the ESDs, and the Fellows relentlessly worked to optimize the model.

THE OPTIMIZATION OF THE FELLOWS NETWORK

The launch of the pilot also marked the beginning of the cycle of inquiry and continuous improvement as stakeholders regularly came together to discuss the Fellows Network. These dedicated individuals shared their expertise and established the components needed to fully implement the Fellows Network. They quickly discovered that a central component of the program was missing. One RC interviewed reflected, “As the content folks, we were good at delivering the content, but we weren’t so good at communicating the larger picture and the vision of the work to a broader audience.” Focus group members reflected that the program needed the support of the ESD Assistant Superintendents to send a clear and consistent message across the state about the Fellows Network. Key players assembled to move the work forward through launching a committee in summer 2014. “The Fellows’ Advisory Committee

[FAC] was a brilliant idea,” shared an interviewee, “because the committee included key players in all decision-making, feedback, and strategic planning.” An RC shared, “Having our voice at the table helped ensure that the model could be implemented with fidelity, but also differentiated when needed.” However, the establishment of the FAC proved to be challenging and “the bumpiest part” of the initial work. An interviewee shared, “Initially, Assistant Superintendents did not fully understand both the intent and the content of the Network... Since they were going to be a part of the Network, it was essential that they were able to dialogue and be committed to it.”

The FAC began to convene four times per year to allow time to actively develop a shared and unified understanding of the work. Informed by the literature and research in the area of interpersonal communication, the FAC modeled best practices in small group decision making. “We were very thoughtful about what the structure would look like. The FAC comes together, makes decisions and the members bring it back to their regions,” said an interviewee. Taking ownership was and continues to be manifested through the FAC feedback loops between OSPI, the ESDs, and the districts served by the RCs. As one focus group participant explained, “The feedback loop is so important because feedback has to be listened to and acted upon. We had to show evidence that we were acting on that work and it requires all of us to do that. We had to have voices from the region in the Advisory Group, too, not just OSPI.”

The Fellows Network created a strategic connection from OSPI to the ESDs and down to the district level. “One of the things early on that we were very intentional about and is foundational now is the intentionality of planning your work with your district administrator or principal,” said a focus group participant. Interviewees acknowledged that this connection with administration is important to maximize the utility and benefit of Fellows to their districts.

Historically, each ESD RC focused almost exclusively on their own regional initiatives, and opportunities to work with other RCs were limited. The Fellows Network provided an authentic way for RCs to build an identity as a group, co-construct goals, and align their efforts in each content area. “[The Fellows Network provided a way] for RCs to progress as a group and collaborate together. It was the Fellows model [that drove] us to learn how to operate together with shared work, which was not something that we were doing prior,” said an interviewee.

Perfectly positioned between the OSPI content leads and the districts, the RCs have formed a trusted partnership with Fellows that has provided a gateway for building teacher leadership capacity. RCs already had expertise in adult learning and were working to meet the needs of the teachers and school districts in their ESD region. They were accustomed to developing the curriculum and content agenda for teacher professional development; however, they did not have many opportunities to work closely with one another. The Fellows Network was the impetus for RCs across Washington state to operate as a collaborative that prioritizes goals and develops the curriculum and content for the four Fellows’ convenings each year.


Data Collection and Evaluation Matures

Most focus group participants emphasized that the program exists to encourage and support improved teacher practice. As one participant shared, “[The Fellows Network] is not about cerebral stimulation. This is about trying to change practice ... and changing practice is much more difficult.” To promote change in practice, program leadership conceived of a shared tool, called an action plan, for documenting and reflecting Fellows’ activities. An interviewee shared her recollection of how the Fellows’ Action Plan evolved:

“The Action Plan was one of the core ideas right away, probably in 2012. And I’m sure it was pretty clunky at the beginning, but it kept getting refined throughout ... We had to be intentional about the Action Plan more than just mentioning it at the beginning. We learned that we had to attend to the Action Plan and look at it at the end and say, ‘What did you get done?’ ”


The Fellows’ Action Plans allow them to evaluate their progress; reflect on their accomplishments; determine how to overcome challenges; and document outcomes on personal, district, or system-level goals. The Action Plans also provide a way for the Fellow to anchor his or her work in the district’s initiatives and keep their administrator in the loop as they improve pedagogical strategies and student outcomes. The Plan follows best practices in personal goal setting by setting specific and time-bound goals, designating responsibilities, identifying resources needed, and determining how to measure progress. Foundational to the Fellow’s work is taking time to critically reflect on ways to provide equitable access to learning for all students and to lead with equity in the school. The Action Plan template (Figure 2) references OSPI’s equity statement and includes an area for reflection on aspects of equity.

Figure 2. An action plan template



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Ongoing Reflections & Plans - Section B

As part of ongoing reflection and planning, complete Section B, in collaboration with the principal and/or district administrator, after each Fellows convening. Keep an ongoing, dated log that addresses the following:

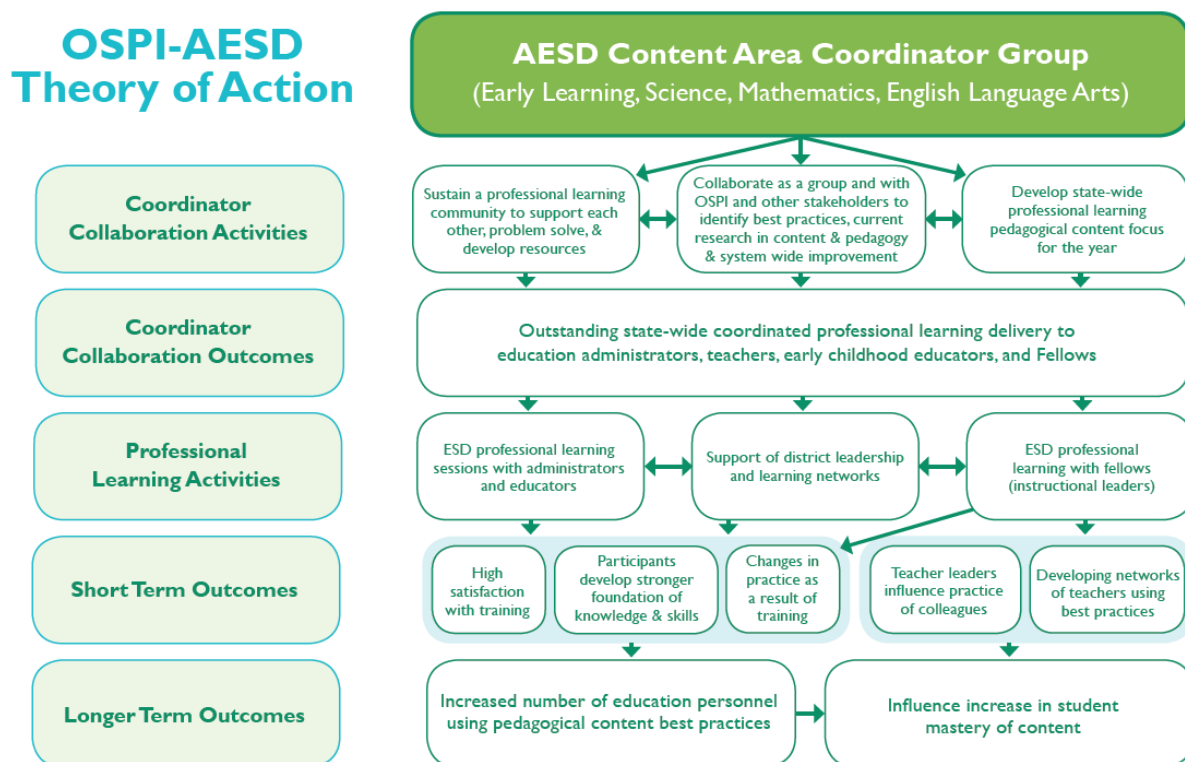
Action Items/Strategies <small>What is one your next action items for your school/district? What are the steps you will take to implement this element?</small>	Timeline <small>When will you complete each action item/ strategy?</small>	Responsibilities <small>Who will be responsible for completing this element? The Fellow? Others?</small>	Equity <small>In what ways might this action item support all educators (a.g. special education, ELL, highly capable)?</small>	Resources <small>May include teacher release time, meeting space, differentiated materials for all educators and their focus, facilitation materials, etc.</small>	How Will We Monitor and Evaluate? <small>What will be the evidence of impact of the Fellow work? What will you see teachers and students doing differently?</small>

As RCs provided high-quality professional development for content, pedagogical skills, and leadership, they also collected data from their Fellows to gauge their satisfaction and effectiveness. An interviewee explained how program evaluation data evolved and matured from simple workshop logistics to a stronger focus on personal learning goals and application of knowledge learned. “The Fellows initially provided feedback on what was working and what was not working [and] this later evolved to [a systematic] data collection [and] we got better about using data.”

EVIDENCE OF EFFECTIVENESS

In 2016, OSPI and all nine ESDs (under the AESD umbrella) launched an ambitious goal to develop a comprehensive evaluation plan to test assumptions, monitor implementation, and assess outcomes of the Fellows Network. First, a theory of action and logic model applicable to all four content areas needed to be developed. Released in 2017, the Theory of Action was co-created by engaging all RCs across the state (Figure 3).

Figure 3. Theory of Action for Washington Network



Since the first external comprehensive evaluation in 2016, quantitative and qualitative data confirm that participation in the Fellows Network leads to improved practice for Fellows (administrators and teachers) and improved student outcomes. For example, over consecutive years, 90% of Fellows either strongly agreed or agreed that the Fellows Network helped them

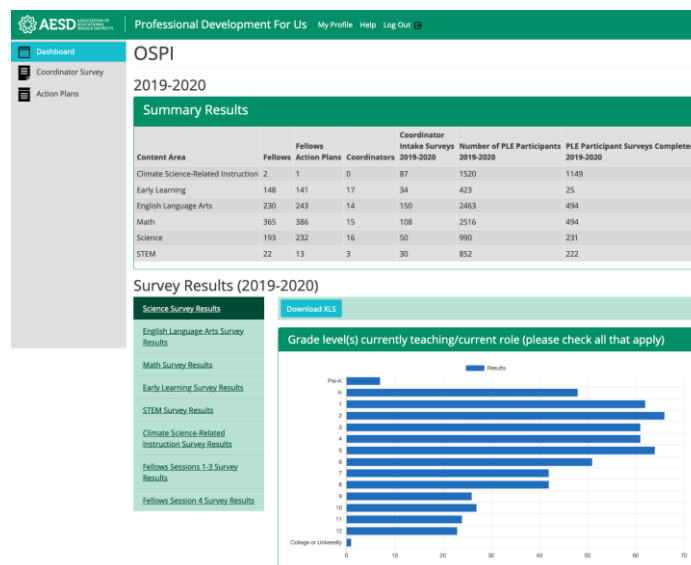
achieve the short- and long-term outcomes illustrated in the Theory of Action and Logic Model. Fellows consistently report that the Fellows Network has:

- Expanded their ability to lead colleagues through change;
- Broadened and deepened their pedagogical and content knowledge;
- Improved their ability to promote social and emotional learning; and
- Gained a new awareness of ways to create equitable learning opportunities for students.

National teaching associations have recognized the leadership qualities, communication abilities, and expert content knowledge of teachers/district coaches who have completed the program. The associations have embraced the Fellows and realize that they are poised to take leadership positions within state chapters and direct efforts that provide high-quality, professional learning experiences for their colleagues.⁶

In 2018, the online data collection platform PDfor.us was developed to provide real-time evaluation data collected from Fellows (Figure 4). OSPI and the RCs designed the platform with robust data collection instruments that provide both formative and summative data to improve the Fellows' experience and student outcomes. Based on the Theory of Action, the Fellows Network's activities are designed specifically with outcomes in mind, including deepening content knowledge, improving practice, developing learning networks, building leadership competencies, and increasing student achievement. PDfor.us proved essential to supporting these outcomes, as the RCs and ESD leadership rely heavily on the data to make timely, informed decisions and mid-course corrections to meet Fellows' needs.

Figure 4. Online data collection platform PDfor.us

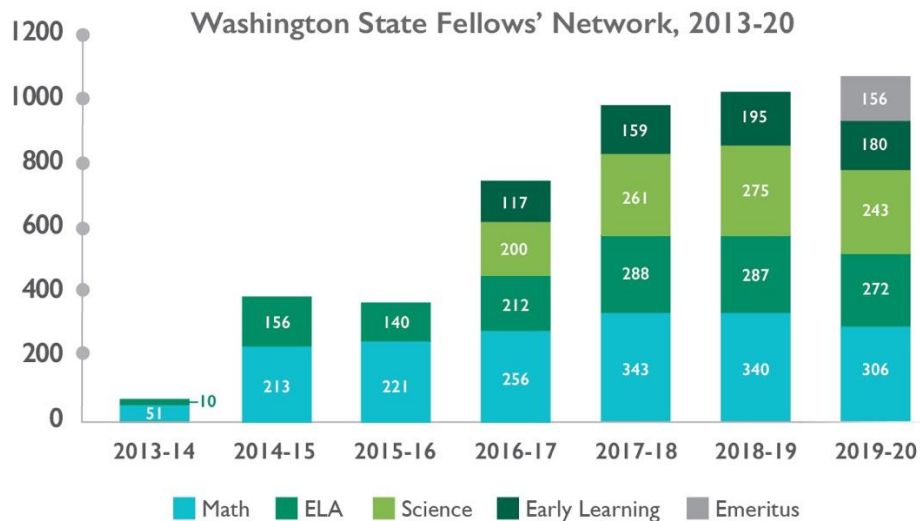


⁶ OSPI/AESD Professional Development Learning Network Evaluation. Retrieved on May 6, 2020 from <https://www.waese.org/aesd-professional-learning-network/evaluation/>

Sustainability and Future Aspirations

The results of this effort have been far-reaching, exceeding expectations of those who originally conceived of the model. Membership in the Fellows Network has steadily increased each year and, in 2019, a total of 1,157 Fellows participated (Figure 5).

Figure 5. Membership by Content Area in Network



The Fellows Network has prompted conversations about how the model might be utilized for other professional learning communities. State leaders interviewed shared that from their observations, a very specific set of pre-requisite conditions are needed to support Fellows. Among these pre-requisite criteria are a well-established communication infrastructure between key content statewide leads, clear roles and responsibilities within the group, decentralized leaders within the schools, and a history of productive relationships with state and/or national partners.

Realizing that the current work needs to be sustained, the FAC decided to provide a venue for Fellows who completed the 3-year program. In 2019, the Emeritus Fellows concept was launched so Fellows can choose to continue to attend the convenings upon program completion. Emeritus Fellows take on critical roles as mentors in the convenings and instructional leaders in their schools, communities, and professional organizations. Fellows shared that they look forward to collaborating with the Emeritus Fellows to build stronger education for all students. An interviewee reflected:

“There is a sustainability model built in because the Emeritus Fellows are now going to be called upon to help with the training or help with doing WSTA [the Washington Science Teachers Association conference] ... and just being called on to continue using their leadership skills in other capacities. What a great way to show sustainability in a program.”

The professional associations have also embraced the Fellows and realize that they are poised to take leadership positions within state chapters and direct efforts that provide high-quality professional learning experiences for their colleagues.

Finally, the members of the FAC expressed their deep gratitude for the school districts' commitment to participate in the Fellows Network. An interviewee shared, "They have endured the costs for substitute teachers and transportation [and] contributed their resources to make the Network successful. They have to step up to the plate every year, and that's pretty remarkable." Now and into the future, OSPI and the ESDs are committed to providing strong support and dedicating their expertise to ensure the continued success of the Fellows and the Fellows Network's positive influence on educators and students throughout Washington state.

Emeritus Fellows Leadership Pathways Evaluation Brief

The Office of Superintendent of Public Instruction (OSPI)/Association of Educational Service Districts (AESD) Washington State Fellows Network (the Fellows Network)⁷ is an exemplary model for building academic content, pedagogical strategies, and leadership skills for early learning, English language arts, mathematics, and science educators and administrators.⁸ The primary goal of the three-year program is to build the capacity of its members to improve student academic and non-academic outcomes.

Fellows are members of the Fellows Network, and they primarily include teachers across Washington. They meet four times each school year through Fellow convenings where they engage in rich, collaborative activities with colleagues in the same academic content area. Sample topics covered in the meetings include equity, change management, and data analytics and assessment.

Evaluation studies focused on the Fellows Network have provided evidence that this model of professional development is effective. Studies confirm that Fellows achieve outcomes illustrated in the Theory of Action,⁹ including the development of stronger pedagogical content knowledge/skills, changes in classroom practice, and positive influence on student mastery of content knowledge, as demonstrated in assessment scores.¹⁰

In 2019, the Fellows Advisory Committee (FAC) launched the Emeritus Fellows, which provides Fellows who completed the three-year program an option to continue. The first cohort of Emeritus Fellows began their work in September 2019. This study builds on the information that emerged from the Emeritus Survey administered in spring 2019 and provides a deeper understanding of the range of roles and responsibilities of Emeritus Fellows. The study examines Emeritus Fellows' reasons for continued involvement; their change in perspectives;

⁷ OSPI Washington State Fellows Network: <https://www.k12.wa.us/educator-support/educator-leadership/washington-state-fellows-network>

⁸ Retrieved May 4, 2020, from <https://www.k12.wa.us/educator-support/educator-leadership/washington-state-fellows-network>

⁹ Theory of Action: https://www.waese.org/wp-content/uploads/2017/08/AESD_ToA_Logic_Model-8.17.17.pdf

¹⁰ Retrieved May 25, 2020, from <https://www.waese.org/aesd-professional-learning-network/evaluation/>

application of knowledge, skills, and abilities; and exemplary traits. A case study offers insight into an enhanced model and how one Emeritus Fellow is accelerating the growth of new Fellows at her district. The final sections of the report describe a few of the challenges faced by Emeritus Fellows and their recommendations for going forward.

Between January and May 2020, ten Emeritus Fellows participated in a 60-minute interview or focus group to reflect on and share their experiences. The sessions were recorded, transcribed, and uploaded into a software package designed for qualitative narrative analysis. The qualitative narrative analysis allowed for the exploration of common themes across all of the information shared by the Emeritus Fellows.

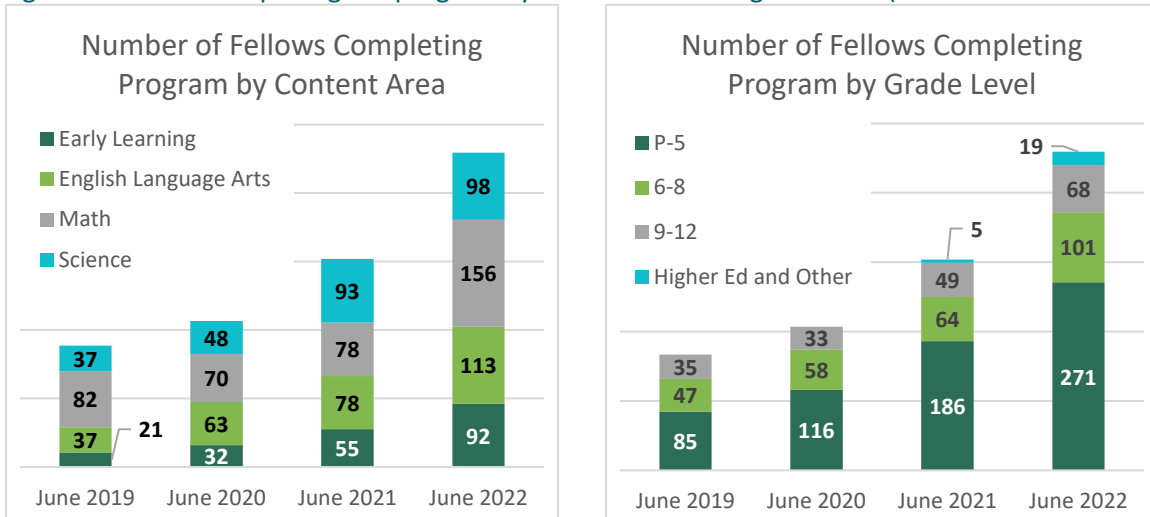
Strong Desire for Continued Involvement

Emeritus Fellows have developed and refined their leadership skills by modeling best practices, creating collaborative learning environments, and cultivating leadership skills in other teachers. Collectively, these individuals form a deep bench of talent and teacher assets in Washington state. This talent management plays an important role in education and can lead to positive changes at the state, regional, and local levels.¹¹ For example, some state education agencies that invest time and resources in managing their teacher assets have found that talent management helps optimize planning and organizing efforts to produce future leaders. This approach is advantageous because it creates a pipeline of high-quality teachers and leaders who have a deep contextual background of local and regional values. The recruitment process can be more efficient and effective as needs emerge for particular skills and competencies identified in leadership succession planning.

Fellows are one of Washington state's critically valuable assets. As such, it is beneficial to gain a better understanding of the number of teacher leaders who will complete the program over the next three years and possibly become Emeritus Fellows. The charts below in Figure 6 illustrate the number of Fellows who will complete the program over the next three years by content area and grade band. The Regional Coordinators interviewed shared that when Fellows complete the program, they decide their continuing level of involvement. The level of involvement ranges from receiving the occasional email of resources to remaining deeply engaged in the program. Study participants expressed that their Regional Coordinator is an important facilitator of their involvement, explaining that their Coordinators continue to be critical partners and lifelines who provide expertise, feedback, and guidance when facing challenges in the field.

¹¹ Harun, N, Hasnaa, N., Mahmood, N. & Othman, S. (2020). The effect of talent management factors on teacher's leadership at the secondary schools. *Management Science Letters*. doi:10.5267/j.msl.2019.7.039

Figure 6. Fellows completing the program by content area and grade level (June 2019–June 2022)



The majority of interviewees also continue to collaborate with Fellows by attending the Fellows Network’s quarterly convenings, conferences, and meetings and by collaborating informally. The convenings are vital to help Emeritus Fellows feel connected and up-to-date. An Emeritus Fellow shared, “I find out about more opportunities that I wouldn’t know about if I wasn’t part of the Network.” They continue to learn and reflect on their practice by engaging in book studies and discussion groups with other Fellows and Emeritus Fellows. They find the opportunities to interact with subject matter experts and hearing updates from the field nationally and locally invaluable. An Emeritus Fellow shared, “I’ve never, in my first year, thought that it would be as impactful on my career as it’s been.” They also expressed feelings of belonging to a learning community. Another explained, “One of the greatest aspects of all was the networking [and] getting to meet like-minded, forward-thinking teachers around the state to brainstorm ... We’d all go get dinner and have a good five, six hours to continue to talk about what we’re doing. That was a really special thing about the whole program.”

OSPI and ESD leadership have had initial conversations about how to use the highly trained Emeritus Fellows who want to lead and continue. Currently, Regional Coordinators have Emeritus Fellows help deliver professional development, such as through the convenings and local professional chapters in their region. Regional Coordinators continually explore innovative ways to bring their Emeritus Fellows together. They use Emeritus Fellows in their region to maintain flexibility and adapt to each region’s unique circumstances and available resources. Some offer Emeritus Fellows in-person or virtual meetings separate from the Fellows’ convenings, while others provide them with break-out sessions during the Fellows’ convening. Some use them to revitalize legacy groups, such as the Science Leadership Network.

Several Regional Coordinators interviewed shared that the Emeritus Fellows’ meetings differ from Fellows’ meetings, as the Emeritus Fellows bring their shared, deep knowledge about concepts and practice, such as the Concerns-Based Adoption Model (CBAM) and equity. Their prior experience allows for a launching point for discussion and planning at a systems level, for example, around the design of regional professional development curriculum.

Perspectives over the Course of the Program

The curriculum for the Fellows Network was developed in collaboration between the Regional Content Area Coordinators and the Fellows Advisory Committee. It is intentionally designed to be cohesive and provide Fellows with experiences that promote critical pedagogy. The curriculum for each content area (math, science, English language arts, early learning) has common, statewide materials and resources that have been adapted to meet the needs of local schools. Thus, it is relevant to novice and expert teachers alike.

Each year's curriculum is designed to be taught independently from the previous year so new Fellows do not feel like they are behind their peers. This approach provides ample opportunities for new teachers to connect with and work alongside of expert teachers, as both may be first year Fellows.

The foundational topic of racial equity¹² is woven throughout all content areas. Different overarching topics (e.g., formative assessment, inclusive instruction) are covered each year, and teachers are guided through thoughtful activities that start with leadership of self and expand to leadership of others. Likewise, focused conversations may start with their own practice and then expand to the school or district. Reflecting on the journey, Emeritus Fellows in the focus group were asked to describe how their perspectives shifted as they progressed through and completed the program. An Emeritus Fellow shared:

I look at ELA initiatives with a much more global perspective of ... the impacts of making decisions about what texts we use or how we approach assessments, from a bigger picture, not just the one coming from being a classroom teacher. [Before] it was very much, 'How will this impact my kids in my classroom?' and now I ask, 'How does this impact the system as a whole?'

Emeritus Fellows also expressed how they were initially concerned only with their personal practice and then later share a concern for meeting their colleagues' professional development needs. An Emeritus Fellow shared, "As an Emeritus, I feel like my leadership has expanded more to a district-wide level than just in a school. But also, as an Emeritus, I'm really trying to support other fellows and bring other fellows into our ESD program."

Each year, Fellows complete an action plan that outlines short-term goals and strategies to achieve those goals. During each quarterly meeting, Fellows review their goals and reflect on outcomes. Through this process, Fellows' gain experience in the cycle of evaluation, a key skill for leaders. After three years of developing and implementing an action plan, Fellows increased their expertise and confidence. They described how access to professionals outside of their district allowed them to gain a leadership perspective with courage to take risks and confidence to pursue tasks in unfamiliar areas. One Emeritus Fellow shared:

I was asked to facilitate our secondary math adoption. I did that and then the following year, I facilitated our elementary math adoption across eight buildings. Just taking on

¹² Visit <https://www.k12.wa.us/about-ospi/about-agency> to learn more about OSPI's vision, mission and values.

that role ... I had never really done that. So, I researched and figured it out to facilitate this in a way that we got a decision that's shared. Fellows elevated me to a place where I was getting access to tools and relationships with other educators around the state that I would never have gotten otherwise.

Emeritus Fellows described having more confidence and seeing themselves as leaders. An Emeritus Fellow shared, “I see myself as a leader ... because I have had those opportunities to lead professional development, not just within my district, but now to other teacher leaders in our ESD.”

Equity and access are priorities for the Emeritus Fellows, and they feel prepared to lead difficult conversations with peers about changing practice. Many interviewees underscored the importance of the equity work they are bringing to their district as a result of what they have learned in the program. They shared that one of their most significant learnings was the CBAM, which provided them with structure and confidence to approach the topic of change. An Emeritus Fellow shared that, originally, “I’d be shut down by colleagues. [They said], ‘Oh, that sounds really difficult,’ or ‘why would I want to do that?’ Getting people to change what they do in their classrooms was a lot more difficult than I thought it would be.” A second focus group member echoed this sentiment. She shared that she finds herself continually referencing aspects of the book, so she keeps it on her desk for everyday situations. They feel this gentle approach to helping colleagues embrace change leads to system improvements, such as moving from deficit-based language toward more strengths-based language in the school.

Application of Knowledge, Skills, and Abilities

Emeritus Fellows apply the knowledge, skills, and abilities they have developed through the Fellows Network. They hold key positions formally and informally among their colleagues and take on a wide range of roles to make substantial contributions in their buildings, districts, and across the state for some. They function as instructional coaches, curriculum experts, researchers, evaluators, and leaders with richly contextualized professional knowledge for their unique school environment.

Exhibiting strong communication and collaboration skills, several of the Emeritus Fellows interviewed lead professional learning circles within their buildings. Book studies and regular reviews of student data are among the topics covered. Some Emeritus Fellows actively participate in decision-making for their department or district around curriculum, education resources, and teacher professional development needs. In sum, Emeritus Fellows report they are motivated to apply their talents in the following ways:

- share and promote the role of the Fellows Network in teacher growth,
- provide professional development in their region and district,
- transfer professional knowledge to peers,
- support the district-wide implementation of curriculum,
- participate in building and district decision-making,
- write grants,

- participate in research and evaluation activities, and
- collaborate with administrator to help set visions.

Emeritus Fellows apply their innovative talents to expand and accelerate their colleagues' professional development. Several are using creative methods to integrate the cycle of modeling, practicing, and reflecting real-time within the classroom. An interviewee described how she reaches many teachers across the building more quickly using a studio approach to provide professional development on teaching foundational reading skills:

We're doing something called a studio where we have a different grade level team each Wednesday and provide professional learning throughout the day. We go into their classrooms and model lessons, debrief, and then plan the next lessons together.

EMERITUS FELLOW SPOTLIGHT

One Emeritus Fellow offers a rich portrait of continued leadership in which she employs the tools of the program to bolster Fellows' learning and accelerate the development of content expertise and leadership skills.

The Emeritus Fellow brings together ten Math Fellows on an ongoing basis in between the Fellows Network convenings to extend and apply what they learned. They systematically try strategies in the classroom and reflect on students' responses to the strategies, such as mathematical mindsets¹³ and Number Talks¹⁴. The Emeritus Fellow also creates opportunities for the Fellows to build their leadership skills.

Working closely with the Fellows, the Emeritus Fellow accelerates learning by quickly identifying teachers' skill gaps and finding resources to close these gaps. This strategy maximizes efficiency of the continued training and development after the convenings. In addition, the Emeritus Fellow guides Fellows to think beyond the classroom to a systems perspective. She instills a sense of responsibility for the Fellows to think about how they will lead their teacher colleagues and help them grow. The Emeritus Fellow provides encouragement and builds the confidence in Fellows to step outside their classroom and work across grade levels to lead. She shared:

"One of our Fellows, who is a first-grade teacher, has been collaborating and working closely with sixth-grade teachers ... There is a willingness and readiness within that professional learning circle to work alongside of the Fellow even though they are at very different grade levels."

The Emeritus Fellow continues to maintain an action plan focused on high-level outcomes for the Fellows she mentors. Her goals include:

¹³ Boaler, J. & Dweck, C. (2016). *Mathematical Mindsets: Unleashing Students' Potential through Creative Math, Inspiring Messages and Innovative Teaching*. San Francisco: Jossey-Bass.

¹⁴ Parrish, S. (2010). Number talks: Helping Children Build Mental Math and Computation Strategies. Math Solutions.

- increased ownership and pride of the district's common math vision, and
- increased focus and intention to implement the common math vision in the classroom.

The Fellows align their action plans to the Emeritus Fellow's action plan and frequently revisit their plans to update and reflect on their progress. Fellows' reflections describe the outcomes from increased ownership and pride of the common math vision (Figure 7).

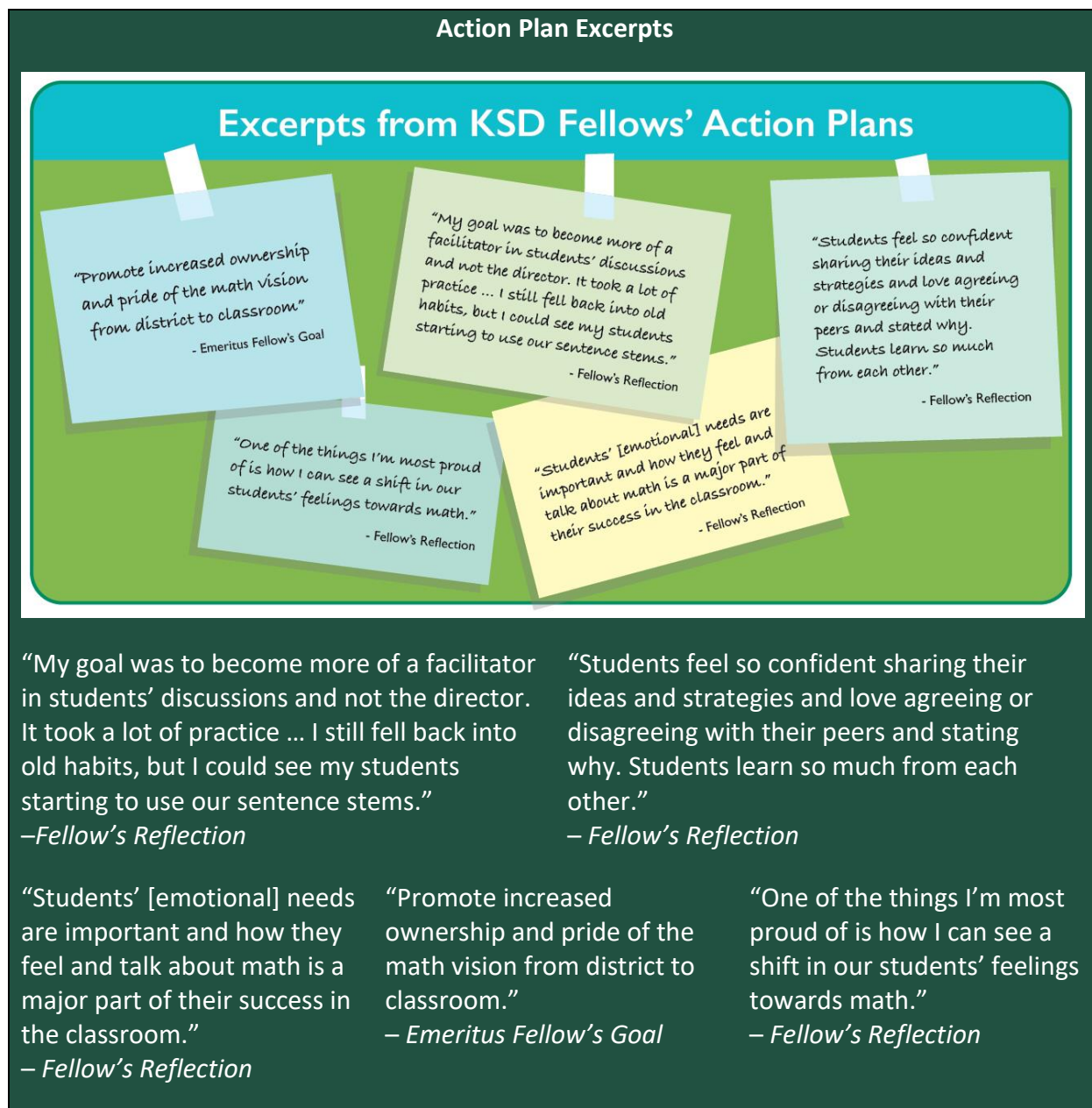
KEY CONDITIONS TO ACCELERATE TEACHER LEADER DEVELOPMENT

In the interviews, the Emeritus Fellows who work with Fellows in their district identified the following three key conditions needed to accelerate the development of teacher leaders.

- **Building administrator support** – The building administrator promotes the value of the Fellow throughout the building by highlighting the Fellows' work and helping them overcome obstacles. They also stay updated on the Fellows' progress, learn from their experiences, and assist them with planning ahead to accomplish goals.
- **District-level support** – District-level support, provided by a superintendent or teaching and learning director, ensures that Fellows' work is aligned with district goals.
- **Instructional coach or specialist support** – This person spans across grade levels and supports Fellows' work in their classroom by facilitating the action plan process and reflection. They also assist with teachers' leadership goals within their building.

While the job title of the staff who provide the support described above may differ for each district, the important take away is that the acceleration of Fellows' growth is a deliberate, coordinated effort shared by district and building leaders.

Figure 7. Fellows' action plan excerpts



Emeritus Fellows' Recommendations

While some Emeritus Fellows interviewed were very satisfied with their current role in their district, some expressed feelings of being underused with respect to their skills, knowledge, and abilities. Emeritus Fellows were asked to share their experience and provide their ideas and recommendations about ways to fully use their assets outside of their classroom.

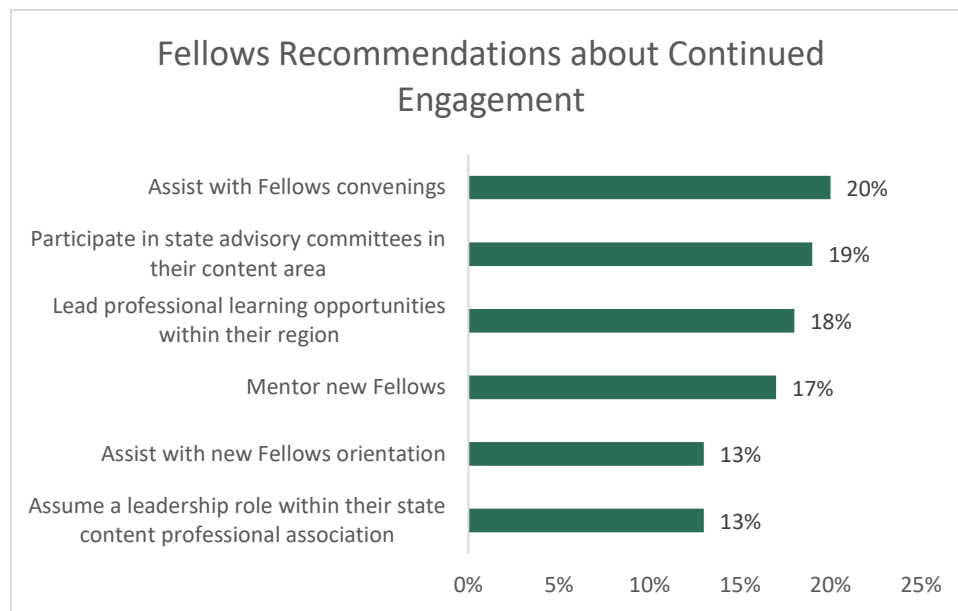
Overall, many of the interviewees who teach in classrooms expressed a desire to dedicate themselves to working with teachers as instructional coaches and professional development providers. One Emeritus Fellow who is a classroom teacher said:

“My dream job would be to continue to move into an instructional coaching role, but those are kind of dying everywhere. I feel like what Fellow does is sharpens you up to become one down the road, but the unfortunate thing is I feel like school districts are getting rid of those roles.”

Some focus group participants recommended using Emeritus Fellows as ambassadors for the Fellows Network. Ambassadors could help build a deeper understanding of the Fellows Network and the benefits (e.g., strengthened leadership skills) of program participation. This work could help alleviate challenges around support for increased responsibilities, as some Emeritus Fellows cited no difference in their relationship with their administrator after they completed the program.

Most Emeritus Fellows shared that they are eager to maintain some level of involvement in the Fellows Network. One Emeritus Fellow recommended, “cycling [us] back to tie us into the new Fellows-type stuff. Even if we got paired up with someone or a few people, we could be their point person.” In a survey administered by OSPI in September 2019, approximately 161 Fellows who became Emeritus Fellows recommended ways to remain engaged, as shown in Figure 8.

Figure 8. Fellows Recommendations about Continued Engagement



In the focus groups, Emeritus Fellows expressed a strong interest in, and dedication to the Fellows Network. They recommended that OSPI and the ESDs provide opportunities for them to do the following:

- Serve as ambassadors to promote the Fellows Network,
- Contribute to the development of a unified vision and goals for Emeritus Fellows,
- Assist in the delivery of conference presentations, and
- Co-author articles

Conclusion

The guidance of OSPI, the ESD Regional Coordinators, and the Fellows Advisory Committee has been instrumental in building an effective teacher leadership program across Washington state. This study revealed that Emeritus Fellows attribute their growth as leaders, in part, to the robust, research-based curricula and expertise of the Fellows Network. Emeritus Fellows' traits revealed in this study include:

- Savviness in selection and implementation of evidence-based practices,
- Awareness of the importance of moving slowly to affect change,
- Responsibility to provide the best learning opportunities possible for each student,
- Eagerness and enthusiasm to transfer professional knowledge to others,
- Strong interest in improving outcomes of learning for all students,
- Tireless work toward a shared vision of teaching and learning, and
- Willingness to take risks to learn and improve.

This study adds to the growing knowledge of Emeritus Fellows in Washington state. This information is important to investigate because a large number of teachers who complete the three-year program decide to become Emeritus Fellows. A majority of the Emeritus Fellows explained that they joined this group to stay connected to the network of ESD Regional Coordinators and teacher peers. ESD Regional Coordinators continue to be a lifeline to Emeritus Fellows, especially for Emeritus Fellows who are geographically isolated.

The study revealed that Emeritus Fellows continue in their current roles at their school and, in addition, seek out other opportunities to use their knowledge, skills, and ability for the betterment of their colleagues. The eagerness and passion of the Emeritus Fellows to lead and improve teaching and learning raises important considerations about how to fully use Washington state's teacher assets so they can develop a high-performance learning environment. Further exploration of ways to mobilize these teacher leaders would be beneficial to maximize the education landscape in Washington state.

Leading the Advancement of Equitable and Sustainable Computer Science Education

Prior to 2017, the Education Service Districts (ESDs) offered limited teacher professional development in computer science (CS). Each ESD's capacity to manage a CS professional development venue varied widely based on resources (e.g., staff and funds) for training and networking. For example only ESD 101 and ESD 121 were regional partners with Code.org and offered robust CS courses for K-12 educators. However, in 2017, key leadership in the ESDs decided to join together as the Association of Educational Service Districts (AESD) to provide coordinated, statewide CS training.

The Office of Superintendent of Public Instruction (OSPI) also joined this effort and provided funding to AESD to improve access to teacher CS training. Initially, AESD formed two consortia,

AESD-East and AESD-West, which coordinated training schedules, outreach efforts, resources, partners, and evaluation efforts. Each ESD had a CS Lead, and they overwhelmingly agreed that, at the time, the coordinated effort was unsurpassed in Washington state ESD history. “This was the best collaborative effort that I’d seen between multiple ESDs,” shared a CS Lead. “All of a sudden, we had access and communication with contact people in each ESD who are all working toward the same goal.”

The first year provided a proof of concept, during which AESD successfully led the statewide effort to advance equitable and sustainable CS education. An evaluation of the initial year brought strong evidence that AESD-East and AESD-West built the internal infrastructure needed to accomplish their goals and objectives effectively and efficiently. Together, the network of nine ESDs:

- led districts’ CS education efforts across the state
- increased the number of Washington CS Leadership Network members statewide
- increased the number of CS opportunities offered
- increased the number of underserved and underrepresented populations supported by CS education
- provided support for CS stakeholders statewide and
- increased the visibility and dissemination of CS education efforts

In Year 2 (2018-2019), the east and west consortia of ESDs merged. As one collective, they continued to provide equitable opportunities to engage teachers in CS training and networking using the forward-thinking plan that they developed collaboratively. The strategic plan provided cohesion across the state and positioned each ESD to use their partners in ways that best fit their region’s unique requirements. The CS Leads made a big push to create local CS communities with district administrators and teachers and connect them as a statewide CS leadership team. This approach allowed OSPI and AESD to quickly communicate and share what was happening in each region.

The ESDs increased teachers’ capacity to alleviate inequity and begin providing all students with access to CS education, even in the most remote districts. Teachers applied what they learned through their involvement in the CS professional development to create more constructivist and innovative classrooms, rather than mainly using computers for skill remediation and mastery. “I think, in the beginning, it was about introducing computer science. And so, the very first few years of the grant really was about opening up people’s minds about what they could do with computer science,” shared an interviewee.

Reflecting back to before AESD’s CS efforts, an OSPI stakeholder shared, “I don’t think that the computer science work could have moved ahead without the ESDs ... they’re really the connecting piece to all parts of the state ... the ESDs have a pulse on their communities and industries and know what their needs are.”

Key Partners

OSPI and AESD work closely with partners to augment initiatives across the state that assist and accelerate the work. Key partners that help provide CS training throughout the state are:

- Code.org
- For Inspiration and Recognition of Science and Technology (FIRST) Robotics and
- Technology Education and Literacy in Schools (TEALS)

Code.org has been an important partner in this work. They are a nonprofit organization dedicated to expanding access to CS in schools and increasing the participation of girls and underrepresented minorities. Their vision is that every student in every school should have the opportunity to learn CS, just like they have the opportunity to learn biology, chemistry, or algebra. Some ESDs have a certified Code.org trainer who offers three levels of courses for educators: fundamentals, discoveries, and principles.

- **Fundamentals** – In Fundamentals, students create computer programs that will help them learn to collaborate with others, develop problem-solving skills, and persist through difficult tasks. Code.org offers pre-readers and readers (ages 4 through 8) an introduction to CS and older elementary students (ages 6 through 13) an opportunity to learn CS basics and create their own art, stories, and games.
- **Discoveries** – Discoveries is for students in Grades 6 through 10. It takes a wide lens on CS by covering topics such as programming, physical computing, HTML/CSS, and data. Students engage with CS as a medium for creativity, communication, problem solving, and fun. The course inspires students as they build their own websites, apps, games, and physical computing devices.
- **Principles** – Principles is designed for students in Grades 9 through 12. It introduces students to foundational CS concepts and challenges them to explore how computing and technology can impact the world. The curriculum is flexible enough to be taught as a normal course or as an advanced placement course.

The philanthropic organization, FIRST, based in New Hampshire, also received a large grant from OSPI to provide training for CS programs. FIRST STEM Robotics 101 training is provided to teachers across the state by a CS expert with 2 decades of experience as a computer chip designer and engineering manager at Intel and Microelectronics. So far, this trainer, together with FIRST Washington, has provided training for over 800 teachers in Washington state.

Microsoft Philanthropies is a key partner at the high-school level. They generously support TEALS, which helps teachers bring real-life applications into the classroom through video with technology professionals.

Further, OSPI and AESD have forged strong partnerships with national organizations, including Governors for Computer Science, CSforALL, the CS Teachers Association (CSTA), Expanding Computing Education Pathways, the Advancement via Individual Determination, and the Northwest Council for Computer Education. These venues offer ways for OSPI and the ESDs to

collaborate with educators from primary to post-secondary institutions for alignment and cohesion. Each partner brings expertise, resources, and professional learning opportunities to move districts toward equitable access to CS for every student.

Leading Regional CS Efforts as a Collective

In Year 3, OSPI and AESD operated as a mature collective. Each AESD CS Lead and OSPI has developed deep expertise in several areas, which they share as needed. The result is a highly functioning, statewide, collaborative network that can achieve significant outcomes with cost savings and in less time than if each organization acted on its own.

The CS Leads are working to expand the reach of CS to all students using varied approaches based on urban and rural schools' needs within their region. They plan for the school district leader convenings and the teacher professional development workshops, garner school administrator support around the strategic implementation of CS, attend state AESD CS Lead meetings and monthly regional meetings, and serve in CS activities and programs for the districts within their region. Some CS Leads work directly with teachers to provide training on coding and computational thinking, while others work directly with administrators to support strategic plan development.

Each CS Lead seeks innovative ways to fold efforts into region-specific opportunities, such as by working with local businesses (e.g., agriculture, technology) and post-secondary institutions. Other grant funds support these innovations, such as robotic competitions and delivering CS-related professional development to post-secondary education majors. For example, one AESD CS Lead works with pre-service teachers at a local university to start teacher professional development early. By blending two pre-service classes, Elementary Teaching Methods and Educational Technology Integration, these pre-service teachers learn how to naturally integrate computational thinking into K-8 classroom activities. A CS Lead shared, *"Infusing it into the curriculum that all students take is one of the best ways to ensure that everyone has access."* She shared that conversations about equity, computational thinking, and classroom routines led to *"significant a-ha moments for the pre-service teacher attendees."*

OSPI also took an innovative and significant to define and operationalize CS in K-12 schools. Working closely with a statewide Advisory Committee comprised of state agency, higher education, and local education agency staff (e.g., teachers, administrators), OSPI led the development of a large guidance document designed to clarify CS practices in the primary and secondary classroom. The document is based on the collaborative work of Washington state teachers, AESD CS Leads, and the Advisory Committee and the CSTA publication *K-12 Computer Science Standards*. The document outlines the fundamental knowledge of CS that students should acquire at each grade level, from elementary to high school. It translates the definition

and standards of CS into instructional practices so teachers can see what robust CS teaching and learning looks like.¹⁵

Guiding Schools to Create a CS Ecosystem

Robust CS teaching and learning begins in the early grades. Similar to all content areas, students need foundational CS knowledge in elementary school to prepare them for success in middle- and high-school CS courses. This foundational knowledge leads to mastery of skills and abilities by delivering sequential content that follows established learning progressions.

Like pieces of a puzzle, the CSTA outlines five core concepts and seven core practices that describe what students know and do when engaging in CS activities. With the full puzzle, effective teachers can engage students in instruction to learn and practice CS activities (see Figure 9). The following five core concepts represent the overarching CS content areas:

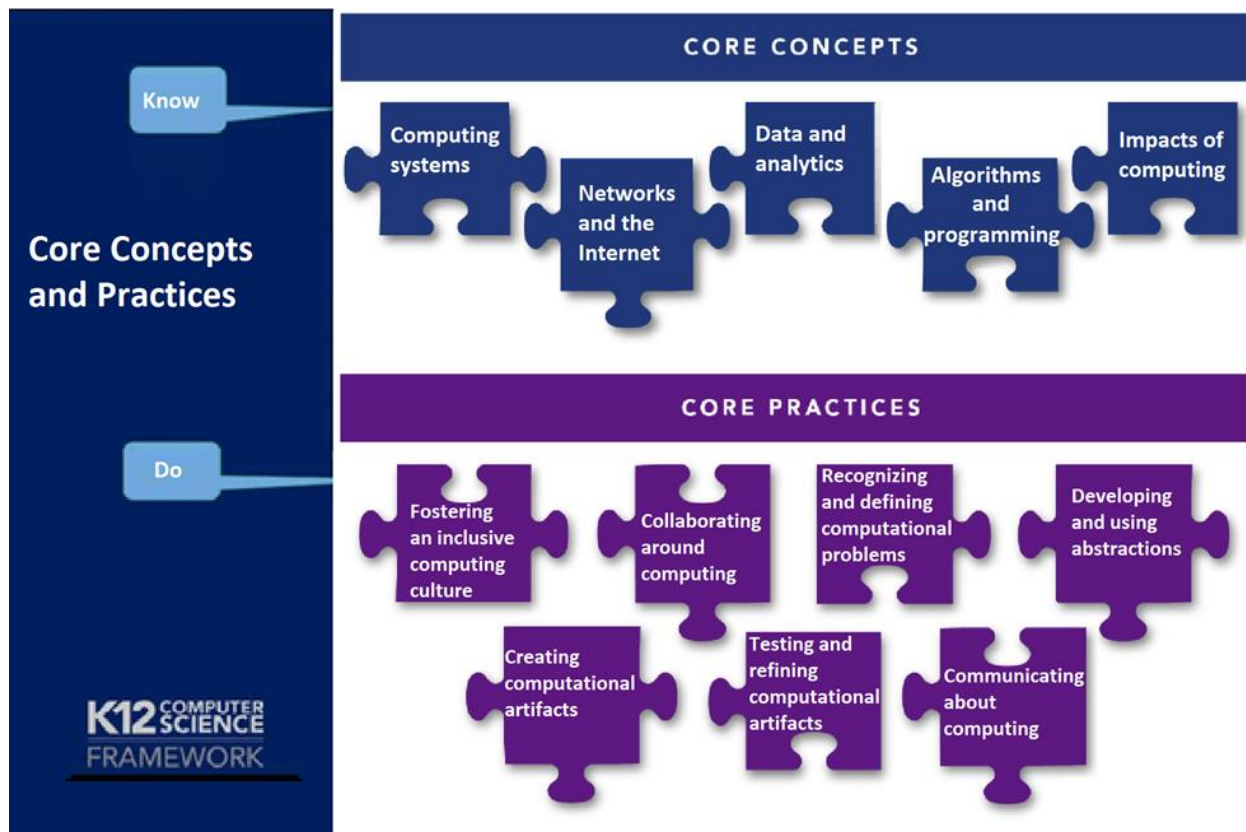
- Computing systems
- Networks and the Internet
- Data and analytics
- Algorithms and programming
- Impacts of computing

The following seven core practices describe the behaviors and ways of thinking that students use when working within the core concepts:

- Fostering an inclusive computing culture
- Collaborating around computing
- Recognizing and defining computational problems
- Developing and using abstractions
- Creating computational artifacts
- Testing and refining computational artifacts
- Communicating about computing

¹⁵ Office of Superintendent of Public Instruction. (2020). *Guidance on Teaching Computer Science in Washington State K-12 Public Schools*. https://www.k12.wa.us/sites/default/files/public/resources/Publication%2020-0014_Guidance_on_Teaching_Computer_Science_ADA.pdf

Figure 9. Core Concepts and Practices of K-12 Computer Science



Washington state's *Computer Science K-12 Learning Standards*¹⁶ guide is an essential resource that is based on CSTA's standards. It provides examples of vertically aligned CS practices that build on foundational knowledge in Kindergarten and become increasingly complex as students increase their depth of understanding. The OSPI companion document, *Washington State Computer Science Standards and Practices by Grade Band*,¹⁷ help provide clarity by translating the standards into familiar language that is free from technical terms.

Across the state, the CS Leads have taken a coordinated, systematic approach to build teachers' ability to integrate CS into other content areas. They have worked to build awareness in teachers and administrators that the foundational knowledge of how to collect, analyze, transform, present, store, and distribute data are all key bridges to the Common Core and Next Generation Science Standards (NGSS) throughout K-12. After attending professional development training, teachers and administrators learn that using a computer program to

¹⁶ OSPI. (2018). *Computer Science K-12 Learning Standards*.

<https://www.k12.wa.us/sites/default/files/public/computerscience/pubdocs/cs-standards.pdf>

¹⁷ OSPI's Washington State Computer Science Standards and Practices by Grade Band:

<https://www.k12.wa.us/student-success/resources-subject-area/computer-science/computer-science-k-12-learning-standards>

manipulate data, such as spreadsheets, also sets the stage for learning scripting languages or other programming languages, thus setting the student up for success.

Boosting foundational knowledge and providing encouragement beginning in the early grades can increase young students' confidence and enjoyment in computing. Gaining computer science knowledge early on can help dispel stereotypes and barriers related to diverse participation and engagement in computing and technology.

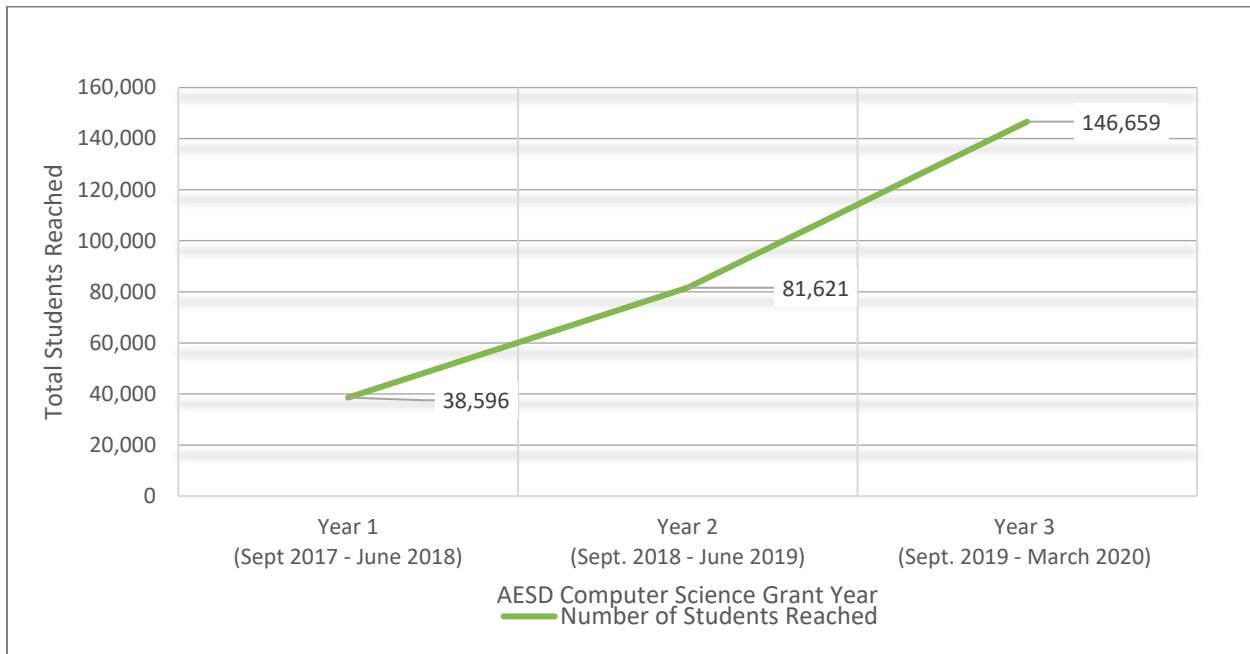
High-Quality Professional Development

Over the last three years, teachers consistently rated the professional development provided by the ESDs and their partners as high quality, useful, and relevant. Teachers felt highly satisfied with the training and reported increased knowledge, skills, and abilities to teach CS and computational thinking.

The professional development included single-day trainings and intensive, multi-session participatory workshops where teachers received in-class training, one-on-one coaching, and support to successfully translate what they learned into effective classroom instruction. The professional development helped alleviate some teachers' anxiety about computer technology. Sustainable professional learning communities helped dismantle fear and anxiety. These communities were created so teachers could proactively bounce ideas off of their peers and share their frustrations and anxieties. These informal professional learning communities had a tremendous impact on their teaching experience and ability to provide children with powerful learning experiences.

The teacher participants were asked how many students they teach each year to get an estimate of the number of students reached. A longitudinal look at the CS grant outcomes over the last three years shows a steep, positive trajectory of the number of students potentially influenced by teachers who participated in CS training. (See Figure 10.)

Figure 10. Cumulative number of students reached by AESD CS teacher trainings by year (2017–2020)



Teachers are learning how to integrate CS into other content areas and reported using CS as a tool to teach science and mathematics. For example, a seventh-grade science teacher used what he learned in Code.org to model changes in the predator-prey ratio and show the resulting effects on the ecosystem. He said, *“My students could go in and change the number of foxes in an environment... It really worked very well to help students frame an interdependence relationship of an ecosystem because they were able to do 17 manipulations in 30 minutes. They were actually able to see the effects of the ratio being changed.”*

The CS grant to AESD has supported teacher training and the creation of pathways for student success, especially for students who have not previously been exposed to CS, through robotics, programming, and virtual reality applications. These CS applications have enabled students to learn content and build critical thinking, problem solving, communications, and collaboration skills. The teachers apply what they learned in the professional trainings, book studies, and more to build healthy, horizontal relationships where teachers and diverse students engage in 21st century knowledge and skills linked to academic and future career success. Educators may also be more aware of the ways culture and diversity affect user experiences and think critically about cultural relevance and accessibility in the classroom.

Teachers reported that their classroom activities have helped develop students’ determination, confidence, persistence, and self-directed behavior, preparing them for academic and career success. Teachers who participated in the CS training shared how they applied the knowledge and skills gained. In the sections below, they reflected on the impacts on historically

underserved students, including students with disabilities, girls, and students who are not as closely connected to the school environment.¹⁸

INCLUSION FOR ALL STUDENTS

Teachers who work with students with disabilities shared how they brought what they learned back to their classrooms. After the training, they presented their students with opportunities to build and program robots and use Code.org. The teachers unanimously expressed excitement about the discovery that their students could successfully apply programming concepts, logic, and problem solving skills. A teacher provided the following insight into their discovery:

My students [with learning disabilities] generally ... don't have the same confidence. Whereas in the computer science classroom, they were learning, they were engaged. [Also] the kids that struggle in [other content] areas were the kids that excelled [in computer science] ... you saw a shift of leadership in the classroom ... they were the ones that were helping their peers!

In my class [this student with special needs] just excels! He loves programming and is ahead of my whole class. He actually started doing other kinds of programming ... he sought out different types of coding things that he could do online. So, he got his first challenge done; it's not even due until this coming Friday, but he got it done last week. And he's working on his next challenge.

My ... severely physically handicapped students [are] not always integrated into regular classes. [For them] I have gotten the CINCH robots... We put it out for the students and one of my students was programming it using block coding, it was drag and drop but ... parent/teachers wouldn't have expected to see that. This was the most exciting part!

DISMANTLING GENDER STEREOTYPES

The CS training has also been a catalyst for reaching young girls to dismantle gender stereotypes and promote gender inclusivity. One teacher explained, “I always try to take the fear away from the girls. I don't know if it is home, or sometimes the influence of TV that is telling some of the girls that coding and robotics is not for girls, which is very wrong, because my girls have succeeded, and they just love, love doing robotics.”

CS can transcend spoken languages and the need to be proficient in English to enjoy full participation. Teachers reported that some students were intimidated at first, but teachers learned to use



After training, teachers reach out to girls to dismantle CS gender stereotypes

¹⁸ Gordon, JV. (2018). *Connecting Teachers and Students to the World of Computer Science: AESD Computer Science Evaluation Report.*

instructional strategies to build students' self-confidence. A teacher shared, *"So what I do is I show my students in English and in Spanish. I keep telling them while learning to code, that coding is a language in its own. When we show the kids that almost all the advancements we have in technology have somehow started or improved thanks to the coding part that opens their eyes. And they see that, 'Hey, it's something I can use regularly.' It's a skill that we all need."*

ENGAGED AND CONNECTED

Technology and CS increased student engagement. The Code.org and Robotics trainings provided teachers with the tools and pedagogical strategies to create student-centered environments that keep students engaged and connected. Several teachers who attended AESD CS professional development explained how the technology and CS provided high motivation and engagement to students who need alternative teaching methods to lecture-based instruction. One teachers shared:

"There are kids who are failing every class except for computer science, and it's because it's interesting to them, and they get the logic behind it ... they're invested and willing to put forth the time to make their website look good or their game be really awesome."

Another teacher shared:

The kids that were the so-called 'troublemakers' [were making robots and] they were not troublemakers at all. These were the kids that could not just sit and listen. [And] I did not believe what [other] teachers told me that 'these kids don't like reading.' [I told them], 'Huh? They read 300 and some pages [to build and code their robot].'

Teachers explained that doing CS with traditionally non-participating students can transform students' attitudes about school. For example, participation in robotics competitions gave students confidence in their skills and knowledge, and the CS experience changed their outlook on learning. A teacher recalled an experience from a previous year:

My kids [unengaged in other subjects] won every single CS competition challenge. They got all four main awards. They went from being the 'troublemakers' to being the Super Stars ... to graduating from high school. They're in college now ... in computer science. [Already one] graduated, and he got what he wanted. He's a computer scientist. He said, 'I got this [degree] thanks to you because you introduced robotics to us, and we found a reason to go to school.'

For students, the revelatory teaching and learning experiences were uniquely integrated into the existing content and lessons in ways that were both innovative and engaging. This revelatory experience also dispelled the myth that CS and coding is only for a select group of high-achieving kids. It created a paradigm shift to show that CS programs are inclusive and equitable for all students. As one STEM director reflectively put it, *"We're seeing teachers that are really engaging all kids regardless of what their [state proficiency] might be or whether they have a behavior challenge or learning disability... We're seeing them use it with all kids. It's just fantastic."*

One School District's Journey to Implement CS

Across the state, AESD CS Leads are assisting school districts and buildings, whether novice or expert, to implement CS. The implementation journey is unique to each circumstance, collaboratively driven by administrators, teachers, students, parents, and the community. One school offered a rich portrait of their experience with launching CS throughout their elementary school building.

In a focus group with the administrator and teachers, they shared their step-by-step process to shift staffs' apprehension to confidence. The principal described the importance of initially allotting ample time for teachers themselves to learn and engage with CS. First, six staff attended the ESD's computational thinking course where they acquired a knowledge base and received instructional materials, including an Ozobot and Makey kit. The staff played around with the tangible kits and worked as a group to practice and perfect their classroom approach. After gaining confidence, they incorporated CS into their classroom *"and then it really took off,"* exclaimed a focus group participant.

The students *and* teachers enjoyed the exciting new opportunity for active hands-on engagement to basic block coding to third graders. The principal shared, "That was a catalyst for me as a building principal to say, 'We need to be doing more of this.' We get a lot of other units that come in that, to me, aren't very engaging and aren't really relevant to 21st century learning."

Next, they created a designated STEAM lab to make CS inviting and less intimidating to all teachers and to illustrate that CS is essential. The principal reflected on the guidance provided by the CS LEAD to help navigate through the requirements and challenges of implementing CS:

"We decided to rebrand our school as a STEAM school and send all our staff to the ESD training for computational thinking. And it's just taken off from there ... that initial stage was just getting some tangible instructional materials, gaining enthusiasm and excitement, and then finding some professional development that was engaging and really well done, which the ESD provided for us."



A new STEAM classroom inspired by an ESD.

Essential Components of a CS Implementation Strategy

Across all of the focus groups, participants emphasized that district and building leaders are important to the success of implementing CS. The teachers interviewed emphasized that CS training and teaching CS are not enough for success. *“We had a really great plan that came out of [our professional development], but we still felt it was like, ‘Well, nobody that’s really a district-level administrator has time to lead this, so you guys just take it.’ But when we just take it, nobody really buys in the same way.”*

Recognizing that district leadership is critical, CS Leads have designed and provided training to administrators about the importance of K-8 CS and computational thinking integration to secure their buy-in and support. A CS Lead shared, *“It’s helping [administrators] understand how moving in this direction could solve other [challenges they have] as well ... We’ve got some tools and some ability to highlight how supporting students with these opportunities early can lead to all kinds of better outcomes.”*

The CS Leads support first-time teachers integrating CS in their classroom, and they hold more expansive and detailed conversations with district leadership about the development of a CS ecosystem. The ecosystem illustrates how students learn progressively complex content beginning in primary school. For example, elementary school preparation includes block coding, basic line coding, and beginner-level Python, which allows students to code for drones in later grades. An interviewee shared, *“What we’re evolving to now is really looking at computer science as a system... [Defining] the K-12 system for those districts and having them create plans around what that looks like in their district ... [such as] unrepresented youth and minorities, especially girls, participating in computer science.”*

To develop an ecosystem, some schools create a strategic plan. OSPI, in partnership with AESD, offers assistance to schools for strategic planning to build and implement a cohesive, robust CS program. Schools can take multiple approaches to create a strategic plan. One such approach is the Strategic CSforALL Resource and Implementation Planning Tool (SCRIPT) framework. SCRIPT is systematic process that engages school staff, community, and stakeholders in collaborative activities to identify the components needed to implement a successful CS program. Each ESD and OSPI staff is a certified SCRIPT facilitator and can guide the school through the process of creating a plan that includes the following five focus areas:

- school leadership involvement
- teacher capacity and development
- materials and curriculum selection and content refinement
- use of partners
- community input and involvement

The facilitator guides participants through key components of the plan, including the incorporation of teacher professional development into the school plan and collaboration with local, state, and national partners who can help provide high-quality CS courses. SCRIPT training raises awareness of the community’s integral role in a CS program’s development and

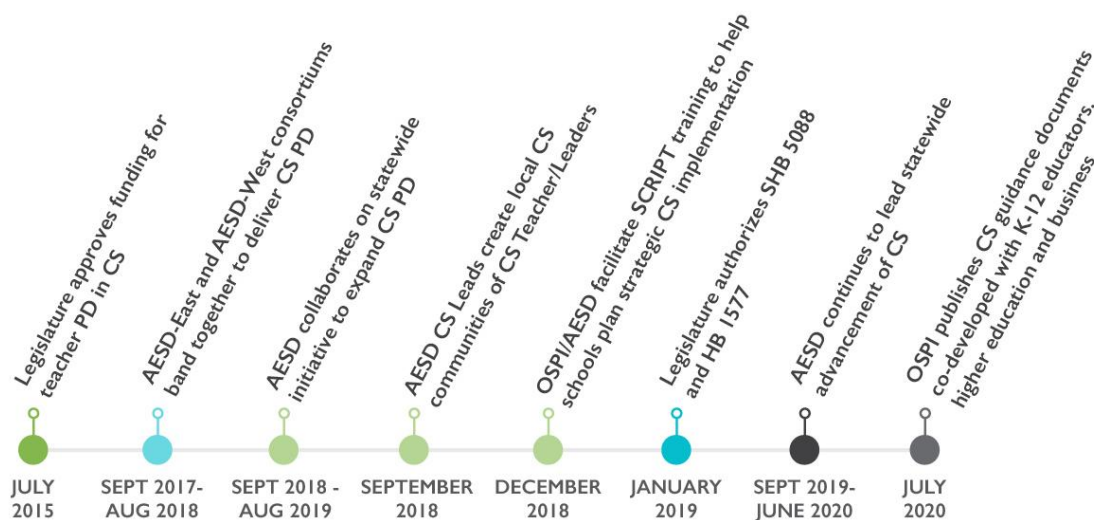
sustainability. This awareness can improve school-to-family communication about partner opportunities, extracurricular activities, and in-school CS pathways. The community can also help inform the CS plan and pathways for college and career readiness based on the local workforce needs.

The certified SCRIPT trainer at each ESD can facilitate these discussions to bring different perspectives, help reach parents, and promote community engagement in the vision. CS Leads described how exemplar school districts offer a variety of ways to encourage family engagement in CS and contribute to the district's vision of CS. The school can host an Hour of Code during Family Nights, invite guest speakers from the local community to share how they use CS at their work, and provide a summer CS reading program for elementary students.

Some school districts have exercised their self-determination by prioritizing students, families, and communities' visions of success. Especially in rural areas, families have requested that schools focus on CS career pathways that allow students to be gainfully employed in their rural communities, for example, in the fruit industry. Expanding knowledge of CS applications throughout varied disciplines increases the relevance of CS to students' lives, garners parent support, and opens career pathways.

AESD and OSPI have diligently worked to bring a deeper understanding of these essential components to all schools. This work has raised awareness of the importance of CS for all students. Significant milestones have been reached since July 2015 when the legislature first approved funding for teacher professional development in CS. In January 2019, the legislature authorized two new bills requiring schools to offer CS. The bills, HB 1577 and SHB 5088, require that all high schools offer CS courses, which should begin with foundational experiences in Kindergarten. (See Figure 11.)

Figure 11. Timeline of AESD computer science activities (July 2015 through 2020)



COVID-19: Pivot and Adapt

Professional development efforts were underway for Year 3 when the COVID-19 pandemic hit in March 2020. While each ESD experienced the COVID-19 emergency in different ways, the following common threads were identified as having an impact on CS programs:

- CS programs and events were significantly altered, delayed, or postponed
- the work was adapted from face-to-face encounters to virtual encounters
- ESDs and districts need ongoing CS support for the future and
- online education demands in basic education (reading and math) have temporarily pre-empted CS education, especially in elementary and middle schools

With partners (e.g., FIRST), some ESDs continued to creatively run virtual professional learning sessions with robots and drones mailed to participants. Other ESDs are engaged in the significant task of converting in-person training materials to online formats. An interviewee described how the CS Leads have pivoted and adapted:

“We are ‘all hands on deck’—all of us, everyone. I think we’ve really come together as a team to provide consistency in our approach [to assist districts], and so all of the specialists, whether it’s computer science, ELA, [or] math ... are all in on having a complete wraparound to support schools.”

The pandemic and crisis response served as an informal test that highlighted areas of further need and opportunity around CS. The Leads are sharing the message with schools that CS education, in response to COVID-19, is an essential part of recovery planning. For example, cybersecurity and digital citizenship are imperative pieces of the 21st Century virtual learning environment.

CS Leads in the focus groups reflected on the myriad of ways students and families’ lives will be different, including the expansion of e-commerce and other virtual services (e.g., medical services). They discussed how they can assist schools in making these new, expanded career connections and career pathways for students as the nation rebuilds the economy and recovers from the pandemic. For example, they plan to look for additional tools, resources, and partners to make it possible for students to earn CS credits while in high school. A focus group member reflected, *“When you have a system with the numbers of unemployment that we have currently, and as we start to put [our nation] back together, our graduates are going to face fierce competition. Historically, young people have not fared well in recession, and in recovery.”* The CS Leads plan to assist districts’ efforts to build a robust CS ecosystem that provides students with the digital skills they need to be competitive in the job market.

Although a lot remains unknown, OSPI and AESD are focused on bringing these CS opportunities to all students. They ask if there is a system in place. If not, they ask how can they help build one. If there is, they ask if it is equitable.

Going forward, AESD is also designing ways to bring the CS teachers into the community to build two-way communication. One such idea is to hold a summit in 2021 with local chapters of the CSTA, which have grown in the last few years. The Summit will leverage the CSTA chapters, explore the strengths and assets of each community, and find the best ways to meet individual CS teacher's needs.

Conclusion

Across Washington state, OSPI and AESD have made significant progress advancing CS over the last three years. In the first year, 2017-18, AESD successfully built a solid infrastructure to support communication and collaboration. The CS Leads used their spheres of influence and leveraged each other's talents to bring scales of efficiency to their newly formed collaborative.

Encouraged by the strong start in the first year, as evidenced by the evaluation, the last two years have brought enthusiasm and a honed focus on needs and opportunities. The ESDs used innovative approaches to meet these needs and extend the reach through augmented funding, such as by bringing professional development to pre-service elementary teachers.

The OSPI/AESD collaborative has gained statewide and national recognition with CS leaders and professional organizations for their participatory approach to designing a CS ecosystems with districts that includes culturally relevant resources and capacity building to provide equitable access to instruction. The annual evaluation has confirmed that equity is promoted, infused, and present across the efforts in many ways, including:

- increased access to content through teacher professional development
- promotion of CS to traditionally underserved students (e.g., students with learning disabilities, girls, students of color)
- heightened student engagement through relevant pedagogical approaches and
- guidance for administrators to establish a student-centered, K-12 CS system

OSPI and AESD are committed to continue to offer teacher professional development in CS content, help school districts build a CS strategic plan, and provide support to offer CS classes successfully. Their efforts have coalesced to provide school districts with clarity about what constitutes CS in each grade through published guidance documents that are important resources for districts. Other state education agencies recognize Washington state for its work in operationalizing K-12 CS instruction, allowing teachers who are unfamiliar with CS to have a greater ability to see how the core concepts and practices can be taught in their classrooms.

Washington state's next step is to develop a strategic plan to implement CS in primary and secondary schools. In some states, K-12 public schools are working closely with community colleges and universities to align their coursework and create pathways to post-secondary degrees and certificates. Strong visions in leadership and continued collaboration will bring this initiative into this next stage of advancing CS across the state.

Challenges

OSPI and AESD are adept at navigating uncharted territory while grounding decision-making in evidence- and practice-based approaches. Including teachers and stakeholders from the beginning to design and revise the models and frameworks have minimized the challenges encountered. Likewise, robust systems and processes established, including real-time online data collection and ongoing meetings, allow for timely revisions, thus minimizing potential challenges. However, innovative and significant work is not without challenges. Challenges that emerged from the study are: (1) how to harness the current talent of Emeritus Fellows and further develop their potential and (2) how to train teachers to adopt culturally relevant computer science pedagogy.

The evaluation raised important considerations about how to fully harness the current talents of Emeritus Fellows and further develop their potential. The Emeritus Fellows are eager to lead and improve teaching and learning across the state. They have expressed a strong interest and desire to be involved in education leadership activities at the regional, state, and national levels. Currently each ESD engages Emeritus Fellows in various ways based on regional activities, needs, and resources; however, some Emeritus Fellows feel underused and undervalued. Further exploration of ways to mobilize these teacher leaders will be beneficial to maximize current and new initiatives in Washington state.

As for the computer science work, there is a need to incorporate culturally relevant pedagogy throughout the computer science education. This effort will build relevance for families, communities, and students' lived experiences. Teachers need strategies to recruit underserved students into computer science courses. This work is slow going, and it needs the deliberate attention of OSPI and AESD to develop these abilities in teachers and leaders who are crafting the computer science vision for their districts and communities.

Recommendations

The following recommendations emerged from the interviews and focus groups and are informed by the guiding documents (i.e., the Theory of Action and evaluation plan). The recommendations are organized by the three evaluation brief topics.

The following recommendations emerged from the Fellows Network evaluation.

- Continue to provide strong support and dedicated expertise to ensure the continued success of the Fellows Network and its members.
- Increase access to CBAM to develop Fellows' expertise to affect change among their peers and school leadership.
- Continue to evaluate and study the Fellows Network to provide evidence of its effectiveness and to illuminate positive outcomes.

The following recommendations emerged from the Emeritus Fellows' evaluation.

- Continue to gather data from the ESDs and Emeritus Fellows to help shape future plans.
- In the short term, consider ways to harness and direct Emeritus Fellows' strengths to:
 - Serve as ambassadors to promote the Fellows Network,
 - Contribute to the development of a unified vision and goals for Emeritus Fellows,
 - Assist in the delivery of conference presentations,
 - Contribute to education research and evaluation, and
 - Co-author articles.

The following recommendations emerged from the computer science evaluation.

- Continue to fund the ESDs to expand computer science professional development opportunities to all teachers and administrators.
- Have OSPI/AESD support school districts to implement computer science in compliance with recent legislation.
- Provide professional learning experiences for teachers and administrators to improve equitable computer science opportunities by incorporating culturally relevant pedagogy.
- Promote school partnerships with post-secondary institutions to better align K-12 coursework with post-secondary degrees and credentials.
- Provide schools with timely information about computer science credentialing to share with students.

Conclusion

In conclusion, the statewide evaluation of the Fellows Network provides strong evidence that it is achieving the short-, medium-, and long-term outcomes identified in the Theory of Action. Washington state's investment in time and resources to prepare their teachers has resulted in a highly functioning teacher professional development program (i.e., the Fellows Network) that effectively builds teacher assets, develops talent, and organizes efforts to produce future leaders. The OSPI/AESD Professional Learning Network is well poised for continued success and the achievement of its goals and objectives moving into school year 2020-21.