
NWRPDP
Northwestern Nevada Regional
Professional Development Program

# 2018-2019 Annual Report
# August 2019

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# NWRPDP

# Northwestern Nevada Regional Professional Development Program

## Introduction

The 70th Session (1999) of the Nevada State Legislature passed Senate Bill 555, which, under Sections 16 and 17, authorized the establishment of four Regional Professional Development Programs (RPDPs) in the state. Since that 1999 session, the four programs have been reduced to three. Their collective charge is to support the state's teachers and administrators in implementing Nevada's Academic Content Standards (NVACS) through regionally determined professional development activities. Although the essential mission has remained unchanged, legislative mandates and the pedagogical needs of teachers continue to broaden the program's scope and responsibilities; the programs' expertise is called upon to assist with district and statewide educational committees and assist in statewide efforts to improve instruction through the Nevada Educator Performance Framework (NEPF).

The planning and implementation of professional development services in each region is overseen by a governing body consisting of superintendents in the respective regions, master teachers appointed by the superintendents, representatives of Nevada's higher education system, and the State Department of Education. A nine-member Statewide Coordinating Council, consisting of members appointed by the Governor or legislators, the Superintendent of Public Instruction, and one member from each of the RPDP governing boards oversees the three regional programs.

As outlined in Standards for Professional Learning (Learning Forward, 2011), there is a relationship between professional learning and student results:

1. When professional learning is standards-based, it has greater potential to change what educators know, are able to do, and believe.

2. When educators' knowledge, skills, and dispositions change, they have a broader repertoire of effective strategies to use to adapt their practices to meet performance expectations and student learning needs.

3. When educator practice improves, students have a greater likelihood of achieving results.

4. When student results improve, the cycle repeats for continuous improvement (p. 16).

Figure 1 below is a visual representation of the relationship between professional learning based on the Professional Learning Standards and improved student learning. (Desimone, 2009).

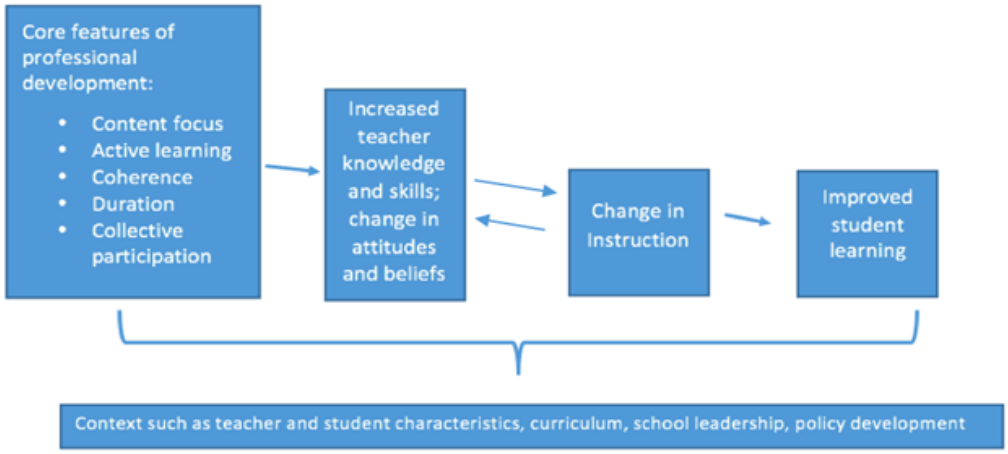


***Figure 1:*** *Conceptual Framework for Studying Effects of Professional Development on Teachers and Students*

The updated Standards for Professional Learning from the national professional development organization, Learning Forward, were adopted by the Regional Professional Development Programs in 2011. In 2017, Nevada included two additional standards to address equity and cultural competency to become the Nevada Professional Development Standards. These nine standards are used synergistically in order to increase educator effectiveness thereby improving students learning. The standards provide a framework for planning and leading professional learning opportunities.

## Part I: NRS 391A.190 1c Evaluation of Regional Training Program

*(1) The priorities for training adopted by the governing body pursuant to* NRS 391A.175 [391A.175 (a) *Adopt a Training Model, taking into consideration other model programs, including, without limitation, the program used by the Geographic Alliance in Nevada.]*

After conversations with our service requestor to establish the outcome(s) of the professional learning and alignment with the standards for professional development adopted by the State Board, a training model that is best matched to the work is chosen. Training models may include, without limitation, action research, critical friends/professional learning communities, personal learning networks, coaching, mentoring, instructional rounds, lesson study, and educational courses.

391A.175 (b) *Assess the training needs of teachers and administrators who are employed by the school districts within the primary jurisdiction of the regional training program and adopt priorities of training for the program based upon the assessment of needs. The board of trustees*

*of each school district may submit recommendations to the appropriate governing body for the types of training that should be offered by the regional training program.*

391A.175 (c) *In making the assessment required by paragraph (b) and as deemed necessary by the governing body, review the plans to improve the achievement of pupils prepared pursuant to NRS 385A.650 for individual schools within the primary jurisdiction of the regional training program.*

The assessment of training needs of teachers and administrators is determined through a request for service model. This model takes into consideration the needs of our districts and includes a combination of planning tools and strategies, including but not limited to the following:

- Request for services from district personnel or principals based on School Performance Plans (SPP) and needs of teachers on staff;
- Collaborative meetings with superintendents and/or key district personnel to identify priorities and needs on an annual basis guided by District Performance Plans (DPP);
- Collaborative planning meetings with principals and leadership teams to determine goals and objectives for designing a professional development plan;
- Formal and informal needs assessments as needed with districts, departments, and/or schools;
- Input from the RPDP Governing Boards; and/or
- Collaborative work with the Nevada Department of Education on initiatives to design and implement support or roll-out plans for the NVACS as well as other state initiatives.

Table 1. 391A.190 1c (8) *An evaluation of the effectiveness of the regional training program, including, without limitation, the Nevada Early Literacy Intervention Program, in accordance with the method established pursuant to paragraph (a), and (10) An evaluation of the effectiveness of training on improving the quality of instruction and the achievement of pupils:*

***Table 1:*** *RPDP State Approved Evaluation*

| **RPDP State Approved Evaluation (5-point scale)** | **2018-19** |
|---|---|
| 1. The training matched my needs. | 4.58 |
| 2. The training provided opportunities for interactions and reflections. | 4.80 |
| 3. The presenter's/facilitator's experience and expertise enhanced the quality of the training. | 4.81 |
| 4. The presenter/facilitator efficiently managed time and pacing of activities. | 4.80 |
| 5. The presenter/facilitator modeled effective teaching strategies. | 4.78 |

| RPDP State Approved Evaluation (5-point scale) | 2018-19 |
|---|---|
| 6: This training added to my knowledge of standards and/or my subject matter content. | 4.62 |
| 7. This training will improve my teaching skills. | 4.72 |
| 8. I will use the knowledge and skills from this training in my classroom or professional duties. | 4.71 |
| 9. This training will help me meet the needs of diverse student populations. | 4.63 |

*Table 2. 391A.190 1c (2) Type of training offered through the regional training program in the immediately preceding year.*

*Table 2: Type of Training*

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| ***Total Trainings*** | **180** | **39** | **18** | **48** | **29** | **6** | **66** |
| *Instructional* | 90% | 90% | 89% | 98% | 9% | 100% | 92% |
| *Observation and Mentoring* | 5% | 0% | 11% | 0% | 14% | 0% | 5% |
| *Consulting* | 5% | 10% | 0% | 2% | 7% | 0% | 3% |

Note: Aggregate total trainings equals the total of all 2018-2019 NWRPDP trainings. Because educators from different districts often attend the same trainings, totals by district will exceed the aggregate total.

Table 3. 391A.190 1c (3) *The number of teachers and administrators who received training through the regional training program in the immediately preceding year.*

***Table 3:*** *Number of Teachers and Administrators Who Received Training*

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| ***Total Regional Teachers*** | **5,375** | **490** | **194** | **335** | **514** | **33** | **3,809** |

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| *Unduplicated Teachers* | 1,549 | 224 | 127 | 245 | 189 | 9 | 775 |
| *Duplicated Teachers* | 2,613 | 426 | 245 | 505 | 342 | 10 | 1,085 |
| ***Total Regional Administrators*** | **560** | **32** | **14** | **30** | **45** | **4** | **435** |
| *Unduplicated Administrators* | 130 | 46 | 6 | 28 | 26 | 0 | 24 |
| *Duplicated Administrators* | 217 | 93 | 8 | 52 | 39 | 0 | 25 |

Table 4. 391A.190 1c (4) *The number of administrators who received training pursuant to [NEPF] in the immediately preceding year.*

***Table 4:*** *Number of Administrators Receiving Training*

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| *Unduplicated Administrators* | 130 | 46 | 6 | 28 | 26 | 0 | 24 |
| *Duplicated Administrators* | 217 | 93 | 8 | 52 | 39 | 0 | 25 |

Table 5. 391A.190 1c (5) *The number of teachers, administrators, and OLEP who received training [specific to correct deficiencies in performance identified per NEPF evaluation] in the immediately preceding year.*

***Table 5:*** *Number of Teachers, Administrators, and OLEP*

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| *Teachers, Admin, OLEP* | 37 | 0 | 0 | 37 | 0 | 0 | 0 |

Table 6. 391A.190 1c (6) *The number of teachers who received training in [family engagement] in the immediately preceding year.*

***Table 6:*** *Teacher Training in Family Engagement*

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| *Unduplicated Teachers* | 30 | 0 | 0 | 0 | 12 | 0 | 18 |
| *Duplicated Teachers* | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 7. 391A.190 1c (7) *The number of paraprofessionals, if any, who received training in the immediately preceding year.*

***Table 7:*** *Paraprofessional Training*

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| *Para-professionals* | 24 | 0 | 1 | 16 | 0 | 0 | 7 |

Table 8. 391A.190 1c (9) I & II *Trainings that included NVACS in the immediately preceding year;* III *Trainings that included NEPF in the immediately preceding year;* IV *Trainings that included culturally relevant pedagogy in the immediately preceding year.*

***Table 8:*** *NVACS, NEPF, and Culturally Relevant Pedagogy Trainings*

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| ***Total Trainings*** | **180** | **39** | **18** | **48** | **29** | **6** | **66** |
| *NVACS* | 67% | 77% | 67% | 69% | 59% | 100% | 72% |
| *NEPF* | 9% | 8% | 5% | 8% | 7% | 0% | 1% |
| *Culturally Relevant Pedagogy* | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

Note: Aggregate total trainings equals the total of all 2018-19 NWRPDP trainings. Because educators from different districts often attend the same trainings, totals by district will exceed the aggregate total. The proportions of NVACS, NEPF, and Culturally Relevant Pedagogy will not add to 100% because there were other types of trainings included in the total.

391A.190 1c (12) *The 5-year plan for the regional training program prepared pursuant to NRS 391A.175 and any revisions to the plan made by the governing body in the immediately preceding year.*

**NWRPDP**

**Northwestern Nevada Regional Professional Development Program**

# Five Year Plan

## Establishment

The Northwestern Nevada Regional Professional Development Program (NWRPDP) is one of three state-funded professional development programs in the state. The 70th Session (1999) of the Nevada State Legislature passed Senate Bill 555, which, under Sections 16 and 17, authorized the establishment of four Regional Professional Development Programs (RPDPs) in the state; since that 1999 session, the four programs have been reduced to three. Their collective charge is to support the state's teachers and administrators in implementing Nevada's Academic Content Standards (NVACS) through regionally determined professional development activities. The planning and implementation of professional development services in each region must be overseen by a governing body consisting of superintendents in the respective regions, master teachers appointed by the superintendents, and representatives of Nevada's higher education system and the State Department of Education (Section 16.1-16.8).

The NWRPDP work targets three broad categories: 1) Meeting district requests for services (e.g., NVACS, differentiation, student engagement), 2) Fulfilling legislated mandates (e.g., NVACS, NEPF, Parent Engagement), and 3) Supporting individual teachers and schools (e.g., coaching, credit classes, modeling, instructional rounds).

The NWRPDP Five-Year Plan is a living document and is routinely examined and revised according to changing needs and focus within the region as well as changes in personnel.

## Service Area

The NWRPDP serves over 5,935 teachers and administrators in schools across six counties in Northwestern Nevada. The NWRPDP services Carson City, Churchill, Douglas, Lyon, Storey, and Washoe County School Districts. Among districts there is considerable disparity in the number of students, ranging from approximately 445 in Storey County to 64,000 in Washoe County.

## Measurement

In order to measure progress of the plan, multiple measures will be used. First, the statewide evaluation form will continue to be collected and reported. Second, the five-level evaluation of professional development framework (Guskey, 2002; Desimone, 2009) will guide the assessment of the professional development provided in our region. Third, qualitative documentation of stakeholders and specifically created as-needed surveys will provide measures of progress and success.

The Statewide Coordinating Council approved an outline structure for RPDP evaluation purposes to include the number of teachers and administrators affected by professional development in the region according to requirements set forth in NRS 391A.190.

# Northwest Regional Professional Development Five-Year Plan

# 2017-22

**Northwestern Nevada's Regional Program Development Program services the following school districts: Carson City, Churchill, Douglas, Lyon, Storey, and Washoe.**

## Vision and Mission

Our Vision: Nevada's Northwest Regional Professional Development Program, in accordance with the Nevada Revised statutes, is committed to elevating teaching and learning by providing sustained professional development and building regional partnerships.

Our Mission: Nevada's Northwest Regional Professional Development Program (NWRPDP) collaborates with stakeholders to provide high-quality learning opportunities that are aligned

with the Nevada Professional Learning Standards and the Nevada Academic Content Standards. NWRPDP offers diverse professional learning opportunities and support based on current empirical research on effective instruction for student learning. We are committed to increasing communication between regional members and families in order to develop capacity among all partnerships and to increase student achievement.

## Professional Development Standards

The goals, strategies, and outcomes in this five-year plan are guided by the professional learning standards outlined by the Nevada Professional Learning Standards (based on the Learning Forward Standards for Professional Learning). When professional learning is standards-based, educator effectiveness has greater potential for change.

### Goals

The mission and vision of the NWRPDP guide the goals of the organization by providing a framework around which services are provided. An important aspect of the goals is to meet our organization's charges while continuing to honor and respect the individual regional districts' initiatives, strategic plans, and identities. Ultimately, there are four major goals to improve our performance and meet the needs of our region along with bulleted strategies identified to meet these goals:

**Goal 1:**

**Accelerate and deepen professional learning for *teachers* that increases their content knowledge of the Nevada Academic Content Standards, maximizes their implementation of empirically research-based instructional strategies, and ensures their ability to understand and use a variety of classroom assessments to make instructional decisions and changes based on data.**

- Provide ongoing leadership and support for understanding the Nevada Academic Content Standards.
- Create robust professional development and implementation plans with specific outcomes in collaboration with stakeholders.
- Provide professional development that improves teaching and learning through the Standards.
- Provide and communicate professional development choices for teachers.
- Develop and provide professional development training to teachers on how to use data effectively to change and/or enhance student instruction.
- Provide professional development in the uses of technology integration for the purposes of teaching, learning, and college and career readiness.

- Provide professional development that has an immediate and sustained impact on teacher effectiveness and student achievement.
- Provide professional development that will increase the knowledge and understanding of evaluation and supervision expectations.
- Provide professional development opportunities for the NWRPDP Facilitators in order to stay current in their areas of expertise and to meet the needs of the region.

**Goal 2:**

**Accelerate and deepen professional learning for *school administrators* by increasing their instructional leadership skills, improving their ability to ensure teacher effectiveness, and maximizing their ability to make sure all classrooms are based on the Nevada Academic Content Standards.**

- Partner with administrators in order to develop positive relationships and trust.
- Provide ongoing leadership and support for understanding the Nevada Academic Content Standards.
- Encourage administrators to participate actively with teachers in content specific professional development.
- Provide professional development that improves teaching and learning through the Standards.
- Provide professional development on instructional leadership that has an immediate and sustained impact on teacher effectiveness and student achievement.
- Develop and provide professional development that trains administrators on how to use data effectively to change and/or enhance student instruction.
- Provide professional development in the uses of technology integration for the purposes of teaching, learning, and college and career readiness.
- Provide professional development that will increase the knowledge and understanding of evaluation and supervision skills.
- Provide professional development opportunities for the NWRPDP Facilitators in order to stay current with meeting the needs of administrators in the region.

**Goal 3:**

**Measure the impact of professional development work on teacher effectiveness and student learning.**

- Strategically collect and use data to provide direction for and assess professional development effectiveness.

- Apply appropriate models of measurement required for evidence, which may include but are not limited to: the State RPDP evaluation, case studies, post-reflective surveys, and other formative assessments and surveys.
- Continue to update data management systems to analyze evaluation data for decision-making for future services (Access, Google, work with UNR, etc).
- Design professional development goals for and with NWRPDP Facilitators that are based on assessment and meet the needs of the region.
- Communicate findings to stakeholders.

**Goal 4:**

**Develop partnerships and enhance our public profile to support the expanded work of the NWRPDP.**

- Solicit partnerships to enhance the resources and services of the NWRPDP with teacher and administrator support.
- Identify common services, actions, and practices of the six districts in Northwestern Nevada as well as with the remaining districts and RPDPs across the state.
- Continue collaboration with systems of higher education and the Nevada Department of Education.
- Where appropriate, develop partnerships to secure financial resources to support expanded work of the NWRPDP.

**A Two-Year Focus (2017-19)**
**NRS 391A.175 section 1**

**(d) (1) An assessment of the training needs of teachers and administrators who are employed by the school districts within the primary jurisdiction of the regional training program;**

The assessment of training needs of teachers and administrators is determined through a request for service model. This model takes into consideration the needs of our districts and includes a combination of planning tools and strategies, including but not limited to the following:

- Request for services from district personnel based on School Performance Plans (SPP) and needs of teachers on staff;
- Collaborative meetings with superintendents and/or key district personnel to identify priorities and needs on an annual basis guided by District Performance Plans (DPP);
- Collaborative planning meetings with principals and leadership teams to determine goals and objectives for designing a professional development plan;

- Formal and informal needs assessments as needed with districts, departments, and/or schools;
- Input from the RPDP Governing Boards; and/or
- Collaborative work with the Nevada Department of Education on initiatives to design and implement support or roll-out plans for the NVACS as well as other state initiatives.

**(d) (2) Specific details of the training that will be offered by the regional training program for the first 2 years covered by the plan including, without limitation, the biennial budget of the regional training program for those 2 years.**

**Biennial Budget for the NWRPDP for 2017-19**: $2,233,856.00

## NWRPDP Sponsored Training Programs

The Northwest Regional Professional Development Program (NWRPDP) is a service organization providing professional learning opportunities to districts and schools within our region. Training programs offered each year vary depending upon the needs and requests of the districts we serve; the NWRPDP does not solely determine those training programs without significant input from our stakeholders. In addition to serving the requests of our districts and schools, the NWRPDP has developed and provided the training listed below for teachers and administrators during the 2017-19 biennium.

- NVACS K-12 Computer Science Standards implementation to include:
    - With support from SB200, face to face classes including teacher practice with and use of Code.org and other computer science materials and resources, teacher planning, materials development, and classroom observation
- NVACS Social Studies implementation and instructional resource support:
    - Teachers attend face to face training and participate in standards study, lesson planning, and materials development K-12.
- (NELIP) Early Literacy Cadre/Literacy Cohort continuation:
    - Offerings through five levels of cadres focused on face to face collaborative learning for PreK-third grade teachers. Classroom observation and feedback, peer observation, lesson study, and video self-analysis are included. Content to include: strategies for teaching and learning in reading and writing, guided reading, running records, choice of literature, speaking and listening, assessment.
- Deepening Writing Instruction at the secondary level:
    - Teachers engage in face to face workshops with self-guided practice in the classroom in between meetings. Content to include: Advanced strategies for literacy, Notice and Note, Expository writing, Thinking Maps, assessment.
- Writers Workshop model:

    - Teachers participate in face to face workshops and collaborate in Professional Learning Communities to assess student work, plan lessons based on assessment, and investigate resources. Content to include use of Lucy Calkins Units of Study materials or Being A Writer materials. Lesson modeling and lesson study, classroom observation, and/or peer observation are included.
- Math professional learning opportunities
    - Math support will include a variety of models
        - Site-based supports based on school data and needs. This could include a 6-week intensive on-site math team geared to supporting specific grade levels, a math-leaders PLC model, and/or classroom walk-throughs.
        - Math leaders in each grade level attend professional development opportunities to increase their knowledge and gain leadership skills through a professional learning community model. Math leaders lead the on-demand professional learning at their individual sites. Classroom observation, collaborative lesson planning, materials development are included.
        - Attendance at the regional Middle School Math conference, as possible.
        - Middle school math focus on mathematical practices and standards.
        - High school math supported through on-site collaboration with school administration and math departments to include study of standards, math discourse, and high-level collaborative problem solving.
        - Math manipulative strategies for K-8 classrooms to include teacher practice with the manipulatives and math concepts, lesson planning for use of manipulatives in each teacher's classroom, assessment using math manipulatives
- STEM Program continuation – focus on primary grades
    - Teachers engage in expanding knowledge of STEM strategies by using computer science concepts in a face to face cohort model. Teachers use BeeBots (programmable robots), Spheros, Hummingbirds, and other tools to develop expertise with coding. Teachers develop lesson plans, materials, and assessment techniques to use with students. Student data is collected by the teachers and analyzed with colleagues during the face to face workshops.
- Teacher Leadership Cohort (TLC) – continuation
    - Teachers engage in a two-year program based on teacher leadership competencies. Teachers engage in workshops to learn the competencies and to develop action research plans. By developing and acting upon action research, teachers practice the competencies and self-assess their efficacy. A professional learning community model is practiced and teachers learn to give and receive highly effective feedback. Content includes but is not limited to: Reflective practice, personal effectiveness, interpersonal effectiveness, communication,

continuing learning and education, group processes, adult learning, technological facility, coaching, resistance, research, and assessment, among others.

- National Board Certification (NBC) - continuation
    - Teachers meet throughout the year in a cohort model to learn the NBC process, work on submissions, receive feedback from facilitators and colleagues, as well as provide feedback and support to other candidates. Teachers are responsible for practicing the NBC expectations in their classrooms and bringing student samples to share and analyze. Classroom observation, peer observation, and video analysis are included.
- NVACS Science training for three content areas: Life, Earth, and Physical
    - Teachers receive training in science standards, cross-cutting concepts, science and engineering practices, and disciplinary core ideas. Hands-on science will be practiced through three to five days of face to face workshops using FOSS standards-based materials. Teachers will have the opportunity to check out FOSS materials to use in the classroom. Student samples will be collected.
    - Supports for all areas of science standards are provided on an ongoing basis. Integrated opportunities will be provided as follow up.

**Professional Development Standards Recommendations**

**Nevada State Board of Education Adopted 7/19/18**

**Recommendation 1(a):**

The Legislature should direct the State Board of Education (SBE) to adopt (either by regulation or policy) professional development standards to be used by all school districts and Regional Professional Development Programs (RPDPs).

**Recommendation 1(b):**

When adopting standards, the SBE should consider the nine standards below. These mirror the Seven Learning Forward Standards and include two additional standards, which have been adopted as is or with modifications by many other states. Two additional standards, Equity and Cultural Competency, are modeled after those adopted in California and Connecticut, respectively.

**Standard #1 (Learning Communities):**

Professional learning that increases educator effectiveness and results for all students occurs within learning communities committed to continuous improvement, collective responsibility, and goal alignment.

**Standard #2 (Leadership):**

Professional learning that increases educator effectiveness and results for all students requires skillful leaders who develop capacity, advocate, and create support systems for professional learning.

**Standard #3 (Resources):**

Professional learning that increases educator effectiveness and results for all students requires prioritizing, monitoring, and coordinating resources for educator learning.

**Standard #4 (Data):**

Professional learning that increases educator effectiveness and results for all students uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning.

**Standard #5 (Learning Designs):**

Professional learning that increases educator effectiveness and results for all students integrates theories, research, and models of human learning to achieve its intended outcomes.

**Standard #6 (Implementation):**

Professional learning that increases educator effectiveness and results for all students applies research on change and sustains support for implementation of professional learning for long-term change.

**Standard #7 (Outcomes):**

Professional learning that increases educator effectiveness and results for all students aligns its outcomes with educator performance and student curriculum standards.

**Standard #8 (Equity):**

Professional learning that increases educator effectiveness and results for all students focuses on equitable access, opportunities and outcomes with an emphasis on addressing achievement and opportunity disparities between student groups.

**Standard #9 (Cultural Competency):**

Professional learning that increases educator effectiveness and results for all students facilitates educator's self-examination of their awareness, knowledge, skills, and actions that pertain to culture and how they can develop culturally-responsive strategies to enrich educational experiences for all students.

## Part Two: Individual RPDP Information

391A.190 1c (11) *A description of the gifts and grants, if any, received by the governing body in the immediately preceding year and the gifts and grants, if any, received by the Statewide Council during the immediately preceding year on behalf of the regional training program. The description must include the manner in which the gifts and grants were expended.*

For the 2018-19 school year, NWRPDP was awarded Great Teaching and Leading Fund (GTLF) grant funds for the fourth year in a row. A total amount of $336,438.93 was granted to the NWRPDP to provide extended support for Teacher Leader development, National Board Certification (NBC), Social Studies Teacher Leader development, and teacher training in Science Standards.

The Teacher Leader Cohort (TLC) program is a two-year program, so two cohorts were in progress simultaneously. TLC served 102 teachers in the 2018-19 school year. Funds were used to provide books, subscriptions to research journals, training supplies, and substitutes for teachers to plan and develop action research projects incorporating the Teacher Leader Competencies. TLC members attended a national conference such as SCD, Learning Forward, Learning and the Brain, Southern Nevada Educator Leadership Symposium, or the Northern Nevada Teacher of the Year Conference. In addition, a national consultant in Culturally Responsive Teaching was engaged to provide a Summer Institute for participants as well as educators outside of the program.

The NBC program also supported two cohorts running simultaneously. NBC served 134 teachers in the 2018-19 school year. Funds were used to provide reimbursement to candidates who submitted one NBC component as well as in support of renewals. Additionally, funds were dispensed for training supplies, books for participants, stipends for the readers and leaders of the cohorts to provide feedback and guidance, and travel for the NWRPDP leader/facilitator to attend the National NBC conference.

A small amount of carryover funds provided additional professional learning in Social Studies for 20 teacher leaders in one of the smaller districts for the 2018-19 school year. Funds supported training materials, substitutes for the teachers to attend training, and stipends to teachers who developed materials, curriculum, and pacing guides for K-6 Social Studies.

The GTLF funds for science were minimal in 2018-19. However, five teachers received stipends to help prepare materials that served approximately 259 teachers across the region who checked out and used NVACS-based science kits in Physical Science, Life Science, and Earth/Space Science.

# Regional Projects: NWRPDP Case Studies

## Self-Evaluation Procedures

As outlined in NRS 391A.190, Director Kirsten Gleissner, Ph.D., directs the in-house evaluation, assisted by support staff who coordinate data collection and compilation. The Director and an outside consultant, Dr. Bill Evans from UNR, provide support for the rest of the team as they develop logic models, design instruments to gather and analyze data, and create, implement, and write their evaluative case studies. The case studies, based on the Killion (2002) staff development evaluation model, and aligned with prominent teacher professional development frameworks (Desimone, 2009; Guskey, 2002), provide in-depth analysis of specific professional development projects, while showcasing the diversity and scope of the support provided by the NWRPDP to schools and educators in the region. These evaluation projects employ both qualitative and quantitative designs and incorporate mixed-methods data collection strategies to assess training outcomes. Collectively, they help to 'tell the story' and document the impacts of the diverse NWRPDP professional development activities this past year. An inclusive logic model depicting NWRPDP activities is shown in Figure 2. This conceptual model presents the overall professional development resources (inputs) and training activities (outputs), and links them to the short, medium, and long-term outcome objectives of the NWRPDP.

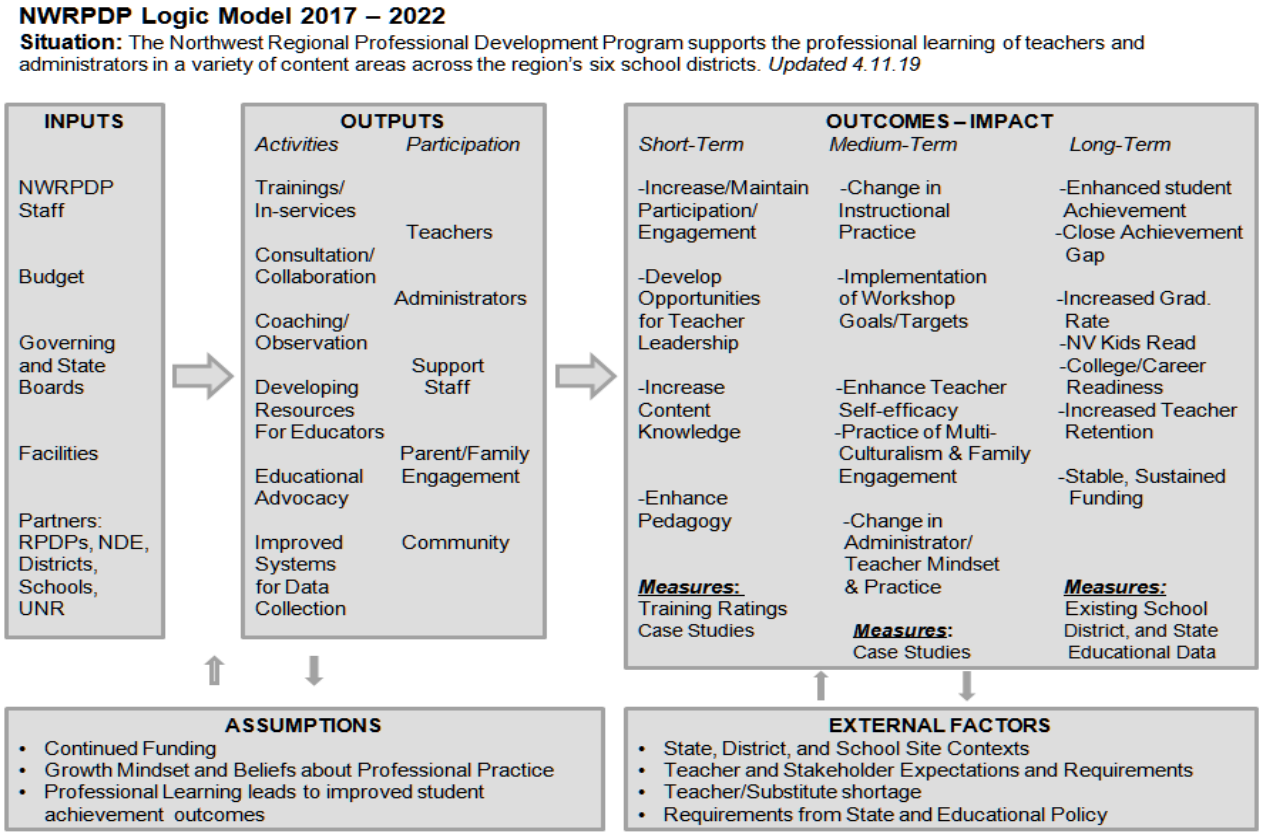


*Figure 2: NWRPDP Logic Model*

# Key Findings from 2018-19 NWRPDP Evaluation Activities:

- Professional development services were conducted in all six districts that comprise NWRPDP, reaching a total of 1,884 unique educators during 2018-19. Because professional development covers varied training topics and consulting services, and educators often attend multiple trainings, the total number of duplicated educators receiving services was 3,140. Elementary teachers (unique total served = 928) again were the largest educator group served this past year; followed by Middle school teachers (314); High school teachers (307); Others, which include substitutes, counselors and district personnel (205); and Administrators (130). Overall, 32% of the approximate 5,935 educators employed in the region (as reported by each district) participated in programs provided by the NWRPDP during 2018-19.

- Case study evaluation data reveal a variety of positive outcomes across the 10 NWRPDP 2018-19 case study projects. Foci of case studies this past year included enhancing mathematic instruction competencies literacy and writing development; NVACSS trainings in Computer Science, Physical Science, and Engineering Design; enhancing English Language Arts (ELA) competencies among HS teachers; and boosting teacher retention through National Board Certification. Evaluation results revealed significant increases in primary grade teacher use of formative assessments of student literacy (<.001); significant improvements in NVACSS physical science knowledge, pedagogy, and student/family engagement strategies among teachers in four districts (<.041); significant gains among teacher participants in knowledge, teaching strategies, and ideas for parent and student engagement for NVACS computer science standards (<.001); increased self-efficacy regarding National Board Certification and knowledge of research-based pedagogy among members of the National Board Certification training cohort; and significant increases among secondary teachers' knowledge, implementation, and application of Nevada Academic Reading Standards (<.001).

- Participant ratings of the quality of professional development trainings performed by NWRPDP staff reveal consistent and very high satisfaction ratings over the past several years (all mean ratings of training experiences are between 4 and 5, on a 5-point scale). During 2018-19, this included high mean ratings from educator participants regarding the expertise of the facilitators and the quality of instruction delivery during trainings (4.81), particularly in providing opportunities for interaction and reflection (4.8). In addition, educator participants again indicated overwhelmingly that NWRPDP trainings improved their teaching skills (4.72), helped them meet the needs of diverse students (4.63), and that they will use the knowledge and skills learned in their classrooms (4.71).

- Results indicated that 80% of this past year's training participants had attended previous NWRPDP professional development activities. These past participants indicated that their participation had markedly changed their subsequent teaching instruction or administrator responsibilities (4.31 mean on a 5-point scale, with 1 specifying 'Not at all' and 5 'To a great extent').

- Professional services this past year were predominately delivered at school sites or professional learning sites in the form of in-service classes and workshops. Ninety percent of NWRPDP activities were delivered as instructional training opportunities. Content focused primarily on the Nevada Academic Content Standards (NVACS) in the areas of Mathematics, Literacy/English, Computer Science, Social Studies, and the Nevada Educator Perfomance Framework (NEPF). The remaining areas of focus were diverse, and included Science, PreK-Third Grade support, Computer Education and Tech, Leadership Development, and Parent/Family Engagement.

## The Case Study Model

Over several years, the NWRPDP has employed a case study model to document professional development training. The NW regional program engages in an ongoing internal evaluation for all training activities, which incorporates case studies from projects throughout the region to document the diversity and wide-ranging impact of professional development activities. Evaluation results are then used to inform practice and help document the long-term effects of the support provided to teachers in the region. Evaluative case studies facilitate exploration of complex phenomena within their contexts—in this case, professional development (PD) within schools and districts—often using a variety of data sources. This ensures that PD is not explored through one lens, but rather through a variety of perspectives, which allows training effectiveness to be revealed and understood more fully (Desimone, 2009; Guskey, 2002; Killion, 2002; Yin, 2003). NWRPDP staff actively design and implement each evaluative case study that seeks to illustrate changes in teacher practice and student learning as a result of the diverse professional learning activities employed over the past year. Thus, the following case studies are focused evaluation investigations that incorporate mixed-method research designs to illustrate the breadth of training, variety of topics, and depth of consultation employed by NWRPDP staff over the past year. Each case study also is guided by a logic model framework--developed to link the case study training activities to the short, medium, and long-term outcomes expected from the professional development project.

# NWRPDP Case Studies

## Case Study 1: Nevada Computer Science Endorsement Cohort

### Introduction

In 2013, the Computer Science Teachers Association published a report entitled *"Bugs in the System"* that highlights the need to provide quality and more robust training to educators that focuses on computer science (Lang, et al., 2013). The findings, in fact, are somewhat contradictory to the idea that we teach students what we value. Technology surrounds us. Everyone in the United States uses or engages with technology in some aspect of their lives; however, it is not necessarily a priority in the education of today's youth.

The authors of *"Priming the Computer Science Teacher Pump"* (Delyser, Goode, Guzdial, Kafai, and Yadav, 2018) completed extensive research on teacher preparation for Computer Science teachers, grades K-12. The findings include that "A successful model of teacher preparation would involve both the definition of the relevant concepts, skills, and practices for the discipline of CS, as well as pedagogical approaches for teaching these concepts in K-12" (22). Traditionally, pre-service teachers receive this type of preparation in methods courses. This is not currently a requirement in Nevada, hence a focused professional learning experience for current educators is a necessity in order to appropriately meet legislative requirements.

Senate Bill 200 was passed during the 2017 Nevada Legislative session. This bill requires that all students in grades K-5 receive instruction in computer education and technology, including computer science. This ground-breaking legislation also required writing K-12 Computer Science standards for the state of Nevada, which were approved by the State Board of Education on January 18, 2018. All students in Nevada are required to pass a ½ credit computer education course to be eligible for high school graduation. Effective in July 2019, this course must include 50% computational thinking (computer science) and 50% integrated technology whereas the course previously focused on computer literacy (i.e. keyboarding, typing documents, using spreadsheets). The shift in focus for this course emphasizes the need for quality professional learning focused on Computer Science for all educators.

The Computer Science standards are unique in that a majority of educators have not received any pre-service coursework or professional development focused on Computer Science, unless Computer Science was a focus of their college coursework. Most educators of grades K-8 have little to no experience with Computer Science concepts. Their strengths lie in using technology, not in the process or production of technology which is the focus of Computer Science.

## Instructional Context

This Nevada Computer Science standards training was offered to educators in all six counties in the Northwest region. Participants enrolled represent five of those counties: Carson, Churchill, Douglas, Lyon, and Washoe. A commitment to complete four courses required for either the Advanced Computer Science Endorsement or the Computer Applications Endorsement was required for all participants. This case study focuses on the Computer Science Concepts course.

The first course was Computer Science concepts. This course was designed to build foundational knowledge of Computer Science focused on the Nevada Academic Content Standards in Computer Science. In this course, participants took a deep dive into standards in one of four grade bands (K-2, 3-5, 6-8, or 9-12). Each grade band module is divided by sub-concept and takes users through a variety of tasks including clarification of standards, explanation of the concept, lesson design, and resource analysis. Other activities in this course included an article review focused on equity in Computer Science education, research analysis, and lesson design and reflection.

Table 1 below shows the number of teachers, by county and grade level, who completed the Computer Science Concepts course.

**Table 1: Training Participants by County**

| County | K-5 Teachers | 6-8 Teachers | 9-12 Teachers | Other (TOSA) | TOTAL (District) |
|---|---|---|---|---|---|
| Carson | 3 | 2 | 0 | 2 | 7 |
| Churchill | 3 | 2 | 1 | 0 | 6 |
| Douglas | 2 | 5 | 2 | 0 | 9 |
| Lyon | 2 | 0 | 0 | 1 | 3 |
| Washoe | 0 | 0 | 1 | 0 | 1 |
| **TOTAL (Grade Band)** | 10 | 9 | 4 | 3 | **26** |

Equity in Computer Science education was a talking point when reviewing resources and designing instructional materials. County demographics support the need for accessible Computer Science education that reaches all students.

Table 2 below shows the demographic information for each county. (Nevada Report Card, 2018)

**Table 2: Demographic Data for Participating Counties**

| County | Total Enrollment | Ethnicities other than White | Individualized Education Plans | English Language Learners | Free and Reduced Lunch |
|---|---|---|---|---|---|
| Carson | 8,085 | 51.32% | 14.14% | 16.56% | 45.33% |
| Churchill | 3,374 | 39.83% | 14.34% | 7.35% | 47.10% |
| Douglas | 5,798 | 33.67% | 14.14% | 6.16% | 30.23% |
| Lyon | 8,927 | 35.57% | 13.63% | 5.44% | 59.38% |
| Washoe | 64,240 | 55.64% | 14.02% | 16.83% | 45.01% |

## Initial Data and Planning

Some of the participants completed three days of focused Computer Science professional development in the spring of 2018 that was also offered by NWRPDP facilitators. The majority of the educators in this cohort had little to no experience with Computer Science.

During the first class, each participant completed a self-assessment that focused on knowledge of the Nevada Computer Science standards. Standards were presented without grade level labels and in no particular order. Everyone rated their understanding of each standard based on the following rubric:

3 – I am an expert.
2 – I think I know what this means.
1 – I have no idea.

The self-assessment data was used to guide personal and group instruction of the standards throughout the course. This was done again at the end of the course using the same format and rubric.

All participants completed a post-reflective survey at the end of the course rating their knowledge before and after attending the training. The rating scale ranged from 1 (poor) to 5 (excellent). Questions ranged from overall knowledge of the Nevada Computer Science standards and concepts to teaching strategies and assessment for standards alignment.

## Delivery of Services

The Computer Science Concepts course was hybrid in that there were face-to-face class meetings and also independent or group work time. The focus of the course was content and standards clarification, lesson and assessment design, reflection on instruction, and resource analysis.

The Nevada Computer Science standards include five concepts: Algorithms and Programming, Computing Systems, Data and Analysis, Impacts of Computing, and Networks and the Internet. The free computer science curricular resources that are currently available to teachers do not cover all concepts or grade level standards. This has created a necessity for educators to become more proficient in the standards, the scope of the standards, and in identifying gaps in available resources.

Time was dedicated the first day for a deep dive into the standards. This included unwrapping each standard, clarifying the language of the standard, and explaining the standard to partners. An investigation of standards alignment with various activities helped solidify the scope of the standards. Having groups with each grade level represented was beneficial when the focus shifted to vertical alignments, which was essential for understanding the assessment limits for each standard.

In an effort to bring awareness to Nevada's mission of Computer Science education, an article review was completed independently by each educator. Participant analysis of the article was then used as a collaborative activity to identify strengths and weakness of equitable Computer Science education opportunities at the site, district, state, and national levels.

Each participant designed, taught, and reflected on a Computer Science lesson. Everyone included five non-negotiables (learning goal, vocabulary, scope and sequence, assessment, and equity), but were given flexibility in the design and format of their lesson. This was necessary in order for the teachers to meet district or site expectations in addition to course requirements.

## Results and Reflection

All participants completed the pre and post self-assessment. The pre-assessment was completed on the first day of course. The post-assessment was completed the last week of the course. Table 3 shows the average percentage of participants who rated themselves according to rubric.

**Table 3: Teacher Pre and Post Self-Assessment**

| Rating | Pre-Assessment | Post-Assessment | % Change |
|---|---|---|---|
| 3 – I am an expert. | 9.57% | 59.7% | +50.13% |
| 2 – I think I know what this means. | 49.43% | 38.72% | -10.71% |
| 1 – I have no idea. | 42.05% | 2.88% | -39.17% |

The decrease in ratings 1 and 2 indicate an increase in confidence of understanding the standards.

All participants were also asked to complete a post-reflective survey at the conclusion of the two-day training. The rating scale ranged from 1 (poor) to 5 (excellent). Table 4 shows the results from the survey.

**Table 4: Teacher Post-Reflective Mean Results**

| Question | Before attending | After attending | Difference | *T* score | Significance |
|---|---|---|---|---|---|
| **Nevada Computer Science Standards** | 2.14 | 4.55 | +2.41 | 11.781 | < .001* |
| **Computer Science Concepts** | 2.27 | 4.50 | +2.23 | 11.327 | < .001* |
| **Computer Science Resources** | 2.18 | 4.64 | +2.46 | 13.420 | < .001* |
| **Computer Science Lesson Design** | 2.36 | 4.27 | +1.91 | 9.721 | < .001* |
| **Assessment of Computer Science Concepts** | 1.82 | 4.09 | +3.08 | 12.890 | < .001* |

*All items reveal significant change at the < .001 level.

The positive results in the post-reflective survey indicate a solid increase in computer science content knowledge and standards, which was the primary focus and goal. Access to aligned resources is always a concern for educators. The positive results indicate that participants have a greater capacity for reviewing and analyzing available resources for standards alignment and validate that the time investment for reviewing resources was beneficial. Seventy-seven percent of the participants commented that reviewing resources was one of the most beneficial activities of the course.

The primary goal for this course was to build teacher competency in computer science concepts so that they could better understand the intent of the standards. Lesson design and aligned assessments are not possible when a solid understanding of the standards is missing. The increased ratings of lesson design and assessment in the post-reflective survey indicate that teachers' confidence in the standards increased, even if the teacher participated in previous Computer Science trainings.

Participants were also asked to rate themselves on implementation of information received during the two-day training. Teachers ranked themselves on a scale ranging from 1 (very unlikely) to 5 (very likely). The results shown in Table 5 indicate a high probability of computer science implementation in future years.

**Table 5: Classroom Implementation (Average based on a 1 (low) – 5 (high) ranking)**

| | |
|---|---|
| I intend to use the information from this training in the future within my classroom | 4.79 |

Effective July 1, 2018, all students in grades K-5 must receive education in computer education and technology, including Computer Science, in order to comply with Senate Bill 200. Additionally, all secondary schools that offer the ½ credit course required for high school graduation must revise course materials to meet the 50% computational thinking (Computer Science) and 50% integrated technology requirement. While implementation is a state requirement, it was important to know whether or not the information included in the concepts course would be useful to teachers during the following school year. The data shows that the information provided to participants was beneficial and may ease implementation during the next school year.

## Conclusion

Professional Learning in Computer Science presents many challenges, especially when presented to multiple school districts at the same time. District course alignments, district expectations, teacher assignments, and availability of resources are some of those challenges.

The group of educators in this cohort included teachers of kindergarten through high school with a wide range in experience with and knowledge of Computer Science. The secondary teachers teach a range of content, including math, language arts, computer literacy, and science. The K-5 teachers are content generalists and teach multiple content areas daily. This diversity in work environment and experience created a unique, yet valuable, learning environment for everyone to learn together.

Comments from the post-reflective survey have set the tone for future Computer Science professional learning opportunities. Sixty-eight percent of participants indicated a desire to spend more time on lesson development and assessment design, which will be a focus in future professional learning opportunities through NWRPDP.

The passion and dedication to Computer Science education from all the participants is unparalleled to any other group thus far. Each teacher demonstrated commitment to their own learning of unfamiliar content and exposed vulnerabilities and discomfort in doing so. Problem solving, collaboration, and perseverance are skills that are necessary in Computer Science education. These educators regularly demonstrated these practices throughout the course.

In 1995, Steve Jobs gave an interview to Robert X. Cringley, five years before Jobs was named permanent CEO of Apple. The 70-minute interview was for a Public Broadcasting System television series. Only 10 minutes of the interview aired, but the once feared lost tapes were recovered. On the lost tapes, Steve Jobs said, “Part of what made the Macintosh great was that the people working on it were musicians, poets, and artists, and zoologists, and historians. They also happened to be the best computer scientists in the world. But if it hadn’t been computer science, these people would have been doing amazing things in other fields.” The students of today will be the creators of tomorrow. They will be the creative minds that shape not only the

technology-driven jobs of the future that don't currently exist, but also jobs that rely on future technologies.

While there is still significant work to be done to properly prepare educators for K-12 Computer Science education in Nevada, progress is happening. There are educators who believe in the power of Computer Science knowledge for today's youth and will commit to the time and work necessary to build their own knowledge.

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**Case Study 1: Nevada Computer Science Endorsement Cohort - Logic Model**

**Situation:** SB200 passed during the 2017 legislative session, which includes the requirement for teaching new Computer Science standards. SB200 requires all students, grades K-5, receive education in computer science. All students must successfully pass a .5 credit Computer Education and Technology course for high school graduation. Additionally, all public schools must make an effort to increase enrollment of underrepresented minorities in the field of computer science, including girls and students with disabilities. This legislation has increased the need for appropriately trained and licensed teachers for exceptional computer science education.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| Budget<br><br>Course Instructor<br><br>NWRPDP Facilitators<br><br>K-12 teachers in the Carson City School District, Douglas County School District, Churchill County School District, Lyon County School District, and Washoe County School District<br><br>Administration Expectations | 4 Computer Science Endorsement courses:<br>• CS Concepts<br>• CS Methods<br>• Python<br>• Java<br><br>Training on Computer Science standards and concepts<br><br>Article review on equity in Computer Science education<br><br>Optional Training opportunities | K-12 teachers & Instructional Coaches in:<br>• Carson City School District (7)<br>• Douglas County School District (9)<br>• Churchill County School District (6)<br>• Lyon County School District (3)<br>• Washoe County School District (1) | Increased understanding of new NV Computer Science Standards (teachers)<br><br>Increased frequency of Computer Science lessons<br><br>Increased understanding of Computer Science concepts<br><br>Increased pedagogical knowledge<br><br>Increased teacher confidence in content knowledge and instructional strategies<br><br>**Measures:**<br>RPDP Feedback Form, Post Reflective | Enhanced instructional practice (e.g., computational artifacts, rigor, collaboration, communication)<br><br>Increased implementation of training goals/objectives<br><br>Increased collaborative matching at school and district level<br><br>Increased teacher efficacy<br><br>**Measures:**<br>Observation of implementation level<br><br>Post Reflective | Increased student application of concepts<br><br>Increased student enrollment in Computer Science electives, including underrepresented minorities in CS field<br><br>Increased participation rates of AP Computer Science Exam<br><br>Increased pass rates of AP Computer Science Exam<br><br>Increased teacher retention<br><br>**Measures:**<br>Existing school, district, state, and College Board data |

**Assumptions:** Teacher training will lead to teacher efficacy. All participants will be successfully complete all four courses. Positive attitudes and beliefs about Professional Practice. All participants will shift instructional practices.

**External Factors:** Competing district initiatives. District resources. Funding. Teacher burn out.

# Case Study 2: Shifting Computer Application to Computer Education and Technology

## Introduction

One of the driving forces for change in government legislation can be preparation for the future. These "changes" in education are often a course correction from the current heading due to changing conditions of culture, technology, or social norms. The passing of Senate Bill 200 (SB 200) during the 2017 Legislative session was one such course change for the State of Nevada. In the field of Computer Science (CS), SB 200 guides the direction teachers and student in Nevada should be heading. Graduating students in Nevada are required to pass a ½ credit course in technology. The Nevada Academic Content Standards in Technology (NVACS-Technology) were the standards for this course. Most schools made this a computer applications course spending time on word processing, spreadsheets, keyboarding, and even digital photography. As part of SB 200, K-12 CS standards were written and approved by State Board in 2018. From those standards, a new course correction was made in the ½ credit course work (CET). The course is now defined to be 50% computer applications and 50% computational thinking, otherwise known as Computer Science.

The effect of only requiring computer science applications for coursework was that teachers assigned to these classes were strong in the applications and not necessarily strong in computer science. In addition, the course work did not lend itself to higher order thinking skills and rigor, thus many districts pushed the course down to the 7th grade. The majority of the new CS standards for the CET course are from the 9-12 grade band of standards. The rigor and pace has changed significantly in the revised CET course. With the addition of the CS standards, many of the middle school teachers previously tasked with teaching this course now find themselves teaching 7th graders at a higher level of rigor and more intense standards that are beyond their own endorsement and knowledge base as instructors.

## Instructional Context

SB 200 allocated funds to districts for the professional development of teachers in the current field of computer science or for those who would be tasked to teach the new standards. Each district in the Northwest Regional Professional Development Program (NWRPDP) region was allowed four sub days out of the year for professional development in CS. The new standards for CS are identified for the ½ credit CET course. Districts chose to spend the 4 days deepening the teacher knowledge of the CS standards, preparing the scope and sequence, looking for resources and developing assessments for the new ½ credit class. This case study focuses on developing the teachers' knowledge of the new standards and developing the scope, sequence, resources and assessments required for the course to begin in the fall of 2019.

The first day of training, teachers grouped the standards into themed units of study. The second day was spent creating the timeline and vocabulary for each unit in the course. Day three and four were spent locating resources and assessments for each unit of study.

Table 1 below shows the number of teachers, by county and grade level, who attended the training.

**Table 1: Training Participants by County**

| County | 6-8 Teachers | 9-12 Teachers | TOSA/Other | TOTAL |
|---|---|---|---|---|
| Carson | 3 | 1 | 1 | 5 |
| Churchill | 3 | 3 | 1 | 7 |
| Douglas | 3 | 7 | | 10 |
| Lyon | 5 | 4 | 1 | 10 |
| **TOTAL** | 14 | 15 | **3** | **32** |

Table 2 below shows experience teaching computer science and/or computer applications as reported by the teachers. Some teachers have experience teaching both CS and computer applications.

**Table 2: Experience Teaching CS and/or Computer Applications**

| County | Experience teaching Computer Applications | Experience teaching Computer Science |
|---|---|---|
| Carson | 4 | 2 |
| Churchill | 6 | 2 |
| Douglas | 2 | 5 |
| Lyon | 9 | 2 |
| **TOTAL** | 21 | 11 |

From Table 2 the data shows that approximately 2/3 of the participants did not teach nor have background in the field of CS.

Table 3 below shows the demographic information for each county. (Nevada Report Card, 2018)

**Table 3: Demographic Data for Participating Counties**

| County | Total Enrollment | Ethnicities other than White | Individualized Education Plans | English Language Learners | Free and Reduced Lunch |
|---|---|---|---|---|---|
| Carson | 8,085 | 51.32% | 14.14% | 16.56% | 45.33% |
| Churchill | 3,374 | 39.83% | 14.34% | 7.35% | 47.10% |
| Douglas | 5,798 | 33.67% | 14.14% | 6.16% | 30.23% |
| Lyon | 8,927 | 35.57% | 13.63% | 5.44% | 59.38% |

## Initial Data and Planning

Teachers received four full days of focused professional development with embedded work time in each of the four participating districts. Some districts chose to extend the work with additional days.

All participating teachers completed a post-reflective survey at the end of the fourth day of the professional development. The questions covered the understanding of the CS standards, the identification of the required standards for the ½ credit course, the scope and sequence of the coursework, assessments and necessary resources. Teachers rated their knowledge of the ½ credit course requirements, new CS standards, and assessments and resources before and after the training. The survey rating scale was from 1 (poor) to 5 (excellent).

The desired change is to have the teachers understand and use standards as prescribed by SB 200, have a scope and sequence laid out for the course, as well as develop their respective district alignment across the various schools. Ultimately, the desired outcome would be that all students in each district are receiving instruction in CS based upon approved standards. Students will then be producers and problem solvers with computer science instead of a consumer of technology. Students will have a greater understanding of the technology that surrounds them and be the problem solvers/creators of future challenges.

## Delivery of Services

The plan of instruction was to build the teachers' CS standards and content knowledge base and build the new ½ credit course with curriculum, resources, and assessments. Time was dedicated to make connections to the 2010 NVACS-Technology and also to the 2016 International Society for Technology Instruction (ISTE) Computer Applications Standards. The state of Nevada is in the process of revising the 2010 NVACS-Technology and while open for public review gave the teachers time and opportunity to provide feedback to the state and see the direction of the new proposed standards.

Each teacher participated in at least four days of professional development. The first day was unwrapping the new CS standards, which included clarification of standards and their intent. Time was dedicated to understanding how to read the standards in alignment with the five overarching concepts and 16 sub-concepts. The group also reviewed the proposed Integrated Computer and Technology Standards, provided feedback to the Department of Education, and looked for commonalities between computer science and the application standards. This work allowed the group to begin focusing on scope and sequence alignment on day two because they had a deeper understanding of the content required for the course. Days three and four were dedicated to finding aligned and vetted resources and assessments that match the scope and sequence.

## Results and Reflection

All participants completed a post-reflective survey. The six questions on the survey measured the participants level of understanding of each of the focuses of the training.

Table 4 shows the results from the post-reflective survey.

**Table 4: Teacher Post-Reflective Evaluation Results**

| Question | Before attending | After attending | Difference | *T* score | Significance |
|---|---|---|---|---|---|
| The 32 CS standards for the ½ credit CET course | 1.53 | 4.33 | +2.80 | 14.881 | < 0.001 |
| New 2017 Computer Science Concepts and Sub-concepts | 1.80 | 4.30 | +2.50 | 14.603 | < 0.001 |
| Understanding of the difference between computer applications and computer science | 2.83 | 4.53 | +1.7 | 7.534 | < 0.001 |
| Alignment of resources to the 32 CS standards for the CET course | 1.60 | 4.20 | +2.60 | 17.502 | < 0.001 |
| Assessment of the 32 required CS standards for the CET course | 1.47 | 4.03 | +2.56 | 20.707 | < 0.001 |
| Scope and Sequence of the CET course | 1.43 | 4.40 | +2.97 | 16.851 | < 0.001 |

*All items reveal significant change at the < .001 level.

The greatest positive results came from five of the six reflective questions. As expected, most teachers were not familiar with nor were they prepared to teach to the new CS standards. The revised standards now require the teachers to acquire professional development and knowledge to build coursework and deliver instruction, especially due to lack of background knowledge or experience with CS as well as the difference between CS and computer applications.

The data shows that teachers gained a better understanding of the new standards, the difference between applications and computational thinking. The data also shows the participants made great gains in knowing the required revised standards as well as the scope and sequence, resources and assessments of the new course.

## Conclusion:

Many of the instructors for the ½ credit course were strong in the computer applications, but have very little experience with computer science. The state of Nevada requires students to be more than consumers of technology, which is appropriate preparation for college and career readiness. This shift from consumer to producer is becoming a national trend as well. In a 2013 recorded speech Barack Obama said, "Do not just buy a new video game, make one. Do not just download the latest app, help design it. Do not just play on your phone, program it" (Ohannessian, 2013). The professional learning that took place made significant impact in preparing educators for the new rigors of the ½ credit course. Most districts are keeping the course in the middle school grades for various reasons. Time will tell if the proposed rigor and knowledge base is too much for the lower grades.

The data also suggests that the desire for more PD in CS is demanded in order to help teachers understand the intent of the standards and the content of the revised coursework. Further training and follow up may be required as this course unfolds so that the instructors may adjust or supplement the curriculum to meet the needs of the students.

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**Case Study 2: Shifting Computer Application to Computer Education and Technology - Logic Model**

**Situation:** All students in Nevada must pass a .5 credit Computer Education and Technology (CET) course for high school graduation. This course, prior to SB200, was Computer Applications (CA) where we have seen everything from keyboarding, photography, spreadsheets and word processing as the curriculum. This course can be offered and credit awarded as early as 6th grade. Many school districts are offering this course in middle school and those teachers are not certified in computer science nor do they have the knowledge or professional development of the new standards. The standards for this course are now a 50/50 mix of computer applications and computer science (CS) standards.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium 2-3 years | Long 3-5 years |
| Budget<br><br>SB 200 Funds (awarded to districts only)<br><br>NWRPDP Facilitators<br><br>6-12 Teachers in Carson City, Lyon County, Churchill County school districts<br><br>Administration Expectations | 4 days throughout the year - Computer Science standards training of standards, scope and sequence of course development.<br><br>Mentor Training | 6-12 teachers and Instructional coaches in:<br><br>Carson City (Grades 6-8)<br><br>Lyon County (Grades 6-12)<br><br>Churchill County (Grades 6-12)<br><br>Site and district administrators | Increased knowledge of new CS standards for the CET course<br><br>Blending of CS and CA Standards into one semester<br><br>Increased understanding of CS concepts<br><br>Increased teacher confidence in content knowledge<br><br>Increase administration understanding of new CET structure and content<br><br>**Measures:** RPDP Feedback Form - post reflective | Increased collaboration and scope and sequence at school and in district<br><br>Standardization and accountability of required CET coursework.<br><br>**Measures:** Observation of creation and implementation of new CET standards<br><br>Post Reflective | Increased student application of CS concepts<br><br>Increased student enrollment in CS principals and electives including CS CET pathways<br><br>Increased pass rates of AP CS Exam<br><br>Increased number of students taking AP CS Exam.<br><br>**Measures:** School, district, state and college board data (Cite, existing data) |

**Assumptions:** 1) All participants will be available and attend training, 2) Positive attitudes and beliefs about Professional practices, 3) All participants and future teachers of CET course will teach the new 50/50 standards, 4) Teacher discussion and course redesign will lead to teacher efficacy.

**External Factors:** 1) Teacher burn out or frustration due to curriculum outside of content area, 2) Funding – curriculum and training, 3) Competing district initiatives and cross over with those of STEM, CTE, or coding being the solution, 4) Time to build and test CET course.

# Case Study 3: Exploring Forces and Motion with Gliders (based on the NGSS Physical Science and Engineering Design)

## Introduction

The focus of introducing and training on the Nevada Academic Content Standards for Science (NVACSS) are of great importance for Nevada teachers. The updated standards were based on the Next Generation Science Standards (NGSS) which the State of Nevada adopted in May of 2014. Interested teachers were surveyed, and all of the teachers questioned understood very little about how to interpret the new standards. Based on this need the NWRPDP PreK-12 STEM and PreK-12 Science trainers worked together to develop a Middle School class focusing on Forces and Motion while engaging teachers in the engineering design process. The two trainers worked to design, prepare and implement grade level specific trainings for the class. The 6 participating teachers come from Churchill, Storey, and Washoe counties. These teachers attended seven evening classes (5:00-9:00 pm) and one full Saturday class (8:30 am – 3:30 pm) of instruction. The teachers received the training November 2018 through May 2019.

The goal of the trainings was to provide teachers the training and support required to engage students in quality Science instruction that incorporate the NVACSS based on the NGSS. Teachers gained an understanding of what Science and Engineering education is, and how they could utilize it in their classrooms.

## Instructional Context

Nevada's Northwest Regional Professional Development Program (NWRPDP) serves six Northern Nevada counties; Carson, Churchill, Douglas, Lyon, Storey, and Washoe. NWRPDP provides support with implementing the NVACSS for teachers in the Northwest region. Based on information from district personnel, teachers in this region needed the training, materials, and expertise to implement the NVACSS without intervention from specialists.

The participants from each county served were: 2 Churchill, 2 Storey, 2 Washoe (total participants 6). The participants were $6^{th}$ – $8^{th}$ middle school teachers. Experience level of teacher participants ranged from first year science teacher to more than 20-year veterans.

The Nevada State Legislature has mandated by its adoption of the NVACSS in 2014, and Nevada law requiring adopted standards to be implemented in schools within two years, that teachers receive the professional development necessary to implement the standards in their classrooms. One of RPDP's tasks is to train teachers on the new standards and help teachers implement them into their classrooms.

## Initial Data and Planning

At the conclusion of last year's trainings in science with the GTLF grant, participants were asked if they would like further training on the NVACSS in the content area of Physical Science. Almost all of the participants indicated that they would be very interested in additional training the following year in the NVACSS Physical science content area. From this information the NWRPDP K-12 STEM and Science trainers planned this new class for 2018-19.

The NWRPDP K-12 STEM and Science trainers successfully taught a Middle School project using A World in Motion (AWIM) Glider kits. The numbers of participants that completed the training were 6 middle school teachers. The trainings took place November 2018 through May 2019.

Each teacher received instruction that consisted of training for the implementation of the NVACSS/NGSS in the domain of Physical Science and Engineering Design for middle school level. Participants received 7 afterschool evening trainings (5:00pm – 9:00pm) and one full day Saturday training (8:30am – 3:30pm) that included a history of how the NVACSS were developed, through a basic understanding of how they are intended to be implemented in the classroom and the 3 dimensions of the standards.

Participant teachers received access to resources such as science equipment and an online component that includes curriculum aligned to the standards, notebooking, assessments, video collections, fiction and nonfiction literature, and other ELA and Mathematics supports.

## Delivery of Services

The NWRPDP trainers provided 34 hours of training for six middle school teachers. Teachers experienced interpreting lesson plans from the AWIM Glider kits, hands-on practice with the materials, and data collection and analysis. Teachers collaborated in a professional learning community format to use the data analysis to make changes in their experiments and lesson delivery.

## Results and Reflection

Teachers provided feedback in a number of ways. Entrance and Exit tickets were collected by the facilitators to gain knowledge about participants' questions and learning throughout the course of the workshop. Participants were also asked to rate the quality of the training on a scale of 1 – 5 (five being very effective) on a final evaluation. All aspects of the training were rated at 4.67 or above. Rated especially high (5) were the areas of responsiveness to participants, creating a learning environment, and the content of the training. Table 1 below provides a summary of the training ratings.

**Table 1: Summary of Training ratings.** Scale of 1 (Not Effective) to 5 (Very Effective)

| Training Elements | Mean |
|---|---|
| Organization and preparation | 4.67 |
| Style and delivery | 4.67 |
| Responsiveness to participants | 5 |
| Creating a learning environment | 5 |
| Content of the training | 5 |

Teachers were asked to rate their learning on specific elements of the workshop by completing a post-reflective survey. A *t*-test showed that most learning gains were statistically significant. Highest increases in learning were demonstrated in the areas of Ideas for student engagement with the NVACSS in Physical Science and Engineering Design and Activities to implement in support of curricula for NVACSS Physical Science and Engineering Design. Table 2 below represents the learning gain results (on a scale of 1 to 5, where 1 is Poor and 5 is Excellent).

**Table 2: Post-reflective Evaluation Results.**

| Knowledge Elements | Mean Before | Mean After | *T* score | Significance |
|---|---|---|---|---|
| NVACSS in Physical Science | 3.33 | 4.33 | 2.739 | * .041 |
| How to structure activities/pedagogy and engage students with the NVACSS in Engineering Design | 3.33 | 4.33 | 2.739 | * .041 |
| Ideas for parent and family engagement in curriculum and teaching practice that involves the NVACSS in Physical Science and Engineering Design | 3 | 4 | 2.739 | * .041 |
| Ideas for student engagement with the NVACSS in Physical Science and Engineering Design | 3.17 | 4.67 | 4.392 | * .007 |
| Activities to implement in support of curricula for NVACSS Physical Science and Engineering Design | 3 | 4.5 | 4.392 | * .007 |
| Positive guidance and discipline techniques in the classroom | 3.83 | 4.5 | 2.000 | .102 |
| Teaching strategies that are aligned to and assess the NVACSS Physical Science and Engineering Design | 3.33 | 4.5 | 3.796 | * .013 |

*statistically significant growth

Finally, teachers were asked to respond to five questions regarding use of the training information. Teachers indicated that they were very likely to use information from the training in

their classrooms in the future, that the training was valuable, and that students enjoyed and learned high quality science from the lessons practiced by the teachers. In addition, all teachers indicated they would be interested in more professional learning opportunities. At least 520 students will be exposed to this science and engineering content as teachers incorporate it into their classrooms. The questions and responses are listed below.

1 Very Unlikely to 5 Very Likely

- I intend to use the information from this training in the future within my classroom = 4.75 (mean)

1 Not at all to 5 Very Valuable

- Do you feel this training was valuable for you? = 4.92

1 Not at all to 5 Yes, to a great extent

- Do you feel your students enjoyed and learned quality NVACSS Physical science from using the AWIM Glider kits? = 5

- Would you be interested in participating in additional professional development trainings and workshops? Yes 100%

- Approximately how many students will you be using this information and training skills with each school year? Total Students = 520

## Conclusion

Having the opportunity to offer a grade level specific program that provided all participating teachers the materials and resources required to implement the new NVACSS in the Disciplinary Core Idea area of Physical science and Engineering Design, along with follow-up support sessions was critical to the overall success of this project. The main goal was to increase teacher knowledge of the standards and to facilitate them in successfully implementing the NVACSS in their classrooms. The data and teacher reflections indicated that this goal was met.

**Examples of final comments from participating teachers:**

- The facilitators were great in delivery of the curriculum and providing guidance as to how to implement into the classroom but also provided ways to modify the curriculum. They allowed us the opportunity to experiment with doing the lesson instead of being told how to do it and what to expect.
- The facilitators provide a wealth of knowledge and insight into their classes by having teachers share their struggles and successes which helps everyone involved.
- Hands-on good classroom activities.
- Very informative and useful curriculum.

- Hands-on experiential activities.
- Great collaboration with colleagues and sharing experiences.

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**HANDOUT Articles:**

How Science Works chart
http://undsci.berkeley.edu/flowchart_noninteractive.php

**Case Study 3: Exploring Motion and Forces - Logic Model**

**Situation:** Teachers need the materials and experience required to implement quality NVACSS/NGSS science and STEM learning.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| 8th Grade / Middle school science teachers<br><br>Budget<br><br>24 A World In Motion Glider Kits<br><br>10 Digital Cameras<br><br>Social Media supports Wiki, Flickr, YouTube, others as needed.<br><br>NWRPDP Pre-K – 12 Science Learning Facilitator<br><br>NWRPDP Pre-K – 12 STEM Learning Facilitator | Training in Planning, designing, building and flying gliders and facilitating students in doing so, as well as the NGSS Standards …<br><br>7 Sessions @ 4 hours each session1 optional session @ 6 hours (28 – 34 hours). | 8 – 12 teachers, 28 – 34 hours of training and in class support as needed.<br><br>6 – 10 schools<br><br>400 – 600 students<br><br>3 School districts | Increase teacher effectiveness in implementing a STEM inquiry based project with students.<br><br>Teachers begin to implement the Glider curriculum and materials into classroom instruction.<br><br>Increase teacher knowledge of the Next Generation Science Standards and implementing them<br><br>**Measures:**<br><br>Pre/Post Survey | Increase the number of students participating, and interest, in STEM.<br><br>Teachers are aware of resources available to support them.<br><br>Sessions focus on feedback, further support to increase successful implementation of the NVACSS/NGSS standards towards student learning and sharing ideas from participating teachers.<br><br>**Measures:**<br><br>Teacher feedback interviews / debriefs of progress during sessions including Entrance and exit tickets<br><br>Pre/Post reflective Survey | Increase 8th grade student's CRT science scores of cohort teachers.<br><br>**Measures:**<br>8th Grade CRT Science scores<br><br>Pre/Post Survey |

**Assumptions:** Teacher training will increase teacher efficacy. Teachers participating in the same activities as their students will increase effective implementation. Teachers be supported by administration to implement the activities.

**External Factors:** Teacher attendance due to inclement weather issu

# Case Study 4: Creating Teacher Change by Developing Mathematical Mindsets

## Introduction

"The idea that success in mathematics is only available to those born as "'athematics people' has been challenged in recent years by neuroscience, showing that mathematics pathways develop in the brain through learning and practice (Anderson, Boaler, Dieckmann, 2018)." In their research study, published in March 2018, Anderson, Boaler, and Dieckmann stated that changing teachers' instruction is challenging to do. As they stated, even with high quality professional development, "ineffective procedural mathematics teaching has endured." They hypothesized and then proved that in order for teachers to make changes in their instruction, they had to first "change their own identities as learners." Once teachers began to shift their own identities, they were able to become more open to new relationships with students as learners and to new forms of teaching.

In Douglas County School District, sixth through eighth teachers have been implementing the Nevada Academic Content Standards (NVACS), based on Common Core State Standards, in math since 2010. While teachers have become familiar with the new standards for their grade levels, they are still developing their skills in learner-centered instruction. Middle school math standardized test scores continue to show a steep decline at the school, district, state, and national levels. The need for teacher change in the area of mathematics instruction has never been greater.

## Instructional Context

Douglas County School District (DCSD) is a rural school district located in Northern Nevada. DCSD is comprised of 13 schools, including seven elementary schools, two middle schools and four high schools. Approximately 5793 students were enrolled in DCSD during the 2017-18 school year. The student population is comprised of 66.33% white students, 22.27% Hispanic students, 3.17% American Indian students and 5.88% students who are more than one race. DCSD has an Average Daily Attendance rate of 95.1%. It has a cohort graduation rate of 87.53% as reported in the Nevada Report Card (2018).

According to the Nevada School Performance Framework, Douglas County School District has 4 two star schools, 3 three star schools, 1 four star school, and 4 five star schools. Table 1 shows a summary of the standards-based Criterion-Referenced Test (CRT) performance for grades six through eight based on 2016-17 assessment results compared to the 2017-18 results. Students scoring ED (emerging development) and AS (approaching standard) do not meet proficiency. Students scoring MS (meets standard) and ES (exceeds standard) meet or exceed the standard.

**Table 1: Standards-based Test Performance Grades 6-8**

| Grade Level | Reading 2016-17 | Reading 2017-18 | Mathematics 2016-17 | Mathematics 2017-18 |
|---|---|---|---|---|
| **6** | ED 17.1%<br>AS 33.8%<br>MS 38.3%<br>ES 10.9% | ED 26.9%<br>AS 28.5%<br>MS 35.5%<br>ES 9.0% | ED 27.4%<br>AS 41.8%<br>MS 21.2%<br>ES 9.6% | ED 31.7%<br>AS 38.0%<br>MS 21.1%<br>ES 9.3% |
| **7** | ED 16.9%<br>AS 30.7%<br>MS 41.8%<br>ES 10.6% | ED 18.3%<br>AS 24.9%<br>MS 46.8%<br>ES 10.0% | ED 28.9%<br>AS 35.8%<br>MS 22.6%<br>ES 12.7% | ED 25.4%<br>AS 34.7%<br>MS 25.2%<br>ES 14.7% |
| **8** | ED 18.6%<br>AS 30.2%<br>MS 37.9%<br>ES 13.3% | ED 19.9%<br>AS 32.0%<br>MS 37.6%<br>ES 10.5% | ED 28.7%<br>AS 30.5%<br>MS 21.1%<br>ES 19.7% | ED 35.5%<br>AS 33.1%<br>MS 18.6%<br>ES 12.5% |

## Initial Data and Planning

Mathematics achievement data across the country shows a decline in student performance in grades six through eight. The same is true for Douglas County School District. Elementary math scores show an increase in proficiency from grades three through five, then students begin to show a decline as they progress through middle school. Over the past several years, middle school teachers have engaged in cohort trainings on improving their instruction; however, as the CRT results became available, the need for a more organized structure to foster changes in middle school math classrooms became apparent.

## Delivery of Services

Sixth through eighth gra Ide math teacher each attended two half-day professional development sessions with a focus on teaching using the mathematical mindset practices shared in the research article by Anderson, Boaler, and Dieckmann (2018).n the first training teachers learned about the five mathematical mindset teaching practices and explored classroom examples of each one. They assessed themselves on their implementation of these practices in their classrooms and used their assessment to set goals for the school year. Teachers were also given the opportunity to design their own half-day long professional development based on the goals they set for themselves. In most cases, teachers chose to focus their personalized professional development on finding and using rich math tasks. The five mathematical mindset teaching practices were also used as criteria for two sets of classroom walk-throughs; one in the fall and one in the spring. During these twenty minute walk-throughs, four of the practices were scored as beginning, developing, or expanding.

In addition to this focus on mathematical mindset teaching as a whole group, individual teachers engaged in self-selected options to best meet their own needs. Some teachers requested lessons to be modeled by a math professional learning facilitator. Some teachers engaged in peer observations. Seven middle school math teachers attended the MidSchoolMath Conference held in Santa Fe, New Mexico, where they attended a full day workshop run by Jo Boaler on mathematical mindset teaching and two additional days of sessions designed specifically for middle school math teachers. At one middle school, a professional learning community decided to give mindset surveys as pre- and post- assessments to a group of high achieving students and to work with them on developing a growth mindset around learning. Additional in-service classes were offered for teachers, including a book study on Becoming the Math Teacher You Wish You'd Had by Tracy Zager (2017).

## Results and Reflection

In reviewing the walk-through data from fall 2018 and spring 2019, all three areas in the four observed practices showed improvement. The observation of students' mindsets, i.e. the messages they give themselves and each other about their math ability and perseverance, proved to be statistically significant. Table 2 summarizes the gains seen between the fall and the spring. While gains were seen in all areas, it is interesting that only student's mindsets attained statistical significance. When students are speaking the language of a growth mindset, the changes that have happened in math classroom instruction become apparent. In order for students to show gains in growth mindset thinking, teachers must be providing rich tasks and opportunities for students to struggle and to work independently and collaboratively. Significance in this area is exciting because shifts in student's mindsets only happen as a culmination of changes in the other mathematical mindset practices.

**Table 2: Walk-through Data Fall to Spring**

| Question | Fall mean | Spring mean | *T* score | Significance |
|---|---|---|---|---|
| **Practice 1: Growth Mindset Culture [mindset messages]** | 2.43 | 3.00 | 1.549 | .172 |
| **Practice 1: Growth Mindset Culture [praising effort and learning process]** | 3.00 | 3.18 | 1.000 | .341 |
| **Practice 1: Growth Mindset Culture [student's mindset]** | 2.71 | 3.86 | 2.828 | .030* |
| **Practice 2: Nature of Mathematics [open tasks]** | 2.33 | 3.50 | 2.028 | .067 |
| **Practice 2: Nature of Mathematics [reasoning and multiple perspectives]** | 2.59 | 3.50 | 1.732 | .111 |
| **Practice 2: Nature of Mathematics [depth over speed]** | 2.67 | 3.50 | 1.449 | .175 |
| **Practice 3: Challenges and Struggle [mistakes]** | 2.50 | 2.50 | .000 | 1.000 |

| Question | Fall mean | Spring mean | *T* score | Significance |
|---|---|---|---|---|
| **Practice 3: Challenges and Struggle [struggle and persistence]** | 2.27 | 3.36 | 1.936 | .082 |
| **Practice 3: Challenges and Struggle [questioning]** | 2.45 | 3.73 | 1.884 | .089 |
| **Practice 4: Connections and Collaborations [mathematical connections]** | 2.83 | 3.50 | 1.773 | .104 |
| **Practice 4: Connections and Collaborations [connecting in small groups]** | 2.67 | 3.67 | 2.171 | .053 |
| **Practice 4: Connections and Collaborations [connecting as a whole class]** | 2.14 | 3.29 | 1.549 | .172 |

*Reveals statistically significant growth.

All sixth through eighth grade math teachers were given the opportunity to complete a post-reflective survey in spring of 2019 on their implementation of the mathematical mindset practices. Table 3 summarizes the data collected in the post-reflective survey. Statistically significant gains were found in all areas except Reasoning and Multiple Perspectives and Frequency of Testing/Grading, which also showed gains. These gains show that teachers perceive changes in their own knowledge and skills in mathematics instruction. This shift in their own thinking was verified by the data collected in the walk-throughs.

**Table 3: Post-reflective Evaluation Data Fall to Spring**

| Questions | Fall Mean | Spring Mean | *T* score | Significance |
|---|---|---|---|---|
| **Practice 1: Growth Mindset Culture [mindset messages]** | 3.15 | 4.08 | 3.207 | .008* |
| **Practice 1: Growth Mindset Culture [praising effort and learning process]** | 2.85 | 4.08 | 4.382 | .001* |
| **Practice 1: Growth Mindset Culture [students' mindsets]** | 1.77 | 3.31 | 4.629 | .001* |
| **Practice 2: Nature of Mathematics [open tasks]** | 2.85 | 3.92 | 3.742 | .003* |
| **Practice 2: Nature of Mathematics [reasoning and multiple perspectives]** | 2.85 | 3.46 | 1.760 | .104 |
| **Practice 2: Nature of Mathematics [depth over speed]** | 3.15 | 4.08 | 3.207 | .008* |
| **Practice 3: Challenges and Struggle [mistakes]** | 3.15 | 4.69 | 4.629 | .001* |
| **Practice 3: Challenges and Struggle [struggle and persistence]** | 2.54 | 3.62 | 3.742 | .003* |
| **Practice 3: Challenges and Struggle [questioning]** | 3.00 | 3.77 | 2.739 | .018* |
| **Practice 4: Connections and Collaborations [mathematical connections]** | 3.31 | 3.92 | 2.309 | .040* |

| Questions | Fall Mean | Spring Mean | *T* score | Significance |
|---|---|---|---|---|
| **Practice 4: Connections and Collaborations [connecting in small groups]** | 2.85 | 4.08 | 4.382 | .001* |
| **Practice 4: Connections and Collaborations [connecting as a whole class]** | 2.85 | 4.08 | 3.411 | .005* |
| **Practice 5: Assessment [nature of feedback]** | 2.85 | 3.62 | 2.739 | .018* |
| **Practice 5: Assessment [frequency of testing/grading]** | 2.54 | 3.00 | 1.389 | .190 |
| **Practice 5: Assessment [ multiple forms of assessment]** | 2.08 | 3.31 | 3.411 | .005* |

*Reveals statistically significant growth.

As mentioned, in the fall of 2018, middle school math teachers were asked to set personal goals around the mathematical mindset practices. There were nine responses focusing on Practice 3: Challenge and Struggle and five responses focusing on Practice 4: Connections and Collaboration. Improvements in both of these practices were noted in the walk-throughs and in the post-reflective data. When asked how their classroom instruction changed as a result of this focus, one teacher said, "I have started to expect that the students will show me what they are thinking. I never focused on this before....mainly because I couldn't model. I have some students who have a great deal of reluctance with modeling, but overall we are all making progress and I think it's because I am making it the expectation and I am sharing my own struggle." Another said, "I have been working more on student discussion and problem solving FIRST before I jump in. There has been more struggle in class but in the end there is a greater understanding. Getting everyone involved has also been a problem, but more and more students are buying in as the year goes on."

Teachers also commented on the barriers they found when trying to shift their instruction. Common barriers included finding the time to slow down and adjusting their pacing. Others felt that student's mindsets and engagement in productive struggle were a challenge. It is interesting that student's mindsets showed the greatest gains in the walk-through data, thus validating the teachers' hard work in this area.

Finally, teachers were asked to share their biggest successes when using mathematical mindset practices in their teaching. Most teachers' answers reflected the value of students seeing and sharing different perspectives and developing a growth mindset in their students. Some shared that they love seeing students make connections and learning from one another. One teacher said, "Giving students the freedom to do math their way, deeper thinking, better justifying." Another said, "The biggest successes are when students who question their abilities at the beginning of the year, now see they can do math and think through the problem to find the solution. Once they reach that point, they are more willing to tackle harder problems and share their

answers/strategies even when they get the problem wrong. They simply correct their thinking on that problem and move, confidently, to the next one."

## Conclusion

Results from the walk-through data and from the post-reflective survey show that teachers focused intently on changing their instruction to match the mathematical mindset practices. Both teachers and students are enjoying math more as a result of these shifts. In her research, Jo Boaler and her team found that when teachers shifted their instruction and their own mindsets about student learning and when students developed a growth mindset about themselves as mathematicians, standardized test scores on the Smarter Balanced assessment improved (Anderson, Boaler, Dieckmann, 2018). It is hoped that gains will be seen in middle school math scores on the 2018-19 CRT. Walk-through data and post-reflective data will be tracked again during the 2019-20 school year in order to continue focusing on mathematical mindset practices as guidelines for high quality math instruction.

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**Case Study 4: Mathematical Mindsets in Middle School Math - Logic Model**

**Situation:** Middle school math scores show a steady decline from sixth through eighth grade. Creating instructional change through the implementation of mathematical mindsets in math classrooms grades 6-8.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| RPDP trainer<br><br>Teacher access to youcubed.org & 5 Mathematical Mindset Practices<br><br>6-8 Grade Math Teachers<br><br>Students<br><br>Administrative Expectations<br><br>Substitutes<br><br>Budget<br><br>Training room facilities<br><br>Support from Douglas County School District<br><br>Resources: youcubed.org website | 6-8 math cohorts with focus on shifts in math instruction, including mathematical mindsets<br>• One half day in fall<br>• One half day in spring<br>• One half day for personalized PD, chosen and scheduled by each teacher<br><br>Lesson planning<br><br>Modeling lessons in classrooms<br><br>Classroom walkthroughs twice per year<br><br>In-service classes for credit<br>• Becoming the Math Teacher You Wish You'd Had<br><br>MidSchoolMath Conference attendance by 7 middle school math teachers<br><br>Mathematical Mindset 5 Practices self-assessment<br><br>Student mindset survey | 6-8 teachers, specialists, administrators | Increased knowledge of the mathematical mindset materials and their organization<br><br>Increased understanding of best practices in math instruction<br><br>Increased understanding of the NVACS in math<br><br>Measures:<br>Training Ratings<br>Case Study<br>Post-reflective survey<br>Qualitative Feedback (goal setting)<br>Student mindset survey | Increased self-efficacy in teaching using mathematical mindset practices<br><br>Improvement in instructional practice in math<br>• Increased use of open tasks<br>• Increased collaboration student to student and whole class<br><br>Increased growth mindset for students in math class<br><br>Measures:<br>Case study<br>Walkthrough observational data | Increased student achievement in math, including<br><br>Increased graduation rate<br><br>Increased passing rate in middle school math courses<br><br>Increased student engagement in mathematics<br><br>Measures:<br>School, District, and State data |

**Assumptions:** Attendance at math cohorts, customization of math cohorts, shifting instructional practices, developing mathematical mindset shifts, theory of change that teacher training will lead to teacher efficacy and improved pedagogy.

**External Factors:** District math scores, budget constraints, district and site initiatives.

# Case Study 5: School-Wide Math Professional Development

## Introduction

"Number sense is the most important foundation that students can have and the basis for all higher level mathematics." Boaler, J. (2015)

In 2018, a need for math professional development was determined by administrators at two elementary schools in rural Nevada based on classroom observation and student test data. Over the past several years, teachers had not had the opportunity to engage in school-driven professional learning around mathematical content. The administrators contacted the North West Regional Professional Development Program (NWRPDP) for support and a plan was created to provide professional learning opportunities in mathematics for all Kindergarten through sixth-grade teachers at both sites. Two trainers would work with both schools: one trainer focused on work with the Kindergarten, first, and second grade teachers while the other trainer worked with the teachers in grades three through six. In addition, teachers in all grades received training on academic word walls and vocabulary. The focus of this study is the Kindergarten through grade two professional learning.

## Instructional Context

The two elementary schools are located in a rural district in Nevada with approximately 8900 students. During the 2017-18 school year, School One had 508 students, and 33.1% scored proficient on mathematics portion of the Smarter Balanced assessment. School Two had 454 students, and 35.1% of students scored proficient on the Mathematics portion of the Smarter Balanced assessment. Both schools had teachers with teaching experience along a continuum of being in the first few years of teaching through teachers who had worked 20 years or more within the profession.

## Initial Data and Planning

The two trainers and the administrators from each school met prior to the beginning of the school year and set goals for the year. These goals included increasing teacher knowledge of the Nevada Academic Content Standards in Mathematics and increasing teacher knowledge and application of the eight mathematical practices. Kindergarten through Second grade teachers would meet once a month over five months for professional learning around recent research and information about mathematics education. The topics studied were all related to developing number sense since it is foundational to higher level mathematics (Boaler, 2015) and is necessary to develop fact fluency with addition and subtraction as required by the Nevada Academic Content Standards (2010).

In addition, an optional two-day in-service class on was offered to all teachers at both schools with one day focusing on the eight Standards for Mathematical Practice and one day integrating literature with math. Teachers had the option to attend either or both days.

## Delivery of Services

Schedules were created by administrators to allow teachers within a grade level to have common time during the school day to use for planning and for creating a professional learning community while students were at specials (i.e. music, computers, or library). This time was used once a month, on Tuesdays at one school and Wednesdays at the other, as the time that professional learning was provided by the trainer. The sessions were scheduled to be 40-45 minutes, but as teachers tended to the necessities of supervising students while they transitioned to and from their classrooms and attending to other tasks requiring teacher attention, the actual time focused on professional learning was about 30 minutes. Prior to the first mathematics professional learning time, teachers in all grade levels attended a professional learning session focused on vocabulary and academic word walls.

During the first math training, teachers were given a bound copy of the Nevada Academic Content Standards in Mathematics (2010) and a copy of *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2* (Van de Walle, Lovin, Karp, & Bay-Williams, 2014). The trainer showed teachers some of features of each resource and then teachers had the opportunity to explore each and discuss or ask questions. Additional professional learning in the subsequent trainings had a common thread of developing number sense including the problem types associated with Cognitively Guided Instruction (Carpenter, Fennema, Franke, Levi, & Empson, 2015), Number Talks (Parrish, 2014), growth mindset (Boaler, 2016), and building number relationships (Van de Walle, Lovin, Karp, & Bay-Williams, 2014). Information was shared through reference to the books, with additional articles, PowerPoints and videos. Discussion followed with teachers having time to ask questions or talk about the ideas presented. Then, on Fridays of the same week, it was originally planned that all Kindergarten through second grade teachers at both schools would gather before school to collaboratively create lesson plans including information from the professional learning. Through observation of the interactions between teachers and feedback from the teachers, this time was redesigned to incorporate an exploration of hands-on activities and games supporting the concepts presented at the trainings earlier in the week. Walkthroughs of some classrooms were conducted to gain knowledge of the instructional practices in place in classrooms.

## Results and Reflection

At the completion of the vocabulary training and the five math trainings and planning sessions, the teachers were asked to rate themselves on their knowledge of the Nevada Academic Content Standards, recent research in mathematics education, and the number sense topics that had been

discussed during the five professional learning sessions. Teachers rated themselves in a post-reflective manner on seven statements related to these topics on a scale of one to five with one being poor and five being excellent. The results are shown in Table 1 below and described in the narrative following.

**Table 1: Post-reflective Evaluation Results**

| | **Mean before** | **Mean after** | ***T* score** | **Significance** |
|---|---|---|---|---|
| **The Standards for Mathematical Practice** | 3.00 | 4.00 | 3.950 | .002* |
| **Recent research and information around mathematics education** | 2.93 | 4.21 | 4.837 | < .001* |
| **Strategies and resources for promoting student academic conversation in mathematics** | 3.29 | 4.07 | 3.294 | .006* |
| **Strategies and resources for implementing Number Talks** | 3.08 | 4.33 | 4.486 | .001* |
| **Information and resources around a growth mindset in mathematics** | 2.67 | 3.83 | 3.189 | .009* |
| **Knowledge of research around number sense in mathematics** | 3.08 | 4.25 | 3.626 | .004* |
| **Strategies and resources in support of curricula for NVACS in mathematics** | 2.83 | 4.08 | 3.563 | .004* |

*Statistically significant growth.

The amount of teacher change for all topics was statistically significant. For the knowledge of "The Eight Standards for Mathematical Practice," the average teacher rating before the training was 3.00 and the average teacher rating afterwards was 4.00 showing an average growth of 1.00. "Knowledge of recent research and information around mathematics education" changed from an average of 2.93 before professional learning to 4.21 after professional learning showing an average growth of 1.28. For "Strategies and resources for promoting student academic conversation in mathematics" teachers scored 3.29 before and 4.07 after with an average growth of 0.78. Regarding "Strategies and resources for implementing Number Talks" teachers changed from 3.08 before to 4.33 afterwards which is an average growth of 1.25. The category of "Information and resources around a growth mindset in mathematics" changed from an average of 2.67 before to an average of 3.83 after, a growth of 1.16. For "Knowledge of research around

number sense in mathematics," teachers scored an average of 3.08 before and 4.25 afterwards, showing an average growth of 1.17. In the category of "Strategies and resources in support of curricula for NVACS in mathematics," teachers scored 2.83 before and 4.08 afterwards, showing an average growth of 1.25. The results show that overall there were statistically significant improvements in all areas after the program and participants believed they had grown in their knowledge of all seven areas. Some areas, however, revealed more growth than others. The category of "Recent research and information around mathematics education showed the greatest growth" and had a p-value of less than .001. It was exciting to discover that teachers felt they had learned the most about recent research in mathematics education since this research has shown the need for developing conceptual understanding of the mathematics thus shifting the teaching of mathematics (Boaler, 2016). The category of "Strategies and resources for promoting student academic conversation" showed the least growth of all of the areas surveyed. In addition, that category had the highest average score for knowledge prior to the professional learning sessions.

Teachers were also surveyed about the effectiveness of the training by rating from 1 (not effective) to 5 (very effective) on the organization and preparation, style and delivery, responsiveness to participants, creating a learning environment, and content and delivery. Results are shown in Table 2 and in the narrative below.

**Table 2: Training Effectiveness**

| Category | Average |
|---|---|
| **Organization and Preparation** | 4.1 |
| **Style and Delivery** | 3.8 |
| **Responsiveness to Participants** | 4.4 |
| **Creating a Learning Environment** | 4.1 |
| **Content of the Training** | 3.8 |

For "Organization and Preparation" participants indicated an average of 4.1 with five being the highest score possible. The category of "Style and Delivery was rated an average score of 3.8. "Responsiveness to Participants" was rated an average of 4.4. "Creating a Learning Environment" was rated an average of 4.1, and "Content of the Training" was rated and average of 3.8. All average ratings were closer to the excellent end of the scale indicating general satisfaction with the format of the course. The categories of "Content of the Training" and "Style and Delivery," although relatively high on the overall scale, both received average scores of lower than four. This might indicate a need for additional input from participants about the format of the sessions and what topics they might be interested in regarding their needs in any future work.

## Conclusion

Results show that teachers who attended the professional learning session generally agreed that they felt that they had gained new ideas strategies around the standards and their ability to teach mathematics. While some teachers reported that there was little or no change in their knowledge of the various math content topics before and after training, others reported growth of three to four points. A possible explanation for this could be differences in levels of teacher experience or background knowledge about the various topics. Input from all participants regarding what topics are of interest for future learning might better meet the needs of all participants.

Although developing number sense was central to all of the ideas and strategies that were explored during the professional learning, several teachers indicated a desire to have more information around number sense for additional trainings in the future. Comments also indicated that participants would like information specific to their grade level content such as place value and addition and subtraction strategies. Other comments stated that there wasn't enough time to explore topics fully or to have opportunity for hands-on training. All of these factors suggest that teachers would like to deepen their knowledge around mathematical content and indicate a desire for additional opportunities for professional learning. Future learning opportunities would best meet the needs of teachers if a different format was instituted allowing for greater time for exploration and collaboration, as well as more opportunity for input and choice from the teachers regarding specific content needs to allow for differentiation. In a follow up survey regarding future professional learning opportunities, 23 out of 25 teachers indicated that they were interested in more math training. They suggested a slightly different format with longer periods of time after school and a segment for collaborative planning. Suggested focus was the Mathematical Practices and routines for implementation. Plans to address these questions are already underway and show promise for even deeper learning in the future.

## References and Resources


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**Case Study 5: School Wide Math Professional Development - Logic Model**

**Situation:** Need for math professional development was determined by administrators at two elementary schools in rural Nevada based on classroom observation and student test data

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| RPDP Trainers<br><br>Students<br><br>Curriculum<br><br>Administrative Expectations<br>Budget<br><br>Instructional Videos<br><br>Resources<br>--Professional Books<br>--Standards Documents<br>--Manipulatives | (5) 45-minute K-2 trainings<br><br>5 collaborative K-2 planning times<br><br>Observation and feedback and/or coaching | K-2 teachers at two schools<br><br>K-2 teachers at two schools<br><br>Selected K- 6 teachers | Increased familiarity of Nevada Academic Content Standards in Mathematics<br><br>Increased student academic conversation in Mathematics<br><br>Increased repertoire of instructional resources<br><br>**Measures:**<br>Feedback<br><br>Post-reflective Survey | Enhanced teacher efficacy in teaching elementary mathematics<br><br>Increased use of best practice pedagogy<br><br>Increased student self-reflection enjoyment of math<br><br>**Measures:**<br>Feedback<br><br>Post-reflective Survey | Increased student achievement<br><br>Increased passing rates in secondary math<br><br>Increased graduation rates<br><br>**Measures:**<br>Feedback<br><br>Post-reflective Survey |

**Assumptions:** Teachers have reviewed the math data. Teachers have input to the planning of the professional learning

**External Factors:** Teachers have had little opportunity for school-driven professional learning in mathematics in recent years.

# Case Study 6: Word Study Instruction in the Primary Grades

## Introduction

When asked about ways to strengthen students' reading, literacy expert Timothy Shanahan responds in his blog, "Spelling instruction improves spelling, but it also improves reading. I would teach phonics and spelling, and I would invest in professional development and instructional materials that would support my teachers" (2015). He goes on to write "I would argue for the kinds of word study activities and sorting procedures promoted by Donald Bear and his colleagues." (2015). Word study involves comparing and contrasting word features by their sounds, spelling patterns, and meaning. Shanahan's advice is grounded in a long line of research suggesting that teaching students about English orthography in word study is a way to improve their orthographic knowledge, reading and writing (Nagy & Townsend, 2012). This case study describes how a group of teachers enrolled in years four and five of the Early Literacy Cadre series implemented word study instruction using the *Words Their Way* approach.

## Instructional Context

The Early Literacy Cadre series is a five-year voluntary professional learning opportunity for teachers of Preschool to third grade. Each year consists of 30 total hours of face-to-face sessions provided monthly. In their first year, participants study the developmental model of instruction and learn about a variety of topics including: small group reading, shared reading, interactive read-aloud, and sight word development. In year two, teachers explore evidence-based best practices in teaching writing and implement writers workshop using the *Being a Writer* program. Year three teachers study vocabulary acquisition and implement robust vocabulary instruction into their practice using the *Words in Action* program. The final two years emphasize reflection with filming of small group reading lessons and peer observations. New course content centers on word study and culturally relevant teaching. Teachers report the Cadre model has shifted their practice. Participants (N=10) were asked to rate how their participation in Cadre over the last 3 years has changed their instruction on a scale of 1 to 7 with 1 being not at all to 7 being very much. All participants rated their change at the highest end of the scale indicating change in teaching occurs when teachers attend Cadre.

This case study focuses on the year 4 and 5 Cadre cohort and their implementation of differentiated word study. The group consisted of 11 primary grade teachers enrolled in either Cadre 4 or 5; with a range of experience from 5 to 20 years. The breakdown of participants is as follows: Pre-K (N=1) Kindergarten (N=5), Grade 1 (N=3), Grade 2 (N=2).

## Initial Data and Planning

Planning for this training started with an examination of the Nevada Academic Content Standards. Students in Pre-Kindergarten identify letters in their own name and explore letters through play. Kindergarten students are expected to develop print concepts and phonological awareness as well as phonics skills such as the spelling of basic word family words. First graders learn the spelling-sound correspondences for consonant digraphs as well as the final –e and common vowel team conventions for representing long vowel sounds. Second graders must know spelling-sound correspondences for representing additional common vowel teams. In order to assist teachers in providing instruction to meet these standards, the trainer prepared a binder for each participant with copies of Qualitative Spelling Inventories for assessment, *Words Their Way* supplemental texts for instruction, and templates of word study games. The Pre-Kindergarten teacher was given a copy of the *Words Their Way for PreK-K* to use in planning developmentally appropriate activities.

## Delivery of Services

In the fall, teachers administered either the Kindergarten or Primary Spelling Inventory to determine each students' level of orthographic knowledge. The Kindergarten Spelling Inventory consists of 5 words and provides information about students' abilities to segment phonemes and spell simple short vowel words. The Primary Spelling Inventory consists of 25 words selected to represent spelling features or patterns at increasing levels of difficulty (fan, hope, dream, shouted, clapping). Teachers used this information to group students according to one of the following stages of spelling: Emergent, Letter Name -Alphabetic, Within Word Pattern, or Syllables and Affixes. The trainer grounded the group in research describing the synchrony of reading, writing, and spelling development and best practices in word study (Bear, Invernizzi, Templeton, & Johnston, (2017). Teachers were also provided with a detailed overview of the structure and contents of the instructional supplements. Table 1 shows the units of study within each supplement.

**Table 1: Units of Study in Case Study Supplement**

| Emergent | Letter Name-Alphabetic | Within Word Pattern | Syllables and Affixes |
|---|---|---|---|
| Concept Sorts<br>Phonological Awareness<br>Alphabet Knowledge<br>Beginning Consonants | Review of Beginning Consonants<br>Same-Vowel Word Families<br>Digraph and Blends: Picture Sorts | Short and Long Vowels: CVC and CVCe<br>Common Long-Vowel Patterns (CVCe and CVVC)<br>Less Common Long-Vowel Patterns | Inflected Endings (ing, ed, s,es,)<br>Compound Words<br>Long-Vowel Patterns in Accented Syllables |

| Emergent | Letter Name-Alphabetic | Within Word Pattern | Syllables and Affixes |
|---|---|---|---|
| Concept of Word in Print | Mixed-Vowel Word Families<br>Short Vowels in CVC Words<br>Preconsonantal Nasals (-ng, -mp, -nt, -nk, -nd) | Other Vowels: R-Influenced Vowel Patterns<br>Other Vowels: Diphthongs and Ambiguous Vowels<br>Beginning and Ending Complex Consonants<br>Homophones | Other Vowel Patterns in Accented Syllables<br>Unaccented Syllables |

Each unit of study consists of pre/post assessments, sorts with explicit lesson routines for instruction, and useful teaching tips. Using spelling inventory results, teachers grouped students for instruction and then administered unit pre-assessments in order to determine appropriate pacing of instruction. At the conclusion of each unit, a post-test was given. The results were used to determine next steps. For example, if students scored 90% or above, teachers moved to the next unit of study. If most of the students scored within a range of 75% to 85%, they planned for a quick review of missing features before moving into the next unit.

Once teachers had word study instruction in place, content during Cadre sessions centered on establishing routines for repeated practice with the sorts over the week. The pictures below depict students working at centers in engaging ways to practice their learning.

The picture below shows a center where a Pre-K student is playing with magnetic letters on a white board.

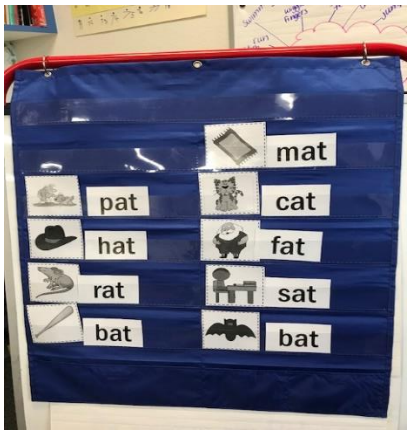
**PreK- Fall 2018**

The following picture shows a Pre-K student matching upper case letters by attaching clothes pins labeled with capital letters to an alphabet strip.

**PreK- Spring**

A group of three Kindergartners below are sorting pictures on a pocket chart into one of four groups by rhyming features. (cat, hat) (bug, rug) (car, star) (dog, fog)

Below, Kindergarten - At Word family chart with pictures and matching words.



A group of three first graders playing a board game to review consonant digraphs: th, ch, wh, sh.

## Results and Reflection

In May, teachers completed a survey to reflect on overall successes and challenges in their implementation of word study. The most noted challenges were the time involved in prepping materials for differentiated instruction and managing multiple groups. The written comments below indicate the time invested was well worth the positive impact on student achievement.

- This is my first year using Words Their Way for word study. My QSI I did in March for Read by 3 results look better than my typical end of year results and we had 2 months left to study!
- Knowledge of word families and vowels is so much stronger this year! I am seeing my students (including my struggling learners) being stronger writers-they are better able to write sounds they hear and they feel successful.
- I see kids use the patterns from their weekly word lists in their daily writing. I think every teacher should use Words Their Way!
- What used to be a "center" is now teacher directed with thought and purpose. I have become very purposeful in my phonics/word study instruction. Students are truly recognizing and reflecting on word patterns.
- Students (100%) have shown growth in their spelling. 4 out of my 16 students were *Emergent* at the beginning of the year, 11 were *Letter Name* and 1student was *Within Word Pattern.* By December 6 students were in *Letter Name*, 9 were *Within Word Pattern*, and 1 was at the *Syllables* level. I attribute this to whole group teaching, exposing all students to the features, and small group instruction where students worked at their level.
- Before, I never did word study because I had never seen successful implementation or concrete/hard data or results to support it. This year, more than 80% of my students are at a grade level spelling stage.

A retrospective survey was given to gain further information about specific teaching practices among the group prior to and after participating in the professional learning. These indicators

were drawn from the Words Their Way Classroom Observation Tool (Gehsmann & Bear, 2013). Table 2 shows significant improvement on all indicators after participation in the course.

**Table 2: Retrospective Survey Results**

| Question | Mean before | Mean after | *T* score | Significance |
|---|---|---|---|---|
| Using QSI results to inform your grouping of students | 2.50 | 4.30 | 5.511 | < .001* |
| Using ongoing formative assessment to determine the content and pacing of instruction | 2.50 | 4.10 | 7.236 | < .001* |
| Establishing weekly routines | 1.90 | 3.80 | 4.670 | .001* |
| Organizing materials | 1.70 | 4.20 | 7.319 | < .001* |
| Preparing Materials | 1.70 | 4.30 | 7.649 | < .001* |
| Providing games for review | 1.40 | 3.50 | 5.547 | < .001* |
| Asking open-ended, higher order questions to engage students in a discussion | 2.20 | 3.70 | 4.881 | .001* |

*Reveals statistically significant growth.

To learn specifically about students' growth in orthographic knowledge letter knowledge and spelling data were collected. Pre-Kindergarten students were assessed on their ability to write their names. Some teachers felt comfortable providing differentiated instruction to more than one group while others chose to focus on one small group. Therefore, spelling data were examined by class for students who received targeted instruction in grades K-2. Results from the Kindergarten Spelling Inventory were collected in the fall and spring for a total of 22 students. The Primary Spelling Inventory was administered to a total of 34 students from four classrooms in August and again in May. Three Kindergarten students were included in this group because they scored 100% on the Kindergarten Inventory in the fall.

Results for all groups were positive. Nineteen of the twenty Pre-Kindergarten students were able to write their first names in spring. To determine if there was a change in spelling development over the course of the year for the K-2 students, a paired samples t-test for each class was conducted using the total spelling scores from the two administrations. Results in Tables 3 and 4 show that each group made significant progress from fall to spring.

**Table 3: Kindergarten Spelling Inventory Pre/Post**

| Number of Students | Mean Fall | Mean Spring | *T* score | Significance |
|---|---|---|---|---|
| 22 | 3.00 | 13.45 | 9.303 | < .001* |

*Reveals statistically significant growth.

**Table 4: Primary Spelling Inventory Pre/Post by Class**

| Grade | Number of Students | Mean Fall | Mean Spring | *T* score | Significance |
|---|---|---|---|---|---|
| K | 3 | 34.67 | 51.33 | 5.625 | .030* |
| 1 | 16 | 19.06 | 46.06 | 11.619 | <.001* |
| 1 | 12 | 41.42 | 4.750 | 4.75 | .001* |
| 2 | 3 | 60.33 | 78.67 | 4.308 | .050* |

*Reveals statistically significant growth. Kindergarten and second grade *t* test findings should be interpreted with caution given the small sample sizes from which they were derived.

Comments were also gathered from the course evaluation to gain information about how the participants perceived the professional learning. The following written remarks speak to the positive learning experience for the participants.

- Thank you for all the relevant and current teaching materials, and instructional techniques you have given us! They enhance my instruction greatly! I feel my students are better off than others due to my knowledge, teaching strategies, and materials. Thank you!
- Early Literacy Cadres have changed the way I teach in such a positive way. I cannot imagine teaching without this support.
- This is a wonderful opportunity, and I highly recommend this to all early elementary teachers. It is the number one thing that has changed my teaching.
- I love that (our facilitator) provides us with instruction that directly impacts my teaching and the learning of my students. Cadre is well worth the investment.
- This Cadre has been amazing. I can't thank you enough for the expertise you have given over the years.
- This course should be MANDATORY for ALL K-3 teachers in our district!
- Literacy Cadre is THE most impactful class I've ever taken as a teacher. I wish all teachers had an experience like this one!

## Conclusion

The International Literacy Association (ILA) recently released a Leadership Brief for the teaching and assessing of spelling (2019). It states, "Spelling-the way words work in English should be taught explicitly. Spelling is integral to reading and writing. Teach spelling well, and reading and writing also improves." The data gathered for this case study suggests teachers gained the knowledge, skills, and practices called for by ILA in order to teach students how words work, and they were proud of the positive influence on student achievement. They also noted the importance of professional learning and collegiality as an important influence on their change in practice.

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**Case Study 6: Word Study Instruction in the Primary Grades Logic Model – Logic Model**

**Situation:** A need assessment was conducted with teachers enrolled in Early Literacy Cadres IV and V. Results indicated a need for support in providing systematic, data-driven word study instruction.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| Budget<br><br>Resources:<br>2 Words Their Way Supplements for each participant<br><br>phonics/spelling games aligned to units of study<br><br>Completion of pre-requisite course work: Early Literacy Cadres I, II, and III<br><br>RPDP Facilitator | Monthly facilitated trainings centered on developmental word study instruction (30 hours total) | 9 Teachers attend 30 hours of training<br><br>Implement word study in primary grade classrooms<br><br>Present evidence of implementation and reflect on learning with colleagues at the Final Cadre Celebration held in May | Increased pedagogical knowledge<br>Use of spelling inventory data to determine students' level of orthographic knowledge<br><br>**Measures:**<br>Beginning of the year spelling inventory | Use ongoing assessment data from unit spell checks to determine appropriate instructional pacing<br><br>**Measures:**<br>Unit Spell checks | Increased understanding of developmental word study.<br><br>Consistent implementation of differentiated word study instruction guided by spelling data<br><br>Increased Student Achievement as measured by spelling checks and Qualitative Spelling Inventories<br><br>**Measures:**<br><br>Post reflective survey<br><br>End of the year student spelling inventory |

**Assumptions:** This project assumes that teachers will make a commitment to a full year of professional learning by consistently attending 3.5 hours of monthly facilitated training, implementing differentiated word study instruction into their practice, and collecting samples of student spelling data.
**External Factors:** Teachers did not begin instruction at the start of the school year because they did not yet have the materials or training. Individual coaching is not being offered which would provide additional support for participants.

# Case Study 7: Teacher Learning During the Second Year of Writers Workshop Implementation

## Introduction

This case study focused on kindergarten to sixth grade teachers at one Washoe County Title I elementary school who have participated in two of three years of professional learning to implement the grade level *Units of Study in Opinion, Information, and Narrative Writing* by Lucy Calkins and her Teachers College colleagues. The first year, teachers followed an established curriculum for implementing the writing units. This implementation included the architectures of the workshop, the mini-lesson, and a conference. It also included recommendations for planning, scheduling, and record keeping. The formal professional learning was consistent for all teachers K-6. Teachers were given individual follow up and feedback in the form of classroom observation and feedback that focused on the established year one Writers Workshop implementation curriculum. The second year, the professional learning curriculum was fully responsive to teacher request and teacher need. For example, at the end of the 2017-18 school year, the staff requested professional learning focused on incorporating effective grammar instruction into the workshop. Another example, during a half-day training grade levels were provided with a Google Forms Survey to focus the professional learning of the day. Each teacher was also provided the opportunity for individual classroom follow up that could include minilesson and conference models, observation, and feedback based on a teacher determined focus. This case study focused on teachers who had played an active role in determining the focus of Writers Workshop professional learning and dedicated planning and instructional time to implementing the Writers Workshop model of teaching writing into their daily classroom instruction. This case study examined the perceived knowledge and skills gain of the teachers when they were an integral part of determining the focus on their learning.

## Instructional Context

Up to and through the time of this case study there was no district-wide NVACS aligned writing curriculum nor standard resources for the teaching of writing available for teachers. As a result, during the 2017-18 school year the principal at a Washoe County Title I elementary school sought out professional learning that is standards aligned to support writing instruction. In response to that need, NWRPDP offered professional learning to support teachers and students until the adoption of a writing curriculum.

The focus teachers for this case study were 25 K-6 teachers at a single school site that was implementing the Workshop model and The Writing Units of Study school-wide. Nineteen of the teachers were in their second year of implementation, four were in their first year of implementation, and two were in their fourth year of implementation. Over the course of the

school year teachers participated in the following formats for professional learning. They received:

- Half day launch of Writers Workshop Year 2
- Half day incorporating grammar instruction into the workshop
- Half day grade level determined year 2 focus
- 1 round of Lesson Study per grade level
- Classroom model, observation, and coaching for each teacher

Teachers in their first year of implementation also received an additional day of training focused on the fundamentals of the Writers Workshop. Even though the format and time were consistent across teachers, the content of the professional learning varied.

## Initial Data and Planning

The results of the first year of implementation of Writers Workshop were positive. The school increased from a 2 star to a 3 star school from 2017-18 to 2018-19. The school was only .5 point from being a 4 star school. It's important to note here that one initiative cannot be credited with all of the growth increase in test scores at the school site. The Writing Units of Study were only one piece that contributed to the increase in test scores. Additional data came from teachers as they conducted pre and post writing assessments for each of the writing units. Consistently, students exhibited growth in writing skills across the assessments.

The teachers also reported a positive increase in both knowledge and implementation of the Writers Workshop model based on a post-reflective survey. The principal and teacher surveys indicated a positive response to the professional learning. Based on the data results, it was decided to continue professional learning for the implementation of the Writing Units of Study for the 2018-19 school year.

The following considerations were made during the planning of the professional learning. Research indicated that teacher choice could be a powerful tool for the effectiveness of professional learning (Bill and Melinda Gates Foundation, 2014; Darling-Hammond et al., 2017; and Calvert, 2016). Teachers new to the Writers Workshop format would need foundational training. For the teachers in years 2+ there was naturally some difference in both the levels of implementation and the skills of the teachers. The professional learning would have to adapt to the teachers' knowledge and skill levels. A combination of teacher surveys, teacher observations, and knowledge of the typical progressions for teachers implementing Writers Workshop were used to focus the topics covered in the professional learning and to determine the formats for delivery.

## Delivery of Services

There were four grouping formats for professional learning: whole group, grade level, topic, and individual.

Whole group professional learning was focused on what applied to the whole group. Topics included: year overview, review of the Writers Workshop components, the essentials of grammar instruction, and an end of year reflection.

Grade level professional learning was grade level determined topics and lesson study. The grade levels chose topics from an existing list of topics appropriate for teachers in their second year of implementation. Examples include: small group instruction, what to teach in conferences, and data collection. Lesson Study focused on grade level determined lessons. Teachers determined the data that would be most helpful to them and collected it during the Lesson Study time.

Teachers chose between two professional learning options that focused on two different ways to approach explicit grammar structure incorporated into the Writers Workshop model. Individual professional learning focused on teacher determined goals in the format of instructional coaching. In year two, common teacher goals include the timing of the mini-lesson, conferring with students, evaluating student writing, and/or record keeping. Teachers determined the focus and format of the coaching sessions. This was usually established through email. The format typically fell into one of the following three formats: 1. Model lesson and debrief, 2. Observed lesson and debrief, or 3. Student writing evaluation. Debriefs were conducted from a proficient partner coaching stance.

## Results and Reflection

Teachers were asked to complete an evaluation about the quality and usefulness of the professional learning and a post-reflective survey on what they learned as a result of the professional learning.

The evaluation indicated that teachers felt the professional learning matched their needs. Teachers were asked to evaluate by Likert score the following statement: *The activity matched my needs*. The Likert score is defined as follows. A score of one on the Likert score indicated not at all, a three indicated to some extent, and a five indicated to a great extent. Ninety-two percent of teachers indicated a level of four or five.

The post-reflective survey focused on increase of knowledge for the Writers Workshop components including: Writers Workshop structure, mini-lesson structure, conferring structure, and identifying lesson objectives. It also focused on teacher assessment of student discourse and writing in order to adjust instruction for student need. All areas on the survey were statistically significant in the direction of learning by the teachers. See Table 1 below.

**Table 1: Post Reflective Writers Workshop Professional Learning Results**

| Question | Mean before | Mean after | *T* score | Significance* |
|---|---|---|---|---|
| Writers Workshop Structure | 2.21 | 4.08 | 7.960 | < .001 |
| Minilesson Structure | 2.08 | 4.04 | 8.862 | < .001 |
| Architecture of a Conference | 1.87 | 3.83 | 8.477 | < .001 |
| Identification of Key Objectives | 2.00 | 4.04 | 9.602 | < .001 |
| Evaluate Student Response and Adjust | 1.79 | 3.92 | 10.061 | < .001 |
| Listen to Student Talk for Evidence of Learning | 1.88 | 3.79 | 9.224 | < .001 |
| Adjusting Lesson | 1.83 | 3.92 | 9.630 | < .001 |

*All items revealed significant positive change.

The data indicate that the professional learning matched teacher needs for Writers Workshop and that teachers learned both more about Writers Workshop structure as well as how to adjust assessment and instruction for the students in their classrooms. Teachers chose professional learning content and format from a menu of choices, so that they were able to address their self - identified areas for growth. An example of this was written on a teacher exit ticket, "The professional learning was very responsive to needs as we change in our level of understanding of the curriculum." Teacher choice has had a positive influence in this case study. Choice has the potential to be a powerful motivator. Next steps from this case study are to identify and implement places for teacher choice in future professional learning offerings.

## Conclusion

The Writers Workshop professional learning had consistent and varied content and was provided in multiple formats. Teachers made choices to match their needs from a list of options. Teachers are a diverse group of professionals with varying professional learning needs. A variety of content in a variety of delivery formats allows for teacher choice. Choice is powerful because it can meet diverse needs. More importantly, it is powerful because it leads to greater teacher self-efficacy (Calvert, 2016).

Another advantage in the design of the professional learning was the multi-year format. Teachers new to the school and the Writing Units of Study received on-site professional learning that facilitated their implementation with consideration to their first year implementing status. They weren't expected to catch up on year one training while experiencing year two training. Teacher skill and will also varied. The professional learning was rolled out as a three year plan. Each year had clear teacher learning foci. Teachers could see where they were on the three year plan. They could easily identify areas of growth and possible next steps. Because the professional learning crossed years, it could adjust for implementation differences among teachers.

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**Case Study 7: Teacher Learning During the Second Year of Writers Workshop Implementation – Logic Model**

**Situation:** One Title I elementary school in Washoe County School District is in year 2 of implementation of Writers Workshop for the teaching of writing. In year 1 of implementation the foundational curriculum for teachers is set; in contrast, year 2 curriculum becomes more responsive to teacher needs. This case study will examine the perceived increase of knowledge and implementation from the responsive curriculum.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| Substitute teachers<br><br>NWRPDP - Facilitator/Coach<br><br>Writers Workshop Resources<br><br>K-6 Teachers at one Title I elementary school in Washoe County<br><br>Writers Workshop Budget | Site based professional learning<br><br>Observations & Feedback for teachers | K-6 teachers participate in the following professional learning:<br><br>½ day launch of Writers Workshop Year 2<br>½ day incorporating grammar instruction into the workshop<br>½ day grade level determined year 2 focus<br>1 round of Lesson Study per grade level<br>Classroom model, observation, and coaching for each teacher.<br>1 day foundations of workshop for new teachers | Teachers increase their knowledge of effective writing instruction pedagogy.<br><br>**Measures:**<br>Teacher post reflective survey<br>Teacher self-assessment | Increased student-writing skills applied in multiple contexts for multiple audiences.<br><br>**Measures:**<br>Student pre/post tests<br>Observation and coaching | Increased student achievement in writing.<br><br>Increased graduation rates.<br><br>**Measures:**<br>Existing district/school data |

**Assumptions:** Change in teacher pedagogy leads to increased student learning and increased teacher efficacy.

**External Factors:** Individual teacher differences, competing educational initiatives, availability of substitute teachers, attendance due to inclement weather

# Case Study 8: Secondary English Language Arts (ELA) District Alignment Project

## Introduction

At the end of the 2018 school year, one of the NWRPDP districts welcomed a new Secondary Curriculum Director (SCD). The new SCD wanted to complete an assessment of current secondary programs and supports and to discuss how NWRPDP could continue to build a collaborative relationship with the district. One of the goals expressed by the SCD during this initial meeting was a desire to focus attention on an assessment of current English Language Arts (ELA) practices and student data in order to improve student achievement on standardized state and district assessments. In collaboration with the SCD, a draft of a long-term plan was developed to 1) increase awareness across the district and align instructional expectations for instructional practices, 2) standardize processes for high school ELA Department Leads to disseminate common information, cultivate community, discuss current practices, and review assessment data, and 3) align common curriculum pacing guides for ELA instruction across the district. The goal of this case study was for ELA Department Leads to engage in the first steps of what has become a multi-year plan aimed at increasing student achievement on ELA assessments. Initial steps during this first year have been focused on cultivating a climate of rapport and respect amongst the Department Leads through a book study analysis of best practices in the ELA classroom and to develop a common 9-12 curriculum pacing guide.

## Instructional Context

The SCD requested that all five of the ELA Department Leads from each of the five district high schools participate in a year-long cohort. The SCD also participated as a member of the cohort. The group met five times over the course of the school year. Each of the participants teaches multiple grade levels. The five high schools in this district are considered rural. Demographics for students enrolled in the district demonstrate 37% ethnic diversity and percentages of students in special populations including 437 English Learners and 1,113 IEP students. However, demographics can be significantly different at individual sites.

General evaluation of district ELA assessments indicated that there was room for improvement for students. Additionally, the need for a common a curriculum map indicated that there were possibly inconsistencies in the use of research-based best practices.

## Initial Data and Planning

In partnership with the district SCD, a multi-year professional learning plan that focused on improvement in student achievement and ELA scores was developed. Two NWRPDP facilitators collaborated with the SCD and the NWRPDP Director to brainstorm and develop a learning

model and process to guide the review of current instructional practices, the alignment of curriculum to research-based best practices, and the development of a common 9-12 district ELA curriculum pacing guide during this first year. In order to accomplish such collaborative work, one of the primary goals was to first develop a positive climate and build rapport and respect amongst the members of the group and with the SCD. The SCD wanted to ensure transparency regarding motivations, goals, and plans moving forward. Therefore, focusing on building positive relationships and a safe space to discuss was imperative.

The first year was designed around strategies to build community and Teacher Leadership. A book study of *180 Days* by Kelly Gallagher and Penny Kittle and the *Quickwrite Handbook* by Linda Reif explored best practices and led to a collaborative effort to develop a general 9-12 curriculum pacing guide. During the five meetings, formative assessments were implemented which allowed the gathering of qualitative data to shift and modify the process as necessary. In addition to strategies and activities aimed at providing feedback that led to immediate shifts or changes, the NWRPDP facilitators met regularly with the SCD to discuss progress and make adjustments.

## Delivery of Services

Teachers participated in five full days of training around building rapport, clarifying goals, and exploring and participating in best reading and writing practices. Areas of foci were: offering student choice in reading and writing, using writer's notebooks, curriculum pacing and planning lessons. Recommended, award-winning young adult texts were discussed and teachers read and discussed a teen choice novel called, *I Am Still Alive* by Kate Alice Marshall. Teachers also collaborated to create a district pacing guide for High School English. Connections were made to NVACS ELA standards and to the Nevada Educator Performance Framework. To conclude each day of training, instructors asked participants for feedback to guide and modify subsequent trainings.

## Results and Reflection

Data was collected in the form of survey ratings and question responses. Participants were asked to evaluate the overall effectiveness of the training on a 1-5 scale. Table 1 below represents the average of the participants' evaluation on each item. The averages indicate that participants viewed the course as very effective in all areas of the training with no rating below 4.67 out of 5.0. Especially high was the 5.0 rating for Responsiveness to Participants. This likely reflects the positive response to frequent and regular feedback elicited by the instructors during each training.

**Table 1. Training Effectiveness Ratings. 1- Not Effective, 5- Very Effective**

| Elements of Training | Average Rating |
|---|---|
| Organization and preparation | 4.83 |
| Style and Delivery | 4.67 |
| Responsiveness to Participants | 5 |
| Creating a Learning Environment | 4.83 |
| Content of the Trainings | 4.83 |

The survey results in Table 2 below reflect pre- and post-assessment feedback about teacher learning around specific Nevada Academic Reading Standards. Questions were also asked about specific areas of reading and writing strategies.

**Table 2: Pre- and Post-Assessment Feedback**

| Question | Knowledge Before | Knowledge After | Change | Significance |
|---|---|---|---|---|
| 1. Offer student choice in reading selection and writing topics | 3.33 | 4.67 | +1.34 | .001* |
| 2. Book Talks and Teacher's Role as a Reader | 1.83 | 5 | +3.17 | < .001* |
| 3. Using Quickwrites/ Mentor Texts for writing instruction. | 2.83 | 4.83 | +2.00 | .003* |
| 4. Lyon County School District ELA Pacing Guide | 2.50 | 4.50 | +2.00 | .003* |
| 5. Activities to support implementing curricula for NVACS in ELA Reading/Writing Standards. | 3.33 | 4.67 | +1.34 | .025* |

*Statistically significant growth in all areas.

Results from the pre- and post-reflection survey reveal that all areas measured had statistically significant improvements as a result of the trainings. The greatest area of growth was shown in incorporating book talks into instruction and the importance of a teacher's role as a reader. Qualitative data was also collected in the form of responses to the following question: Which aspect of the trainings was most helpful to you? Representative remarks appear below showing appreciation for collaboration and open communication.

- The best part of the training was the comradery and team work. I felt more valued as a professional than in previous trainings. I felt listened to and supported and was given the opportunity to truly collaborate with colleagues.
- I appreciate that the voices of us as department heads and our teachers have been heard and are valued. Real collaboration around content and strategies has been invaluable to me.
- I appreciated the flexibility and open communication of these meetings. The facilitators were open to our needs and suggestions and really let these meetings grow organically as we needed them to.

The teachers were also surveyed about the likelihood of using training information in the future and its affect on students. The teachers were asked to rate each of the statements on a Likert scale of 1= Very Unlikely to 5= Very Likely. No average response was below 4.5, indicating that teachers intend to use the information in the future, that the training was valuable, and that student gained conceptual understanding and enjoyment of learning from the teachers' use of training strategies (See Table 3).

**Table 3: Future Use of Training Information**

| Questions | Mean |
|---|---|
| I intend to use the information from this training now and in the future within my classroom. | 5 |
| Do you feel this training was valuable to you | 5 |
| Do you feel your students enjoyed and gained quality conceptual understanding from the strategies learned | 4.5 |

Additionally, teachers wrote the following comments about the quality of the class:

- Thank you. What fun I have had…I feel like a better teacher and refreshed.
- The trainings were so great! I left each time feeling excited to teach ELA again.
- I have been excited to implement the new strategies and approaches to my teaching.

## Conclusion

The data collected indicate that learning and practicing reading strategies, exploring the idea of quick writes and writer's workshop, selecting and discussing mentor texts, and collaborating with others had a significant impact on teacher implementation. Teachers felt that strategies supported students' ability to successfully write routinely over extended as well as shorter time frames and to multiple audiences. Participants appreciated resources and time to work with their peers. Written responses indicated that teachers intended to use the information from the trainings within their classrooms and that students gained quality conceptual understanding from the strategies implemented. Teachers requested further training in the areas of developing

reading stamina and passion in adolescent readers. This information will provide specific context in development of the next steps in this district's long-term plan.

## References and Resources

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Reif, L. (2018). *The quickwrite handbook: 100 mentor texts to jumpstart your students' thinking and writing*. Portsmouth, NH: Heinemann.

**Case Study 8: Secondary English Language Arts (ELA) District Alignment Project - Logic Model**

**Situation:** HS Department Leads will gather to begin the collaborative study of current ELA practices and procedures across the district in order to make suggestions for the development of a common curriculum map and alignment to best practices for colleagues and the district.

| Inputs | Outputs | | Outcomes – Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| Resources (Research, videos, book study)<br><br>Facilitators<br><br>Participants<br><br>Training spaces & dates | Five Meetings during the school year<br><br>Engage in relationship building activities<br><br>Gather information on current scope and pacing at each HS and develop common curriculum maps<br><br>Read and apply research on best practices in ELA<br><br>Watch and analyze videos of representative teaching<br><br>Read the book *180 Days* by Kelly Gallagher & *Quick Write Handbook* by Linda Reif<br><br>Engage in book talks<br><br>Exploring writing mentor texts<br><br>Analysis of district ELA data | Department Leads from each HS (5)<br><br>District-level participation – Jim Giannotti, Monica Sanderson | Increased collective understanding around current ELA standards<br><br>Increased Collective efficacy around research-based instructional strategies<br><br>Increased understanding of current practices and levels of instruction throughout district<br><br>**Measures**<br><br>Formative feedback during workshop sessions<br><br>Post-reflective survey<br><br>Anticipation Guide (Belief Statements) | Enhanced instructional practices as identified through collective processing<br><br>Increased administrator understanding of the ELA standards<br><br>Updated district secondary ELA curriculum guides<br><br>**Measures**<br><br>Formative feedback during workshop sessions<br><br>Post-reflective survey<br><br>Curriculum Guides | Improved Tier 1 Instruction<br><br>Increased Collaborative Community among ELA teachers<br><br>Increased student learning and positive results in ELA (Reading and Writing)<br><br>Use of data to inform instruction and curriculum decisions<br><br>**Measures**<br><br>District and State student assessments<br><br>Teacher reported<br><br>Classroom Observations |

**Assumptions:** Teachers will support the ELA improvement effort**.** Pockets of excellence across the district support the Workshop Model**.** Transparency will be an important element of the project.

**External Factors:** Overcoming previous multiple initiatives fatigue.

# Case Study 9: Increasing Teacher Retention through National Board Certification

## Introduction

Increasing teacher retention through National Board Certification is a benefit for both teaching and learning in Nevada classrooms. The National Conference of State Legislatures (2011) conducted a study of levers impacting teacher retention and recruitment. In this study researchers found that retention rates were higher among National Board Certified (NBC) teachers than non-NBC teachers in the three states included in the sample. In Florida, nearly 90% of certified NBC teachers remain in the classroom, far exceeding the average 60% retention for teachers statewide. In Ohio, 52% of board-certified teachers surveyed report they plan to stay in teaching as long as they can, compared to 38% of non-NBC certified teachers. Furthermore, in a 2015 study by Cowan and Goldhaber, the authors indicate that they found evidence that Board certification is an effective signal of teacher quality based on student test scores across locales, test types, and subject areas. While National Board Certification is often seen as simply an assessment of excellent teaching and not a structured curriculum for professional learning, many teachers report that the process of National Board Certification is one of the most powerful professional learning experiences they ever engage in (Cavalluzzo, Barrow, Mokher, Geraghty, & Sartain, 2015).

## Instructional Context

A primary goal of the Northern Nevada National Board Certification (NV NBC) cohort is to recruit and retain excellent teachers for all students. The NV NBC cohort has demonstrated success with first-time certification rates between 60-75%, markedly above the national average of 47-50%. Starting in 2012, NWRPDP launched the inaugural cohort of the Northern Nevada National Board Certification Cohort (NV NBC Cohort). Since its inception, the cohort has grown from 18 (2012) Washoe County candidates to 86 (2019) candidates serving K-12 educators in all six NWRPDP districts. In 2018-19, NWRPDP is supporting 134 candidates in various stages of Board Certification (i.e. new, returning, renewal, etc.). The primary goals of the cohort are (1) elevating teacher efficacy, (2) deepening understanding of content standards, and (3) retaining effective teachers. The cohort offers monthly PLCs and workshops totaling 45 hours to study grade level/content area learning, collection of evidence, framework and structure of the process, high-cognitive demand instructional strategies, analysis and reflection on student work and teacher efficacy, formative assessment, writing from sources, research-based discussion methods, peer editing and feedback on project submissions, and cross-referencing performance with evaluations frameworks (Danielson/NEPF).

## Initial Data and Planning

The NV NBC Cohort structure was adjusted for the 2018-19 school year based on data collected at the end of the 2017-18 cycle. The evaluation data was collected from participants using both the NWRPDP evaluation form and a retrospective evaluation designed by the cohort leaders. The data offered keen insight into how the tremendous growth of the NV NBC cohort impacted teachers' perceptions of the level of support from cohort leaders and cohort structures. These findings along with anecdotal data collected from the cohort leads were used to re-imagine the cohort design. In a review of the evaluation and retrospective data, it became evident that candidates felt that (a) groupings were too large, (b) feedback was inconsistent between Candidate Support Providers (CSPs), and (c) teachers did not feel confident in their understanding of the NBC process. When triangulated with the data collected from CSPs, related themes emerged as there were concerns of feedback efficacy, lack of relationships built with candidates because groups were so large, and a general concern that teachers were not understanding all the moving pieces of the NBC process. Based on these findings and the knowledge that the cohort numbers would be even larger for 2018-19, the program lead endeavored to re-imagine how to address these concerns.

This case study explores the re-design of the NV NBC cohort and offers evidence of the impact of this restructure. The three areas where impact was targeted were (1) grouping/relationships, (2) inter-rater reliability of feedback, and (3) teacher understanding of process.

## Delivery of Services

The cohort met monthly between August and early May. With the entire portfolio submission date set by National Boards as May 15th, the structure was established to ensure that candidates had consistent support up to the end of the process. There were 10 meetings in total, three of them being full-day "JumpStarts", and seven of them being 3-hour Saturday collaborative sessions. The JumpStarts were designed by the National Education Association, modified to ensure they were meeting the engagement needs of the NV NBCT Cohort. The learning offered a deep dive into the NBC process for individual Components. The Saturday collaborative sessions were designed to offer a time to troubleshoot details of the certificates with like-certificate groups and then time was provided for candidates to read one another's work and engage individually with the Candidate Support Providers.

In order to ensure that we were responsive to the feedback of our 2017-18 NBC candidates, the following changes were made to the delivery of services:

Grouping/Relationships. Previous cohorts had been structured as whole group and occasionally broken into K-6 and 7-12 in different spaces (groups averaged from 30-60). Steps to address this concern were initiated in June 2018 by partnering with a local middle school so there was more space to break groups into small (10-15 maximum), like-certificate cohorts that would

have one consistent NBCT leader during the Certification process to build community and relationships.

Inter-rater reliability of feedback. In June 2018 a 5-hour statewide training was offered for NBC Candidate Support Providers. Six northern Nevada CSPs participated, along with eight from Las Vegas. Facilitated virtually by the northern and southern NV NBC leads, the training was focused on identifying one's own bias, using rubrics to provide feedback, and inter-rater reliability of feedback for candidates. In addition a northern CSP meeting was conducted in August prior to the cohort starting, to deepen the CSP alignment and clarify expectations and norms for cohort feedback. Finally, all writing and forms for the cohort were submitted through Google Forms this year, enabling the lead to access and review feedback provided by all CSPs, and offer suggestions regarding missed opportunities, questions, or concerns to ensure continued alignment.

Teacher understanding of process. Recognizing a difficult tension regarding Board Certification is the cumbersome nature of the process, along with the marked disequilibrium of the participants as they deeply dig into planning and assessment in their classrooms, it is difficult to fully tend to this issue without burdening the teachers with additional time out of the classroom. We planned that with the addition of eight optional full-day sessions offered between October-March, those candidates that need additional support would have access. In addition, between May and August 2018, pre-candidates were offered various suggested learning opportunities to help them prepare for the beginning of the cohort.

## Results and Reflection

The final evaluation was administered immediately following candidates' submission of their NBC Components. The post-reflective evaluation asked Candidates specifically about their perceived growth during their NBC process in five areas: 1) understanding and implementation of differentiation to meet students' needs, 2) implementation and use of formative assessment, 3) implementation and understanding of active engagement strategies, 4) participation in Professional Learning Communities, and 5) perceived impact of NBC on self-efficacy. The results from 102 participants, including new candidates, returning candidates finishing the process, advanced candidates (needing to re-take 1 or more component), and NBCTs renewing, reflect consistent growth across all of the five areas measured. Feedback on the five areas is described below.

Differentiation - 81% of participants reported that their understanding and implementation of differentiation grew, while the other 19% of participants reported that their understanding stayed the same.

Formative Assessment - 83% of participants reported that their understanding and implementation of formative assessment improved. While there were a handful of candidates that

indicated they had not grown in this area, three of them shared that their overall use had increased.

Active Engagement - Active engagement was actually the lowest area of indicated growth at 69%. However, anecdotally the CSPs shared that there is inconsistent definition of this term.

Professional Learning Communities - 26% of the teachers indicated that they already had strong Professional Learning Communities (PLCs) prior to participating in the NBC process (candidates are required to engage with PLCs to address learning needs identified in their data). We were encouraged to see that 71 of the 134 NBC candidates shared that their participation in collaboration with colleagues had increased.

Self-Efficacy – The largest area of growth was in teachers' self-efficacy. 99% of the teachers who participated in the NBC certification process indicated that they believed they had increased self-efficacy. This is notable because research has found that teachers with high levels of self-efficacy are more likely to have a positive impact on student outcomes (Henson, 2001; Galyon, Blondin, Yaw, Nalls & Williams, 2012).

Two additional questions were added to the survey: 1) Please share the part of the NBC process that was the most impactful in your classroom instruction, and 2) Are there any characteristics of the cohort/structure/program/meetings that could be improved? Responses are described below.

Question 1: Themes identified were how NBC impacted classroom practice included iterations of (a) improved reflection, (b) formative assessment,( c) collaboration, and (d) knowledge of students. In addition more than 50% of the teachers shared that videotaping themselves was very impactful and helped them re-think their instructional practice.

Question 2: Themes identified were how the cohort/program/structure/meetings could improve and included (a) having materials to candidates earlier (an unavoidable tension as NBPTS does not update materials until August. Materials are printed and distributed immediately upon released of updates), (b) differentiated grouping for those who need more help than others, (c) contradicting feedback among CSPs, and (d) a feedback system so candidates can see when their work is 'picked up' by a reader to better anticipate when it will be returned (all feedback must be returned within 10 days of submission).

Moving forward, there are still adjustments that will need to be made. There were still a handful of candidates that shared frustrations that they were receiving conflicting feedback from the CSPs. Several of the submissions from candidates who indicated these concerns were reviewed and it was found that, while there were some inconsistencies present which can be attributed to the nature of style and preferences of writing (would not impact the likelihood of certification), there were some contradictory statements made. For example, one CSP did not provide any

feedback on a section (one could make the assumption that this meant it was acceptable) while another CSP offered several comments on the same work. Another full-day training was held in June 2019 to again address these issues with a keen eye on areas where there might be some ambiguity between writing style (i.e. 'take out transitions') and requirements (i.e. 'add more evidence'). An additional adjustment to plan for is the differentiation of groups. This was attempted with "quiet rooms" where candidates could work and come to ask questions if necessary, but they were not utilized by most.

## Conclusion

In conclusion, the adjustments made to the cohort were very successful. While there were some growing pains in the past two years, this year we not one candidate reported that they did not feel as though they were given enough support. All the participants shared that their experiences were positive and they were very glad that they were a part of the cohort. With the loss of the Great Teaching and Leading Fund for the 2019-20 school year there will need to be some adjustments to size and offerings in the cohort; however, the program has built a strong and supportive community of National Board Certified Teachers eager to support candidates during the journey.

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## Case Study 9: Increasing Teacher Retention through National Board Certification - Logic Model

**Situation:** Provide professional learning and support for the implementation of the Nevada Academic Content Standards in order to develop sustainable pedagogical and content knowledge improvement for change and improvement in schools by supporting accomplished teachers. Provide professional learning opportunities for teachers and other education leaders who are interested in improving accomplished practice, and seeking a deeper understanding of the unit development and assessment process.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| Staff<br>- Funding<br>- Partnerships<br>- Facilities<br><br>Teachers and Education Leaders<br><br>WCSD Curriculum and Instruction<br><br>Nevada Institute for National Boards<br><br>Washoe Education Association<br>Nevada State Education Association<br><br>Northwest Regional Professional Development Program | - National Board Certification Cohort<br>- National Board Mentor Classes<br>- Candidate Support Provider Mentor Course Curriculum and Resources | - Northern Nevada K-12 teachers | - Increased self-efficacy regarding the NBC process<br>- Increased knowledge of pedagogical research-based discussion, formative assessment, active engagement strategies, and differentiation<br>- Increased knowledge of equitable access to high-level content and expectations for all students<br>- Increased knowledge of how to support NBC candidates during the NBC process<br>- Increased knowledge of timely and specific support for the NBC Candidate Support Providers.<br><br>**Measures:**<br>-RPDP Feedback Form, Post Reflective<br><br>-Percentage of submissions | - Increased use of research-based discussion, formative assessment, active engagement strategies, and differentiation across K-12 classrooms.<br>- Increased National Board Candidate Support and Provider Support across K-12 schools.<br>- Increased number of National Board Certification candidates across NWRPDP districts<br>- Increased adoption of content standards among participant teachers/educational leaders.<br><br>**Measures:**<br>- retrospective survey to measure ongoing impact of NBC certification on candidates classroom practice<br><br>-RPDP Feedback Form, Post Reflective | -Increase the number of National Board Certified teachers with enhanced professional capacity to support teaching and learning for students and colleagues.<br><br>-Increase the statewide alignment of National Board Certification curriculum to enhance the support of NBC Candidates and new CSP Mentors.<br><br>- Establish sustainable infrastructure that increases collaborative discourse about accomplished teaching in Nevada.<br><br>- Establish a Network of NBCTs across Nevada that increases advocacy work of teachers to improve teaching and student learning.<br><br>-Increased retention of excellent teachers. Through the process of developing teacher voice grounded in deep pedagogical and content knowledge, NBCTs will foster professional learning environments that elevate learning forward for all Nevada teacher and students.<br><br>**Measures:**<br>-Existing district data on: retention of teachers, graduation rates, teacher satisfaction and climate surveys |

**Assumptions:** Teacher training will lead to increased teaching efficacy. All participants will be available and attend training. Positive attitudes and beliefs about Professional Development and Practice. All participants will shift instructional practices.

**External Factors:** Competing district initiatives. District resources. Funding for professional development.

# Case Study 10: The Avant-Garde: A Social Studies & Literacy Cadre for K-3

## Introduction

In the introduction to the Nevada Academic Content Standards for Social Studies, the Nevada Department of Education states:

> Social studies educators are responsible for giving students the tools they need to be successful once they leave the classroom and for shaping the civic and social consciousness of the future leaders of our country. To achieve both, less focus is needed on the recall of information and more on the development of a growth mindset and a natural curiosity. The aim is to create lifelong learners who are equipped with skills and knowledge to shape our nation's democratic institutions and respond to the challenges of the future. These standards are vertically aligned with the intention of building inquiry skills and civic dispositions of students year by year, from Kindergarten through grade 12. (2018)

The desire to expand professional learning and create instructional resources for K-3 teachers that were aligned to both the Social Studies and English Language Arts standards was the impetus for creating The Avant-Garde Cadre.

## Instructional Context

Adoption of the 2018 Nevada Academic Content Standards for Social Studies (NVACS-SS) created an urgent need for instructional resources aligned to these new standards. The disciplinary skills within the NVACS-SS are closely aligned to the anchor standards of NVACS-English Language Arts. The 15 participants were selected into the cadre after submitting an application. The application helped identify K-3 teachers to expand the online instructional resource collections for social studies in grades K-3 by learning about and developing Social Studies aligned text sets, interactive read-alouds, writing tasks from readings, text pairings, and discussion lessons. The application also highlighted the importance that members of the cadre represented a wide range of schools and all grade levels in K-3. In addition, teachers had to express a willingness to not only create content based on their learning but also be dedicated to using their classroom as a lab in which to implement and reflect on these materials.

The 15 selected participants represented all four areas of the district and included Title I, Zoom, and Five-Star elementary schools which serve the diverse student population in Washoe County School District. Three kindergarten teachers, four first grade teachers, four second grade teachers, three third grade teachers, and one resource teacher were selected as cadre participants.

## Initial Data and Planning

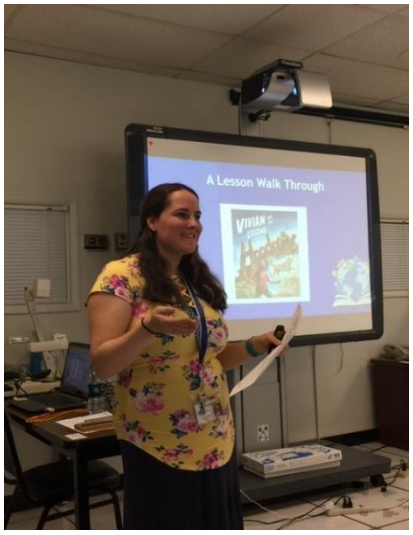
The Avant-Garde cadre was designed to take a year-long deep dive into Social Studies and English Language Arts content and instruction. Participants engaged with texts tied to social studies content and highlighted ways to teach that content with English Language Arts. Text sets, writing about reading, text pairings, and discussion lessons were developed by cadre members. There was also a guest speaker from the University to assist teachers in developing literacy strategies to support students in building vocabulary and increasing social studies content knowledge. Participants were expected to create instructional materials and teach with them in the plan, do, study, act cycle in order to vet materials with students before sharing them with other educators.

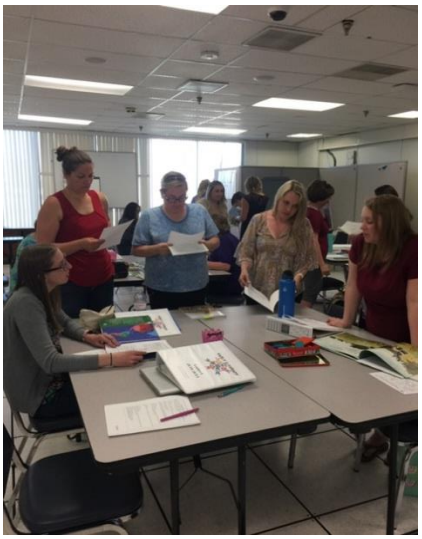
## Delivery of Services

The participants attended two full days of professional learning, one in October and the other in January. In between classes, participants created drafts of read-alouds with instructional strategies to build vocabulary and increase social studies content knowledge. These drafts were shared with facilitators who collaborated to provide feedback, assist with hyperlinking, and lesson preparation for posting online.

## Results and Reflection

A total of 24 read-aloud lessons were posted online and accessible to all K-3 educators. As teachers have utilized these lessons in their classrooms some revisions have been made to improve upon the quality of the lessons. Of the original 15 participants, 13 finished the cadre and created lessons. Six cadre participants created multiple read-aloud lessons. While creation of instructional materials was the primary purpose for the professional learning, an unanticipated outcome involved cadre participants facilitating exploration of the instructional resources they created with other elementary school teachers at two separate events. In March, two of the cadre participants shared their experiences and lessons created as part of the Avant-Garde with other elementary educators at the Northern Nevada Council for the Social Studies conference. The session highlighted the instructional resources posted online and participants engaged in a portion of a read-aloud lesson to experience the learning and reflect on how they might use the instructional materials with their students. In April, one cadre member shared her learning with 12 Literacy Cadre participants (pictured below). They engaged in a portion of a read-aloud lesson and explored the other lessons posted online (pictured below).



A retrospective survey was sent to participants in May. Nine participants responded and the results are shown in Table 1. While the scores demonstrated significant improvement in all areas. The most marked increase showed teachers increased efficacy in constructing and generating compelling questions related to supporting students' inquiry process, and their increase in content knowledge and vocabulary.

**Table 1. Participant Retrospective Findings**

| **Statement** | **Before attending** | **After attending** | ***T* score** | **Significance** |
|---|---|---|---|---|
| Using read-alouds to increase content knowledge | 2.44 | 5.00 | 7.562 | < .001 |

| Statement | Before attending | After attending | *T* score | Significance |
|---|---|---|---|---|
| Using read-alouds to increase academic vocabulary | 2.67 | 4.89 | 10.000 | < .001 |
| Constructing compelling questions to support inquiry | 1.56 | 4.44 | 26.000 | < .001 |
| Constructing/Generating supporting questions to increase content knowledge and vocabulary | 1.56 | 4.56 | 26.999 | < .001 |
| Creating opportunities for students to evaluate sources | 3.44 | 4.89 | 8.222 | < .001 |
| Designing instruction for students to develop claims and use evidence to support them | 2.78 | 3.78 | 6.000 | < .001 |
| Providing students opportunities to communicate and critique conclusions | 3.44 | 5.00 | 8.854 | < .001 |
| Designing instruction that includes purposeful opportunities for student talk in the classroom | 3.00 | 5.00 | 8.485 | < .001 |

*There was statistically significant improvement in all areas at the < .001 level.

Cadre members also were asked how participating in the Avant-garde cadre changed their social studies and English Language Arts instruction. Participants ranked themselves on a scale from 1 (very little) to 7 (completely) to assess their change in instructional practice at the end of the program. The average of 5.88 revealed a high level of instructional efficacy as a result of cadre participation.

## Conclusion

The Avant-Garde cadre participants were able to increase their knowledge of pairing texts to create instructional read-aloud resources to build students' social studies knowledge and vocabulary. They were able to integrate social studies and literacy instruction aligned to the Nevada Academic Content Standards in their lessons, and they served as teacher leaders to other educators by sharing their experience.

The collaborative design of the cadre and the intensive professional learning focused on social studies and English Language Arts integration allowed participants to create instructional resources that will be utilized and replicated by educators across the state. The model for this professional learning will be replicated in the future to support educators in increasing their instructional efficacy.

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**Case Study 10: The Avant-Garde: A Social Studies & Literacy Cadre for K-3 - Logic Model**

**Situation:** Nevada has adopted new NVACS-Social Studies. Instructional resources that match the new standards are in limited supply. Fifteen K-3 teachers will participate in a year-long cadre to design, vet, and share instructional resources aligned to NVACS-Social Studies and integrating NVACS-ELA strategies. This case study follows the cadre's creation of instructional resources and the Plan-Do-Study-Act cycle of the vetting process.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| NVACS-Social Studies<br><br>Binders, Dividers<br><br>Articles and instructional resources to support professional learning for K-3 participants<br><br>RPDP & C&I Facilitators/Coaches<br><br>University of Nevada, Reno Literacy Professor<br><br>Program Administrator<br><br>Substitutes – two sub days (10/8/18 & 1/28/19) for each of the fifteen participants<br><br>Stipends – $210 for seven hours outside contract time to create read-aloud instructional resources for K-3 educator use<br><br>Two picture books for each of the read-aloud lessons created<br><br>Site for Training | Application to participate in Avant-Garde Cadre<br><br>Two full days of professional learning for participants<br><br>Identification of picture books to build vocabulary and increase social studies content knowledge<br><br>Creation of read-aloud template to design instructional resource to support K-3 educators in teaching NVACS-Social Studies<br><br>Feedback, vetting, and editing of read-aloud instructional resources<br><br>E-mail communication<br><br>Posting instructional resources to ProjectTahoe.org | 4 Facilitators (RPDP & C&I)<br><br>University of Nevada, Reno Literacy Professor<br><br>15 K-3 teachers | Increased professional knowledge of NVACS-Social Studies and literacy strategies to build vocabulary and increase social studies content knowledge<br><br>Increased knowledge of literacy strategies to build vocabulary and increase social studies content knowledge<br><br>Increased collaboration between participants for designing instructional resources for the NVACS-Social Studies<br><br>**Measures:** Retrospective questionnaire | Increased instructional efficacy in designing instruction for NVACS-Social Studies<br><br>Increased number of NVACS-Social Studies instructional resources openly available for Nevada educators<br><br>**Measures:** Evaluations Interviews, and retrospective questionnaires | Increase in number of teachers utilizing the NVACS-Social Studies instructional resources<br><br>Increase in participants self-efficacy and effectiveness in teaching NVACS-Social Studies<br><br>Increase in students' social studies content knowledge and vocabulary acquisition<br><br>Increase is standardized test scores<br><br>Increased graduation rates<br><br>**Measures:** Participant interviews, student samples, school/district existing data |

**Assumptions:** Participants will apply to the cadre and take a year-long deep dive into SS and ELA content and instruction. We will engage with texts tied to social studies content and highlight ways to teach that content with ELA. Some participants will share their learning and experiences with other K-3 educators at the Northern Nevada Council for the Social Studies annual conference and with literacy cadre participants.

**External Factors:** Availability of substitutes, district initiative fatigue, attrition within the program.

## Case Study Self-Evaluation with Professional Learning Standards:

In 2018, the Nevada State Board of Education officially adopted the *Nevada Standards for Professional Learning* which serve as guidance and the basis for internal evaluation of NWRPDP professional learning projects. These standards are incorporated into NWRPDP planning that help staff monitor critical aspects of their professional learning implementation. NWRPDP facilitators use the standards for self-reflection and rate their case studies on each of the nine standards using a descriptive rubric. The rating scale range includes 0 (not applicable), 1 (ineffective), 2 (minimally effective), 3 (effective), and 4 (highly effective). The NWRPDP staff mean ratings of standards implementation reported below reflect the application of these standards to their case studies for the year.

**Table 1. Nevada Professional Learning Standards Case Study Self-Assessment**

| Standard | Average |
|---|---|
| LEARNING COMMUNITIES: Professional learning that increases educator effectiveness and results for all students occurs within learning communities committed to continuous improvement, collective responsibility, and goal alignment. | 3.8 |
| LEADERSHIP: Professional learning that increases educator effectiveness and results for all students requires skillful leaders who develop capacity, advocate, and create support systems for professional learning. | 3.9 |
| RESOURCES: Professional learning that increases educator effectiveness and results for all students requires prioritizing, monitoring, and coordinating resources for educator learning. | 3.8 |
| DATA: Professional learning that increases educator effectiveness and results for all students uses a variety of sources and types of student, educator and system data to pan, assess, and evaluate professional learning. | 3.8 |
| LEARNING DESIGNS: Professional learning that increases educator effectiveness and results for all students integrates theories, research, and models of human learning to achieve its intended outcomes. | 3.9 |
| IMPLEMENTATION: Professional learning that increases educator effectiveness and results for all students applies research on change and sustains support for implementation of professional learning for long-term change. | 3.7 |
| OUTCOMES: Professional learning that increases educator effectiveness and results for all students aligns its outcomes with educator performances and student curriculum standards. | 3.8 |
| EQUITY: Professional learning that increases educator effectiveness and results for all students focuses on equitable access, opportunities, and outcomes with an emphasis on addressing achievement and opportunity disparities between student groups. | 3.6 |
| CULTURAL COMPETENCY: Professional learning that increases educator effectiveness and results for all students facilitates educator's self-examination of their awareness, knowledge, skills, and actions that pertain to culture and how they can develop culturally-responsive strategies to enrich educational experiences for all students. | 3.8 |

In the 2018-19 school year, facilitators reported that their highest area of accomplishment on the Professional Learning Standards was in the area of Learning Designs (3.9). Facilitators identified that they consistently incorporated theories, research, and models of human learning into their case studies. The lowest area fell in one of the newest standards, Equity (3.6). Facilitators continue to consider what it looks like to help teachers focus on equitable access, opportunities, and outcomes with an emphasis on addressing achievement and opportunity disparities between student groups from the viewpoint of a professional learning leader.

# Appendices

# Appendix A: Overview of Regional Services 2018-19

Professional development services are reported in two formats: unduplicated counts which show how many teachers, administrators, paraprofessionals, and other educators were served in each county; and duplicated counts which reflect how many educators participated in trainings, many more than once. Tables 1 and 2 show these data in an overview format for the entire northwest region, broken down by elementary, middle, and high school for teachers. Administrator counts also are displayed along with a category of Others.

**Table 1: Unduplicated Number of Educators Trained by the NWRPDP**

| District | ES Teachers | MS Teachers | HS Teachers | Administrators | Others* | Total by District |
|---|---|---|---|---|---|---|
| Carson | 139 | 52 | 33 | 46 | 65 | 335 |
| Churchill | 52 | 36 | 39 | 6 | 11 | 144 |
| Douglas | 130 | 54 | 61 | 28 | 17 | 290 |
| Lyon | 124 | 33 | 32 | 26 | 11 | 226 |
| Storey | 4 | 4 | 1 | 0 | 0 | 9 |
| Washoe | 479 | 135 | 141 | 24 | 101 | 880 |
| Totals | 928 | 314 | 307 | 130 | 205 | 1884 |

**Table 2: Duplicated Number of Educators Trained by the NWRPDP**

| District | ES Teachers | MS Teachers | HS Teachers | Administrators | Others* | Total by District |
|---|---|---|---|---|---|---|
| Carson | 282 | 106 | 38 | 93 | 147 | 666 |
| Churchill | 70 | 92 | 83 | 8 | 10 | 263 |
| Douglas | 302 | 105 | 98 | 52 | 28 | 585 |
| Lyon | 267 | 41 | 34 | 39 | 15 | 396 |
| Storey | 4 | 5 | 1 | 0 | 0 | 10 |
| Washoe | 715 | 173 | 197 | 25 | 110 | 1220 |
| Totals | 1640 | 522 | 451 | 217 | 310 | 3140 |

*Others in Tables 1 and 2 include certified personnel who did not specify a grade level, substitutes, school counselors, district-level certified positions, and other participants such as paraprofessionals, and community members.

A total of 1,884 educators, or 32% of the approximate 5,935 educators employed in the region (as reported by each district), participated in programs provided by the NWRPDP during 2018-19 (unduplicated count). In terms of how NWRPDP participants are broken down by district, in 2018-19, 18% of participating teachers and administrators were from Carson City, 8% were from Churchill County, 15% were from Douglas County, 12% were from Lyon County, less than 1% from Storey County, and 47% from Washoe County. Many educators attended programs on more than one occasion, resulting in a total of 3,140 contacts between the NWRPDP and educators during the year (duplicated count).

## Type and Focus of Services - Regional Overview

The NWRPDP provides a variety of services for the six counties in the region. Figure 1 shows the breakdown in a visual format of the three broad types of services provided by regional trainers throughout the districts with a significant majority of services being in the form of instructional training and in-service classes for the 2018-19 school year.

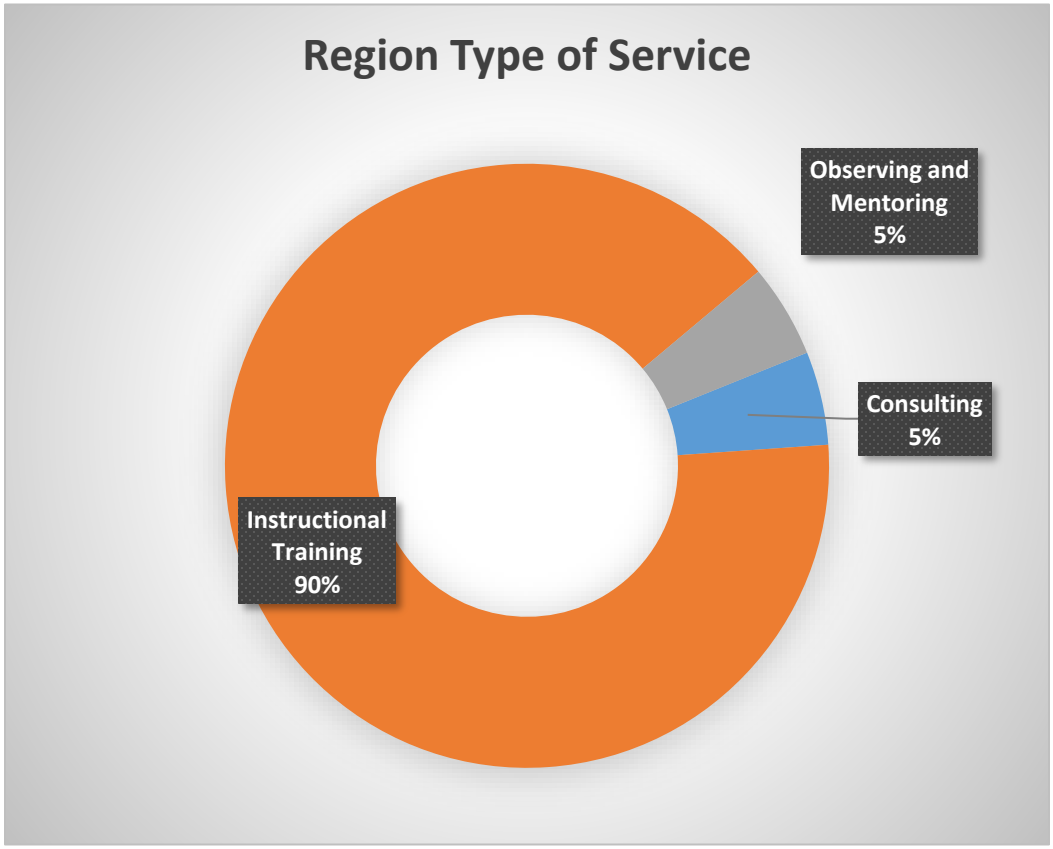


**Figure 1: Types of Services Provided by the NWRPDP**

Another measure of services is the focus of the services provided. This measure looks at the content of the services offered in the region (See Figure 2). The major areas of services provided in the region for the 2018-19 school year were NVACS trainings in areas of NVACS Math, Literacy/English, Nevada Educator Performace Framework (NEPF), Computer Science, and Social Studies. The remaining areas of focus were diverse, and included professional learning opportunities in Parent/Family Engagement, PreK-Third Grade (NELIP), Science and STEM, Computer Education and Tech, English Language Learners, and Mindset/SEL.

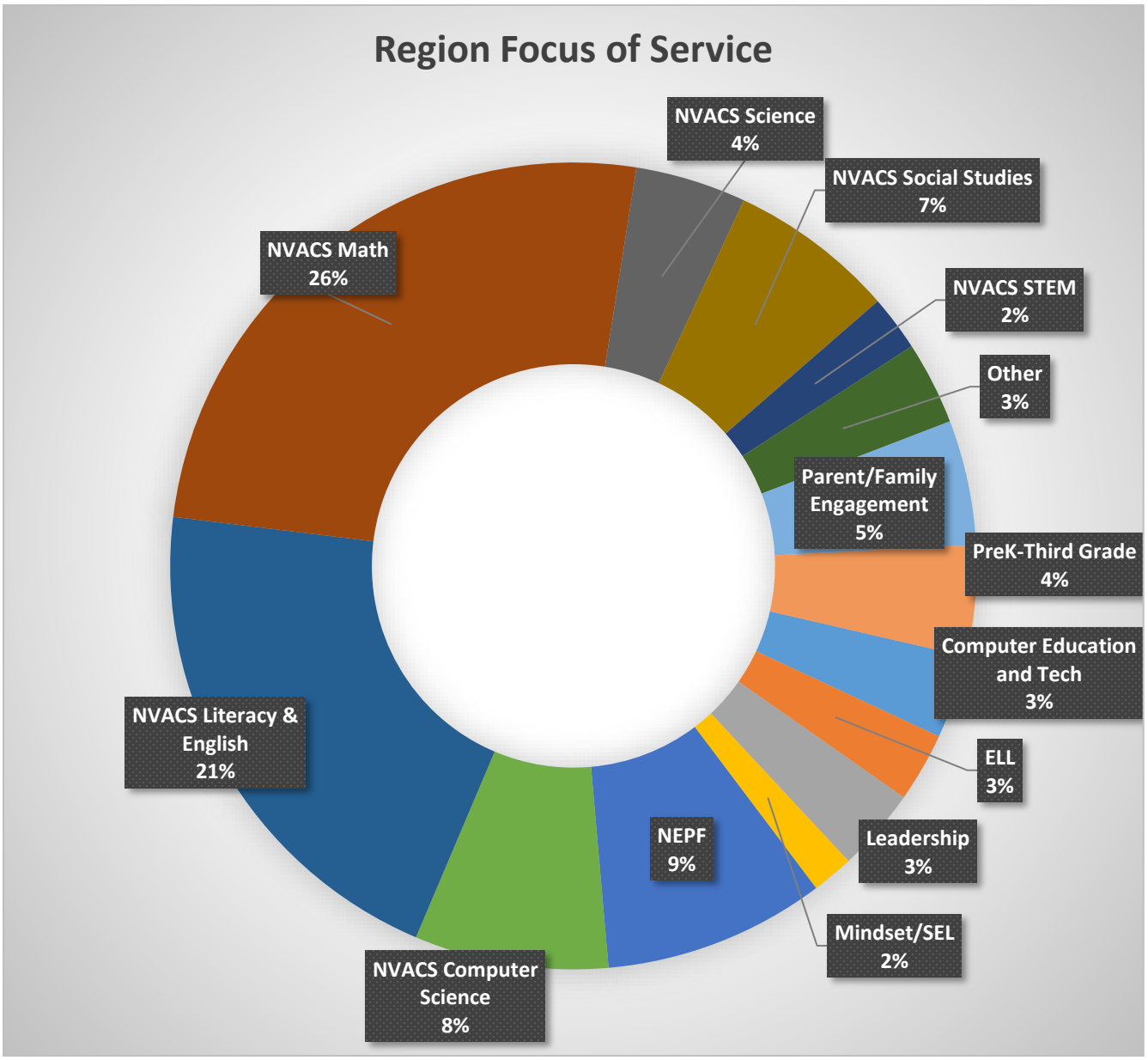


**Figure 2: Focus of Services of the NWRPDP**

# Appendix B: Carson City School District Services Summary 2018-19

**Carson City School District** has 11 schools: six elementary schools, two middle schools, one comprehensive high school, one alternative high school, and one charter school. Carson has 7% of the schools in the NWRPDP Region, which includes 154 schools. Two full-time learning facilitators are housed in Carson.

Training focused mainly on the Nevada Academic Content Standards in Literacy/English, the Nevada Educator Performance Framework, Math, Computer Science, and Social Studies. Other professional learning included Science and STEM and Mindset/SEL.

**Participant Mean Ratings on Quality of RPDP Trainings**

| *(Scale: 1 = not at all, 3 = to some extent, 5 = to a great extent)* | CCSD | Region |
|---|---|---|
| The activity matched my needs | 4.65 | 4.58 |
| The activity provided opportunities for interactions and reflections | 4.80 | 4.80 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.80 | 4.81 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.84 | 4.80 |
| The presenter/facilitator modeled effective teaching strategies. | 4.75 | 4.78 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.66 | 4.62 |
| The activity will improve my teaching skills. | 4.90 | 4.72 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.75 | 4.71 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.69 | 4.63 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 139 | 282 |
| MS Teachers | 52 | 106 |
| HS Teachers | 33 | 38 |
| Administrators | 46 | 93 |
| Others | 65 | 147 |
| Totals | 335 | 666 |

Carson educators were 18% of the educators served in the region (Using the unduplicated regional count of 1,884 educators).

**Overall Regional Learning Facilitator (LF) Productivity:**

- LFs spent 1,192 hours planning for CCSD interactions.
  This was 24% of the total planning time (4,935 hours).

- LFs spent 1,066.5 hours in interactions with CCSD employees.
  This was 25% of total interaction time (4,230 hours).
- Overall, LFs spent 25% of their time working with educators in CCSD.
- LFs spent approximately 5.5% of their time working with the Nevada Department of Education and other state committees in support of the Nevada Academic Content Standards.

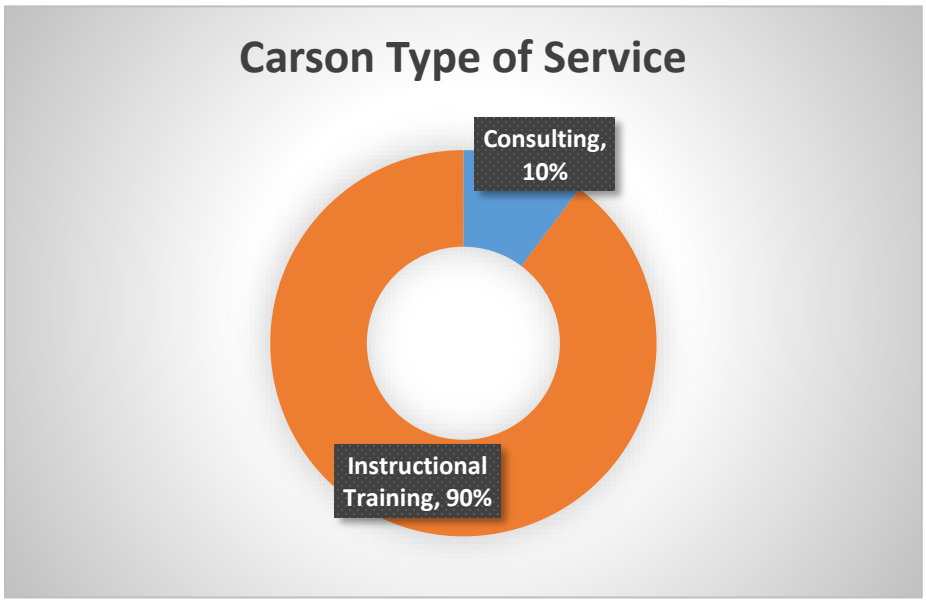


**Figure 1: Types of Services Provided**

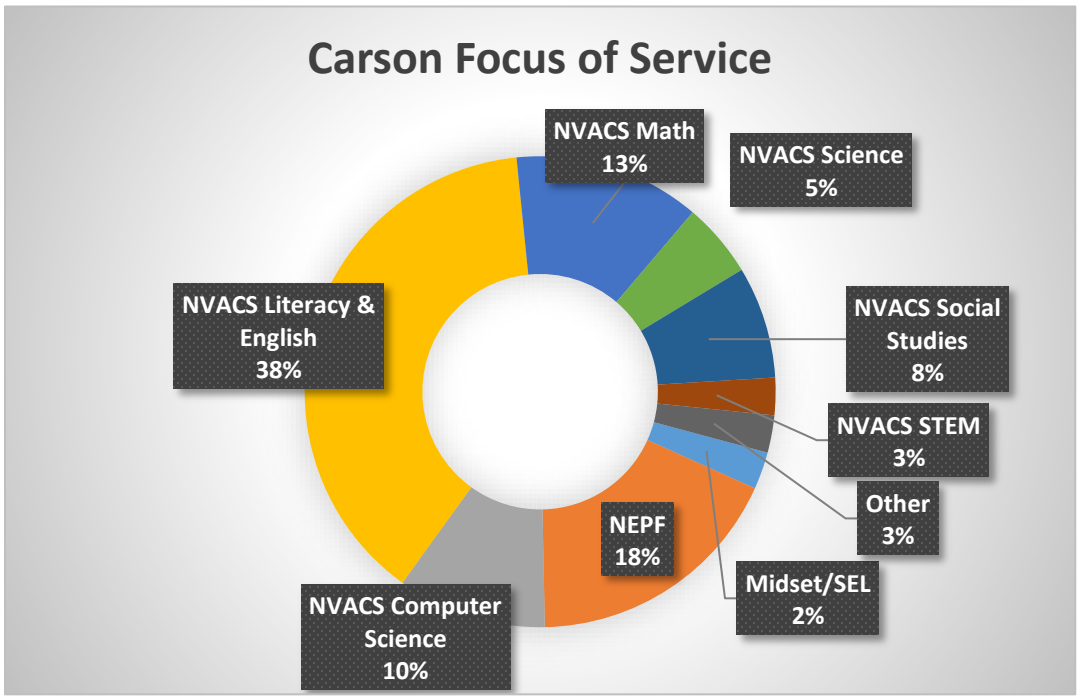


**Figure 2: Focus of Services**

# Appendix C: Churchill County School District Services Summary 2018-19

**Churchill County School District** has six schools: one Pre-K school, one Kindergarten-First grade school, one school for grades two-three, one school for grades four-five, one middle school, and one comprehensive high school. Churchill has 4% of the schools in the NWRPDP Region, which includes 154 schools.

Primary areas supported by regional learning facilitators this year were the Nevada Academic Content Standards in Math, STEM, and Computer Science followed by Science, Parent and Family Engagement, PreK-Third Grade support, and the Nevada Educator Performance Framework, Mindset/SEL, and NVACS in Literacy/English.

**Participant Mean Ratings on Quality of RPDP Trainings**

| *(Scale: 1 = not at all, 3 = to some extent, 5 = to a great extent)* | ChCSD | Region |
|---|---|---|
| The activity matched my needs | 4.43 | 4.58 |
| The activity provided opportunities for interactions and reflections | 4.67 | 4.80 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.70 | 4.81 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.64 | 4.80 |
| The presenter/facilitator modeled effective teaching strategies. | 4.64 | 4.78 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.50 | 4.62 |
| The activity will improve my teaching skills. | 4.59 | 4.72 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.54 | 4.71 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.42 | 4.63 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 52 | 70 |
| MS Teachers | 36 | 92 |
| HS Teachers | 39 | 83 |
| Administrators | 6 | 8 |
| Others | 11 | 10 |
| Totals | 144 | 263 |

Churchill educators were 8% of the educators trained in the region (Using the Unduplicated regional count of 1,884 educators).

**Overall Regional Learning Facilitator (LF) Productivity:**

- LFs spent 1,242 hours planning for ChCSD interactions.

This was 25% of the total planning time (4,935 hours).

- LFs spent 735 hours in interactions with ChCSD employees.
  This was 17% of total interaction time (4,230 hours).
- Overall, LFs spent 22% of their time working with educators in ChCSD.
- LFs spent approximately 5.5% of their time working with the Nevada Department of Education and other state committees in support of the Nevada Academic Content Standards.

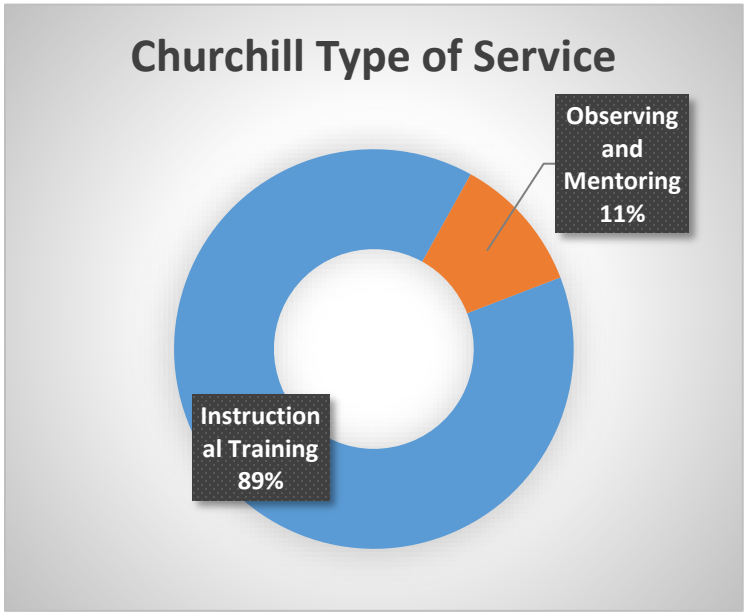


**Figure 1: Types of Services Provided**

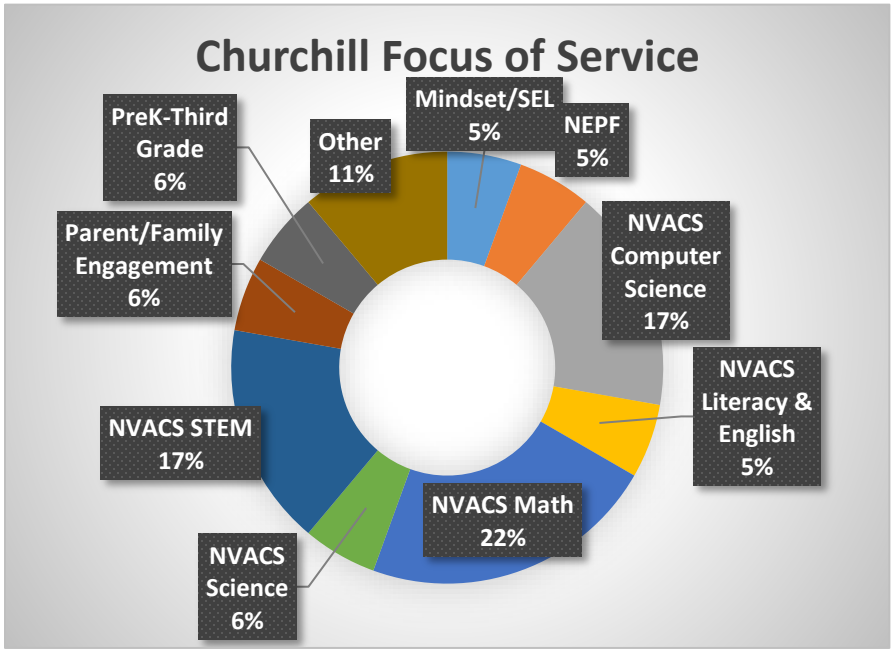


**Figure 2: Focus of Services**

# Appendix D: Douglas County School District Services Summary 2018-19

**Douglas County School District** has 14 schools: seven elementary schools, three middle schools, and four high schools. Douglas has 9% of the schools in the NWRPDP Region, which includes 154 schools. A full-time learning facilitator coordinated services for DCSD.

The majority of services provided this year were in support of the Nevada Academic Content Standards in Math followed by Computer Science and Computer Education and Technology, the Nevada Educator Performance Framework, and NVACS in Literacy/English. Professional learning was also provided in PreK-Third grade support, NVACS Science and STEM as well as Leadership and Mindset/SEL.

**Participant Mean Ratings on Quality of RPDP Trainings**

| *(Scale: 1 = not at all, 3 = to some extent, 5 = to a great extent)* | DCSD | Region |
|---|---|---|
| The activity matched my needs | 4.77 | 4.58 |
| The activity provided opportunities for interactions and reflections | 4.95 | 4.80 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 5.00 | 4.81 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.95 | 4.80 |
| The presenter/facilitator modeled effective teaching strategies. | 4.95 | 4.78 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.86 | 4.62 |
| The activity will improve my teaching skills. | 4.73 | 4.72 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.95 | 4.71 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.73 | 4.63 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 130 | 302 |
| MS Teachers | 54 | 105 |
| HS Teachers | 61 | 98 |
| Administrators | 28 | 52 |
| Others | 17 | 28 |
| Totals | 290 | 585 |

Douglas educators were 15% of the educators trained in the region (Using the Unduplicated regional count of 1,884 educators).

**Overall Regional Learning Facilitator (LF) Productivity:**

- LFs spent 845 hours planning for DCSD interactions.

This was 17% of the total planning time (4,935 hours).

- LFs spent 906 hours in interactions with DCSD employees.
  This was 21% of total interaction time (4,230 hours).
- Overall, LFs spent 19% of their time working with educators in DCSD.
- LFs spent approximately 5.5% of their time working with the Nevada Department of Education and other state committees in support of the Nevada Academic Content Standards.

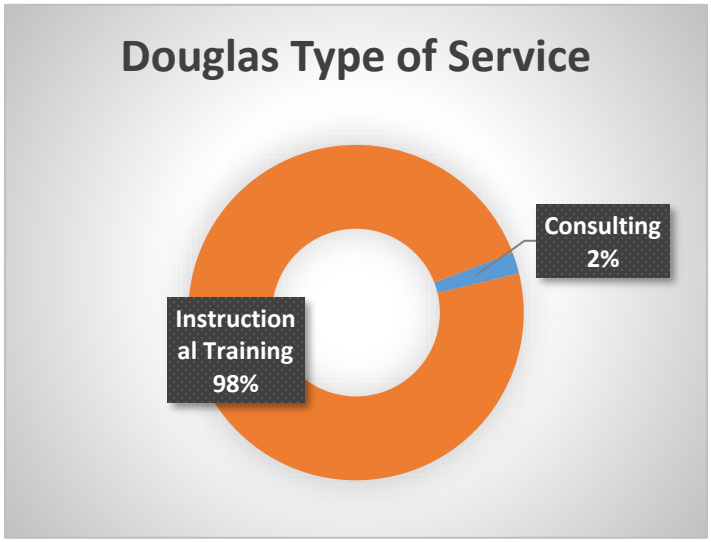


**Figure 1: Types of Services Provided**

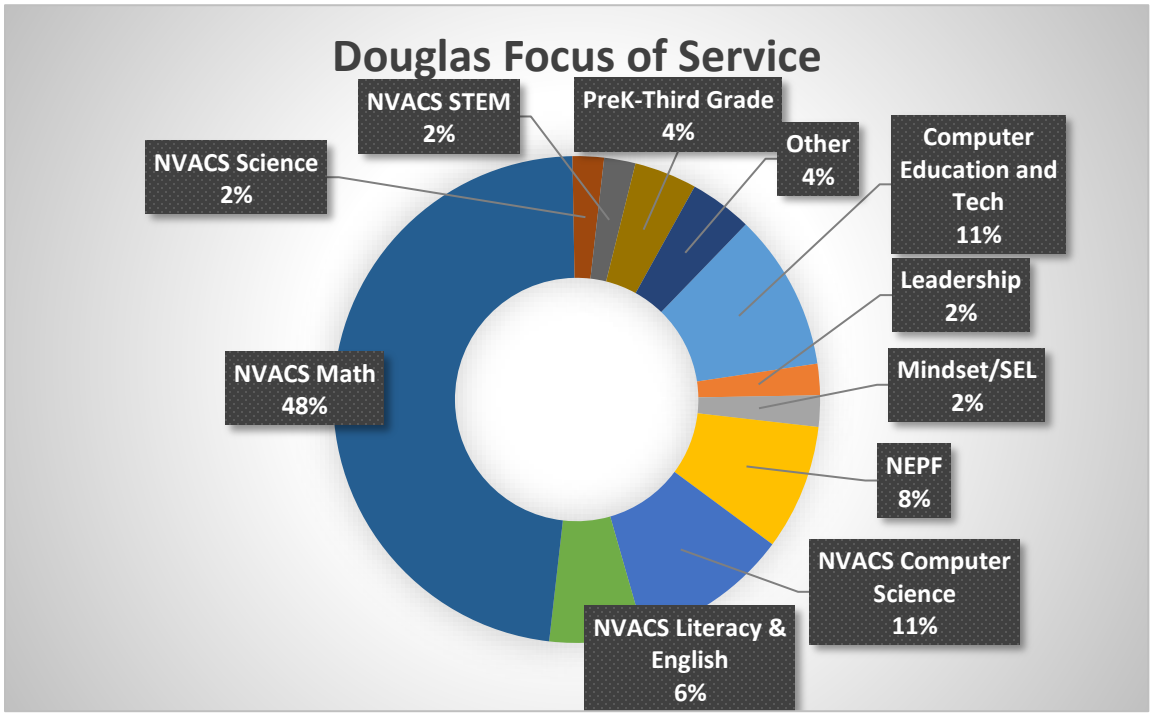


**Figure 2: Focus of Services**

# Appendix E: Lyon County School District Services Summary 2018-19

**Lyon County School District** has 17 schools in five communities (Yerington, Dayton, Fernley, Smith Valley, and Silver Springs): eight elementary schools, four intermediate schools, four high schools, one K-8 school, and one K-12 school. Lyon has 11% of the schools in the NWRPDP Region, which includes 154 schools. A full-time learning facilitator coordinated services for LCSD.

The majority of services provided this year were in support of the Nevada Academic Content Standards in Math and English Language Learners followed by NVACS Literacy/English, Science, and Parent and Family Engagement as well as the Nevada Educator Performance Framework, Computer Science and Computer Education and Technology, and STEM.

**Participant Mean Ratings on Quality of RPDP Trainings**

| *(Scale: 1 = not at all, 3 = to some extent, 5 = to a great extent)* | LCSD | Region |
|---|---|---|
| The activity matched my needs | 4.65 | 4.58 |
| The activity provided opportunities for interactions and reflections | 4.84 | 4.80 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.83 | 4.81 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.76 | 4.80 |
| The presenter/facilitator modeled effective teaching strategies. | 4.76 | 4.78 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.67 | 4.62 |
| The activity will improve my teaching skills. | 4.75 | 4.72 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.76 | 4.71 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.74 | 4.63 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 124 | 267 |
| MS Teachers | 33 | 41 |
| HS Teachers | 32 | 34 |
| Administrators | 26 | 39 |
| Others | 11 | 15 |
| Totals | 226 | 396 |

Lyon educators were 12% of the educators trained in the region (Using the Unduplicated regional count of 1,884 educators).

**Overall Regional Learning Facilitator (LF) Productivity:**

- LFs spent 1,512 hours planning for LCSD interactions.

This was 31% of the total planning time (4,935 hours).

- LFs spent 1,098 hours in interactions with LCSD employees.
  This was 26% of total interaction time (4,230 hours).
- Overall, LFs spent 28.5% of their time working with educators in LCSD.
- LFs spent approximately 5.5% of their time working with the Nevada Department of Education and other state committees in support of the Nevada Academic Content Standards.

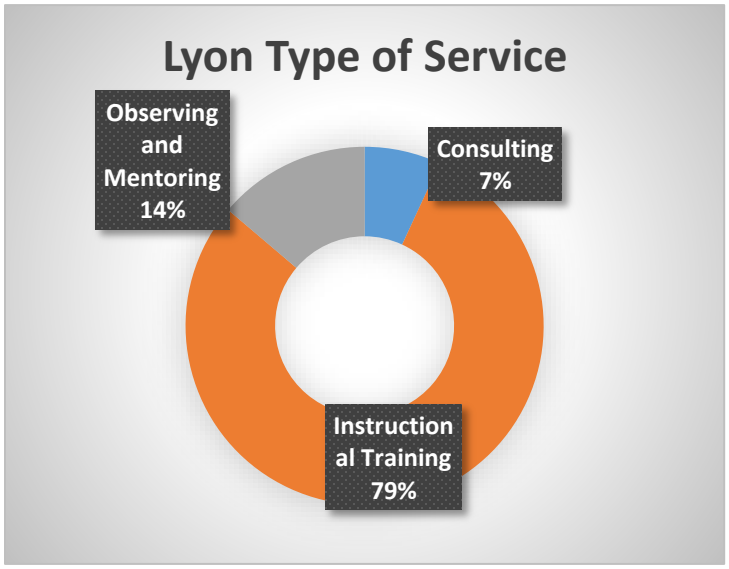


**Figure 1: Types of Services Provided**

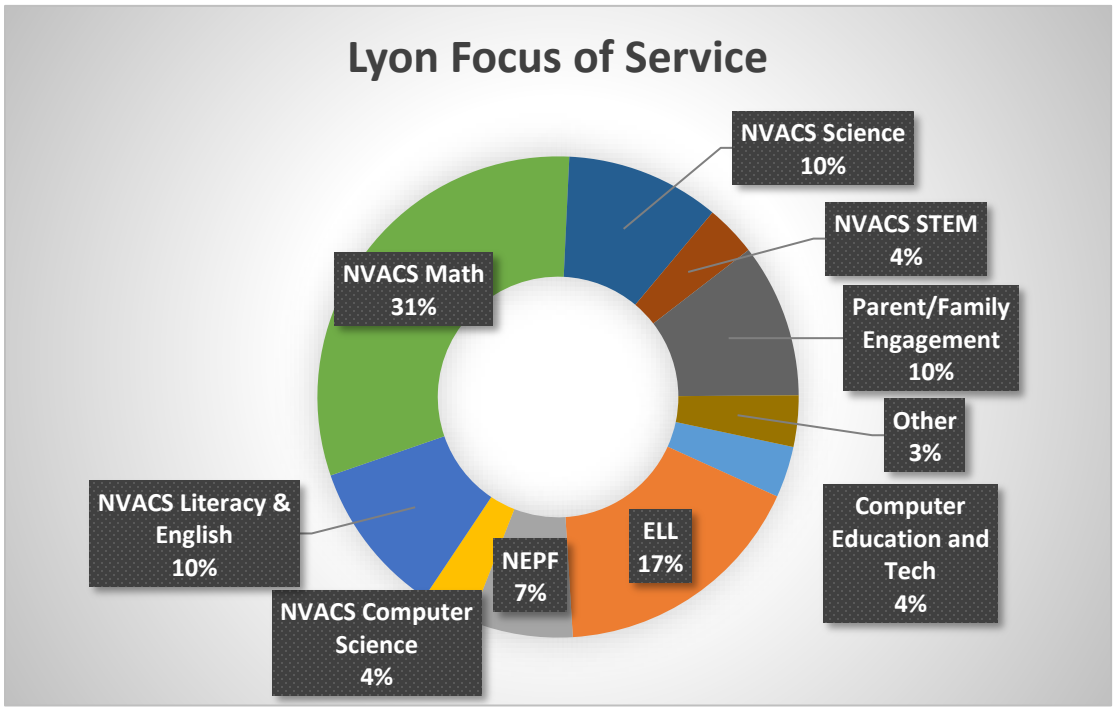


**Figure 2: Focus of Services**

# Appendix F: Storey County School District Services Summary 2018-19

**Storey County School District** has four schools: two elementary schools, one middle school, and one high school. One administrator was dedicated to organizing professional development this year. Storey has less than 3% of the schools in the NWRPDP Region, which includes 154 schools.

SCSD received services in support of the Nevada Academic Content Standards in Math and Science followed by Literacy/English and STEM.

**Participant Mean Ratings on Quality of RPDP Trainings**

| *(Scale: 1 = not at all, 3 = to some extent, 5 = to a great extent)* | SCSD | Region |
|---|---|---|
| The activity matched my needs | 4.50 | 4.58 |
| The activity provided opportunities for interactions and reflections | 5.00 | 4.80 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 5.00 | 4.81 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 5.00 | 4.80 |
| The presenter/facilitator modeled effective teaching strategies. | 5.00 | 4.78 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.50 | 4.62 |
| The activity will improve my teaching skills. | 4.50 | 4.72 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 5.00 | 4.71 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 5.00 | 4.63 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 4 | 4 |
| MS Teachers | 4 | 5 |
| HS Teachers | 1 | 1 |
| Administrators | 0 | 0 |
| Others | 0 | 0 |
| Totals | 9 | 10 |

Storey educators were <1% of the educators trained in the region (Using the Unduplicated regional count of 1,884 educators).

**Overall Regional Learning Facilitator (LF) Productivity:**

- LFs spent 579 hours planning for SCSD interactions.
  This was 12% of the total planning time (4,935 hours).
- LFs spent 186.5 hours in interactions with SCSD employees.

This was 4% of total interaction time (4,230 hours).

- Overall, LFs spent 8% of their time working with educators in SCSD.
- LFs spent approximately 5.5% of their time working with the Nevada Department of Education and other state committees in support of the Nevada Academic Content Standards.

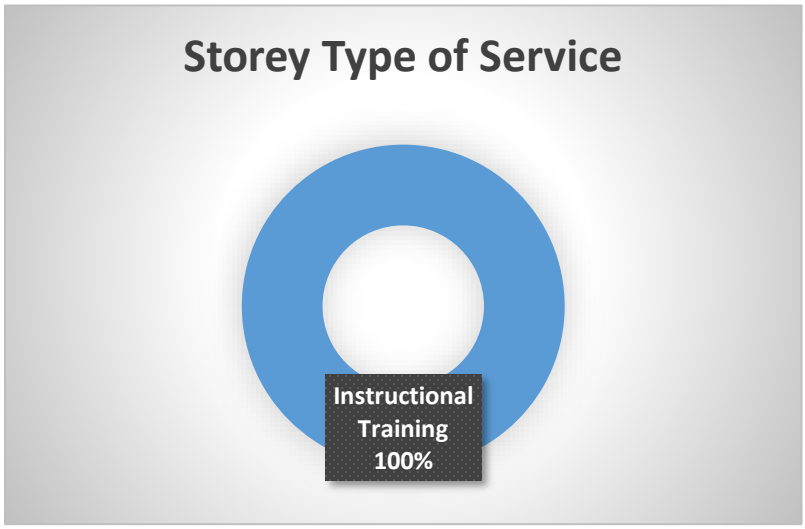


**Figure 1: Types of Services Provided**

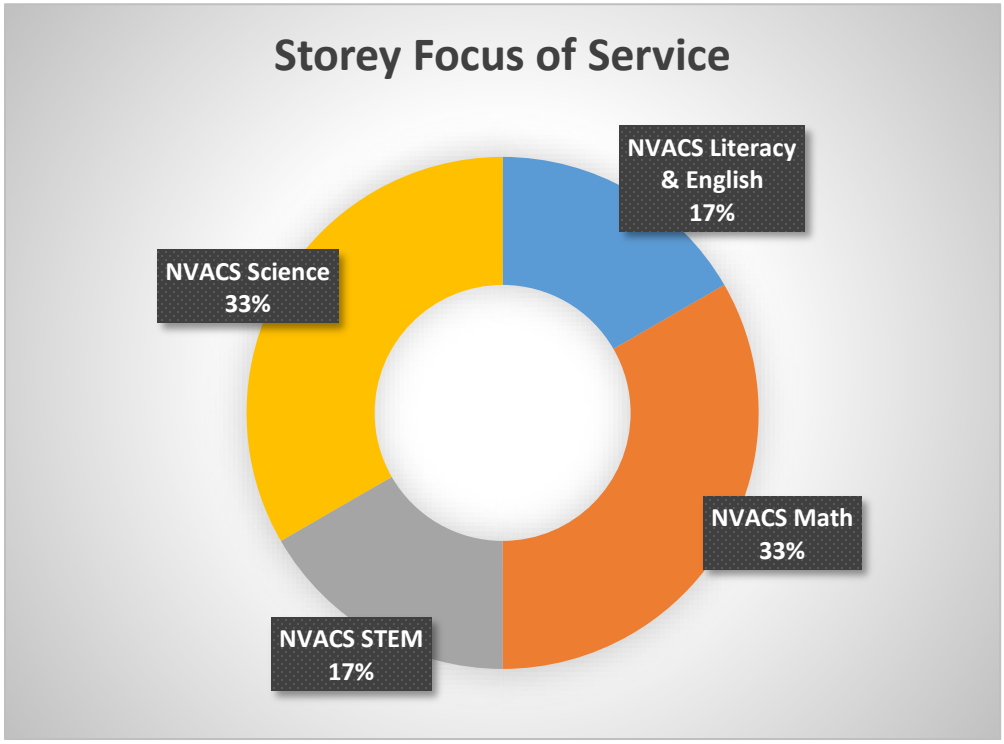


**Figure 2: Focus of Services**

# Appendix G: Washoe County School District Services Summary 2018-19

**Washoe County School District** is the largest school district in the region with 102 schools: 62 elementary schools, 15 middle schools, 15 high schools, two schools for special populations, and eight charter schools. Washoe has 66% of the schools in the NWRPDP Region, which includes 154 schools.

The majority of services provided this year were in support of the Nevada Academic Content Standards in Literacy/English, Social Studies, and Math followed by Science, Leadership, Parent and Family Engagement, PreK-Third Grade (NELIP), and STEM as well as Computer Science and the Nevada Educator Performance Framework.

**Participant Mean Ratings on Quality of RPDP Trainings**

| *(Scale: 1 = not at all, 3 = to some extent, 5 = to a great extent)* | WCSD | Region |
|---|---|---|
| The activity matched my needs | 4.51 | 4.58 |
| The activity provided opportunities for interactions and reflections | 4.79 | 4.80 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.82 | 4.81 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.78 | 4.80 |
| The presenter/facilitator modeled effective teaching strategies. | 4.81 | 4.78 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.58 | 4.62 |
| The activity will improve my teaching skills. | 4.60 | 4.72 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.67 | 4.71 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.55 | 4.63 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 479 | 715 |
| MS Teachers | 135 | 173 |
| HS Teachers | 141 | 197 |
| Administrators | 24 | 25 |
| Others | 101 | 110 |
| Totals | 880 | 1220 |

Washoe educators were 47% of the educators trained in the region (Using the Unduplicated regional count of 1,884 educators).

**Overall Regional Learning Facilitator (LF) Productivity:**

- LFs spent 2,208 hours planning for WCSD interactions.
  This was 45% of the total planning time (4,935 hours).

- LFs spent 1603.5 hours in interactions with WCSD employees. This was 38% of total interaction time (4,230 hours).
- Overall, LFs spent 42% of their time working with educators in WCSD.
- LFs spent approximately 5.5% of their time working with the Nevada Department of Education and other state committees in support of the Nevada Academic Content Standards.

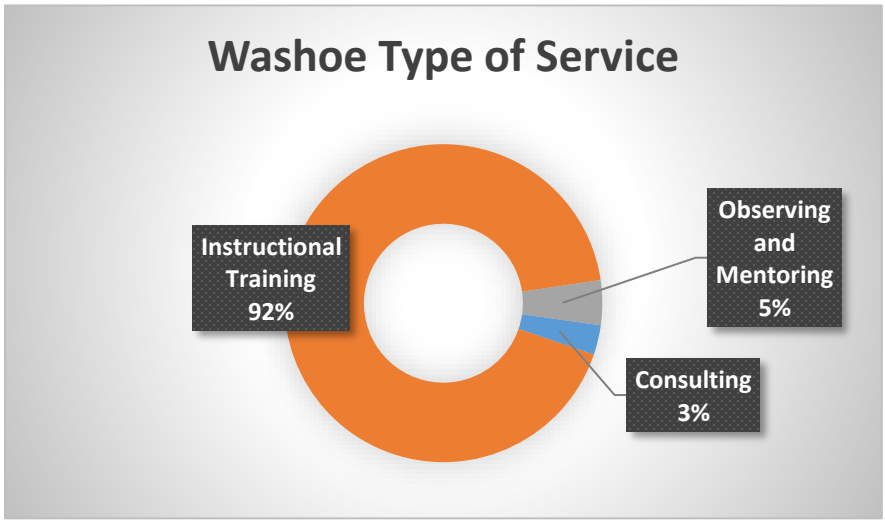


**Figure 1: Types of Services Provided**

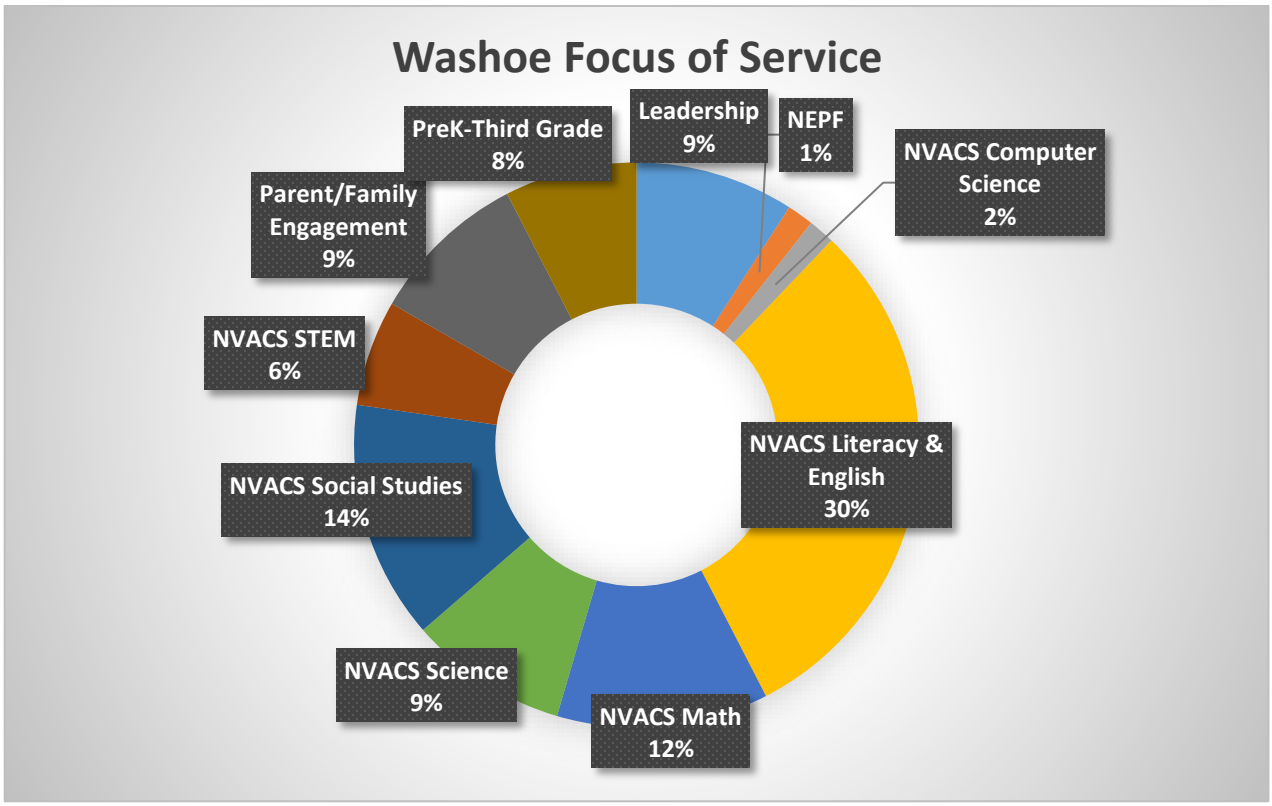


**Figure 2: Focus of Services**