
# NWRPDP

## Northwestern Nevada Regional Professional Development Program

**2019-2020 Annual Report**
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# 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).

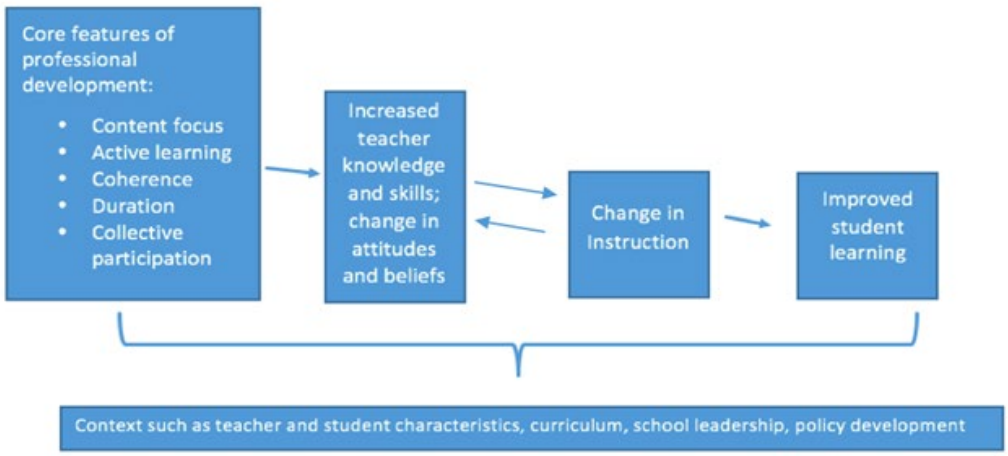



***Figure 1:*** *Conceptual Framework for Studying Effects of Professional Development on Teachers and Students*

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)** | **2019-20** |
|---|---|
| 1. The training matched my needs. | 4.55 |
| 2. The training provided opportunities for interactions and reflections. | 4.73 |

| RPDP State Approved Evaluation (5-point scale) | 2019-20 |
|---|---|
| 3. The presenter's/facilitator's experience and expertise enhanced the quality of the training. | 4.78 |
| 4. The presenter/facilitator efficiently managed time and pacing of activities. | 4.78 |
| 5. The presenter/facilitator modeled effective teaching strategies. | 4.72 |
| 6: This training added to my knowledge of standards and/or my subject matter content. | 4.59 |
| 7. This training will improve my teaching skills. | 4.60 |
| 8. I will use the knowledge and skills from this training in my classroom or professional duties. | 4.70 |
| 9. This training will help me meet the needs of diverse student populations. | 4.49 |

*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 by Number and Percentage

| | *Aggregate* | *Carson* | *Churchill* | *Douglas* | *Lyon* | *Storey* | *Washoe* |
|---|---|---|---|---|---|---|---|
| ***Total Trainings*** | **495** | **75** | **78** | **50** | **35** | **45** | **132** |
| *Instructional* | 176 (36%) | 11 (15%) | 16 (21%) | 39 (78%) | 18 (51%) | 3 (7%) | 55 (42%) |
| *Observation and Mentoring* | 96 (19%) | 12 (16%) | 11 (14%) | 1 (2%) | 8 (23%) | 33 (73%) | 26 (20%) |
| *Consulting* | 222 (45%) | 52 (69%) | 51 (65%) | 10 (20%) | 9 (26%) | 9 (20%) | 50 (38%) |

Note: Aggregate total trainings equals the total of all 2019-2020 NWRPDP trainings. Because some trainings are offered to charter schools, multiple counties, or statewide, the aggregate total will exceed the total of all the six districts shown.

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*** | **5,807** | **498** | **187** | **349** | **553** | **36** | **4,184** |
| *Unduplicated Teachers* | 1817 | 246 | 140 | 402 | 292 | 37 | 700 |
| *Duplicated Teachers* | 3588 | 428 | 360 | 1035 | 536 | 109 | 1120 |
| ***Total Regional Administrators*** | **536** | **36** | **11** | **28** | **47** | **5** | **409** |
| *Unduplicated Administrators* | 133 | 23 | 16 | 20 | 39 | 4 | 31 |
| *Duplicated Administrators* | 326 | 52 | 72 | 36 | 81 | 17 | 68 |

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* | 133 | 23 | 16 | 20 | 39 | 4 | 31 |
| *Duplicated Administrators* | 326 | 52 | 72 | 36 | 81 | 17 | 68 |

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* | 1 | 0 | 0 | 1 | 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* | 163 | 12 | 3 | 0 | 30 | 0 | 115 |
| *Duplicated Teachers* | 168 | 12 | 4 | 0 | 31 | 0 | 118 |

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* | 38 | 1 | 0 | 20 | 5 | 1 | 8 |

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*** | **495** | **75** | **78** | **50** | **35** | **45** | **132** |
| *NVACS* | 385 (78%) | 61 (81%) | 49 (63%) | 43 (86%) | 33 (94%) | 25 (56%) | 108 (82%) |
| *NEPF* | 296 (60%) | 33 (44%) | 57 (73%) | 31 (62%) | 28 (80%) | 22 (49%) | 82 (62%) |
| *Culturally Relevant Pedagogy* | 98 (20%) | 2 (3%) | 13 (17%) | 12 (24%) | 10 (29%) | 8 (18%) | 35 (27%) |

Note: Aggregate total trainings equals the total of all 2019-2020 NWRPDP trainings. Because some trainings are offered to charter schools, multiple counties, or statewide, the aggregate total will exceed the total of all the six districts shown. The proportions of NVACS, NEPF, and Culturally Relevant Pedagogy will not add to an even 100% because there were other types of trainings included in the total. The percentages may also exceed 100% since some trainings covered both NEPF and NVACS content.

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 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 6,343 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 460 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 evaluation training 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 (2019-21)**
**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 2019-21**: $2,271,342.00

## 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 2019-21 biennium.

- NVACS K-12 Computer Science Standards implementation to include:
    - With support from SB313, 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.
    - In collaboration with NDE, NWRPDP hosted a Computer Science Summit in February 2020.
- 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.
- Deepening Literacy 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.
- 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.
        - A two-credit course was led by RPDP staff on the implementation of the Mathematical Practices to elementary teachers and two administrators.

        - 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. A select group of math leaders presented at the Middle School Math conference along with RPDP staff.
        - 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, high-level collaborative problem solving, and differentiation.
        - Participation in district math benchmark implementation and analysis of results. Supported grade level team implementation through coaching, planning, and data analysis.
- Master Lead Teacher Project
    - Collaboration with Washoe County School District and the University of Nevada Reno in a new model for the student teaching experience.
    - This program partnered university student interns with district teacher leaders to provide a comprehensive and supportive field experience in order to address teacher retention rates. The teacher leaders were identified through the district's teacher leadership pool, National Boards Certification, and/or engaging in the two-year teacher leader professional learning cohort offered by NWRPDP.
- 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 workshops using standards-based materials.
    - 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 2019-20 school year, NWRPDP was award the Great Teaching and Leading Fund (GTLF) grant funds on January 30, 2020 by the Nevada State Board of Education. A total amount of $77,762.00 was granted to the NWRPDP to provide extended support for Teacher Leaders Development and National Board Certification (NBC) project. Although NWRPDP was granted this award, the funds were not released prior to the COVID-19 pandemic. The money could not be used and was held within the Department of Education.

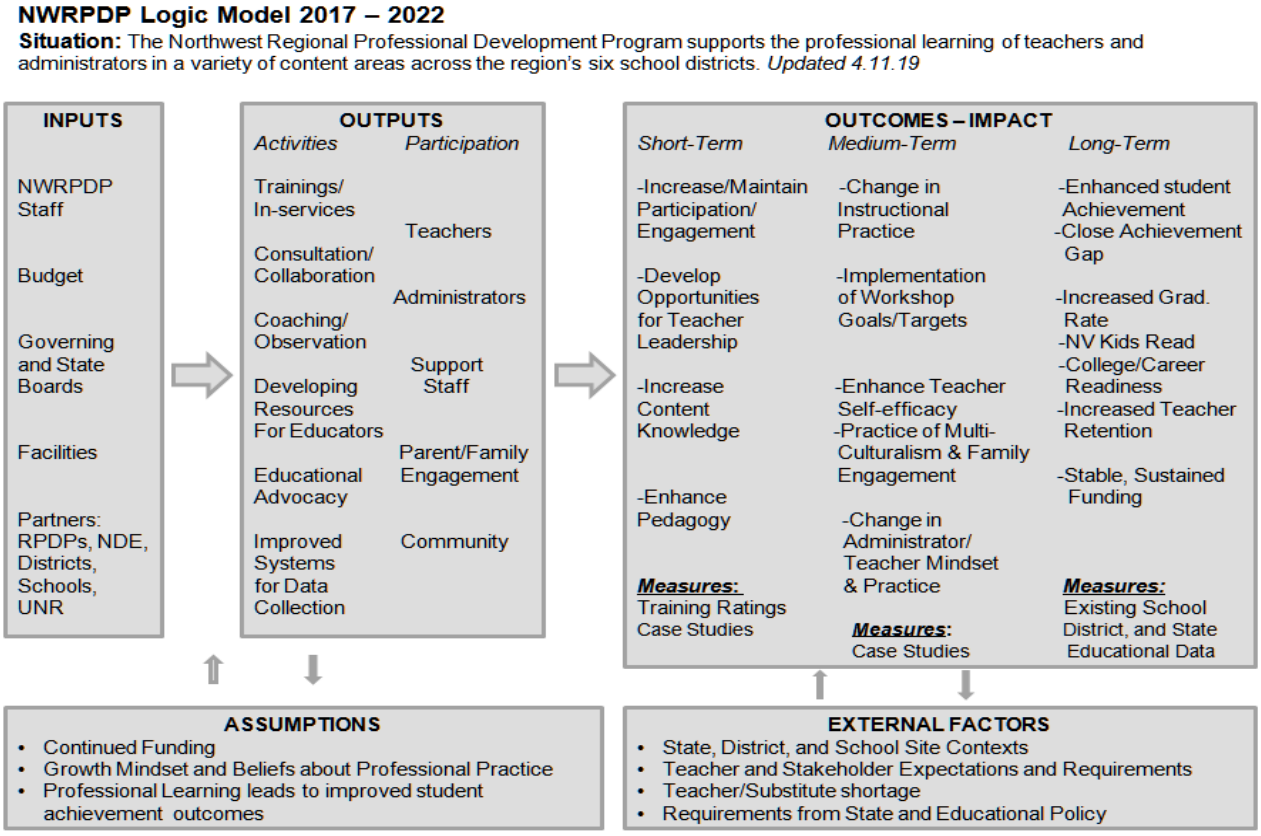
The NWRPDP also utilized funds from Senate Bill 313 to support the 2020 Computer Science Summit. This event was a collaborative effort between the Nevada Department of Education and NWRPDP. The event took place over two days, with approximately 127 educators from across the region participating.

# Regional Projects: NWRPDP Case Studies

**Self-Evaluation Procedures**

As outlined in NRS 391A.190, Director Sara Cunningham, 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, 2012), 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 overall 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 2017-2022



## Key Findings from 2019-20 NWRPDP Evaluation Activities:

- Professional development services were conducted in all six districts that comprise the NWRPDP, reaching a total of 2,333 unique educators during 2019-20. 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 4,436. Elementary teachers (unique total served = 1,035) again were the largest educator group served this past year; followed by High school teachers (409); Others, which include substitutes, counselors and district personnel (383); Middle school teachers (373); and Administrators (133). Overall, 37% of the approximate 6,343 educators employed in the region (as reported by each district) participated in programs provided by the NWRPDP during 2019-20. Remarkably, these numbers are all higher than 2018-19 participant numbers despite the COVID-19 pandemic and ensuing shift to remote learning in the spring of 2020.
- Case study evaluation data reveal a variety of positive outcomes across the 12 NWRPDP 2019-20 case study projects. The diverse foci of case studies this past year included creating instructional change among middle school teachers through the implementation of mathematical mindsets in math classrooms; NVACSS trainings in Computer Science and Integrated Technology; using student diagnostic data to increase student goal setting and achievement; fostering teacher retention through enhancing the student teaching experience; improving teacher civic efficacy through NVACSS trainings in Social Studies; enhancing parent involvement and family engagement through the development of a 3-credit graduate course for teachers; and boosting teacher retention and efficacy through National Board Certification. Evaluation results revealed significant increases in English Learner specialists knowledge, co-teaching strategies, and assessment strategies of student language development (<.006); improvements in NVACSS computer science knowledge, pedagogy, and student engagement strategies among teachers in four districts (<.002); increased self-efficacy regarding National Board Certification and knowledge of research-based pedagogy among members of the National Board Certification training cohort; and improved teacher subject matter knowledge, confidence in designing civic instruction, and integrating NVACS Social Studies standards into classroom pedagogy. The COVID-19 pandemic disrupted all public educational activities during the spring of 2020—including NWRPDP professional development and trainings. NWRPDP facilitators, however, flexibly completed their ongoing case study and training activities. Specific pandemic related adjustments to professional development projects and evaluation activities can be found in the case study section of this report.
- Professional services this past year were predominately delivered at school sites or professional learning sites in the form of in-service classes and workshops. Thirty-six percent of NWRPDP activities were delivered as instructional training opportunities,

45% provided via consultation, and almost 20% within an observation/mentoring format. Content focused primarily on the Nevada Academic Content Standards (NVACS) in the areas of Mathematics, Literacy/English, Computer Science, Social Studies, Science and STEM. The remaining areas of focus were diverse, and included PreK-Third Grade support, Computer Education and Tech, Leadership Development, Mindset/SEL, 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.

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# NWRPDP Case Studies

# Case Study 1: Nevada Computer Science Application

## Introduction

Computational thinking is foundational to computer science education. Although a consistent definition of computation thinking has not been established, concepts of abstraction, decomposition, programming, and algorithmic thinking is often included (Dong, et al., 2019; Cabrera, 2019). The Computer Science Teachers Association (CSTA) and International Society of Technology Education (ISTE) suggest that problem solving of complex scenarios and persistence are also essential in computational thinking (2011). These skills are essential for K-12 computer education in Nevada.

The nature of K-8 educator licensure creates a gap in teacher perception, experience, and understanding of computational thinking skills and pedagogy. Computer science professional learning opportunities have been provided by NWRPDP since the drafting of the Nevada Academic Content Standards in Computer Science, beginning in January 2018. The focus of training centered on overall computer science concepts, standards, and pedagogy. While this initial training continues to be offered to fill the gap in teacher preparation, a new need to build teacher expertise in computational thinking application surfaced.

Computational thinking is not a replacement for generic problem solving in all aspects, as some teachers perceive (Cabrera, 2019). Instead, it is an approach for problem solving that can include an integration with technology, but technology is not always a requirement. Building educator confidence in understanding, using, and teaching computational thinking emerged as the focus for this computer science professional learning opportunity.

## Instructional Context

Two year-long courses focused on computational thinking application were offered to educators in the six counties served by the Northwest Regional Professional Development Program (NWRPDP). Each course had a different platform but centered on the same concepts and skills. *Learn, Make, Teach with Raspberry Pi* utilized the Raspberry Pi and Python-based coding program that blends physical computing with programming. *Scratch Creative Computing* used the free Scratch programming platform created at MIT, which uses block-based coding. Although each course used different programs and tools, the training involved application of the same computational thinking skills.

*Learn, Make, Teach with Raspberry Pi* included sixteen teachers, ranching from K-5 teachers to Advanced Placement teachers at the high school level. Four school districts were represented by teachers in this group. Fifteen teachers representing three school districts completed the Scratch Creative Computing course. Eight teachers completed both courses.

Tables 1, 2, and 3 below shows the number of teachers, by county and grade level, who completed the *Learn, Make, and Teach with Raspberry Pi* course, the *Scratch Creative Computing* course, or both courses.

**Table 1: Training Participants by County (Learn, Make, Teach with Raspberry Pi)**

| County | K-5 Teachers | 6-8 Teachers | 9-12 Teachers | Other (TOSA) | TOTAL (District) |
|---|---|---|---|---|---|
| Carson | 2 | 3 | 1 | 1 | 7 |
| Churchill | 0 | 2 | 1 | 0 | 3 |
| Douglas | 1 | 1 | 2 | 0 | 4 |
| Lyon | 0 | 4 | 11 | 1 | 15 |
| **TOTAL (Grade Band)** | 3 | 10 | 15 | 1 | **29** |

**Table 2: Training Participants by County (Scratch Creative Computing)**

| County | K-5 Teachers | 6-8 Teachers | 9-12 Teachers | Other (TOSA) | TOTAL (District) |
|---|---|---|---|---|---|
| Carson | 3 | 1 | 0 | 1 | 4 |
| Churchill | 0 | 2 | 1 | 0 | 3 |
| Douglas | 4 | 1 | 2 | 0 | 7 |
| Lyon | 0 | 0 | 0 | 0 | 0 |
| **TOTAL (Grade Band)** | 7 | 4 | 3 | 1 | **15** |

**Table 3: Training Participants by County (Both Courses)**

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

Equity in computer science education is a consistent talking point in computer science education. County demographics support the need for accessible computer science education that reaches all students.

Table 4 below shows the demographic information for each county. (Nevada Report Card, 2019)

**Table 4: Demographic Data for Participating Counties**

| County | Total Enrollment | Ethnicities other than White | Individualized Education Plans | English Language Learners | Free and Reduced Lunch |
|---|---|---|---|---|---|
| Carson | 7850 | 53.08% | 14.38% | 13.76% | 60.08% |
| Churchill | 3396 | 36.72% | 15.49% | 6.98% | 46.82% |
| Douglas | 5834 | 33.49% | 13.4% | 5.21% | 35.46% |

| County | Total Enrollment | Ethnicities other than White | Individualized Education Plans | English Language Learners | Free and Reduced Lunch |
|---|---|---|---|---|---|
| Lyon | 9066 | 37.8% | 13.8% | 5.45% | 59.68% |

## Initial Data and Planning

Some participants completed previous computer science training either through NWRPDP or other organizations. Six participants had not completed computer science training before these courses. Hence, a range of experience from beginner to novice was present and required strategic planning and instruction.

The *Learn, Make, Teach with Raspberry Pi* course had two major components other than general problem solving and application. The course required instruction in physical computing with such elements as current (electricity), circuits (open and closed), diodes, resistors, capacitors, LEDs, motors, and circuit boards. Once the foundation of physical computing was established the focus shifted to Python coding using the Thony interface included in Raspberry Pi preloaded software. Sessions included guided activities that allowed scaffolding of learning with blended tasks of physical computing along with coding in Python. This course had two strong components of learning, physical computing and Python coding, and thus required more training days than the Scratch course.

The *Scratch Creative Computing* course focused on block coding through Scratch. Participants learned how to code in Scratch while collaborating on the variety of applications across grade level curriculum. Connections were made to the various grade level standards for computer science. Proof of learning and application was demonstrated when participants created a game using Scratch with some of the elements and tools to have a running score.

All participants completed a post-reflective survey at the conclusion of the course.

## Delivery of Services

Due to complexities in combining physical computing with coding, the *Learn, Make, and Teach with Raspberry Pi* course included more training days than *Scratch Creative Computing*. The Raspberry Pi course began with a full day training where participants were introduced to physical computing concepts, including basic electrical principles and circuitry. Five four-hour sessions following the initial training day focused on blending physical computing and programming and were held in both Carson City and Fallon to minimize travel time. The last two sessions included supported work time for participants to complete a self-selected project that solves a real-world problem, incorporating physical computing and coding and troubleshooting support from the instructors. The final full-day training was project finalization and showcase.

*Scratch Creative Computing* included four full-day trainings. Training began with a focus on basic coding concepts as applied through block-based coding programs. Three subsequent

trainings built on basic knowledge to create computational artifacts including integration of images, movement, music, and variables. Participants created videos, games, and simulations, as well as an on-going reflective journal.

Due to COVID-19 restrictions, both the Raspberry Pi and Scratch courses required modification. The last two four-hour trainings and project showcase for Raspberry Pi were held via Zoom video conferencing. This was not an ideal training situation, as it made troubleshooting and supporting participants challenging for the instructors. Modifications to training plans, such as providing additional physical computing information, were necessary, although it did not prevent participants from completing their projects.

The final Scratch training was also held via Zoom video conferencing. Like the Raspberry Pi class, this created challenges in facilitating learning and extended the time necessary to collaborate and problem solve participants' projects.

## Results and Reflection

All participants were also asked to complete a post-reflective survey at the conclusion of the training. The rating scale ranged from 1 (poor) to 5 (excellent). Due to school closures related to COVID-19, the post-reflective survey was e-mailed to participants and completed electronically. Six participants did not complete the survey. These results were not obtainable due to shelter-in-place mandates. However, we are confident that the means would not differ significantly based on learner feedback in each session. Table 5 shows the results from the survey.

**Table 5: Teacher Post-Reflective Mean Results**

| Question | Before attending | After attending | Difference | t-score | Significance (*p*-value) |
|---|---|---|---|---|---|
| Nevada Computer Science Standards | 3.41 | 4.24 | +0.82 | -3.489 | 0.002 |
| Coding and/or Programming | 2.71 | 3.88 | +1.18 | -6.99 | <.001 |
| Computational Thinking Skills (Abstraction, Decomposition, Problem Solving, Algorithms) | 3.12 | 4.24 | +1.12 | -5.688 | <.001 |
| Creating Prototypes and Simulations | 1.71 | 3.82 | +2.12 | -12.903 | <.001 |
| Computer Science Iterative Process | 2.76 | 4.35 | +1.59 | -7.092 | <.001 |
| Incorporating Computer Science into Projects | 2.47 | 4.18 | +1.71 | -7.468 | <.001 |
| Student Engagement | 3.35 | 4.24 | +0.88 | -7.025 | <.001 |

*All questions show significant growth at the $p<.001$ value, except the item on NCS standards witch almost reached this significance level.

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 6 indicate a high probability of computer science implementation in future years.

**Table 6: Classroom Implementation**

| *Question* | *Mean* |
|---|---|
| I intend to use the information from this training in the future within my classroom | 4.18 |

## Conclusion

Computer Science professional learning has unique challenges. Aside from individual computer science knowledge and experiences, school districts have individual requirements, expectations, and restrictions. The participants in these trainings included teachers of kindergarten through high school, including some advanced placement course teachers. Secondary teachers' content included math, science, art, and special education. The wide range in teaching assignment, content knowledge, and computer science knowledge created some challenges; however, it provided different perspectives during collaborative activities and in transfer of new knowledge to participants' students.

The demand for these types of courses is high in this region and will continue to increase as more computer science resources become available to teachers. Limited time, space, funding, and management allowed only 30 teachers in the Raspberry Pi course and 15 teachers in the Scratch Creative Computing course. Participant enrollment and feedback indicate that these courses should continue to be offered, in addition to other computer science courses focused on computational thinking skills.

Giving teachers dedicated time and opportunity in a collaborative setting has proved to be an ideal environment for learning and growth. Learning within context is a strong model for educators who are not native to or highly trained in computer science. There is a strong need and desire for additional hands-on applied computer science learning that is relevant, accessible, and aligned to the Nevada Academic Content Standards in Computer Science.

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## Case Study 1: K-12 Computer Science Application-Logic Model

**Situation:** Teachers need professional learning opportunities to effectively teach the K-12 Nevada Academic Content Standards in Computer Science. The professional learning focus should include standards alignment, pedagogy, and application of computer science concepts in multiple content areas.

| 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, and Churchill County School District<br><br>Administration Expectations | Computer Science Courses:<br>Scratch Creative Computing<br>Learn, Make, Teach with Raspberry Pi<br><br>Training on Computer Science standards and concepts<br><br>Optional Training opportunities | K-12 teachers & Instructional Coaches in Scratch Creative Computing:<br>Carson City School District (5)<br>Douglas County School District (8)<br>Churchill County School District (3)<br><br>K-12 teachers & Instructional Coaches in Learn, Make, Teach with Raspberry Pi:<br>Carson City School District (7)<br>Douglas County School District (6)<br>Churchill County School District (3)<br><br>Teachers registered for both courses (included in totals above):<br>Carson City School District (2)<br>Douglas County School District (3)<br>Churchill County School District (2) | 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 Survey | 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>Post Reflective Survey | 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 the course/s. Positive attitudes and beliefs about Professional Practice.
All participants will shift instructional practices

**External Factors:** Competing district initiatives, District resources, Funding, Teacher burn out. Covid-19 pandemic disruptions.

# Case Study 2: Strategic Partnerships: Reimagining Student Teaching-Logic Model

## Introduction

Nevada ranked fifth in the nation for teacher turnover (Carver-Thomas & Darling-Hammond, 2017). According to the human resources department in the school district where the Master Lead Teacher Program launched, 17% of student teachers from the University of Nevada, Reno resign within two to four years of teaching in the district. Also, the district's placement of student teachers has been based solely on principal recommendations for lead teachers without clear criteria for the coaching and mentoring skills required to support a student teachers' transition to the education profession. The Master Lead Teacher Program was designed to strategically place university student interns with identified teacher leaders in the district.

## Instructional Context

The Master Lead Teacher Program partnered university student interns with district teacher leaders to provide a comprehensive and supportive field experience in order to address teacher retention rates. The teacher leaders were identified through the district's teacher leader pool, National Boards Certification, and/or engaging in the two-year teacher leader professional learning cohort.

The university had 90 interns apply to student teach during the spring semester 2020. For the Master Lead Teacher Program launch interns were randomly selected for participation, but selection did not include interns who were seeking dual licensure (i.e., elementary and special education). The district's professional growth department identified district teacher leaders and sent emails to administrators to confirm their readiness for program participation; 70 teacher leaders were identified. In addition, four informational meetings were held to introduce the structure of the pilot program and professional learning to teacher leader participants. Ultimately 25 master lead teachers were paired with university interns.

Seven schools had more than one pairing of a master lead teacher and a student teacher. Six high school teachers, three middle school teachers, and 16 elementary school teachers joined the Master Lead Teacher Program. At one elementary school a student intern worked with three teacher leaders during the student teaching semester.

## Initial Data and Planning

The structure of the course for master lead teachers included six face-to-face class meetings and twenty hours of online professional learning. The first of these face-to-face meetings occurred in December prior to the start of the student teaching semester. This meeting allowed trainers to survey participants to determine a scope and sequence for the professional learning during the student teaching experience.

Teacher leaders completed a survey of their experience with mentoring, collaboration, observation and feedback, and the evaluation framework. Participants were also given an opportunity to describe their lesson planning process and use of assessment during instruction. Trainers utilized the DuFour questions for professional learning communities and the evaluation framework as the foundation of the professional learning.

## Delivery of Services

Master Lead Teacher Program participants met for four of the scheduled five face-to-face meetings for a total of 10 professional learning hours. The final two face-to-face class meetings were cancelled due to the COVID-19 pandemic and subsequent school closures. In February, trainers observed eight of the strategic partnerships during instruction to assess the co-teaching aspect of the program and conduct coaching conversations framed around the evaluation rubric and university field observation form. The eight observed participants shared their experience and highlights of the coaching conversations at our final face-to-face meeting before spring break, which incentivized eight more participants to schedule observations for the week after spring break. Unfortunately, COVID-19 changed the trajectory of the remainder of the course.

In addition to the face-to-face meetings, participants engaged in instructional video analysis and coaching conversations with their student teachers independently. Using reflection prompts participants shared their experiences on the university's online discussion platform. These assignments were originally designed for 20 hours of professional learning outside of class time, but with the schools' closure and notification of the university continuing student teaching placements, the trainers had to increase the virtual learning hours to meet the course requirements. It was determined that participants would work with student teachers to create lesson plans, scope and sequence documents, and communication guidelines for the beginning of the 2020-21 school year. This was very beneficial to three of the student teachers who had already been hired for the new school year. The other student teachers crafted plans for the grade level and/or subject matter in which they completed their student teaching semester. Providing time to for student teachers to work with their master lead teachers in creating plan for starting a new school year proved to be an optimal use of time. All class participants suggested this be an included part of the coursework in the future.

## Results and Reflection

A questionnaire was given to the program participants in December 2019 and again in February 2020. Participants were asked to assess the rate themselves on their comfort levels in the skills listed from a 1 (Strongly Agree) to 6 (Strongly Disagree) scale. As seen in Table 1, as teacher leaders, the participants rated themselves as being strongly comfortable or moderately comfortable engaging in the identified skills and supporting their student teacher's growth.

**Table 1: Master Lead Teacher Questionnaire**

| Themes | December Mean | February Mean |
|---|---|---|
| Collaboration | 1 | 1.3 |
| Observation Feedback | 2 | 1.6 |
| Self-Reflection | 1.6 | 1.4 |
| Building Relationships | 1.6 | 1.8 |
| Using Data | 1.6 | 1.7 |
| Engage in New Learning | 1.5 | 1.6 |
| Model Lesson Planning | 1.1 | 1.4 |
| Coaching Conversations | 1.3 | 1.6 |

The decrease in the mean for observation feedback and self-reflection from December to February was highlighted in some of the comments from participants.

*"I think sometimes I struggle with the "communicating to my student teacher" part. Sometimes I forget to do this, or I assume my student teacher knows more than she may actually know."*

*"I don't always share observation feedback, because I feel it can overwhelm her when she is just relieved to be finished with the lesson. I don't think she's ready to hear what I have to say."*

*"I plan to try to teach my student teacher in the upcoming weeks to reflect on every lesson with a simple 'What went well? What didn't? and Why?'"*

This data was somewhat surprising to the trainers, but in hindsight it shows how the lead teachers perceived their skill level prior to working with their student teachers and compared it to the reality of their interactions with their student teachers in February. Due to the nature of the student teacher and master lead teachers' interactions with students during COVID-19, the trainers did not reassess participants using the same questionnaire in April. Instead, the trainers

asked participants to reflect on how they would use their pandemic teaching experience to prepare for the new school year.

Participants remarked on the need to have accurate student contact information, know what access they may or may not have, and teach accessing online resources explicitly along with the norms for engagement. One participant remarked that distance learning gave her the "opportunity to get to know students on a different, deeper level."

## Conclusion

The Master Lead Teacher Project is scheduled to resume in the fall semester. At this time, the continuation of the project will depend on allotted funds and any university adjustments to the student teaching semester schedule. Predicting the effectiveness of the program launch is not without its challenges given the circumstances under which the program ended, however, 100% of the participants said they would like to participate in the Master Lead Teacher Project in the future, and they would recommend the program to their colleagues.

The human resources department will track the student teachers who were placed in these strategic partnerships with teacher leaders in the district. It is hoped that these mentor relationships helped better prepare the student teachers for a long-lasting, successful career in education.

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## Case Study 2: Master Lead Teacher Project Pilot Program- Logic Model

**Situation:** Teacher retention is at an all-time low with more than 60% of new teachers leaving the profession within their first three years. The Master Lead Teacher Pilot Program seeks to enhance the student teaching experience by creating a unique collaboration between lead teachers and their interns during the student teaching semester.

| **Inputs** | **Outputs** | | **Outcomes -- Impact** | | |
|---|---|---|---|---|---|
| | *Activities* | *Participation* | **Short** | **Medium** | **Long** |
| Title II Funding<br><br>Instructors<br><br>University Partnership<br><br>HR Participation<br><br>Site Administrators<br><br>Master Lead Teachers<br><br>Student Teachers | Nine Weeks of Student Teaching during Spring 2020 Semester<br><br>Master Lead Teachers participate in 15 hours of face-to-face professional learning and 20 hours on-line.<br><br>Field Observations<br><br>Lesson Planning<br>Classroom Management<br>Assessment<br>Reflection<br>Intervention and Enrichment | 4 Instructors<br><br>24 Master Lead Teachers<br><br>24 Student Teachers<br><br>Field Observers | Master Lead Teachers report an increased satisfaction with their student teaching experience.<br><br>Student teachers' field observations indicate growth over the student teaching semester.<br><br>Students in classrooms with a Master Lead Teacher and a student teacher report a positive relationship with both educators.<br><br>Measures:<br>RPDP Feedback Form<br>Evaluation Survey | Spring 2020 student teachers who participate in this program are hired to the district within a semester of completing the program.<br><br>Measures:<br>RPDP Feedback Form<br>Evaluation Survey<br>District Hiring Data | University/District data sharing agreement shows student teachers who participate in this program have better evaluations and job satisfaction than their counterparts.<br><br>Master Lead Teachers continue to participate in this program when mentoring a student teacher.<br><br>Student teachers from this program become highly effective teachers who increase student learning and achievement.<br><br>Measures:<br>Existing school, and district data |

**Assumptions:** Master Lead Teachers are highly efficacious educators who exemplify effective teaching practices and are skilled in adult mentoring.

**External Factors:** Readiness of student teachers, availability of field supervisors to calibrate observation forms. Covid-19 pandemic disruptions.

# Case Study 3: Parent Involvement and Family Engagement Graduate Course through Southern Utah University- Logic Model

## Introduction

**"Parent participation is the leading predictor that supports students' academic success, regardless of race, socioeconomic status, ethnicity, or cultural background."**

**– Dr. Karen Mapp, Harvard University**

The Office of Parental Involvement and Family Engagement was created in 2011 to actively promote and support the participation and engagement of families and communities in a child's education. Family engagement is a shared responsibility between schools, families, and communities where all receive equitable access to tools and supports needed to successfully work together toward the development of children and youth for college, career, and lifelong learning. AB 224 of the 2011 Legislative Session required that school districts and school communities incorporate effective family engagement practices and strategies

Over 50 years of research confirms that family engagement in a child's education matters. Many studies have found that family engagement in a child's education, regardless of income or background, leads to higher grades and test scores, enrollment in advanced programs, improvement in school attendance, better social-emotional skills, increased graduation rates, and higher college persistence rates (Mapp 2020).

The objective of this case study is to develop a rigorous and relevant three credit graduate course that would fulfill the family engagement requirement for initial teacher licenses. Nevada has included family engagement in its state education plan under *Every Student Succeeds Act* and its five-year state improvement plan because of the positive impact it has on student outcomes.

## Instructional Context

Because of the legislative requirement to participate in a three-credit semester family engagement course, there are large numbers of teachers, counselors, social workers, and other educators across the Northwestern Nevada region who needed the course to remove the provision on their teaching license. The course quickly filled up and a second section was added. The two sections were divided into elementary and secondary educators. The groups met face-

to-face over three Saturdays during the spring semester and completed the rest of the coursework online through Southern Utah University.

## Initial Data and Planning

A NWRPDP trainer collaborated with the professional development coordinator in Carson City School District to develop a learning model and process for teachers and administrators that would fulfill the NRS requirements. The resulting course resources provided research-based best practices, tools, and supports needed to create partnerships between school and families.

One of the primary goals was to first develop a positive climate, build rapport, and respect amongst the participants and establish a feeling of urgency to engage families and develop successful partnerships. The course was designed around strategies to build relationships, communication skills, and knowledge in the area of family engagement and parent involvement. The textbook used for the course was *Home, school, and community collaboration: Culturally responsive family engagement 4th edition* by Kathy B. Grant. This text focuses on understanding different models of family engagement, appreciating diverse families, and putting knowledge and skills into action. The Dual Capacity-Building Framework for Family-School Partnerships model was employed as a guide to lay out the goals and conditions necessary to chart a path toward effective family engagement efforts that are linked to student achievement and school improvement. The National Standards for Family-School Partnerships also were used to structure the content of the course.

## Delivery of Services

There were 49 participants comprising of elementary and secondary teachers, speech pathologists, and other educators from Washoe, Churchill, Lyon, and Carson Counties. Educators participated in two full days of in-person training, Zoom meetings, and on-line assignments totaling 45 hours. Areas of foci included: defining family engagement, overcoming challenges, improving communication skills, welcoming families, home visits, cultural responsiveness, district and community resources, and creating partnerships with families. Connections were made to the Nevada Educator Performance Framework and the Charlotte Danielson Evaluation Protocol. Dates of service were 2/15-3/19/20. To conclude each day of training, instructors asked participants for feedback to guide and modify subsequent trainings.

## Schedule of Assignments and Activities- Spring 2020:

**Week 1** February 15th, 2020 8:30am-3:30pm (7 hours) in person

**Topics Covered/In-class Activities/Resources Used:** Family Engagement Policies and Laws, Teacher Responsibilities for family engagement, Dual-Capacity Framework, WestEd's Academic Parent Teacher Teams, home visits, positive communication with parents
Text: Chapter 10: Teacher as Family Communication Facilitator
**Speakers**: Family-Schools Partnerships and representative from Home Visits will present.

**Assignment Outside of Class:** Nevada Revised Statues-reading and response reflection, positive phone calls home script, compliment sandwich phone calls

**Text: Section I**: **Understanding Family Engagement: Building a Knowledge Base for Culturally Responsive Family Engagement**

Chapter 1: Family Engagement and the Responsive Educator
Chapter 2: Theories and Models for Family Engagement in Schools
Chapter 3: Supporting Families as They Parent Today's Children

**Weeks 2-3 On-line** (assignments to be posted and turned in via Canvas) Approximately 15 hours

**Topics Covered/In-class Activities/Resources Used:** Family engagement survey, conferencing and data nights with families, home visits, building relationships with families, academic and community resources, knowledge of different family structures.

**Assignment Outside of Class:** Create and administer a family survey/analyze responses with a reflection template, interview community resources, home visit reading and reflection, Parents As Teachers Activities

TED Talk on Single Parent Families

**Text: Section II: Appreciating Families- Today's Diverse Families**
Chapter 4: Structurally Diverse Families
Chapter 5: Culturally Diverse Families
Chapter 6: Students of Families in Transition

**Week 4** March 7th, 2020 8:30am-3:30pm (7 hours)

**Topics Covered/In-class Activities/Resources Used:** Social Emotional Learning, Culturally Responsive Teaching, honoring family culture and names, Children in Transition
**Speakers**: Director of Children and Transition will present.

**Assignment Outside of Class:** Readings, lesson plans, parent night, mock parent interviews, presentation planning, ACES Quiz

**Text: Section II: Appreciating Families- Today's Diverse Families**
Chapter 7: Families Overcoming Obstacles
Chapter 8: Families in Abusive Situations

**Week 5,6,7 On-line** (assignments to be posted and turned in via Canvas) Approximately 15 hours

**Topics Covered/In-class Activities/Resources Used:** Social Emotional Learning continued, family-school partnerships, policy and regulation regarding district-wide family engagement.

**Assignment Outside of Class:** Presentation planning, lesson plans, readings & reflections

**Text: Section III: Family Engagement- Putting Knowledge and Skills into Action**
Chapter 9: Engaging Families in Their Children's Learning at School and at Home
Chapter 11: Working with Families of Children with Special Needs

**Week 8** March 7th, 2020 9:00AM-10:00PM
**Week 8** (cont.) April 11th, 2020 9:00-10:00 (1 hours)

**Topics Covered/In-class Activities/Resources Used:** Final Class, Final assignment- PIFE Toolkit
**Text: Section III: Family Engagement- Putting Knowledge and Skills into Action**
Chapter 12: Teacher as a Resource and Advocate
Chapter 13: Schoolwide Family Engagement Activities
**Speakers**: Director Equity and Diversity and Director of Regional Professional Development Program

**Assignment Outside of Class:** Speakers, presentations

**45 Hours total**- Earn 3 Southern Utah University Credits
*(To qualify for credit, Southern Utah University requires that learners must complete 15 hours of contact time per credit hour in any given course.)*

## Results and Reflection

Data were collected in the form of survey ratings and question responses. The teacher survey results in the table below reflect the effectiveness of the training.

**Evaluation of the Effectiveness of the Training**

Participants were asked to evaluate the overall effectiveness of the training on a 1-5 scale (1- Not Effective, 5- Very Effective).

| *Evaluation Questions* | *Mean* |
|---|---|
| 1. The activity matched my needs | 4.5 |
| 2. The activity provided opportunities for interactions and reflections. | 4.7 |
| 3. The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.6 |
| 4. The presenter/facilitator's efficiently managed time and pacing of activities. | 4.6 |
| 5. The presenter/facilitator modeled effective teaching strategies. | 4.6 |
| 6. The activity added to my knowledge of standards and subject matter content. | 4.5 |
| 7. The activity will improve my teaching skills. | 4 |
| 8. I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.6 |
| 9. The activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special ed., at-risk students). | 4.5 |

Data from the overall evaluation indicates that participants viewed the course as very effective in all areas of the training, especially providing opportunities for interactions and reflections. This likely reflects the positive response to the organization of content and efforts of the facilitators in modifying and adjusting instruction to meet the needs of participants.

Pre- and post-assessment feedback about specific areas of family engagement were collected to gauge perceived knowledge and skills acquired after completing the course.

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

Please rate your knowledge of the following topics BEFORE attending the course and AFTER attending the course using a 1-5 scale (1= Poor, 5= Excellent)

| | Knowledge Before | Knowledge After | Change | *p Value |
|---|---|---|---|---|
| 1. Dual-Capacity Framework | 2.29 | 4.12 | +1.83 | < .001 |
| 2. Family Home Visits | 2.52 | 4.19 | +1.67 | < .001 |
| 3. Effective Communication with Families- Ex. Positive phone Scripts/Compliment Sandwiches | 3.5 | 4.55 | +1.05 | < .001 |
| 4. National P.T.A. Standards | 1.80 | 4.05 | +2.25 | < .001 |
| 5. Culturally Responsive Teaching Practices | 3.28 | 4.43 | +1.15 | < .001 |
| 6. Ideas to support Family Engagement at your school site | 3.05 | 4.54 | +1.49 | < .001 |

*p values show 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 knowledge gained about the National Parent Teacher Association's Parent Involvement and Family Engagement Standards and the Dual Capacity Framework. Coursework and discussions incorporated the importance of the PTA Standards and the Dual Capacity Framework and educators were enthusiastic about taking their ideas back to their school sites. Qualitative data was also collected in the form of responses to the following question:

***Which aspect of the trainings was most helpful to you?***

*"It has helped me learn new ways to engage parents. It also taught me the needed skills to "clear" my Nevada State Teaching License. I just moved from CA and have been out of the classroom for many years. I feel like I am now up to speed as to the family engagement expectations in my new District."*

*"I did appreciate meeting with other educators across different districts. It was interesting to hear their views/experiences that have been different than mine. I appreciate that this course has caused me to question many things and to adjust personal practices moving forward."*

*"I realized that my bias was based a lot on what my ideas were. I knew that we needed to consider everyone, and I've always thought I was open-minded but my mind set is changing because I took this class to truly have equity for all."*

*"Awareness of family diversity and importance of including their views support and improving communication with our families."*

*"It was very comprehensive and to the point. Great ideas and lots of insight to how things (family engagement) can done more effectively. Great class to reflect on my current practices as well."*

*"How it was based on our needs and provided an opportunity for quality discourse with peers in which we shared our ideas, experiences, insights, etc."*

*"I appreciated the new viewpoint of the importance of family engagement for the child themselves and for their academic experience/success."*

*"The final project being shared at the end was really valuable to see all of the different resources and research my peers have suggested."*

The teachers were also surveyed about the effectiveness of the trainings using the NWRPDP training evaluation. The teachers were asked to rate each of the statements on a Likert scale of 1= Very unlikely to 5= Very likely on the following statements and questions.

**NWRPDP Training Evaluation**

| Questions | Mean |
|---|---|
| I intend to use the information from this training now and in the future within my classroom. | 4.7 |
| Do you feel this training was valuable to you? | 4.6 |

Responses on the survey provide evidence that the quality of the course was excellent and that teachers found the instructional and material valuable. Teachers wrote the following comments about the quality of the class:

*"Instructors were very well versed on the subject and helped me to develop new skills to work with families."*

*"Thank you for finding a way to provide this class in an affordable and meaningful way! I truly appreciate it"*

*"I really enjoyed learning/listening to the guest speakers. I sincerely got a lot out of this course!"*

*"The class was necessary for me even though I felt at the beginning it was a hardship, but I'm glad I took it and have learned so much."*

*"I hope you continue to offer this class because I feel I got more from it than had I taken it completely online."*

*"I was very grateful that you created a new norm for this course that was sensitive to flexibility while still having high expectations."*

## Conclusion

It is evident from the data collected that the Parent Involvement and Family Engagement course had a significant impact on educator mindset and confidence in working with families. Teachers felt that the course requirements had a positive effect on their instruction and relationships with families. Participants appreciated the style and delivery of the course and reflecting on material with their peers. Written responses indicated that teachers intended to use the information from the trainings within their classrooms and to engage families in the school community. Teachers requested further training in the areas of culturally responsive teaching strategies and working with diverse families.

## References


Dual Capacity Framework. (2020). Retrieved from Dual Capacity Framework

Grant, K.B. (2018). *Home, school, and community collaboration: Culturally responsive family engagement 4th edition*. Sage Publications.

Mapp, K. (2013). *Partners in education: A Dual capacity-building framework for family-school partnerships.* Retrieved from A Dual capacity-building framework for family-school partnerships

National Standards for Family-School Partnerships: National PTA. (2020). Retrieved from National Standards for Family-School Partnerships: National PTA

## Case Study 3: Parent Involvement and Family Engagement Graduate Course- Logic Model

**Situation:** Regional Parent Engagement Course. Course will explore the expectations of teachers in regards to state and district requirements and expectations for parent engagement and family involvement; working with parents and families to promote and strengthen communication and collaboration; to develop equal partnerships; and to empower parents and families to advocate for both their children's learning and school decision making in school policies, practices and programs.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | Activities | Participation | Short | Medium | Long |
| Use of Canvas on-line forum for assignments and discussion<br><br>Home, School, and Community Collaboration: Culturally Responsive Family Engagement by Kathy B. Grant and Julie A. Ray<br><br>45 hours of instructional time<br><br>Three graduate credits from SUU | Teachers discuss assigned text<br><br>Teachers practice positive phone scripts, meetings, strategies/ideas during the collaboration<br><br>Teachers brainstorm and have dialogue about implementation<br><br>Teachers actively listen to guest speakers and reflect on message<br><br>Teachers Assessment of Teacher Growth and Understanding | Secondary teachers from Carson School District, Churchill School District, Washoe County School District, Carson School District<br><br>Social Workers<br><br>Librarians<br><br>Substitute Teachers | Increased learning of course content<br><br>Increased Pedagogical Knowledge Emphasizing the importance of family engagement<br><br>Increased Teacher Confidence and Efficacy<br><br>Three graduate credits that remove provision on teacher license<br><br>**Measures:**<br>Case Study<br>Workshop Ratings | Increased classroom implementation<br><br>Increased use of culturally relevant communication practices<br><br>Increased Teacher Collaboration/ Development of Family Engagement ideas<br><br>**Measures:**<br>Coaching<br>Case Studies | Increased Student<br><br>Increased Graduation rates<br><br>Increased Family Partnerships<br><br>**Measures:**<br>Parent and Student Climate Data |

**Assumptions**
Training will increase student achievement and be evident to the administration during the evaluation process; Continued Funding

**External Factors**
Time and student ability; Administrator Expectations; State, District, and Social Site Contexts; Covid-19 pandemic disruption

# Case Study 4: Increasing Science Teachers' Self-Efficacy through Content Specific Professional Learning Aligned to Current Practices in Science Teacher Learning- Logic Model

## Introduction

A Nation at Risk, reported by the National Commission on Excellence in Education (1983), outlined the risks to the nation if education, specifically science education, neglected to make the changes necessary to improve the teaching occurring across the public education system. Needless to say, the United States education system failed to make systemic changes towards improving science education in its public schools, affecting the nation's standing nationally and decreasing its ability to compete in a global market place. Almost thirty years later, with increased demands for scientific literacy affecting our nation, A Framework for K-12 Science Education (Framework; National Research Council, 2012) reported results of research suggesting how to address the needs of students in k-12 science education, calling for all student to engage in practices that promote scientific literacy through opportunities aligned to how STEM professionals conduct their work (National Research Council, 2012). The Next Generation Science Standard (NGSS) were developed as a result of this work, aligning what students should be doing in classrooms to the research outlined in the Framework with the ultimate goal of not only increasing the number of students who will choose careers in STEM, but more so addressing the need that all students "…are careful consumers of scientific and technological information related to their everyday lives…" (NRC, 2012; 1). Although the NGSS address student outcomes, the ultimate task of realizing this vision rests with teachers in the classroom (National Academies of Sciences, Engineering, and Medicine, 2015). This research details the professional learning experience developed for eleven third through fifth grade teachers, aligning current research in science teachers learning to the self-reported needs across the region in the hopes of increasing self-efficacy in teaching science, and developing systemic changes to how the participants teach science in their classrooms.

## Instructional Context

Making systemic changes to teacher practice in science education requires that professional learning include specific stimuli to make lasting changes. The National Academies of Sciences, Engineering, and Medicine (2015) identified thirteen considerations for planning professional learning for educators of science. These include the need for teachers to alter the way they teach science based on the NGSS and related research, district level, ongoing, required, professional learning needs to be a priority, not just optional, and that teaching abilities are the result of many things including content knowledge, pedagogical content knowledge, NGSS knowledge, current

grade level, and others. Ultimately, research suggests professional learning is most effective when teachers are active participants who engage in lessons as students and the analysis of the lesson, engaged in learning that has a specific content focus, aligns with district practices and policies, and is of sufficient duration to allow for practice and reflection (National Academies of Sciences, Engineering, and Medicine, 2015). Previous research also indicates due to the lack of professional learning experiences aligned with current research practices, teachers lack self-efficacy in teaching science (National Academies of Sciences, Engineering, and Medicine, 2015). This research explores the alignment of self-reported needs of science educators with current research surrounding effective professional learning designed to instructional shifts in science education.

Results of recent assessment data (released by the Nevada Department of Education in December, 2019) for fifth, eighth, and high school students in Washoe indicate only 28.3% of students were proficient in science at the fifth-grade level based on the annual state science assessment. This increases to 43.1% for middle school and decreases again to 28.5% for the High School exam. According to the Nevada Department of Education, to be proficient at a fifth-grade level means "the student has met the expectations as defined by the grade level and course content standards. The student is prepared for future coursework." In Washoe County School District, 240 minutes per week for third through fifth grade classrooms are supposed to be allocated for science instruction. Taught five days a week that number is equivalent to 48 minutes of instruction per day. To determine the professional learning needs of the region in science education, a selected-response needs survey was developed to determine the greatest barriers to implementing science education in Northwestern Nevada. Ninety-two teachers from the region's six districts completed the survey with results indicating teachers' greatest needs were content knowledge and alignment with the NGSS, time to teach and plan science, and pedagogical content knowledge. Results also indicated kindergarten through fifth grade teachers across Washoe County reported teaching less than 120 minutes per week, half of the allotted time for instruction. There is a close connection between teacher professional development and student achievement.

The focus question of this research is: Does teacher self-efficacy increase when professional learning aligns the reported needs of educators of science with current research meant to change teacher practices? In order to address this question, a professional learning course was designed to address the needs reported by teachers for science professional learning opportunities from the needs survey with the criteria outlined by the National Academies of Sciences, Engineering, and Medicine (2015). This research included the following steps: (1) Collect needs data, (2) narrow data to a certain grade level and select needs to address, (3) plan course aligned to NVACS-S (4) align course to professional learning research, (5) Advertise and implement course, and (6) evaluate course objectives at last meeting.

## Initial Data and Planning

Of those who responded to the needs survey, the third through fifth grade band and the middle school grade band had the highest respondents with 27.2% each. With these results, the course for this study was aligned to the third through fifth grade band, and the middle school grade band would be addressed in other courses. Respondents in the third through fifth grade band reported the specific needs outlined above, which were combined with the specific content area of *energy*. The content area was chosen as a result of the major core ideas addressed in the standards for these grades. The NGSS for each grade level, third through fifth, were identified down to the elemental level for each of the three dimensions (Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts) as well as the performance expectation and evidence statements for each grade and standard. Next, goals and objectives were aligned to the standards. Teacher goals included "Teachers will identify each dimension of the NGSS for their grade level while engaging in the lesson" and "Teachers will discuss the reason constructivist approaches are utilized in science education." Goals written specific to the lesson included "students will identify the source and load of a circuit by developing a model the flow of energy" and "students will use their knowledge of energy and patterns to develop and test a model of a wind turbine." Having both student and teacher objectives listed allows participants to think more about the planning components and instructional components aligned to teaching science. Next, instruction was planned utilizing a 5E instructional model. This is a common planning structure that originated more than fifty years ago. The current model was modified with a shift away from just hands on activities towards utilizing the knowledge gained in the hands-on activities in new situations; one goal of the NGSS. This structure still aligns with current research-based practices in science education. Although it is not the only planning structure, it is the most user friendly, especially for those who do not have a strong grasp of pedagogical content knowledge aligned to science education. During the planning phase of the course, specific attention was paid to the need of participants to engage in the content as if they were students, ensuring they would be able to experience the phenomenon of the content (energy) and then be able to place why those practices were used, thus wearing both a 'teacher hat' and 'student hat' throughout the lesson. This aligns with the research from the National Academies of Sciences, Engineering, and Medicine, (2015), requiring a very specific content focus to shift instruction. The eight-hour course was broken up over two days in December 2019 to ensure teachers had time to process and practice the information between classes, again aligning to research suggesting professional learning takes place over time.

Once the course outline was complete, advertising the course could occur. As in many places, science professional learning is self-selected, and rarely required by a school or district. The same is true in Northern Nevada. Although eight hours only occurring in one month is not ideal, retention of participants over more time for science education becomes a problem. The course description and outline were sent out through email to individuals in all six districts who selected

to be placed on the science email list, and the course was submitted to Washoe's professional growth system for Washoe County School District teachers to sign up through.
Eleven teachers enrolled in the course, all from Washoe County School District. Three teachers taught third grade, two from fourth grade, two from fifth grade, one participant was a special education teacher for k-5 grades, one teacher was a middle school math teacher, one was a high school chemistry teacher, and one teacher was a substitute teacher for the district. This indicates only 55% of the participants were from the advertised grade band. The teachers who taught in elementary schools were self-described science teachers, meaning they intentionally taught science at least four days per week, although for different amounts of time. The participants in secondary schools taught science as their course work and indicated they wanted to see what and how teachers in elementary schools taught science. All participants in the course had taken courses form NWRPDP before, and all of them had taken advertised NWRPDP Science courses before.

## Delivery of Services

The course was taught in person for both sessions. The in person setting allowed for teachers to communicate with others about their ideas throughout the lesson, both as a learner and as a teacher. Each session included the following components (1) introduction of goals and objectives for teachers, which included strategies for instruction, standards alignment and shifts, and lesson organization, (2) engagement in a learning cycle, requiring the teachers to engage in the lesson as if they were a student, (3) debrief of each section of the learning cycle to explicitly describe the cognitive components being capitalized upon, as well as the planning and instructional strategies to get students to that understanding, (4) deep dive into the NVACS-S for the learning cycle components, and (5) assessment of student learning aligned to the three-dimensions of the NGSS.

## Results and Reflection

At the end of the last class, participants were asked to anonymously complete a Science Teaching Inventory based on the science teaching self-efficacy survey developed by Hodges, Gale, and Meng (2016). The instrument consisted of fourteen statements set up as a semantics survey with a negative statement on the left, the equivalent positive statement on the right, and eight sections in between. Participants select the point on the continuum where they feel they relate to the statement. Due to the short time frame teachers were asked to select two options for each statement: the first being their ideas from the beginning of the course (here labeled as *pre*), and the second being where they were at the end of the course (labeled as *post*). This format allows participants to reflect on their learning and what truly changed over their time in the course. A paired samples t-test was applied to the data. The results indicate a significant increase in self-efficacy from the pre to post data with a large effect size ($p < 0.001$, $d = 5.489$). Due to the small sample size a power of 0.32 is only obtainable with a paired samples *t*-test. In order to

maintain an acceptable power of 0.95 a sample size of 54 is required to apply a paired samples *t*-test. Therefore, a nonparametric equivalent, the Wilcoxon Signed Rank test was also applied to the data thus eliminating the requirements for normality and sample size needed for its parametric counterpart. The results of the Wilcoxon also indicate a significant increase in teacher self-efficacy from *pre* to *post* scores ($p < 0.001$).

**Descriptive Results**

| | N | Mean | SD | SE |
|---|---|---|---|---|
| AVG pre | 11 | 5.344 | 2.124 | 0.640 |
| AVG post | 11 | 15.370 | 1.983 | 0.598 |

**Significance Testing: Paired Samples T-Test and Wilcoxon**

| | | *Test* | *Statistic* | *df* | *p* | *Effect Size* |
|---|---|---|---|---|---|---|
| *AVG pre* | *-AVG post* | *Student* | *-18.205* | *10* | *<.001* | *-5.489* |
| | | *Wilcoxon* | *0.000* | | *<.001* | *-1.000* |

*Note.* For the *t*-test, effect size is given by Cohen's *d*; for the Wilcoxon test, effect size is given by the matched rank biserial correlation.

## Conclusion

It is imperative professional development in science meet the needs described by teachers and be aligned to current research surrounding science teacher learning. Results indicate teachers who engage in practices aligned to these professional development strategies increase their self-efficacy in teaching science. Although this course did not address all the barriers reported by teachers in the needs survey developed for this study, it did address the needs of teachers to engage in professional development that aligns to a specific content area with specific alignment the three dimensions outlined in the NGSS. Further work to engage teachers in developing and aligning lessons aligned to the NGSS is still needed, as are formats to reach a wider audience are necessary to continue making progress towards increasing performance in science education across the state.

## References

Bybee, R., Hodges, C.B., Gale, J., & Meng, A. (2016). Teacher self-efficacy during the implementation of a problem-based science curriculum. *Contemporary Issues in Technology & Teacher Edcuation, 16*(4), 434-452.

National Academies of Sciences, Engineering, and Medicine. (2015). Science teachers' learning: Enhancing opportunities, creating supportive contexts. Washington, DC: The National Academies Press. https://doi.org/10.17226/21836.

National Research Council. (2012). A framework for K-12 science education: Practices, crosscutting concepts, and core ideas. Washington, DC: The National Academies Press. National Research Council. A framework for K-12 science education.

NGSS Lead States. (2013). *Next generation science standards: For states, by state*s. Washington, DC: The National Academies Press.

United States. National Commission on Excellence in Education. (1983). A nation at risk: The imperative for educational reform. Washington, D.C.: The National Commission on Excellence in Education

**Case Study 4: Using Claims, Evidence, and Reasoning to Engage Students in Energy Education- Logic Model**

**Situation**: Teachers lack deep understanding of current research-based strategies in science education as it includes adjustments from the Next Generation Science Standards. Increasing pedagogical content knowledge, best practices in science, and understanding of the Next Generation Science Standards will increase teacher abilities to implement meaningful science instruction in classrooms across northern Nevada.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | *Activities* | *Participation* | Short | Medium | Long |
| NWRPDP professional development provider (me)<br><br>Budget for materials<br><br>Time for classes (8 hours total) | Professional Development in standards<br><br>Professional Development in pedagogy and pedagogical content knowledge<br><br>Course work focusing on content acquisition | 16 teachers ranging from 3-12 grade<br><br>2 participants from local non-profits<br><br>8 hours of in person training | Increased ability to teach science using research-based methods<br><br>Increase teacher efficacy<br><br>Increase knowledge of the three-dimensions of the Next Generation Science Standards<br><br>Decreased content knowledge deficits<br><br>Measures:<br>Pre/Post surveys | Increased student attitudes towards science in classroom settings<br><br>Decreased negative behaviors in classroom contexts<br><br>More on-task time during science instruction.<br><br>Measures:<br>Teacher discussion<br>Teacher self-reflections | Increased teacher efficacy<br>Increased student performance based on science tests in 5th, 8th, and high school<br><br>Increased enrollment in science courses in high school and post-secondary institutions<br><br>Measures:<br>student enrollment numbers for upper level science coursework<br>Standardized test results |

**Assumptions:** Teachers learn as students in their classes do – through inquiry-based instruction based in constructivism. Providing experiences to teachers that can be mirrored within a classroom will increase self-efficacy and PCK, leading to better instruction in a classroom setting. Better instruction surrounding science will lead to increases in student performance on standardized tests as well as an increase in students selecting higher level science in secondary and post-secondary education settings.

**External Factors:** Weather! Variety of knowledge and ability levels. Diversity of participants. Covid-19 pandemic disruption

# Case Study 5: Improving Teacher Civic Efficacy and Developing a Framework for *Taking Informed Action*

## Introduction

Beginning in the 2018-2019 school year, teachers were required to implement the revised Nevada Academic Standards for Social Studies (NVACS-SS). These standards included a shift towards *Taking Informed Action* in which students would be asked to take the content of their social studies course, connect their learning to a current issue, and take action to address that issue. These standards ask teachers to expand their civic curriculum outside of their classrooms but do not indicate how this is to be done, the frequency, or any information about how teachers can connect this skill to the content they already teach. Teachers throughout Northern Nevada expressed discomfort and confusion when implementing the *Taking Informed Action* standards. Teachers in Washoe County requested more guidance on how to frame these standards in their classrooms. As a result, we developed a course titled *Democracy in Action* that was rooted in studying the rights and responsibilities we have as citizens and how to utilize these concepts in order to act. The goal of this course was both to educate participants on the various ways that students could take civic action while pilot testing our newly developed *Taking Informed Action* framework in their own classrooms. The guiding logic model developed for this case study can be found at the conclusion of the study.

## Instructional Context

At the Social Studies Kickoff day in August, teachers met within their departments to discuss the new *Taking Informed Action* standards. They provided feedback about their interpretations of the standards and their concerns about implementation. Based on their feedback, the *Democracy in Action* cohort was developed. All social studies teachers in the Washoe County School District were encouraged to apply. The six participants included four high school teachers (representing 2 schools), and two middle school teachers (representing 2 schools). The participating teachers represent one suburban and one urban high school as well as one urban and one suburban middle school. Participating teachers taught a variety of subjects including: World History, U.S. History, AP U.S. History, A.P. European History, American Government, and Global Studies.

## Initial Data and Planning

The social studies coordinator for Washoe County School District, a facilitator from NWRPDP, and a high school social studies teacher collaborated on this project. The cohort used material

focused on rights and responsibilities from the *We the People* program as well as the C3 Inquiry Framework. Over a period of three-months teachers engaged in learning on civic opportunities and responsibilities, worked on developing plans that utilized the *Taking Informed Action* framework, implemented the framework in their classrooms where facilitators of the cohort observed, and then came back to reflect on their students' learning as well as their own.

## Delivery of Services

Sessions of *Democracy in Action* were held beginning in November and ran through February. Courses included two all day sessions and four, 2-hour after school sessions. For each session, participants engaged in learning around what *Taking Informed Action* could look like in their classrooms through reading about real-life examples. They would then be asked to connect these examples to rights and responsibilities. Participants then planned their projects implementing the *Taking Informed Action* standards using the framework developed by the social studies coordinator. Throughout the process, participants and the facilitator would circle back to the framework and make edits or additions based on discussions among the group and experiences in the classroom. The course culminated with the implementation of the participant's projects. The facilitator from NWRPDP observed this process. Participants came back to reflect on how well their students performed and how competent they felt in teaching the framework after having participated in the cohort.

## Results and Reflection

At the final session in February, participants completed a retrospective survey. Using a Likert scale rating of 1 to 5, teachers assessed their knowledge of *rights and responsibilities* and confidence in implementing *Taking Informed Action* before and after their participation in the cohort on the following topics: NVACS-Taking Informed Action Standards, Instructional Design Model/Inquiry Arc with the inclusion of *Taking Informed Action*, Integration of *Taking Informed Action* Standards and the C3 Framework, Civic Rights and Responsibilities, How to Develop a Student's Civic Identity, and Designing *Taking Informed Action Instruction*.

**Table 1. Pre-and Post-Training Results (Rating Scale of 1 to 5 where 1 is Poor and 5 is Excellent)**

| Topic | Pre-Training Average | Post-Training Average | Average Change |
|---|---|---|---|
| Knowledge of Taking-Informed Action Standards | 2.2 | 4.4 | +2.2 |
| Knowledge of the Instructional Design | 2.8 | 4.8 | +2.0 |

| Topic | Pre-Training Average | Post-Training Average | Average Change |
|---|---|---|---|
| Model/Inquiry Arc with Inclusion of Taking Informed Action | | | |
| Confidence in Integrating the Taking Informed Action Standards & the C3 Framework | 2.0 | 4.2 | +2.2 |
| Knowledge of Civic Rights & Responsibilities | 2.4 | 4.4 | +2.2 |
| Confidence in Developing a Student's Civic Identity | 1.8 | 4.2 | +2.4 |
| Confidence in Designing Taking Informed Action Instruction | 1.2 | 4.6 | +3.4 |

According to survey results, participants experienced the most growth when it came to their confidence in designing instruction for *Taking Informed Action* (Table 1). The second largest gain was connected to confidence in developing a student's civic identity. Overall, participants indicated that they experienced growth in all areas in the survey specified.
Additionally, participants were asked to give reflective responses on their participation in the cohort. Below are several of the comments in response to the following question: Did the lesson(s) you developed from this training increase your student's knowledge of their civic capacity?

- "Yes, students were able to see how they could use their voice to inform their own communities".
- "Yes, because we were able to talk about using our voices ourselves which deepened my own understanding and made it easier to teach students how they can do the same".

In addition to the survey, four of the six participants were observed implementing their lessons in their classrooms. Three of the teachers worked collaboratively to put on a community fair at their school's library that focused on problems in the Reno area caused by increased urbanization. Students discussed the issue and offered solutions. Members of the community were invited to attend.

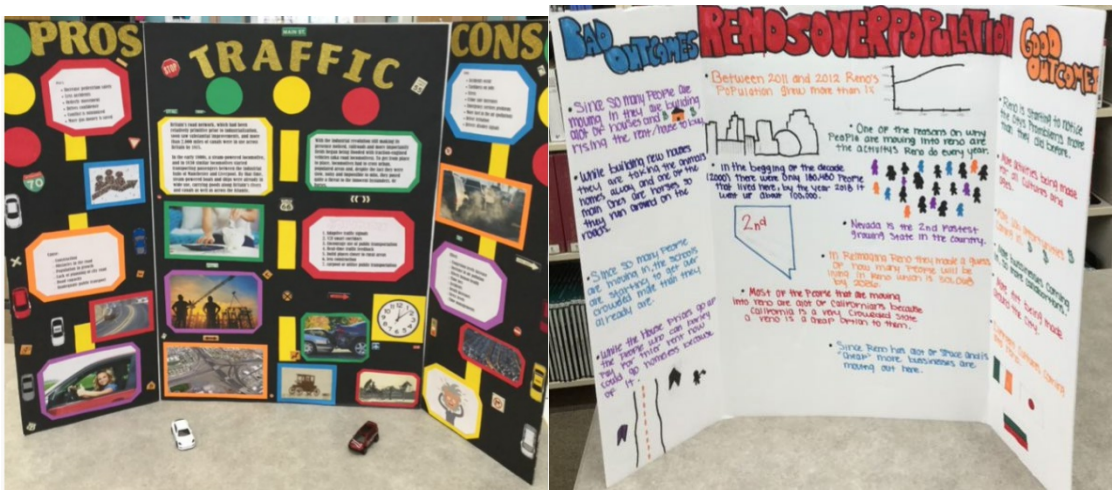


**Figure 1: Two examples of student projects at the community fair. One project focused on traffic in Reno while the other focused on Reno's population problem.**


**Figure 2: The picture on the left shows a brochure a group of students made on the lack of affordable housing in their community. The right picture shows the directions students and community fair attendees were given to interact with the projects.**

These three participants also presented their projects and student results at our annual Northern Nevada Council for the Social Studies Conference in February. During the conference EdCamp, several attendees pulled out the materials from the participants' session and talked about ways they could implement the *Taking Informed Action* Framework in their own classrooms. Having an example of what this could look like in the classroom was very helpful to other teachers. Their session was one of the highest rated of the conference.

**Figure 3: Participants present their project at the Northern Nevada Council for Social Studies Conference on February 22nd, 2020.**

Another participant's AP US History students connected the immigration crisis during the Holocaust to the current situation at the U.S.-Mexican Border. Her students conducted research and then created PSAs about the border crisis. This participant had her students reflect on the process in a survey with free response questions. Some of the student's statements are below. Many indicated that they were able to find solutions and ways to make a difference when confronting this issue.

- "I feel a lot more educated then before about the US-Mexico border crisis and I'm glad I do because now I have facts when people want to debate with me."
- "I worked very hard to find a solution and facts to increase the chance of getting more help/involvement from others."
- "I think we did a pretty good job at coming up with a solution because there's a lot of people out there that want to help with these kinds of problems and thanks to them there's great organizations that people can support we just need to bring more awareness to them."
- "Anybody in the world can help support people in many ways even by saying something and going to a website."

Additionally, participants completed the standard NWRPDP evaluation at the end of the training. Using a Likert scale rating of 1 to 5, teachers evaluated the impact and efficiency of the training. Overall, the ratings illustrated that participants were positively impacted by the training and helped to improve their overall effectiveness.

**Table 2. NWRPDP Training Evaluation Averages. Scale 1-5 (1=Not at All, 5= To a great extent).**

| | Characteristics of Training | Average Score |
|---|---|---|
| 1 | The activity matched my needs. | 5 |
| 2 | The activity provided opportunities for interactions and reflections. | 5 |
| 3 | The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 5 |
| 4 | The presenter/facilitator's efficiently managed time and pacing of activities. | 4.6 |
| 5 | The presenter/facilitator modeled effective teaching strategies. | 4.6 |
| 6 | The activity added to my knowledge of standards and subject matter content. | 5 |
| 7 | The activity will improve my teaching skills. | 5 |
| 8 | I will use the knowledge and skills form this activity in my classroom or professional duties. | 5 |
| 9 | The activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special ed., at-risk students). | 4.6 |

## Conclusion

It is important for social studies teachers in Northern Nevada to be confident in teaching *Taking Informed Action* and to understand the connection of those standards to building a civically efficacious community. These standards represent a significant shift in skill sets for both teachers and students. The intent of this training was to educate participants on civic rights and responsibilities, provide them with a framework for Taking Informed Action in their classrooms, and provide space and opportunity for them to implement their *Taking Informed Action* projects in order to receive helpful feedback. This training attained those goals but also provided participants with a variety of ideas and strategies of how students could use their voices as citizens to take on issues not only within their classrooms but in a public space. This is evidenced by the student work that was a result of the work of the participants and the survey responses that showcased a growth in both knowledge and confidence in implementing *Taking Informed Action.*

Next school year, the Social Studies coordinator for Washoe County School District is taking teachers through "A Year of Action". We will be taking the work we have accomplished this year and expanding it to more schools and possibly more districts.

## References and Resources

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## Case Study 5: Democracy in Action- Logic Model

**Situation:** Nevada has adopted new NVACS Social Studies Standards. These standards are modeled on the C3 Inquiry Design Model and therefore include Taking Informed Action. There is a lack of resources and training available for teachers and how to implement these new standards**.**

| **Inputs** | **Outputs** | | **Outcomes -- Impact** | | |
|---|---|---|---|---|---|
| | *Activities* | *Participation* | **Short** | **Medium** | **Long** |
| NVACS-Social Studies<br><br>C3 Inquiry Design Model<br><br>Articles and Instructional resources to support professional learning for participants<br><br>RPDP, C & I, and classroom teacher facilitators<br><br>Substitutes-two sub days (Nov. 4th, 2019 & Feb. 24th, 2020) for each of the 8 participants and 1 for the classroom facilitator<br><br>Site for training | Two full days plus 3, 2-hour sessions of professional learning for participants<br><br>Teachers will engage in activities that will increase their own civic capacity and will engage in Taking Informed Action themselves.<br><br>Creation of "A Framework for Taking Informed Action" template to design instructional resources to support K-12 educators in teaching the Inquiry Design Model<br><br>Vetting and feedback on TIA Framework through use of teacher designed lessons<br><br>Posting instructional resources to ProjectTahoe.org | 3 Facilitators (RPDP, C&I, and one classroom teacher)<br><br>Eight K-12 teachers | Increased knowledge of how to develop student's civic identity and various means of taking civic action.<br><br>Increased professional knowledge of IDM strategies that help teachers develop compelling questions, engage their students in inquiry, assess student understanding of a contemporary issue, and guide their students through civic action.<br><br>Measures:<br>Pre-Post Evaluations | Increased instructional efficacy in designing instruction for Taking Informed Action<br><br>Increased number of NVACS-Social Studies instructional resources focused on Taking Informed Action openly available for Nevada Educators.<br><br>Increased teacher use of NVACS-Social Studies resources<br><br>Measures:<br>Teacher feedback/self-reflections | Increased teacher efficacy and utilization of the C3 Inquiry Arc and it's lead up to Taking Informed Action<br><br>Increase in participants self-efficacy in teaching NVACS-Social Studies for Taking Informed Action<br><br>Increase in students' knowledge of their civic capacity and ways to engage in their communities.<br><br>Increased student civic action.<br><br>Measures:<br>District Data<br>Standardized Student Assessments |

**Assumptions:** Training will increase teacher efficacy. Teachers participating in the same activities as their students will increase effective implementation. Teachers will attend training. **External Factors**: Availability of substitutes. Ongoing COVID-19 pandemic disruptions

# Case Study 6: Routines for Reasoning

## Introduction

"The math practices live not in the final answer a student gets for a math problem, but in the thinking and reasoning the student uses to arrive at a solution." Kelemanik, G., Lucenta, A., and Creighton, S. (2016).

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. During the 2018-2019 school year, two NWRPDP trainers provided professional learning on mathematical content to all teachers in Kindergarten through sixth grade specific to their grade levels. As the school year ended, most teachers indicated in a post-reflective survey that the learning had been beneficial. In order to keep the momentum going, the administrators felt the need to continue with additional professional learning for the upcoming 2019-2020 school year. Plans were developed to provide a more in-depth training around the math practices where teachers could receive credit for participation.

## Instructional Context

The two elementary schools are located in a rural district in Nevada with approximately 9000 students. During the 2018-2019 school year, School One had 508 students, and 32.7% scored proficient on mathematics portion of the Smarter Balanced assessment. School Two had 430 students, and 37.7% of students scored proficient on the Mathematics portion of the Smarter Balanced assessment. Both schools had teachers with teaching experience along a continuum of within 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 at the end of the 2018-2019 to reflect upon goals that had been set for that year and to determine new goals for the upcoming school year. Based on observational data and student test data, the team discussed the possibility of focusing on the eight Standards for Mathematical Practice contained within the Nevada Academic Content Standards (2010) in order to create a shift in instructional practice by the teachers. After reviewing many resources, the team felt that the book *Routines for Reasoning: Fostering the Mathematical Practices in All Students* (Kelemanik, Lucenta, & Creighton, 2016)

would be a useful tool to assist teachers with strategies for engaging all students in utilizing the practices. The Standards for Mathematical Practice set forth expectations for how students engage with mathematical content. Built from National Council of Teachers of Mathematics process standards and the five strands of mathematical proficiency, the eight Standards for Mathematical Practice outline ways in which children can develop and demonstrate a deep understanding of and capacity to do mathematics (Van de Walle, Lovin, Karp, & Bay-Williams, 2014). The focus of the upcoming training would be based on implementation of the principles and instructional routines recommended in the book.

## Delivery of Services

Teachers were surveyed at the end of the academic year 2018-2019 regarding their preferences for how the training would be offered. The majority were interested in taking a course that would provide them with graduate credit for the time spent in class. One NWRPDP trainer had an affiliation with Southern Utah University so a two-credit course was created, applied for and granted from that institution.

To generate interest and create a common understanding, all teachers from both schools participated in a full day training with the two NWRPDP trainers introducing all eight Standards for Mathematical practice and their importance during one of the professional development days prior to the start of the 2019-2020 school year. There were about eight teachers that had participated in this training the previous year so content was differentiated to create the opportunity for these teachers to take a leadership role to support those to which the training was new information. At the end of that day, details were shared about the graduate course to focus on the math practice standards taught by both NWRPDP trainers and participants had the option to sign up. At that time 29 people indicated interest including both administrators from both schools.

The course was setup with six whole group meetings to discuss the readings, to learn about and practice the routines, and to begin planning and refining the use of the routines in the classroom. In addition, there were smaller group meetings to collaboratively plan and revise lessons based on the core elements of the instructional routines. As a graduate level course, participants were to do required readings, participate in observations, and complete related tasks as part of the course. Twenty-six participants attended the first class and began the course. As an instructional tool, each student received a copy of the book *Routines for Reasoning: Fostering the Mathematical Practices in All Students*. The first three class sessions focused on understanding the Core elements of instructional routines (articulation of a math practice goal, individual think time, partner work, full group discussion of ideas, final math practice reflection, access through multiple modalities and multiple representations, liberal use of math practice focused prompts) and how they support the Standards for Mathematical Practice. The initial three sessions also

introduced a routine called the Three Reads which focused on Math Practice One: Make sense of problems and persevere in solving them. This routine allows students the opportunities to enter a problem and sustain the thinking by reading it three times with a different purpose for each reading: to make sense of the context, to interpret the question, and to identify important information. The course was structured for participants to share their successes and collaboratively discuss their work. All participants participated in a classroom observation and follow-up coaching session around their work with the Three Reads routine at the end of the first three course sessions. In addition, all participants created presentations to showcase their work around the Three Reads routine after the first three classes. The presentations were viewed by peers from both schools at a session prior to the start of the school day. The final three course sessions were focused on adding an additional routine to teachers' repertoires called Capturing Quantities which focuses on Math Practice Two: Reason abstractly and quantitatively. During the small group meetings, participants collaborated on lesson planning and making sense of the routine. To assist with common understanding of the routine, six teachers opened their classrooms during March to share their collaboratively planned lessons in a lesson study fashion where the collaborators were able to observe the lesson being implemented. The other thirteen participants were scheduled to have observations and feedback at a later date. Unfortunately, schools were closed Mid-March due to COVID-19 and the observations could not occur. Nineteen participants completed the course, while seven others dropped the class near the start of the course citing a heavy workload as the reason.

## Results and Reflection

All of the participants who were enrolled in the Routines for Reasoning course were observed by the NWRPDP trainers as they were implementing the Three Reads routine during November. After the observation, the trainer and participant discussed elements of the routine that had been observed as well as what had gone well and if the participants felt additional support was needed. The trainers were looking for evidence of some of the key elements of the routines such as the purpose of each read during three readings of a problem as well as having a math practice goal, individual think time, partner think time, full group discussion, and a final reflection. While most participants were going through three readings of the problems, many of the teachers indicated they were still learning to incorporate all of the elements concisely. Six of the teachers were observed again in March after a second routine, Capturing Quantities had been introduced. These six teachers were observed not only by NWRPDP trainers, but also other members of the course that they had collaborated with to plan the lesson. The number of elements of the routine that were observed increased with many of the elements of the being observed in 100% of the classrooms. Unfortunately, this data is incomplete due to less than one-third of the participants being observed.

At the completion of the course, all participants were given a post-reflective survey to show how they felt they had grown in six areas related to The Nevada Academic Content Standards from the beginning of the course to the completion of the course. The areas were general knowledge of the eight standards for mathematical practice, routines as a predictable frame for engaging with mathematical content, Math Practice One, Math Practice Two, deeper content knowledge around the standards, and strategies and resources to use with the standards. Teachers rated themselves on these six statements on a scale of one to five with one being poor and five being excellent. The results are shown in the Table 1 and in the narrative following.

**Table 1. Results of Post-reflective Evaluation Results.**

| | Before | After | Increase | *t*-score | *p*-value |
|---|---|---|---|---|---|
| General Knowledge of the 8 standards for mathematical practice | 2.38 | 4.06 | 1.69 | -11.211 | < .001 |
| Routines as a predictable frame for engaging with mathematical content | 2.44 | 4.31 | 1.88 | -12.114 | < .001 |
| Math Practice 1 | 2.93 | 4.40 | 1.59 | -6.205 | < .001 |
| Math Practice 2 | 2.00 | 3.69 | 1.69 | -11.211 | < .001 |
| Deeper content knowledge around NVACS for math | 2.88 | 3.94 | 1.06 | -7.408 | < .001 |
| Strategies and Resources related to NVACS | 2.33 | 3.93 | 1.56 | -8.411 | < .001 |

The self-rating for "general knowledge of the eight Standards for Mathematical Practice" changed from a mean of 2.38 before the class to 4.06 after the class, which was an increase of 1.69. This has a t-score of −11.211 with a corresponding p-value of < .001. The self-rating for "routines as a predictable frame for engaging with mathematical content" changed from a mean of 2.44 before the class to 4.31 after the class which was an increase of 1.88. This has a t-score of −12.144 with a corresponding p-value of < .001. The self-rating for "Math Practice One--Make sense of problems and persevere in solving them" changed from a mean of 2.81 before the class to 4.40 after the class which was an increase of 1.59. This has a t-score of −6.205 with a corresponding p-value of < .001. The self-rating for "Math Practice Two—Reason abstractly and quantitatively changed from a mean of 2.00 before the class to 3.69 after the class which was an increase of 1.69. This has a t-score of −11.211with a corresponding p-value of < .001. The self-rating for "deeper content knowledge around the Nevada Academic Content Standards" changed from a mean of 2.88 before the class to 3.94 after the class which was an increase of 1.06. This has a t-score of −7.408 with a corresponding p-value of < .001. The self-rating for "strategies and resources in support of curricula for Nevada Academic Content Standards in Mathematics

changed from a mean of 2.38 before the class to 3.93 after the class which was an increase of 1.56. This has a t-score of $-8.411$with a corresponding p-value of $< .001$. These results indicate statistically significant improvements in all areas.

Teachers were also surveyed about the effectiveness of the training, future use of the knowledge from the training, and improved student problem solving abilities as a result of the training by rating these categories from 1 (not effective) to 5 (very effective). Results are shown in Table 2 and in the narrative below.

**Table 2. Training Evaluation Results**

| **Elements of Training** | **Mean** |
|---|---|
| Organization and Preparation | 4.94 |
| Style and Delivery | 4.75 |
| Responsiveness to Participants | 4.88 |
| Creating a Learning Environment | 4.94 |
| Content of the training | 4.88 |
| I intend to use the information from this training now and in the future within my classroom. | 4.50 |
| Do you feel your students improved their problem-solving abilities using the routines learned? | 4.38 |

For "Organization and Preparation" participants indicated an average of 4.94 with five being the highest score possible. The category of "Style and Delivery was rated an average score of 4.75. "Responsiveness to Participants" was rated an average of 4.88. "Creating a Learning Environment" was rated an average of 4.94, and "Content of the Training" was rated an average of 4.88. Teachers were also asked if they intended to use the information from this class with an average response of 4.50 and if they felt their students' problem-solving abilities had improved

with an average response of 4.38 indicating that most of teachers would continue to use this information and that students' problem-solving abilities had increased.

## Conclusion

The results show that participants in the Routines for Reasoning course felt that it was valuable and by creating changes in instruction, the students' problem-solving abilities through use of the math practices improved. All of the participants who completed the course indicated that they would or would consider continuing with a similar course for the future. The NWRPDP trainers felt that there were dramatic changes in teacher beliefs about math instruction that were not necessarily captured with the survey questions or observational data. As teachers practiced the routines, classroom instruction shifted to include more student discussion of ideas and understanding of the concepts behind the problems. The students also became more independent as problem-solvers. Some teacher comments regarding this include, "My students are now comfortable, and quite independent with a graphic organizer we use to 'tackle' word problems. They have also learned new skills in working with partners during math tasks, discussing ideas, etc." and "My students LOVE using the 3 reads protocol and capturing quantities and relationships with math problems. They also understand and can explain the practices that we have focused on during this training. The biggest obstacle right now is school closure [due to COVID-19], however my students have asked to do the 3 reads problems during our Zoom meetings." Another comment to support a more student-centered classroom was [students are] "realizing that the most important part of solving a problem is not just the knowledge of the numbers and the questions, but being able to stretch what they know to other situations and think deeper about the question."

The NWRPDP trainers observed dramatic changes in instructional practice and beliefs about math teaching that is only partially captured through teacher comments. Some of the components of the course intended to support change were implementation of new instructional strategies along with collaborative planning groups, observation by trainers, peer observation, and presentation of the strategies to others. The participants who completed the course indicated that they had felt challenged but that it was worth it with comments such as "I really love the opportunity it gave me to explore the mathematical practices and what they can look like in the classroom. I learned tremendous amount about how to get the students thinking like a mathematician while applying the practices. This class pushed me outside of my comfort zone at times, and while that isn't an easy feeling, I grew and no longer have the initial anxiety I had at times. Yay!" and "We [the participants] were also very challenged and did activities that our students would be doing which allowed us to better be able to teach the strategies."

Student assessment data that may have shown improvement of student understanding of problem solving will, unfortunately, be unavailable as testing did not occur due to school closure.

However, additional benefits to the training, not specifically related to mathematics, were noted by the participants. The administrators from both schools participated in the trainings and taught the routines strategies to students at their schools. This impacted teacher change at both schools. As one teacher stated, "I appreciate that [our administrators] were a part of our class. It helps that leadership is engaged in trying what they're asking the teachers to use." Another benefit that several teachers noted was participating in a PLC group to collaboratively plan and discuss progress with the implementation of the routines. As one teacher commented, "I … really enjoyed my time with my school PLC. It was cross-discipline and ended up being a very valuable tool, not only for the class, but for future planning as well." Another indicated that she liked "opportunities to collaborate with peers and present together." The administrator at one of the schools indicated that there were changes in the culture of the school. She noted that teachers were talking to each other about the Three Reads and Capturing Quantities routines in the hallways and office before and after school and during recess breaks. Teachers volunteered to help each other in the implementation of the routines and one teacher had her students work with students from another grade level to learn to use the routines. The administrator was excited about the collegiality that she was observing.

Participants in the course recognized that they had made important changes in their classrooms, that students were persevering while problem solving, and were enjoying the complexities of doing mathematics. As stated above, the average participant rating of the likelihood of using these strategies now and in the future was a 4.5 on a scale of one to five. All of the participants indicated that they would consider a continuation of the course for the future and some were adamant that they wanted to learn more. One participant who will be starting a master's program said that she will definitely be doing both the master's work plus whatever NWRPDP can offer for math. Both site administrators stated that they would also like to continue this work in the future. Some areas to focus on for future learning would be to expand this learning to other schools and teachers, and to expand teacher knowledge of the routines to incorporate additional math practices. For many of the teachers, this course shifted their focus to including the math practices as an important component of quality math instruction.

## References

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## Case Study 6: Integrating Eight Mathematical Practices through Instructional Routines- Logic Model

**Situation:** Teachers from three school participated in a course designed to integrate the eight mathematical practices into their classrooms through instructional routines.

| 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 | (6) two- or three-hour trainings utilizing Routines for Reasoning<br><br>15 hours collaborative planning times focusing on implementation of Routines for Reasoning<br><br>Observation and feedback and/or coaching<br><br>Presentation of work to colleagues | Teachers from three schools | Increased familiarity of Nevada Academic Content Standards in Mathematics<br><br>Implementation of instructional routines designed to develop student use of the math practices<br><br>Increased student use of mathematical practices<br><br>**Measures:**<br>Teacher Feedback<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>Teacher Feedback | Increased student achievement<br><br>Increased passing rates in secondary math<br><br>Increased graduation rates<br><br>**Measures:**<br>Existing District Data |

**Assumptions:** Teacher training will lead to increased teacher efficacy.
**External Factors:** Teachers have had little opportunity for school-driven professional learning in mathematics in recent years. Covid-19 pandemic disruptions.

# Case Study 7: Student Goal Setting

## Introduction

Student disengagement during diagnostic testing can be an obstacle for teachers in obtaining valid test results. Essentially, the more accurate student data is, the better prepared teachers can be for instructing students. But when validity is compromised, it becomes more difficult for teachers to truly know where individual students are, educationally. We give diagnostic assessments, three times yearly, but the accuracy of those assessments is highly dependent upon how seriously students take the opportunity to 'show what they know.' There are many possible reasons for this lack of engagement and motivation during testing, though research has supported that low student efficacy, due in part to students not being shown diagnostic results, or not being given the opportunity to work toward self-improvement, can often be a driving factor.
Additionally, there is a general trend towards students' MAP and i-Ready diagnostic scores to decline between the fall and winter, and/or the winter and spring, diagnostic assessments. Therefore, the hypothesis of this case study is: If students are provided the opportunity to review past assessment results with their teachers, and exposed to appropriate goal setting, they will improve their individual educational goals and increase learning efficacy. This will result in reduced winter and spring declines in assessment scores.

## Instructional Context

Storey is a small rural county in Northern Nevada. There are four schools: two PK-5, one 6-8, and one 9-12. The overall student population of Storey County Schools is 540, with 128 at the high school, 116 at the middle school, and 193 total preK-5 elementary students. This study focuses on grades 1-5, and includes all teachers and students from both of the district's elementary schools. The breakdown of student and teacher numbers, per grade included in this study, is in Table 1 below.

**Table 1: Teachers and Student Number by Grade Level**

| Grades | Teachers | Students |
|---|---|---|
| 1 | 1 | 21 |
| 2 | 1 | 25 |
| 1/2 | 1 | 10/6 |
| 3 | 1 | 19 |
| 4 | 1 | 21 |
| 5 | 1 | 27 |
| 3/4/5 | 1 | 7/9/9 |
| **TOTAL** | **7** | **154** |

## Initial Data and Planning

The MAP diagnostic results were to be used as the quantitative data initially, but a roadblock to doing this quickly arose: not all students in grades 1-5 are currently administered that diagnostic. That made the sample group much too small to get any really valid and reliable results. Specifically: 1st to 4th grades do MAP diagnostics, and 1st to 5th grades do i-Ready diagnostics. Additionally, the MAP diagnostic changes from the program being given orally in 1st grade throughout the entire year, to requiring independent student reading in the fall for 2nd grade. Due to that, there is a major drop in the fall scores for 2nd grade, giving an inaccurate depiction of where the students are in their learning. Consequently, nearly all students show growth in winter, from the fall drop. This results in most 2nd grade students not following the trend of scores dropping during winter. Additionally, 1st grade does not do i-Ready diagnostics in the fall. Due to the small numbers of teachers and students in rural Storey county, it was determined to be necessary to include all grades and teachers, from both schools in this study, so adjustments to the initial direction of this study needed to be made. It was finally decided to use MAP data for 1st & 3rd grades, and i-Ready data for grades 2nd, 4th & 5th grades.

At first, due to the logistical implications of our small district, it wasn't clear whether incorporating results from different diagnostics would give any valuable and useful results. But after consideration of the different needs and make-up of our district, as well as changing curriculum and assessment practices, it was determined that the findings will highlight scores and trends with two different diagnostics; in itself, this might yield a better understanding of the extent of results that support with goal setting, over more than one particular company's product, will produce.

The data that was incorporated in this study included the Fall 2019 and Winter 2020 diagnostic scores for the applicable MAP or i-Ready diagnostics and pre- and post- goal setting consultation surveys for both teachers and students. The initial and the first subsequent diagnostics were examined to determine growth or non-growth for students. Those results were then compared to the teacher and student perception surveys. This was done to recognize the presence, or lack of presence, of a correlation between setting a goal to improve personal effort, teacher support to help with that goal setting, and that effort helping to reverse a common phenomenon in diagnostic assessment results. The original planning of this study included both the diagnostic results and goal setting for the Spring 2020 assessments as well, but the COVID-19 pandemic prohibited the Spring diagnostics from occurring. As a result, this study was shortened. Therefore, the full implications from student setting of personal goals, that had been anticipated to be realized, were not able to be met.

## Delivery of Services

In late Fall 2019, all seven teachers attended one pre-goal setting workshop focused on the research behind goal setting with students, and another specific to facilitation of student goal setting in respect to the diagnostic tool they use and the available data.

All teachers were asked to rate on a Likert scale of 1-5 their own beliefs about goal setting, by completing a pre-goal setting implementation survey as well as a post implementation survey, following the winter diagnostics. (Table 2)

Teachers also attended a pre-diagnostic goal setting meeting with the focus on individual student facilitation and the examination of different available tools. Included in this workshop was facilitator support in giving the students a pre and post metacognition Likert scale survey (1-3), in reference to the students' individual beliefs about goal setting. (Table 3)

Additionally, teachers attended a post-Winter diagnostic workshop, in February, where they looked at data, made initial conclusions, and discussed results and experiences with others. Teachers also created implementation plans for the Spring diagnostics, based on what had worked well for them previously and what they felt needed to be modified. Due to the Covid-19 pandemic, the Spring diagnostics were not conducted.

## Results and Reflection

Teachers were asked to fill out a survey prior to the first professional development facilitation, and then again right after their individual consults with students. Students were asked to complete surveys prior to goal setting consults with their teachers, and then after they completed both the goal setting consult and the winter diagnostic assessment. As well, growth/non-growth data between the fall and winter student diagnostic assessments were collected. The following tables reflect those findings. In addition to the Likert scale surveys, teachers were asked to give comments. Those comments are also listed below.

Table 2 shows that the teachers' perceptions of goal setting were positively enhanced after the professional development facilitation. Additionally, after student goal setting consults with students, teachers' beliefs about their own abilities to successfully conduct those consults were also positive. Due to the small population group (seven teachers) statistical significance of the survey growth results was not able to be determined.

**Table 2: Teacher Pre and Post Reflective Goal Setting Training Survey (Scale 1-5)**

| Rating | Pre | Post | Change |
|---|---|---|---|
| Do you believe that pre-assessment goal setting affects students' effort during the diagnostic? | 3.00 | 4.14 | +1.14 |
| I make student goal setting a priority before diagnostics | 2.57 | 4.14 | +1.57 |
| I know how to facilitate student goal setting affectively | 2.29 | 4.29 | +2.00 |

Table 3 reflects that the students' understanding of what a goal is and how to set one was also positively enhanced. As well, the students' beliefs that setting goals will support them to do their best showed positive results. As a note of caution, these surveys were given to students from grades 1 to 5. Though the students in grades 3-5 were able to complete the survey. Grades 1-2 had more difficulty, and their understanding of what was being asked was not entirely clear to the teachers who gave the surveys. Due to this, statistical significance of the growth that is shown in this perception survey, was not figured.

**Table 3: Student Pre and Post Reflective Goal Setting Facilitation Survey (Scale 1-3)**

| Rating | Pre | Post | Change |
|---|---|---|---|
| I know what a personal goal is | 1.73 | 2.64 | +0.91 |
| I know how to set a personal goal | 1.61 | 2.71 | +1.10 |
| I think if I set goals before diagnostic tests it would help me to try my best | 2.16 | 2.72 | +0.56 |

To determine whether student goal setting had any effect on growth between the fall and winter diagnostics student results, all growth was considered, and was not dependent upon a certain level of growth. Diagnostic results from fall to winter 2018-19 and 2019-20 were collected. For grades 2, 4, and 5 i-Ready was reviewed, and for grades 1 and 3, MAP was reviewed. All grade levels showed a positive average increase between the two years. The original intent of this growth comparison was to be between fall/winter and winter/spring of each year. The pandemic did not allow for the winter/spring diagnostic assessments. Due to the ability to compare one set of data, rather than two, the validity of these results is lessened. Added to the ability to conduct valid comparisons, is that the student populations between the two years and the two diagnostics does not allow for the same student populations being compared. Therefore, though there is an

increase of the number of students at each grade level who showed growth, this indicates a possible trend, rather than statistical significance of positive results.

**Table 4: Percent of Students Who Showed Growth Between Fall and Winter Diagnostics**

| Grade | Number of Students 2018-2019 | % of Growth 2018-2019 | Number of Students 2019-2020 | % of Growth 2019-2020 | *Change in % of Student Growth* |
|---|---|---|---|---|---|
| 1 | 28 | 85.71 | 29 | 89.66 | +03.95 |
| 2 | 24 | 70.83 | 31 | 87.10 | +16.27 |
| 3 | 32 | 68.75 | 22 | 90.91 | +22.16 |
| 4 | 32 | 81.25 | 37 | 86.49 | +05.24 |
| 5 | 35 | 74.29 | 31 | 83.88 | +09.59 |

## Conclusion

The following hypothesis was tested in this case study: If students are provided the opportunity to review past assessment results with their teachers, and exposed to appropriate goal setting, they will improve their individual educational goals and increase learning efficacy. This will result in reduced winter and spring declines in assessment scores.

In order to test this hypothesis, it was necessary to provide professional development to teachers, in the form of expanding their knowledge base for both the why and the how of goal setting with students. The results from the data collected, albeit not what was fully envisioned due to the COVID-19 pandemic, do show a positive response to the professional development facilitation of goal setting with students, prior to diagnostic assessments. These positive responses give support for further professional development in goal setting and investigations into whether this strategy continues to provide more accurate results from diagnostics assessments, and allows for teacher benefit for student effort.

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# Case Study 7: Student Goal Setting with MAP and i-ready Diagnostics - Logic Model

**Situation:** There is a general trend towards students' MAP and i-ready diagnostic scores on assessments dropping between the fall and winter, and/or the winter and spring. Research has supported that this is due to low student efficacy, due in part to students not being shown or reviewing diagnostic results, and thus not being given the opportunity for self-improvement based on assessment results. Student goal setting is one method of enhancing students' self-reflection and metacognition of their educational progress.

| **Inputs** | **Outputs** | | **Outcomes -- Impact** | | |
|---|---|---|---|---|---|
| | *Activities* | *Participation* | **Short** | **Medium** | **Long** |
| RPDP Facilitator<br><br>7 Teachers total, at 2 Elementary Schools in Storey County<br><br>Grade 1-5 students<br><br>2019-20 Fall, Winter, and Spring data from MAP (NWEA) and i-ready (Curriculum Associates) diagnostics<br><br>Support of Storey County School District | One Pre-goal setting Workshop, with the focus on the research relating to the importance of student goal setting in educational settings<br><br>One Pre-goal setting Workshop with the focus on goal setting with students, with teachers using MAP diagnostics for data<br><br>One Pre-goal setting Workshop with the focus on goal setting with students, with teachers using i-ready diagnostics for data<br><br>One Pre-goal setting meeting with all teachers prior to Winter and Spring diagnostics facilitation with students<br><br>One Post-goal setting meeting with all teachers following Winter and Spring diagnostics facilitation with students | <u>Three – Grade 1-2 Teachers:</u><br><br>One 1st & 2nd grade<br><br>One 1st/2nd grade Combo<br><br><u>Four – Grade 3-5 Teachers:</u><br><br>One 3rd ,4th & 5th grade<br><br>One 3rd/4th/5th grade Combo<br><br>31 - 1st grade students<br><br>31 - 2nd grade students<br><br>24 - 3rd grade students<br><br>25 - 4th grade students<br><br>35 - 5th grade students | Teachers increase knowledge of educational benefits of goal setting with students prior to facilitating diagnostic assessments<br><br>Students increase knowledge of educational benefits of goal setting prior to taking diagnostic assessments<br><br>Teachers and students increased knowledge of setting realistic and attainable educational goals based on diagnostic assessments<br><br>**Measures**:<br>Post-reflective surveys of teachers and student diagnostic assessments<br><br>Goal sheets | Increased teacher goal setting efficacy in MAP diagnostic assessments with students<br><br>Increased student educational goal setting based on assessment results<br><br>Reduced Winter and Spring declines in assessment data<br><br>**Measures**:<br><br>Post-reflective surveys of teachers and student diagnostic assessments<br><br>MAP and i-ready Diagnostic Data (Trends) | Increased GPA and graduation rates of students exposed to MAP and i-ready Diagnostics<br><br>Increase in student/teacher use of goal setting in all areas of education<br><br>**Measures:**<br><br>Existing school, district, state, and College Board student data |

**Assumptions:** Positive attitudes and beliefs about Professional Practice. Changes in teachers' pedagogy leads to increased student awareness and effort. Students take assessments more seriously when they have a self-selected and realistic goal. **External Factors**: Fall diagnostics were already given before the start of this project. Time availability in the classrooms to participate in goal settings with students. Teacher efficacy in the practice. Fatigue in having another task to do with students. Covid-19 pandemic disruptions

# Case Study 8- Building Learner Agency with Middle School Staff

## Introduction

The structures and habits which have dominated public schools have changed very little for decades. Within these are traditional teaching methods which have placed the teacher as a point of focus in the classroom. In this type of structure, curriculum, pacing, and evaluation are determined by that teacher with the student as a receiver of information who eventually is asked to prove his or her learning to the instructor. In the past, reliance on the expert, or teacher was a necessity as they were the main source of energy. Advances in our modern society, however, have made this focus inefficient and even irrelevant. An urgent need to shift from a teacher centered, to a learner centered focus is now not an idea to consider, but an essential change that must occur.

The field of innovations and most effective ways to lead current, and train new educators are developing worldwide. The importance of this work cannot be understated.

"...if we are not obsessed with who learners are, how to best serve them, and how to partner with them to move forward, we can fail to make the impact that we desire and are working so hard to achieve." (Martin, 51)

The cost of continuing to focus as before and continue as before will be costly in economic and social measures. For this reason, work must begin now in earnest in areas that have not already taken serious steps towards creating personalized, student centered learning for all in our schools.

"If our schools aren't working for those we serve, we can no longer accept that they need to change. We must consider how we can change to best serve them." (Martin, 73)

Part of this shift is a focus on building learner agency, or building the needed mindsets, knowledge, and taking the appropriate actions to become the owners and drivers of their own learning, rather than relying only on a teacher. A shift to change to a student driven educational setting is beneficial for students as it helps them truly be prepared for modern challenges which exist now, and will yet develop. Teachers are still needed in this process, however, their roles have changed from distributors of knowledge to mentors and guides. Part of that mentoring is the training of learners to be agents of their own learning.

The focus of this case study revolves around the efforts to help teachers of a middle school learn about the benefits of, and the steps needed to build learner agency in their classes. It is an example of one effort which should be replicated throughout the state.

## Instructional Context

Participating teachers in this case study were all from Churchill County School District. At the request of the superintendent and the principal of the middle school, a plan was developed to help the staff develop awareness and skills to begin fostering learner agency within the school. There was a wide variety of experience levels and roles of those who participated, although the majority were currently teaching middle school children. A group of 36 middle school teachers were joined by three administrators and four high school teachers for this study.

Demographics of the students served within the Churchill County School District are summarized below. It is a good representation of rural Nevada and a valuable group to study.

**Table 1: Demographics of Churchill County School District**

| | Total Enrollment | Ethnicities other than White | Individualized Education Plans | English Language Learners | Free and Reduced Lunch |
|---|---|---|---|---|---|
| Churchill | 3,379 | 41.0% | 16.9% | 7.0% | 53.7% |

## Initial Data and Planning

Initial planning for this effort came from a request from the superintendent of Churchill County School District and principal of Churchill County Middle School. As part of the district strategic plan, this district continues to focus on moving from a very teacher centered, to a student-centered learning environment. The development of more learner agency was identified as a strategy which the superintendent requested be pursued. Previous observations had revealed that there was a strong propensity towards a teacher centered form of instruction, especially in the secondary levels. Planning was conducted to create a course that would give staff the ability to gradually consider and develop knowledge about and skills to build learner agency with their students. Six pre-learning modules were created and each were followed up with a collaborative workshop where staff could discuss and plan for implementation of what they learned.

## Delivery of Services

The work summarized in this document was a long term and continuous effort throughout the majority of the 2019-2020 school year. Each pre-learning module and workshop pair were spaced about a month apart. The modules and workshops included the topics to help build an environment supportive of learner agency including basic principles of learner agency, creating a learner centered environment, increasing effectiveness as a facilitator, and mindsets needed of adults to foster learner agency. Additional modules focused on student mindsets, know-how, and skills that staff could help students develop for their success.

As mentioned previously, each module was distributed to participants through a Google Classroom. These learning modules included articles, activities, and reflection topics to help the staff build basic knowledge of each topic previous to attending the collaborative workshop. Following a period of individual study and reflection, staff would come together in a collaborative workshop. In the workshops, a variety of activities provided the staff the ability to compare ideas and plans with one another in preparation to experiment and implement in their classrooms. These collaborative workshops were also designed to build a sense of community and teamwork in building learner agency schoolwide.

## Results and Reflection

As the work began it was apparent that a general understanding of learner agency and its principles was underdeveloped in the staff. When asked in the first module pre learning if they felt they were developing learner agency in their classes responses mistakenly identified basic choices with learner agency. Some of the responses that reflect this include, "I allow my students to make choices in their learning, they can choose to sit where they wish." and "My students have the freedom to get a drink or use the restroom whenever they want, I feel this shows that I give them learner agency."

The continuing modules however offered the chance for the participants to learn about what the basic principles of learner agency actually meant, and they took small steps in making plans to start changing their practice to help students be more active in their learning. Mindset self-assessments, student planning activities, and goal setting with students were just some of the collaboration points of focus.

Towards the end of the course staff were asked to reflect on their learning from the year. First, teachers were invited to reflect on their learning. They responded to reflective questions to express their agreement or disagreement with a few thoughtful responses. The opinions of the educators can be seen on Table 2.

Teachers and students were then asked questions which proved useful in comparing adult and student impressions of the beginning implementation of the basic principles related to learner agency. All responses were weighted with a 1-5 scale. 5=Strongly Agree and 1=Strongly Disagree with intermediate scores corresponding to responses disagree, neutral, and agree. The mean of these scores was calculated to quantify comparisons between student and adult views. Some of the results include responses to questions which can be seen on Table 3.

**Table 2: Teacher learner agency growth of attitudes and skills self-evaluation.**

| Reflective Statement | Teacher Self Score Mean Response |
|---|---|
| My knowledge about the basic elements of building an environment that supports learner agency has increased because of this course. | 3.63 |
| My skills in building a learner-centered environment have increased because of this | 3.68 |

| Reflective Statement | Teacher Self Score Mean Response |
|---|---|
| course. | |
| I am better at developing the attributes needed in an environment that supports learner agency because of this course. | 3.61 |

**Table 3: Teacher and student comparison of learner agency growth**.

| Opinion Statement | Teacher Mean Response | Student Mean Response | Difference (Higher opinion of teacher compared to student.) |
|---|---|---|---|
| Teachers treat everyone equally. | 4.03 | 3.31 | +.72 |
| Teachers care about constant improvement, not just a grade. | 3.45 | 3.10 | +.30 |
| Teachers care about constant improvement, not just a grade. | 4.03 | 3.56 | +.47 |
| Teachers give me a lot of opportunities to reflect on how my learning is going. | 3.74 | 3.42 | +.32 |
| Teachers listen more than they talk. | 3.16 | 2.87 | +.29 |
| Teachers ask questions that let me express my opinions, not what they want to hear. | 3.37 | 3.11 | +.26 |
| Teachers create opportunities to learn, not just force me to learn certain lessons. | 3.24 | 3.33 | -.09 |
| Teachers care more about me than about | 3.63 | 3.29 | +.34 |

| Opinion Statement | Teacher Mean Response | Student Mean Response | Difference (Higher opinion of teacher compared to student.) |
|---|---|---|---|
| 'getting through the classwork.' | | | |

Although these questions seem to demonstrate in a majority confidence that they were beginning to learn what was needed, further questions seemed to reveal a difference in the opinions of their students when considering the ability to implement what was learned. These findings were drawn from the staff and 99 random students grades 6-9 answering questions about the same topic. Table 4 presents summaries of some of the responses which demonstrate the gap in perception most clearly.

**Table 4: A further analysis of the data**

| Student question | Student mean (N = 99) | Teacher question | Teacher mean (N = 38) | *t*-score | *p*-value |
|---|---|---|---|---|---|
| My teachers treat everyone equally. | 3.31 | My students feel my class is equitable. | 4.03 | -4.179 | < .001* |
| My classes are centered around the students. | 3.10 | My students believe that my class is learner-centered. | 3.45 | -2.405 | .018* |
| My teachers care about constant improvement, not just a grade. | 3.56 | My students know that I value continuous improvement and not just a grade. | 4.03 | -2.571 | .011* |
| My teachers give me a lot of opportunities to reflect on how my learning is going. | 3.42 | I create frequent opportunities for my students to reflect on their own learning. | 3.74 | -1.847 | .067 |
| My teachers listen more than they talk. | 2.87 | My students would say that when we learn together, I listen more than I speak. | 3.16 | -1.763 | .080 |
| My teachers ask questions that let me express my opinions, not what they want to hear. | 3.11 | My students would say that I ask questions that do not have pre-determined answers. | 3.37 | -1.538 | .127 |

| Student question | Student mean (N = 99) | Teacher question | Teacher mean (N = 38) | *t*-score | *p*-value |
|---|---|---|---|---|---|
| My teachers create opportunities to learn, not just force me to learn certain lessons. | 3.33 | My students would say that I do not force their learning, but create opportunities for them to learn naturally. | 3.24 | 0.519 | .605 |
| My teachers care more about me than about 'getting through the classwork.' | 3.29 | My students would say that I care more about them than 'getting through the material.' | 3.63 | -1.608 | .112 |

**Statistically significant differences. In all other areas, there were no statistically significant differences between students' and teachers' responses*.

This data reveals there was growth by the staff in their confidence in moving towards learner agency, but that their learning on implementation is not yet complete.

## Conclusion

When considering the growth in the staff throughout the year, it is positive to remember the starting point from where they began. Many members of the staff have come from a non-existent understanding of what learner agency is, to a point where they can now continue growing together and implementing for a change in the school from teacher to learner centered.

This work was a good first step in a process that will need to continue in its development. The staff are effectively showing literacy in what learner agency is at this point, but they are not effective yet at implementation. This is to be expected and with the positive attitudes shown by the participants it is likely that continued growth will be evident over time.

It should be noted that there will be a need to allow for students to grow as well. They have developed in a system which has focused on the teacher, doing what they request and being compliant. They will also continue to grow and develop the skills they need as they are guided by the newly trained staff to help them in their journey. It is hoped that other schools will see the value in this effort and choose to have their staff participate in similar learning.

In light of the new challenges we have uncovered through the COVID-19 learning from a distance time in the Spring of 2020, it is clear that a further development of learner agency will be an essential part of any plan for the future. This study served as an effective introduction to the principles of learner agency and methods of developing it. Principals, teachers, and other administrators of Churchill County School District have come to recognize the value of this introduction, as well as further in-depth learning will have in their schools. The topic of learner agency has become a common topic mentioned in the planning of improvements in learning for the students of Churchill County School District.

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## Case Study 8: *Building Teacher Understanding and Implementation of Learner Agency*- Logic Model

**Situation**: Churchill CSD is in the process of taking another look at innovative and effective revisions to the way we help students. Building Learner Agency is an important part of the transition from a teacher-centered, to a learner-centered environment. My goals is to build staff and student efficacy in using learner agency to help move towards becoming a learner-centered district.

| **Inputs** | **Outputs** | | **Outcomes -- Impact** | | |
|---|---|---|---|---|---|
| | *Activities* | *Participation* | Short | Medium | Long |
| Budget<br><br>NWRPDP Facilitators<br><br>6-8 Teacher sin Churchill CSD<br><br>Administration Expectations<br><br>Churchill CSD Strategic Plan | 6 Online Pre-Learning Units<br><br>6 Collaborative Workshops<br><br>Follow up coaching visits | Grade 6-8 Teachers in Churchill CSD (approximately 40) | Increase in teacher's ability to define the basic elements of building an environment that supports learner agency in their classes.<br><br>Increased teacher knowledge in specific areas in which they can help students develop the skills and attributes needed to grow learner agency.<br><br>**Measures:**<br>Individual teacher goal setting<br><br>Building level goals<br><br>RPDP Feedback form, Post Reflective surveys | Enhanced instructional practice.<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 surveys | Student self-guided learning and evaluation<br><br>Increased student achievement.<br><br>Student demonstration of learning through multiple learning pathways.<br><br>Increased graduation rates<br><br>Increased teacher reported job satisfaction.<br><br>**Measures:**<br>Existing school, district, and state data<br><br>Teacher post reflective surveys |

**Assumptions**: Teacher training will lead to teacher efficacy and a shift to a more learner-centered environment. All participants will be activly engaged in all units of professional learning. **External Factors**- Competing district initiatives. Teacher burn out. Schedul conflicts for collaborative workshop dates**.** COVID-19 pandemic disruptions.

# Case Study 9: How COVID-19 Impacted a Year-Long Professional Learning Group

## Introduction

This case study focused on the K-12 English Language Learner teacher specialists in one rural Nevada School District who have participated in a monthly year-long professional learning during the 2019-2020 school year. The professional learning initially had three planned foci: Co-teaching to meet the needs of ELs, formative assessment of language and content, and participating in a PLC in order to both address day to day challenges and to define and work toward district goals. When districts went to distance learning in March due to the impacts of COVID-19, the professional learning for the group changed in both focus and structure. The co-teaching and formative assessment topics were suspended. The focus of the meeting times shifted to addressing the specific challenges of our English Language Learners during distance teaching. This case study evaluated the planned professional learning and examined the impacts of COVID19 on professional learning.

## Instructional Context

The K-12 district had one English Language Learner specialist at each school. The teachers worked directly with students on English language development and content area support, with other teachers in a co-teaching context, and with assistants. The EL specialists were also integral in the scheduling and assessing of students especially for the ACCESS test (state English proficiency assessment). They were also often called upon for providing and/or organizing interpreting and translation services for families. They also played a key role in supporting family engagement. The EL Specialists responsibilities reached far beyond classroom or small group instruction. Professional learning for the EL specialists needed to reflect the multifaceted nature of their jobs. In collaboration with district administration the focus for the professional was decided on based on multiple factors. The EL Specialists were all co-teaching to some level. The teachers had had some co-teaching professional learning in the past, but it was not specifically focused on English Learners. In order to support their current co-teaching work, the district requested professional learning that focused on co-teaching focused on supporting the needs of English Learners. Using a new resource, Co-Teaching for English Learners: A Guide to Collaborative Planning, Instruction, Assessment, and Reflection year-long professional learning was planned. The teachers took a one-day WIDA course during the 2018-2019 school year focused on formative assessment of language. As a result of that class, the teachers requested additional professional learning on formative assessment for language and content. This year

WIDA offered another more extensive course on Formative Assessment and the course was used as the foundation for the content of the professional learning. This became the second professional learning focus. The third focus was to function as a professional learning community to address day to day challenges, address cross-school issues, and to define and do the work of addressing district goals.

## Initial Data Planning

The following considerations were made during the planning of the professional learning. One of the district goals was to incorporate more co-teaching for English Learners. In direct support of that goal, co-teaching with ELs in mind became a priority focus. 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 & Calvert, 2016). The teachers had identified formative language and content assessment as an area that they would like to work on and felt as though it would be highly impactful for student learning. Similarly to co-teaching, the teachers had had professional learning focused on formative assessment, and they wanted to continue that professional study. In addition to the pedagogical topics, the teachers and facilitator requested time to be able to address day to day challenges, clarifying district policy and procedure, and establishing a consistent support system across the district. This time was conducted in a professional learning community and was internally referred to as problem solving time. A combination of teacher surveys, teacher discussions, and established district goals were used to focus the topics covered in the professional learning and to determine the formats for delivery.

## Delivery of Services

The training from August to February was a monthly three-hour meeting. One hour was spent in a PLC (Professional Learning Community). One hour was spent on co-teaching, and the last hour was spent on formative assessment. The exact times at each meeting varied some depending on need determined by exit tickets, turned in agenda items, and email communications. From March to May the teachers met virtually for one hour each week. The focus was on addressing the challenges of distance learning.

## Results and Reflection

**Part 1: August 2019 to March 2020**

Teachers were asked to complete exit tickets, an evaluation about the quality and usefulness of the professional learning in December, and a post-reflective survey on what they learned as a result of the professional learning. These were used to evaluate the professional learning before

schools moving to distance learning. Teachers were also asked to fill out an end of year survey asking them to evaluate the changes in the professional learning in response to the impacts of COVID-19 changes and to determine potential needs for the 2020-2021 school year.

The evaluation for the professional learning from August to December that focused on co-teaching, formative assessment, and professional learning community work indicated that teachers felt the professional learning matched their needs, added to their knowledge, would lead to improvement in teaching skills, and the knowledge and skills they learned would be used. Teachers were asked to evaluate by Likert score the following statements: *The activity matched my needs; This activity added to my knowledge of standards and/or subject matter content; The activity will improve my teaching skills; and I will use the knowledge and skills from this activity in my classroom or professional duties*. 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. One hundred percent of teachers indicated a level five. Teachers indicated that the content of the professional learning met their needs, expanded their knowledge and skills, and would be used in their teaching. Teacher comments at the end of the evaluation supported the Likert scale results. One teacher's comment on the evaluation stated, "I appreciate Diana's expertise and vast knowledge in the area of second language instruction and students. She continues to increase my professional knowledge and instructional practices." Another teacher commented, "There are excellent tips and tricks we can use immediately."

The post-reflective survey focused on increase of knowledge for co-teaching and formative assessment for language and content. All areas on the survey were statistically significant in the direction of learning by the teachers. See Table 1 below.

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

| Question | Mean before | Mean after | t-score | p value |
|---|---|---|---|---|
| Knowledge of co-teaching formats, structures, and strategies | 1.75 | 4.00 | 9.00 | <.003 |
| Knowledge of process and strategies for formatively assessing student language for both ELD and content area language development | 2.00 | 3.75 | 7.00 | <.006 |

All measures of evaluating the professional learning indicate that teacher knowledge and skills were increased and teachers were implementing what they were learning. One teacher wrote on the COVID-19 before and after survey when asked what was valuable about the professional learning from the August 2019 to March 2020, "Everything about co-teaching; problem solving with both Diana and fellow EL Specialists. Helping to make our district screening policy better. Diana's knowledge of state and federal guidelines, to be sure our district complied. Everything was valuable; I wish all PD meetings were as valuable/relevant as these are." Another teacher

wrote, “I really appreciate that we cover timely topics, i.e., testing, formative assessment, our extra duties, district policy, EL files and a host of other things we have clarified four our collaborative group.” Strategically determining the focus of the professional learning in collaboration with all stakeholders, prioritizing teacher choice when possible, and addressing day to day challenges and questions about district policy and procedure led to successful professional learning.

**Part 2: March 2020 to May 2020**

Any other year the case study would have been complete with the above. This year due to the response to COVID-19 to keep students and educators safe school buildings were closed and educators and students moved to distance learning. The unprecedented circumstances required changes big and small to both teaching and professional learning. Part 2 of this case study focuses on capturing the changes to teaching and learning and professional learning and determining their impact on teaching and professional learning for the 2020-2021 school year. Teachers were asked the following questions:

- What were the major changes in teaching that happened with the move to distance learning?
- Did the change in professional learning content and structure to weekly meetings focused on problem solving meet your needs? If so how? If not, how could it have been changed to better meet your needs?
- In thinking about next school year, is there anything in the March to May professional learning that you would like to continue next year?
- What professional learning topics do you think will be important for us to consider next year?

## Conclusion

The following will summarize the thinking of the K-12 EL Specialists in one small school district in Northern Nevada.

The major changes included the amount of participation, the type of interaction with students, and their ability to oversee the educational opportunities of their students. When school was in session, the EL Specialists would interact with students and their general education teachers regularly in order to determine and address their educational needs. Facilitating family engagement could be done through multiple formats for example, catching a parent at pick up time or doing a home visit, not just phone calls. In both their written reflections and during the virtual meeting times teachers indicated that their ability to interact with their students and student participation was also less. There were many proactive measures taken to remove barriers for students and families. The district made sure that students had access to devices and Internet and there were paper and pencil options for students. Even when those barriers were

removed, there were some challenges in getting initial contact and maintaining that contact over time. The EL Specialists reached out to families through multiple means including phone calls, reaching out to extended family, through email and Google Classroom, and even in some cases through home visits that maintained social distancing guidelines. The EL Specialists reached out to the appropriate general education teachers in order to mitigate barriers and support the English Learners in their general education classes because some students were not completing their general education assignments. The EL Specialists also provided online English Language Development instruction. They worked together to find and build a webpage that had resources for teaching English Learners and English language development online and then used the resources that best match their students' needs for online learning through Google Classroom. Over time it became clear that the barriers for students and families were not limited to devices and connectivity. Students and families also needed socioemotional learning and support. Students and their families also needed more information about how the technology works and how to support the student through the online platform. For example, how the lessons are structured and how to see if assignments have been turned in. In addition, general education teachers also needed more knowledge about how to adapt online learning to the needs of the English Learners.

In March, the dedicated professional learning time for the EL Specialists shifted from set content to responsive problem solving. Instead of meeting monthly for three hours the EL Specialists met weekly for an hour virtually and focused on the question, how do we continue to meet the needs of our students? The main focus of the time was on the work described in the paragraph above. When the specialists were asked if the change in the professional learning met their needs, they responded positively. One educator wrote in the survey, "We really needed or PL content to change with the times and the issues we faced. I got so many great ideas and strategies to enhance and improve my distance teaching. The time not only focused on student learning, but also on their socio/emotional well-being." Another teacher wrote, "We all shared ideas and had great input and validation from you. We are doing all we can."
When asked about what they thought was important to consider for professional learning next year, they generating to following list of professional learning needs. They also generated a list of what they would like to put into place for students and families at the beginning of next year both just in case school is impacted by COVID-19 again as ways to improve the quality of education for the English Learners in their district.

Professional learning needs related to distance learning:

- Distance learning – pedagogy, resources, and platform
- Distance learning compatible resources for: project-based learning projects, social/emotional learning, formatively assessing online, high quality English Language Development resources especially, speaking and listening
- Co-teaching while distance teaching
- Ways to include and engage families in distance learning

The final professional learning plan for this group of teachers will be developed with all stakeholders and be placed in the context of the overall district goals. The content will be developed using the Nevada Professional Learning Standards. The following is what the EL Specialists would like to contribute to that plan for the 2020-2021 school year to support students and families and their own professional learning. One of the barriers for families was knowledge about how to navigate the online learning platform and to check on their child's work. The EL Specialists would like to develop a multi-part support for families that includes face to face teaching about the platform and utilizing existing videos. Teachers are also planning on utilizing the online platform from the beginning of the year, so that if instruction moves to distance learning again the students will have foundational skills using the platform, experience with the online resources, and already know the expectations for online learning. The EL Specialists would like further professional learning on both incorporating English Language Development instruction into general online learning and on teaching English Language Development through distance learning. Through collaborative work, addressing immediate challenges, the teachers identified not only relevant work to be done to support students and families, they identified their own professional learning needs to be able to most effectively do that work.

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WIDA-Cultivating Practices for Formative Assessment Online Course

## Case Study 9: *How COVID-19 Impacted a Year-Long Professional Learning Group*- Logic Model

**Situation**: English Language Learner Specialists professional learning before and after Covid-19.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | **Activities** | **Participation** | **Short** | **Medium** | **Long** |
| Monthly 3- hour professional learning meetings<br><br>NWRPDP – Facilitator/Coach<br><br>WIDA Formative Assessment Course<br><br>Co-teaching with English Learners book<br><br>K-12 EL Specialists in one rural county<br><br>NWRPDP budget for supplies and book | District based professional learning<br><br>Professional learning for co-teaching, formative assessment for ELs, and professional learning communities | 5 teachers participate in the following professional learning:<br><br>Seven three-hour professional learning sessions focused on:<br>Co-teaching<br>Formative Assessment<br>Professional Learning Communities | Teachers increase their knowledge of co-teaching, formative assessment for ELs, and professional learning communities.<br><br>**Measures:**<br>Teacher post reflective survey<br>Teacher self-assessment<br>Exit tickets | Increased use of co-teaching for English Learners<br>Increased use of formative assessment for English learners<br><br>**Measures:**<br>Teacher extended survey | Increased student achievement.<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 initiatives, attendance due to inclement weather. COVID-19 pandemic disruptions.

# Case Study 10: Computer Programming, STEAM and Creativity with Hummingbird Robotics

## Introduction

The focus of introducing and training on the newly adopted Nevada Academic Content Standards for Computer Science and Integrated Technology (NVACSCSIT), are of great importance for Nevada teachers. From the Nevada Department of Education K-12 Computer Science website: "These skills strengthen local community, national innovation, and opportunities for youth. Computer Science - not computer literacy - underlies most innovation today, from biotechnology to cinematography to national security. Yet, the majority of U.S. schools require only that students use computers. Seldom do schools prepare students to innovate and create the new technologies that drive local and national economies. This ability to innovate with technology is also important for students' future success and ability to make a difference in a global society." (NCWIT.org) Since the NVACSCSIT standards are new, and with Nevada's current emphasis and investment in Science Technology Engineering and Math (STEM) education, the NWRPDP PreK-12 STEM trainer worked to design, prepare and implement an upper elementary class focusing on computer science, programming, engineering, technology, problem solving and math. The 6 participating teachers come from Churchill, Carson, Douglas and Washoe counties. These teachers received four evening classes (5:00-9:00pm) of instruction. The teachers received their training October 2019 through April 2020. The goal of the trainings was to provide teachers the instruction, practice and support required to engage students in quality computer science and STEM learning that incorporate the NVACSCSIT. Teachers gained an understanding of what computer science and STEM education are, and how they could utilize them 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 NVACSCSIT for teachers in the Northwest region of Nevada. Based on information from district personnel, teachers in this region lacked the training, materials and expertise to implement the NVACSCSIT without intervention from specialists. The participants from each county served were: 2 Churchill, 2 Washoe, 1 Douglas and 1 Carson (total participants 6). The participants were $4^{th}$ – $5^{th}$ elementary school teachers. Experience level of teacher participants ranged from 3 to 35 years.

The Nevada State Legislature has mandated by its adoption of the NVACSCSIT in 2019, and Nevada law requiring adopted standards to be implemented in schools within two years, that

teachers receive the professional development necessary to implement them in their classrooms. One of RPDPs tasks is to train teachers on the new standards and help teachers implement them into their classrooms.

## Initial Data and Planning

Section 3 of Nevada State Senate Bill 200 states: "Before beginning 6th grade, all students are to receive instruction in computer education and technology …" Section 4 of Nevada State Senate Bill 313 states: "Each RPDP must provide training in computer science and integrated technology to all teachers in Nevada."

- Nevada currently has 2,157 open computing jobs (3.2 times the average demand rate in Nevada).
- The average salary for a computing occupation in NV is $76,681, which is significantly higher than the average salary in the state ($45,040). The existing open jobs alone represent a $165,400,572 opportunity in terms of annual salaries.
- Nevada had only 163 computer science graduates in 2017; only 25% were female.
- In Nevada, only 67% of all public high schools teach computer science (18-19 data).
- Only 877 exams were taken in AP Computer Science by high school students in Nevada in 2018 (131 took AP CS A and 746 took AP CSP).
- Only 33% were female (15% for AP CS A and 36% for AP CSP); only 272 exams were taken by Hispanic or Latino students (24 took AP CS A and 248 took AP CSP); only 47 exams were taken by Black students (9 took AP CS A and 38 took AP CSP); only 2 exams were taken by American Indian or Alaska Native students (1 took AP CS A and 1 took AP CSP); only 4 exams were taken by Native Hawaiian or Pacific Islander students (1 took AP CS A and 3 took AP CSP).
- Only 31 schools in NV (25% of NV schools with AP programs) offered an AP Computer Science course in 2017-2018 (14% offered AP CS A and 27% offered AP).

Based on this information the NWRPDP K-12 STEM trainer planned this new class.
The NWRPDP Pre-K-12 STEM trainer successfully taught an upper elementary computer science, STEM class using Birdbrain Tech Hummingbird Robotics materials. The participants were 6 elementary school teachers. The trainings took place October 2019 through April 2020. Each teacher received instruction that consisted of training for the implementation of the NVACSCSIT. Participants received 4 evening trainings (5:00pm – 9:00pm) that included instruction on the NVACSCSIT and the NVACS in science engineering standards. The teachers learned and practiced computer programming and using motors, LED lights, motion, light, temperature and other detectors as well as cutters, glue guns, specialized whole punchers and more required to implement Hummingbird Robotics in their classrooms with students. Each participating teacher received classroom sets of materials and support.
Participant teachers received access to resources including an online component that includes curriculum aligned to the standards, assessments, video collections, tutorials and troubleshooting.

## Delivery of Services

The NWRPDP trainer successfully implemented 16 hours of training for six elementary school teachers in Nevada's Northwest Region.

## Results and Reflection

The results of the RPDP training post-evaluation are listed in Table 1. The results of this case study post-reflective evaluation can be seen in Table 2.

**Table 1. Program Activity Evaluation** (1 =Not at all, 3 =To some extent, 5 =To a great extent).

| *Evaluation Question* | *Mean* |
|---|---|
| 1. The activity matched my needs. | 5.0 |
| 2. The activity provided opportunities for interactions and reflections | 5.0 |
| 3. The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.8 |
| 4. The presenter/facilitator efficiently managed time and pacing of activities. | 4.8 |
| 5. The presenter/facilitator modeled effective teaching strategies. | 5.0 |
| 6. This activity added to my knowledge of standards and/or subject matter content. | 5.0 |
| 7. This activity will improve my teaching skills. | 5.0 |
| 8. I will use the knowledge and skills from this activity in my classroom or professional duties. | 5.0 |
| 9. This activity will help me meet the needs of diverse student populations (e.g. gifted and talented, ELL, special ed., at-risk students). | 5.0 |

**Table 2. Computer Programming, STEAM and Creativity with Hummingbird Robotics 2019-20 (n=6; On a scale of 1 to 5 where 1 is Poor and 5 is Excellent).**

| | Mean before | Mean after |
|---|---|---|
| I feel comfortable in my general knowledge of computer programming. | 2.5 | 4.16* |
| I feel comfortable with my knowledge of using Hummingbird robotics with my students to promote and learn problem solving strategies. | 1.5 | 4.0* |
| I feel comfortable with my knowledge of using Hummingbird robotics with my students to | 1.66 | 3.66* |

| | Mean before | Mean after |
|---|---|---|
| promote, learn and practice computer programming/coding | | |
| Integrating Hummingbird robotics in language arts, math and other curriculum areas (science, art, social studies, other) | 1.83 | 3.83* |
| Activities to design, build and problem solve a working robot from various materials, switches, sensors, LED's, gears, wheels, wires and more. | 1.66 | 3.5* |
| Wiring switches, sensors, servos, LED's, to a microprogramming board and then programming them to build a working robot from scratch. | 1.83 | 3.83* |
| Teaching strategies that are aligned to the Nevada K-12 Computer Science Standards. | 2.5 | 4.16* |

Note: *indicates statistically significant positive gains.

Additional evaluation results reveal the effectiveness of this training with participants (n=6):

- I intend to use the information from this training in the future within my classroom = 4.91 (1=not at all to 5=very valuable).
- Do you feel this training was valuable for you? = 4.91 (1=not at all to 5=to a great extent).
- Do you feel your students enjoyed and learned quality NVACSS Physical science from using the Hummingbird Robotics Kits? = 4.91 (1=not at all to 5=to a great extent).
- Would you be interested in participating in additional professional development trainings and workshops? Yes 5 No 1
- Approximately how many students will you be using this information and training skills with each school year? Total Students = 253

## 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 Nevada Academic Content Standards for Computer Science and Integrated Technology (NVACSCSIT), 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 NVACSCSIT in their classrooms. The data and teacher reflections indicated that this goal was met.

**Examples of final comments from participating teachers:**
"What I liked best was the ability to share ideas and collaborate with other educators in the class and having Brian's experience and understanding and support throughout the class."
"The training provided materials and plenty of time to play around with the tools."
"I liked all the hands-on time."
"Hands-on and peers there to share ideas."
"There were plenty of new ideas and tons of materials that we were able to take and utilize in our classroom."

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## Case Study 10: Computer Programming, STEAM and Creativity with Hummingbird Robotics Logic Model

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

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | *Activities* | *Participation* | Short | Medium | Long |
| 4th and 5th Grade Elementary Teachers<br><br>Budget<br><br>5 Hummingbird Bit Robotics Kits<br><br>Social Media Supports Wiki, Flickr, YouTube, others as needed.<br><br>NWRPDP Pre-K – 12 STEM Learning Facilitator<br><br>5th Grade Teacher | Training in planning, designing, building, and programming robots and facilitating students in doing so, as well as the NGSS and Nevada Computer Science Standards<br><br>4 Sessions @ 4 hours each session. 16 hours. | 7 teachers, 16 hours of training and class support as needed.<br><br>5 Schools<br><br>180 – 210 students<br><br>4 School districts | Increased teacher effectiveness in implementing STEM inquiry projects, computer science and computer programming and curriculum integration with students.<br><br>Teachers implement computer programming and robotics into classroom instruction.<br><br>Increased teacher knowledge of Next Generation Science Standards and implementing them.<br><br>**Measures:**<br><br>Pre/Post Survey | Increased the number of students participating and promoting interest in STEM and computer Science/Programming.<br><br>Teachers increasingly are aware of resources available to support them.<br><br>Sessions focus on feedback, further support to increase successful implementation of the NVACSS/NGSS towards student learning and sharing ideas from participating teachers.<br><br>**Measures:**<br><br>Teacher feedback interviews / debriefs of progress during sessions including Exit Tickets.<br><br>Pre/Post Reflective Survey | Increase in 4th/5th grade student's science and computer science scores of cohort teachers.<br><br>**Measures:**<br><br>5th Grade 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 will be supported by administration to implement activities.

**External Factors**: Teacher attendance, weather issues, COVID-19 pandemic disruptions.

# Case Study 11: Creating Teacher Change by Developing Mathematical Mindsets

## Introduction

According to Jo Boaler, Staford Professor and founder of youcubed.org, “There are 2 ways to engage students in learning mathematics: 1) Show students methods and they repeat them. This approach is used in most schools, but the methods often lack meaning, and students reasonably ask: when are we going to use this? Additionally, students only ever get to use what they were shown, not select a method themselves, one of the most important mathematical acts. 2) Engage students in rich, open, visual and creative tasks. They use their intuition and thinking, and choose methods that can be useful in the task. When they need to learn new methods, teachers teach them inside the task. Students immediately see how important they are and learn them more deeply. They engage in the important acts of choosing and making connections between ideas. The second approach is much more effective; however, teachers tell us that they do not have time to use open, rich tasks that students take in different directions. They see the lists of methods set out in curriculum standards and in text books and decide they only have time to show them briefly to students then move on” (youcubed.org).

In Douglas County School District (DCSD), sixth through eighth grade teachers have been working diligently to shift their math instruction away from a series of methods for students to follow to open, rich tasks that engage students in mathematical thinking. While teachers have been implementing the Nevada Academic Content Standards in Math since 2010 and have become familiar with the 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 is a rural school district located in Northern Nevada. DCSD comprises 13 schools, including 7 elementary schools, 2 middle schools and 4 high schools. Approximately 5834 students were enrolled in DCSD during the 2018-2019 school year. The student population consists of 66.51% white students, 22.35% Hispanic students, 3.02% American Indian students and 5.93% students who are more than one race. DCSD has an Average Daily Attendance rate of greater than 95%. It has a cohort graduation rate of 88.6% as reported in the Nevada Report Card (2019).

According to the Nevada School Performance Framework, Douglas County School District has 1 five-star school, 6 four-star schools, 4 three-star schools, 1 two-star schools, and 1 one-star school. Table 1 shows a summary of the standards-based Criterion-Referenced Test (CRT) mathematics performance for grades six through eight based over the past three years, 2016-2017, 2017-2018, and 2018-2019. 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 Mathematics**

| Grade Level | Mathematics 2016-2017 | Mathematics 2017-2018 | Mathematics 2018-2019 |
|---|---|---|---|
| 6 | 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% | ED 35.8%<br>AS 30.0%<br>MS 19.3%<br>ES 14.9% |
| 7 | 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% | ED 39.2%<br>AS 28.4%<br>MS 19.0%<br>ES 13.4% |
| 8 | 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% | ED 44.2%<br>AS 25.5%<br>MS 15.1%<br>ES 15.2% |

## 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 professional development 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. The decision was made to focus on mindset mathematical practices, researched and developed by Jo Boaler at Stanford University, during the 2018-2019 school year and to continue that work during the 20919-2020 school year (Anderson, Boaler, and Diekmann, 2018).

## Delivery of Services

Sixth through eighth grade math teachers each attended two half-day professional development sessions, during the 2018-2019 school year, with a focus on teaching using the mathematical mindset practices. In 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.

During the 2019-2020 school year, sixth through eighth grade teachers attended one half day professional development session focusing on the implementation of the mathematical mindset practices in classroom instruction. The second professional development day was cancelled due to school closures. A fall walk-through of all sixth through eighth grade classrooms also took place, once again scoring four of the practices as beginning, developing, or expanding. Classroom teachers were also given specific written feedback following the walk-through, noting which practices were observed. Due to school closures due to COVID-19, a spring walk-through did not take place.

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. Nine middle school math teachers attended the MidSchoolMath Conference held in Santa Fe, New Mexico in March 2020, where three teachers and two professional learning facilitators presented on their work engaging students with math through the mathematical mindset practices.

## Results and Reflection

School closures due to COVID-19 impacted walk-through data collection. Since spring scores for 2020 were not able to be collected, scores from fall 2018 to fall 2019 were analyzed. T-scores and significance were looked at using both fall data points. Table 2 shows the data from all walk-throughs in 2018-2019 and 2019-2020.

**Table 2: Walk-through Data Fall 2018 to Fall 2019**

| Question | Fall 2018 mean | Spring 2019 mean | Fall 2019 mean | Spring 2020 mean | T-score | p value |
|---|---|---|---|---|---|---|
| Practice 1: Growth Mindset Culture [mindset messages] | 2.43 | 3.00 | 3.15 | N/A | -1.357 | 0.217 |
| Practice 1: Growth Mindset Culture [praising effort and learning process] | 3.00 | 3.18 | 3.621 | N/A | -1.250 | 0.247 |

| Question | Fall 2018 mean | Spring 2019 mean | Fall 2019 mean | Spring 2020 mean | T-score | p value |
|---|---|---|---|---|---|---|
| Practice 1: Growth Mindset Culture [student's mindset] | 2.71 | 3.86 | 3.77 | N/A | -1.000 | 0.363 |
| Practice 2: Nature of Mathematics [open tasks] | 2.33 | 3.50 | 3.78 | N/A | -1.996 | 0.069 |
| Practice 2: Nature of Mathematics [reasoning and multiple perspectives] | 2.59 | 3.50 | 3.5 | N/A | -1.674 | 0.120 |
| Practice 2: Nature of Mathematics [depth over speed] | 2.67 | 3.50 | 3.75 | N/A | -1.737 | 0.108 |
| Practice 3: Challenges and Struggle [mistakes] | 2.50 | 2.50 | 3.00 | N/A | 1.524 | 0.170 |
| Practice 3: Challenges and Struggle [struggle and persistence] | 2.27 | 3.36 | 3.15 | N/A | -1.406 | 0.193 |
| Practice 3: Challenges and Struggle [questioning] | 2.45 | 3.73 | 3.13 | N/A | -1.148 | 0.273 |
| Practice 4: Connections and Collaborations [mathematical connections] | 2.83 | 3.50 | 3.40 | N/A | -1.318 | 0.214 |
| Practice 4: Connections and Collaborations [connecting in small groups] | 2.67 | 3.67 | 3.53 | N/A | -1.449 | 0.175 |
| Practice 4: Connections and Collaborations [connecting as a whole class] | 2.14 | 3.29 | 2.5 | N/A | 0.000 | 1.000 |

There were no practices that showed significant change from fall 2019 to fall 2020. However, all practices showed an improvement from fall to fall indicating lasting implementation of the practices from year to year. This improvement is also important because several of the teachers in fall 2019 were new and had not yet received training in the practices. It is worth mentioning that five principles showed improvement from spring 2019 to fall 2019. This appears to show that those practices are firmly embedded in classroom instruction.

All sixth through eighth grade math teachers were given the opportunity to complete a post-reflective survey in spring of 2020 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. These gains show that teachers perceive changes in their own knowledge and skills in mathematics instruction. Unfortunately, we were unable to observe classroom practices during spring 2020 walk-throughs to see if these gains were reflected in classroom instruction.

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

| Questions | Fall 2018 Mean | Spring 2020 Mean | T-score | p value |
|---|---|---|---|---|
| Practice 1: Growth Mindset Culture [mindset messages] | 2.5 | 4.17 | -4.022 | .002* |

| Questions | Fall 2018 Mean | Spring 2020 Mean | T-score | p value |
|---|---|---|---|---|
| Practice 1: Growth Mindset Culture [praising effort and learning process] | 2.67 | 4.33 | -5.000 | <.001* |
| Practice 1: Growth Mindset Culture [students' mindsets] | 1.83 | 3.5 | -5.000 | <.001* |
| Practice 2: Nature of Mathematics [open tasks] | 2.17 | 3.33 | -3.924 | .002* |
| Practice 2: Nature of Mathematics [reasoning and multiple perspectives] | 2.33 | 3.5 | -3.924 | .002* |
| Practice 2: Nature of Mathematics [depth over speed] | 2.5 | 3.5 | -3.317 | .007* |
| Practice 3: Challenges and Struggle [mistakes] | 2.67 | 4.33 | -4.022 | .002* |
| Practice 3: Challenges and Struggle [struggle and persistence] | 2.5 | 3.83 | -3.546 | .005* |
| Practice 3: Challenges and Struggle [questioning] | 2.33 | 3.67 | -4.690 | .001* |
| Practice 4: Connections and Collaborations [mathematical connections] | 2.5 | 4 | -5.745 | <.001* |
| Practice 4: Connections and Collaborations [connecting in small groups] | 2.83 | 4.17 | -3.546 | .005* |
| Practice 4: Connections and Collaborations [connecting as a whole class] | 2.67 | 3.83 | -3.023 | .012* |
| Practice 5: Assessment [nature of feedback] | 2.83 | 3.67 | -2.803 | .017* |
| Practice 5: Assessment [frequency of testing/grading] | 2.17 | 3.33 | -3.924 | .002* |
| Practice 5: Assessment [ multiple forms of assessment] | 2.5 | 3.5 | -3.317 | .007* |

*indicates significant change.

As part of the post-reflective survey, teachers were asked which practice they focused on most during the school year. Practice 3: Challenges and Struggle and Practice 4: Connections and Collaboration were the most popular with five teachers selecting each one. When asked about how they changed their instruction in that area, one teacher said, “I am using standing whiteboards, challenging students to question each other and respectfully either agree or disagree with their supportive arguments. I have also had discussions as a whole class where students can share how they solved problems sometimes giving classes 3-5 different approaches to finding solutions.” Another said, “I worked on language routines. Students are owning math language and really getting into proving things right or wrong. They are freely sharing their opinions and refining their language. They also seem to be more in tune with their answers and the clarity of their explanations.” These are the exact classroom practices that should help students own their learning in math and that should show an improvement in student achievement data. 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. Finally, teachers

were asked to share their biggest successes when using mathematical mindset practices in their teaching. Most teachers reported that the response of their students was their biggest success. One teacher stated, “Students love it! They hate worksheets and love tasks.” Another noted that students are “more comfortable and confident.” Several teachers felt like their biggest success was that “more” students were actually getting math and if more students understand math, chances are good there will be improvement in standardized test scores.

## Conclusion

For the past two school years, middle school math teachers have been focusing on improving their teaching practices to focus on the mathematical mindset practices. Teachers are owning the practices in their classroom instruction from year to year. 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). Due to school closures, standardized test scores will not be available from the 2019-2020 school year. However, walk-through data and post-reflective data will be tracked again during the 2020-2021 school year in order to continue focusing on mathematical mindset practices as guidelines for high quality math instruction.

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## Case Study 11: 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>Lesson planning<br><br>Modeling lessons in classrooms<br><br>Classroom walkthroughs twice per year<br><br>In-service classes for credit<br><br>MidSchoolMath Conference attendance by 4 middle school math teachers and two professional learning facilitator<br><br>Mathematical Mindset 5 Practices post-reflective 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, Ongoing COVID-19 pandemic disruption

# Case Study 12: National Board Certification Cohort: Increasing Teacher Efficacy Through the National Board Cohort

## Introduction

With decades of research, National Board-Certified teachers continue to elevate the teaching profession and demonstrate a commitment to excellence. "Schools with National Board-Certified Teachers are characterized by better teacher morale, retention and increased community involvement. Districts and schools that want to drive student learning, recognize the power of Board certification and are taking steps to empower and raise the status of accomplished teachers" (NBPTS). The National Board process sanctions teachers to undergo a highly rigorous certification requirements "through standards-based evidence, the positive impact they have on student learning as a result of their deep and abiding understanding of students, content knowledge, pedagogical practice, ongoing reflection, and participation in learning communities' (NBPTS). Becoming a National Board-Certified teacher, creates a foundation for teacher leadership opportunities which allows teachers to have a profound impact within the education system at the school site, district, state or national level.

## Instructional Context

TNTP's 2018 study around the Opportunity Myth states that schools across the country have a professional responsibility to provide students with "consistent opportunities to work on grade-appropriate assignments, strong instruction where students do most of the thinking in a lesson, deep engagement in what they're learning and teachers who hold high expectations for students and believe they can meet grade-level standards" (TNTP). As a result, there is an increasingly focus on quality instruction and the role of teacher quality. In pursuance of successful certification, candidates engage in reflection of their content and pedagogical knowledge as well as their students' achievement. There is proven impact that Board Certified teachers increase student achievement. "The positive impact of having a Board-certified teacher is even greater for minority and low-income students. This improvement in student outcomes is mirrored by NBCTs achieving stronger results in leading measures of teacher effectiveness, including robust classroom observations and value-added scores. (NBPTS)" Horoi and Bhai's 2018 study reveal that there are "several potential pathways for linkages to teacher quality and within schools, teachers are of the most important factors linked to students' outcomes, and identifying superior teachers is an important priority for schools and districts."

**Data**

Nationally, there are 125,914 teachers who are Nationally Board Certified, making up 3% of our nation's teachers. California, Florida, North Carolina, and Washington have the most Board-Certified teachers. Across the state of Nevada, there are currently 1,086 National Board-Certified teachers. This year (2019), 176 teachers became National Board Certified in Nevada. Washoe County had 38 teachers certify in 2019, with a total of 337 teachers that are board certified. Carson City added 2 more National Board-Certified teachers to their total of 15. Douglas County has a total of 18 National Board teachers with 1 just certifying this year. Lyon County has a total of 19 Board certified Teachers, Churchill has a total of 9 certified teachers with 2 certifying this year and Storey County has 1 National Board-Certified teacher. With the positive outcomes for teachers and increased student achievement related to the NBCTs, recruitment within these districts has been a priority in order to retain and lesson the attrition rate of accomplished teachers, especially in the smaller districts.

The National Board for Professional Teaching Standards certification as a voluntary credential offers several potential pathways for linkages to teacher quality. Notable work on teacher quality illustrates that within schools, teachers are one of the most important factors linked to student outcomes, and identifying superior teachers is an important priority for schools and districts.

## Initial Data and Planning

The Nevada National Board Cohort continues to adjust its structure according to the data and needs of the teachers at the end of each cycle. The evaluation data was collected from the 2018-2019 participants using the NWRPDP evaluation form in conjunction with an evaluation designed by the Cohort leaders. According to the data, 76% of teachers who consistently attended the cohort meetings became National Board-Certified Teachers. Teachers reported that the cohort provided them with a tremendous amount of support and the tools they needed to be successful through the process.

**Cohort One Details**

For the 2019-2020 school year, Cohort One started with 30 new candidates from Washoe County School District and 25 Candidates from Lyon County, Carson City, and Douglas County. To obtain a spot in the cohort, Teachers were required to pay the $75 NB registration fee and complete an assignment that required them to familiarize themselves with their certificate area standards.

In January, seven new teachers (2 from Carson City and 5 from Washoe County) joined the cohort, stating that the second semester was a better time for them to participate in the cohort due to clubs and sporting events they led in the Fall. Two of the teachers registered for all four

components and the other five teachers registered for Components 1 and 2. Throughout the year, five teachers have discontinued their cohort participation, recognizing they did not have time to complete the component requirements or unforeseen family/health events.

**Cohort Two Details**

Cohort Two began with 36 returning educators. Cohort attendance for this group was low given that most of the candidates were reimbursed (2018-2019 year) up to $950 for at least two components due to the GTLF grant/scholarships, which required them to have 100% attendance. This year, we did not have the GTLF funding to provide reimbursements for the components, so attendance for this group dropped dramatically. Many of the candidates indicated that they had participated in all ten cohort meetings last year and felt comfortable to complete portfolio work outside of the cohort.

## Delivery of Services

The Cohort met monthly starting in August and ending late-May. The entire portfolio submission was originally due to National Board on May 13, 2020 and teachers who were taking the Component 1 assessment had a window of time from mid-April till mid-June. However, with COVID-19, National Board extended the portfolio submission deadline to teachers and provided them with 3 options to finish their portfolio work (June 12th, October 16th and defer into the 2020/2021 school year). Component 1 was extended with the window of time from June 1st-October 18th. The structure of the cohort ensured that candidates had support throughout the year. There were ten cohort meetings scheduled across the year. Three of the meetings were full day Jumpstarts to go in depth on Components 2, 3 and 4. Jumpstarts were designed by the National Education Association and modified to meet the needs of the candidates. The other seven cohort meetings were 3-hour Saturday meetings (2 were via zoom, after COVID-19), which focused on collaboration amongst candidates, trouble shooting, sharing resources, and providing feedback to each other.

There were six Candidate Support Providers (CSP's) to facilitate cohort meetings/jumpstarts and support candidates through the process. Candidates were encouraged to upload their work to the Northern Nevada Weebly cite to receive feedback around their written commentary, forms or videos. Recognizing that candidates needed additional support, CSP's also met with candidates individually and in small group settings.

Groupings for the cohort were structured to allow candidates working on the same certificate areas to be grouped together. Throughout the year, groups ranged from 12-20 teachers. Teachers commented that they appreciated that the groups were smaller, and they were able to build relationships with other candidates. We partnered with a local high school, which allowed for

candidates to have space to meet in rooms with teachers in like-certificate areas and also a space for teachers to work. Candidates also had the opportunity to participate in three optional all-day mentor days. Mentor days were designed to provide valuable content to candidates and also provided time for teachers to trouble shoot and receive differentiated support for their diverse needs.

- *The mentor day gave me time away from everyone in my family to try and get work done without any distractions.*
- *I found the subbed mentor day very helpful for getting writing done!!!*

**Supporting Teachers**

Outcome one: Candidates felt supported while working through the component requirements. Each Jumpstart and support session concluded with time for participants to complete a questionnaire to address whether participants felt supported through the process. Candidates commented that emails were very informative, the cohort meetings helped them grasp the overall big picture and it also provided tools such as graphic organizers and professional articles with meaningful information that guided their work.

**Instructional practice**

Outcome two: participants will change their instructional practice according to component requirements. During each session participants completed a written reflection questionnaire related to the given component. The questionnaire asked teachers to report if they had refined an existing instructional practice or tried a new instructional practice related to component requirements. They also reflected on what they might do differently if they used the given tool or approach again.

- *I have definitely focused more recently, since the boards process, on more frequent self-assessment for the students and better use of formative assessments. I also benefitted by looking closely at my practices with engaging families, and I think it would be beneficial for all departments to encourage the practice of recording their lessons periodically for reflection of their teaching practices*
- *I realized my students will rise to my expectations; NBs helps me increase my teaching expectations for my students.*
- *I plan to be more aware of student data and diversity in order to ensure a safe and engaging learning environment*
- *Data driven insight on my students coupled with my daily insight builds a stronger picture for each student. Supports my planning.*
- *I really enjoyed Component 4 because I had to look at the data, see where the students were lacking, identify the need they had, and professionally improve my practice by completing some PD. I had never done that before.*

- *I now have more practice considering multiple perspectives on learning, the importance of the classroom climate, and of the collaboration with parents and other educators.*

## Results and Reflection

The findings of this study revealed significant growth on teachers. Teachers reported growth in areas such as leadership, effective instruction, and increased subject mastery as a result of the National Board process. Findings also suggest positive change on each of the Five Core Propositions, such as "teachers are committed to students and their learning." Teachers also commented that they set more high worthwhile goals for their students.

Responses to the question: **Do you think differently about any of your previous teaching practices or have a shift in mindset about anything now that you have participated in this cohort? How will this experience impact you as an educator?**

- *I plan to be more aware of student data and diversity in order to ensure a safe and engaging learning environment!*
- *The National Board process has helped me be more reflective on the why and the how of my teaching.*
- *The collaboration between everyone was the serious icing on the cake, and the process itself made me reflect on my own personal teaching practices in a way different than I ever had before.*
- *I think this process gave me a greater insight into how I teach and what works well and what doesn't. I feel like I made great progress connecting with families and providing my students with better instruction throughout the year.*
- *I loved creating a self-sufficient class that could work together, speak politely, and engage in rigorous conversation- as if I wasn't even there.*
- *Most teachers claim they believe all kids can learn, but this process has confirmed that when a student is provided what THEY NEED, they will learn and be equipped with the skills to succeed in a global community.*
- *During this process I have analyzed and reflected in ways not possible in any other situation. This has impacted who I am both professionally and personally and has confirmed why education is my passion.*
- *This experience impacted me as an educator in building my self-esteem. This is a challenging process, but I feel like I will see it through to the end.*
- *Absolutely. I cringe when I look at things, I was doing only a year or two ago. Lessons were not tied to standards and assessments were not streamlined toward goals.*
- *This experience has helped me to think differently about how I communicate with my students in terms of being sure all are engaged rather than relying on the few who often participate.*
- *YES!! Every lesson I plan, I think about how it will impact student learning, and I am more reflective about how to do things differently. I am already thinking about ways to*

*restructure my class time to provide more small group discussions, collaborative projects, choices, and conferencing with students.*

- *Working through my Boards has reminded me just how important it is to focus on each student in my classroom as an individual, gather/use constant meaningful data, and encourage student interaction with rich conversation.*
- *I realized my students will rise to my expectations; NBs helps me increase my teaching expectations for my students.*
- *I have grown so much over this process. I have been teaching for four years and this process has made me a stronger and better skilled teacher. I know understand how to reflect on my lessons and support my students on a deeper level.*
- *Yes!! It has helped me analyze the way I teach, why I do things and has helped me become more intentional in my instruction.*
- *Yes, I have the students self-reflect more and set goals.*
- *The process has helped me solidify my knowledge and has forced me to dig deeper about my purpose for each lesson. It has increased my confidence and has bolstered my relationships with the teachers I coach because they know I'm continuing my education and striving to be better myself.*
- *I think that the biggest shift I have had is in terms of assessments and evidence of student learning. This has helped me learn that I need to be able to support learning with actual evidence.*
- *While I have always attended to students' ages and developmental levels, I think I will put more focus on how they impact the whole class. I will make more of an effort to include student personal preferences in activities.*
- *This experience has helped me grow TREMENDOUSLY as an educator. I am always stopping to think about what I am doing and how I can better asses my students and their needs because of everything that I have learned this year.*

**Within the surveys, teachers also reported that the cohort and the support from the Candidate Support Providers (CSP's) was helpful.**

- *The CSP's have been amazing and I think having the cohort is the only way that it will be possible to successfully go through the process.*
- *Overall, I really enjoyed being part of this. Thank you so much for having me and thank you so much for your support! I can't wait to continue next year!*
- *I know there is no way I would complete this process without this cohort and all of this support.*
- *I really liked the in-person classes, they provided a lot of information.*
- *I just really want to say thank you to the Candidate Support Providers (CSPs). They have been IMPERATIVE in my success. It's astonishing that they're so knowledgeable about this process and the details that are required to be a proficient Boards candidate. The CSPs have emailed at all hours, responded so quickly (and politely), and really become a teacher to us in our greatest time of need. I don't think I would've continued without their support!*
- *All of the presentations by my cohort leaders were super helpful. All of the materials provided were great!*

- *I'm glad I did it this year because it was one of the things that stopped me from quitting teaching altogether.*
- *I enjoyed the whole group meetings in Reno with other participants working in the same discipline. I always left these meetings feeling inspired to be the best teacher possible*
- *I appreciated feedback & encouragement from the fabulous mentors.*
- *The overviews of each component, the personal feedback offered by multiple readers, 1-1's as needed to iron out specific difficulties. Also, the constant, "You've got this"*
- *If it had not been for her enthusiasm, support, encouragement, and knowledge I would not have attempted nor completed this process. I would NEVER encourage anyone to undertake this endeavor without the support of this cohort.*
- *This cohort is amazing- so supportive and encouraging!*
- *The camaraderie and support I felt from this cohort were inspirational and essential!*
- *I LOVED the consistent information meetings. They really helped my understanding of the components.*
- *The cohort was INCREDIBLY helpful, and I do NOT know how teachers do this without the extra support. The teachers that lead the groups are helpful and supportive and you just have to pick up what they are setting down. They are available when you need them and give important feedback. They are a huge asset to this journey. Looking forward to next year!*

Teachers also completed a survey about their plans for next year (see Table 1). Due to COVID-19, National Board provided candidates with 3 extension opportunities. The original due date was May 13, 2020. With the extensions, teachers could choose from turning in work on June 12th, October 15th or defer to May 2021. According to the survey results, 60% of the teachers will be continuing with the cohort next year to complete 1-4 components. Survey results also indicated that teachers procrastinated and struggled to finish their portfolio requirements due to the Pandemic and shift in work/life balance. With more teachers continuing into next year, we will not be recruiting as many new candidates and will focus more on refining the structure of the cohort and continuing to support the teachers who are returning.

**Table 1. Participant teachers plans for the upcoming academic year.**

| Components | **I plan on turning in a component(s) by June 12th** | **I plan on turning in a component(s) by October 15th** | **I plan on turning in my component(s) next year (2021)** |
|---|---|---|---|
| Component 1 | 25% | 19% | 23% |
| Component 2 | 25% | 19% | 29% |
| Component 3 | 25% | 8% | 33% |
| Component 4 | 27% | 18% | 23% |

## Conclusion

In conclusion, despite ending our year with school shutdowns, the majority of teachers who participated in our cohort reported that it improved their overall teacher efficacy. Participants also shared that they enjoyed the supportive and collaborative environment that the cohort experience provided for them. In moving forward, we will recruit roughly 20-30 new teachers for next year's cohort on top of the 35 candidates who will be continuing with us. In addition, we will continue providing support and feedback with 6-7 CSP's. As we move forward in our current Pandemic, we will also plan and be prepared for a blended style cohort with both face-to-face and virtual meetings. Throughout the year, we will also encourage more collaboration (PLC style) with like certificate area groups and provide timelines with due dates, so candidates can manage their time more efficiently.

## References

Horoi, Irina and Bhai, Moiz, New Evidence on National Board Certification as a Signal of Teacher Quality (April 2028). Economic Inquiry, Vol. 56, Issue 2, pp. 1185-1201, 2018.

National Board for Professional Teaching Standards (2020) National Board Certification. Available at National Boards for Professional Teaching Standards

TNTP (2018). The opportunity myth. New York, NY: Author. Retrieved September 29, 2018, from https:// tntp.org/assets/documents/TNTP_The-Opportunity-Myth_Web.pdf

## Case Study 12: National Board Certification Cohort: Increasing Teacher Efficacy Through the National Board Cohort- Logic Model.

**Situation**: Through a variety of supports, CSP's will decrease the attrition rate of National Board Candidates, so more teachers become Nationally Board Certified.

| Inputs | Outputs | | Outcomes -- Impact | | |
|---|---|---|---|---|---|
| | *Activities* | *Participation* | Short | Medium | Long |
| CSP's- Candidate Support Providers<br><br>Bobbie Faulkner Materials<br><br>5 Core Propositions book<br><br>Certificate area binder with printed materials<br><br>Northern Nevada National Board Weebly<br><br>National Board website<br><br>Bobbie Faulkner webinars<br><br>Support emails and newsletters with tips for candidates. | CSP's will conduct 3 all day Jumpstarts to help candidates see whole picture of each National Board Component<br><br>CSP's will conduct 3 Mentor Days for candidates to provide extra support<br><br>CSP's will meet with teachers 1-on-1 to meet their specific needs<br><br>CSP's will provide support to certificate area (homogenous) groups. | NB Candidates will attend Cohort Meetings and all-day Jumpstarts to gain a better understanding of the NB process and collaborate with other teachers who are going through the process<br><br>Teachers will create a timeline and upload written commentary or video for feedback<br><br>Teachers will provide feedback on exit tickets, which will determine the need of each cohort meeting | Teachers develop an overall efficacy for the National Board Process<br><br>Increased number of teachers pay for and commit to the components they are doing by February 28th<br><br>Increased number of teachers who network with other teachers going through the NB process<br><br>Methods:<br>Participant evaluation survey<br><br>RPDP training survey | Teachers increase their understanding of their students, content knowledge, use of data, assessments and teaching practices<br><br>CSP's will support teachers and help to decrease attrition rates<br><br>Methods:<br>Longitudinal tracking of training participants | Increased number of teachers become Nationally Board Certified<br><br>Recognition of accomplished teachers increases<br><br>Methods:<br>Existing district data on board certified teachers |

**Assumptions:** With multiple supports in place, there will be a decrease in attrition rates of National Board Candidates in Northern Nevada.

**External Factors:** Extra responsibilities put on teachers (Teacher burnout/feeling overwhelmed). Financial Limitations put on teachers. COVID-19 pandemic disruptions.

# Appendices

# Appendix A: Overview of Regional Services 2019-20

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 | 159 | 31 | 56 | 23 | 27 | 296 |
| Churchill | 47 | 59 | 34 | 16 | 24 | 180 |
| Douglas | 192 | 91 | 119 | 20 | 65 | 487 |
| Lyon | 180 | 72 | 40 | 39 | 24 | 355 |
| Storey | 16 | 11 | 10 | 4 | 9 | 50 |
| Washoe | 441 | 109 | 150 | 31 | 234 | 965 |
| Totals | 1035 | 373 | 409 | 133 | 383 | 2333 |

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

| District | ES Teachers | MS Teachers | HS Teachers | Administrators | Others* | Total by District |
|---|---|---|---|---|---|---|
| Carson | 292 | 45 | 91 | 52 | 53 | 533 |
| Churchill | 76 | 209 | 75 | 72 | 43 | 475 |
| Douglas | 608 | 183 | 244 | 36 | 97 | 1168 |
| Lyon | 361 | 101 | 74 | 81 | 30 | 647 |
| Storey | 77 | 18 | 14 | 17 | 10 | 136 |
| Washoe | 692 | 164 | 264 | 68 | 289 | 1477 |
| Totals | 2106 | 720 | 762 | 326 | 522 | 4436 |

*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 2,333 educators, or 36% of the approximate 6,396 educators employed in the region (as reported by each district), participated in programs provided by the NWRPDP during 2019-20 (unduplicated count). In terms of how NWRPDP participants are broken down by district, in 2019-20, 13% of participating teachers and administrators were from Carson City, 7% were from Churchill County, 21% were from Douglas County, 15% were from Lyon County, 2% from Storey County, and 41% from Washoe County. Many educators attended programs on more than one occasion, resulting in a total of 4,436 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. For the 2019-20 school year, these were Consulting (45%), Instructional Training (36%), and Observation/Mentoring (19%).

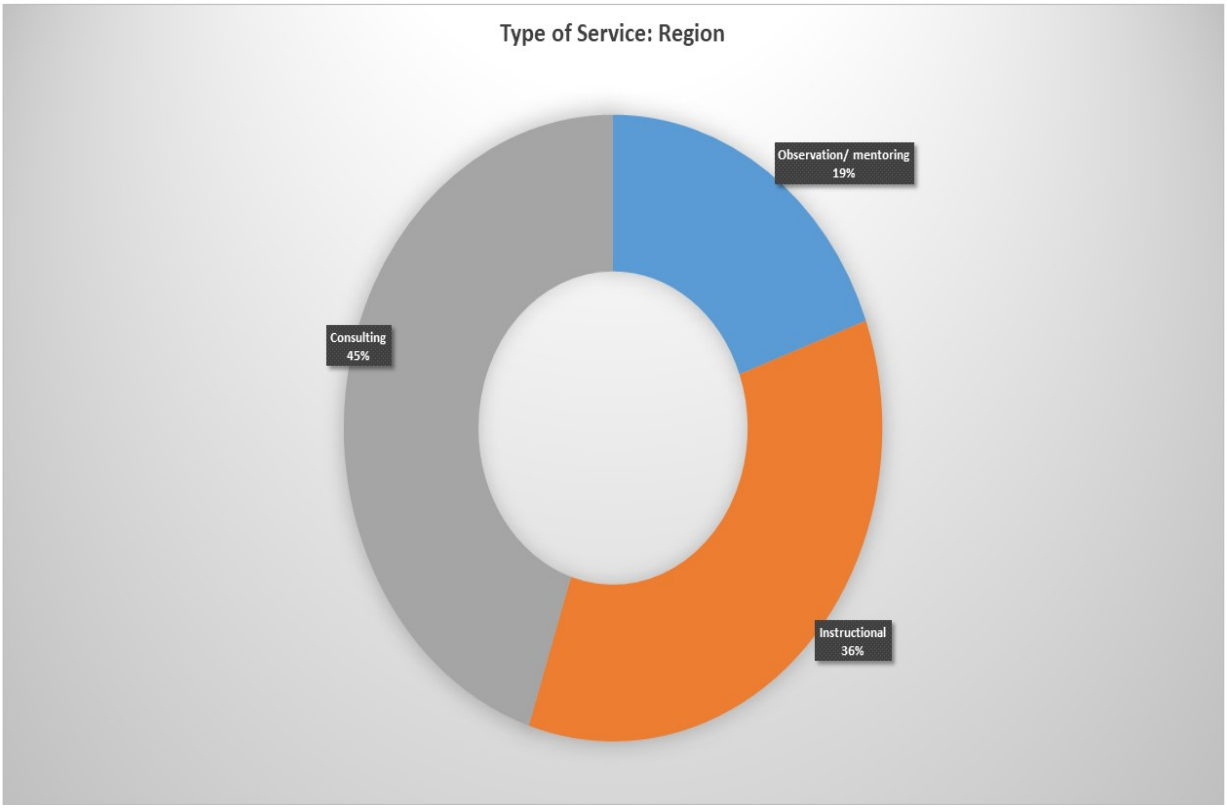


**Figure 1: Types of Services Provided by the NWRPDP**

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 2019-20 school year were NVACS trainings in areas of NVACS Literacy/English, Nevada Educator Performace Framework (NEPF), Computer Science, and Computer Education and Technology . 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. There was also a larger percent of services in the “other” cateory due to supports provided during the COVIS-19 pandemic. This included consultign ith district leaders, providing support with virtual teaching, and support in distance/remotre learning.

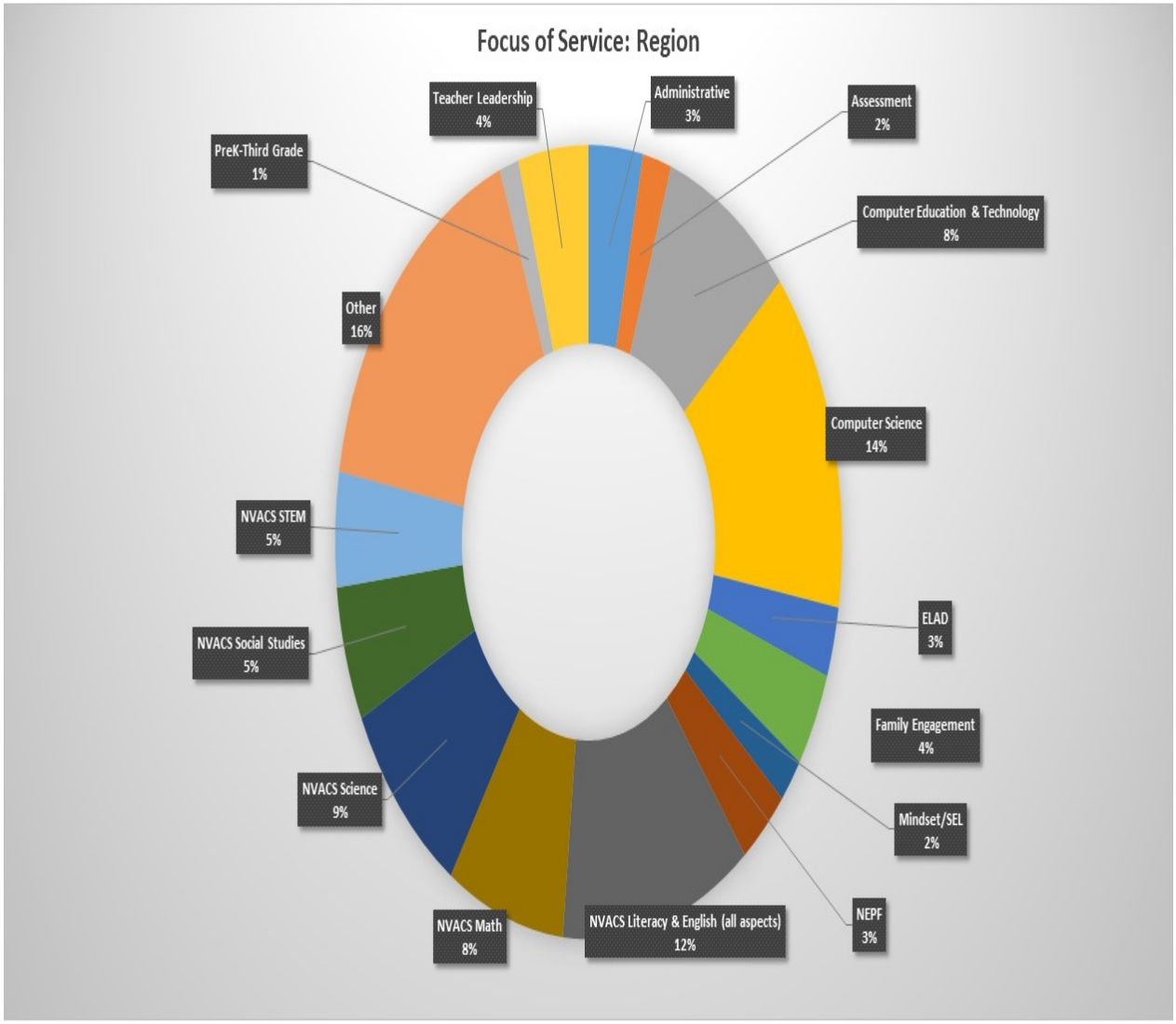


**Figure 2: Focus of Services of the NWRPDP**

# Appendix B: Carson City School District Services Summary 2019-20

**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 | 4.62 | 4.55 |
| The activity provided opportunities for interactions and reflections | 4.69 | 4.73 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.66 | 4.78 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.69 | 4.78 |
| The presenter/facilitator modeled effective teaching strategies. | 4.54 | 4.72 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.54 | 4.59 |
| The activity will improve my teaching skills. | 4.50 | 4.60 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.66 | 4.70 |
| 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 | 4.49 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 159 | 292 |
| MS Teachers | 31 | 45 |
| HS Teachers | 56 | 91 |
| Administrators | 23 | 52 |
| Others | 27 | 53 |
| Totals | 296 | 533 |

Carson educators were 13% of the educators served in the region (Using the unduplicated regional count of 2,333 educators).

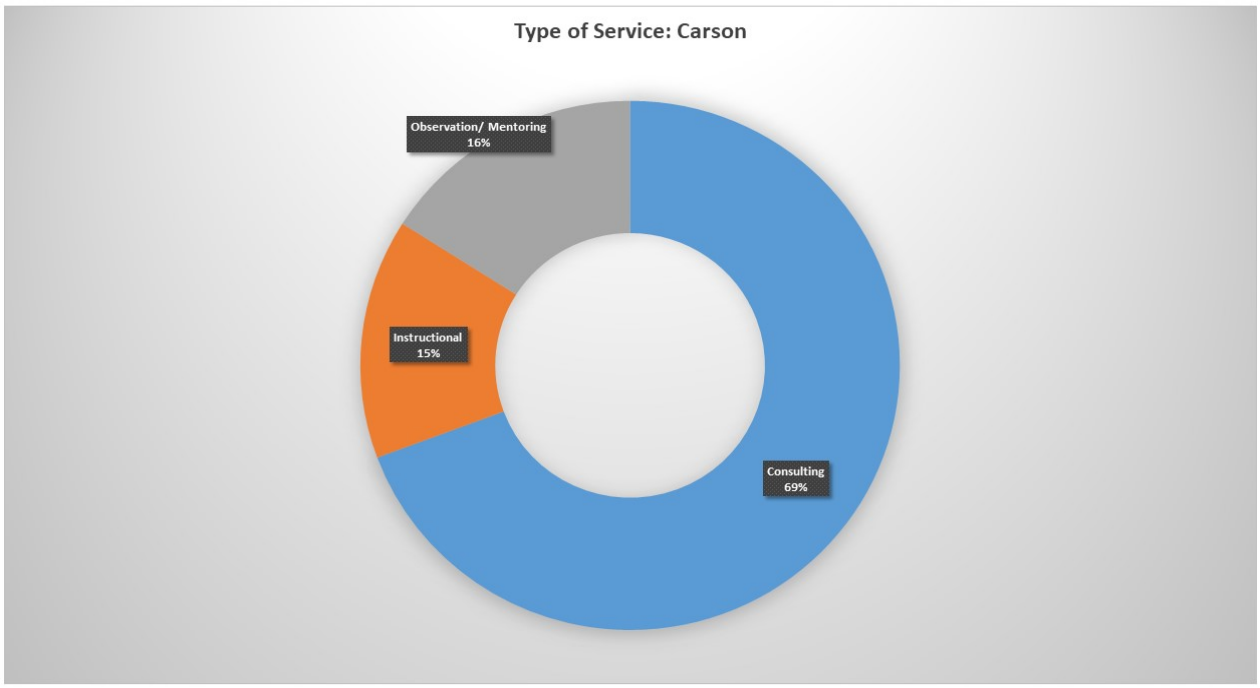


**Figure 1: Types of Services Provided**

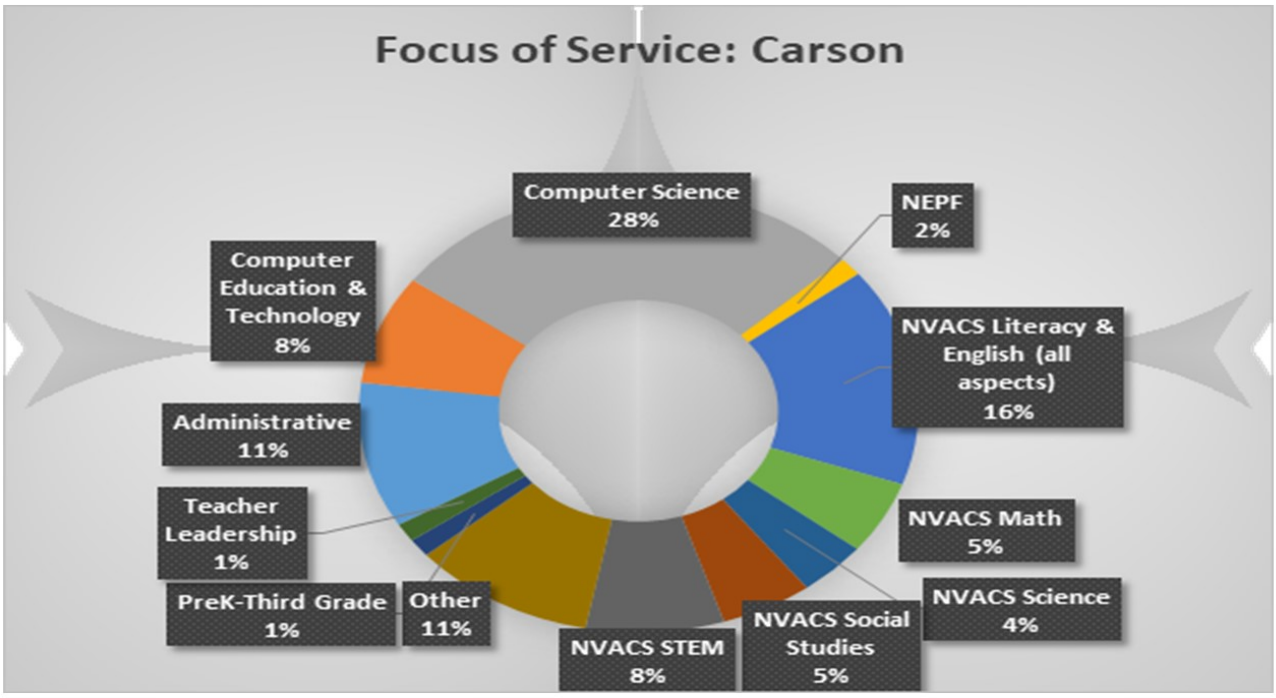


**Figure 2: Focus of Services**

# Appendix C: Churchill County School District Services Summary 2019-20

**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 | 4.31 | 4.55 |
| The activity provided opportunities for interactions and reflections | 4.51 | 4.73 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.41 | 4.78 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.56 | 4.78 |
| The presenter/facilitator modeled effective teaching strategies. | 4.39 | 4.72 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.23 | 4.59 |
| The activity will improve my teaching skills. | 4.36 | 4.60 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.33 | 4.70 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.36 | 4.49 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 47 | 76 |
| MS Teachers | 59 | 209 |
| HS Teachers | 34 | 75 |
| Administrators | 16 | 72 |
| Others | 24 | 43 |
| Totals | 180 | 475 |

Churchill educators were 7% of the educators trained in the region (Using the Unduplicated regional count of 2,333 educators).

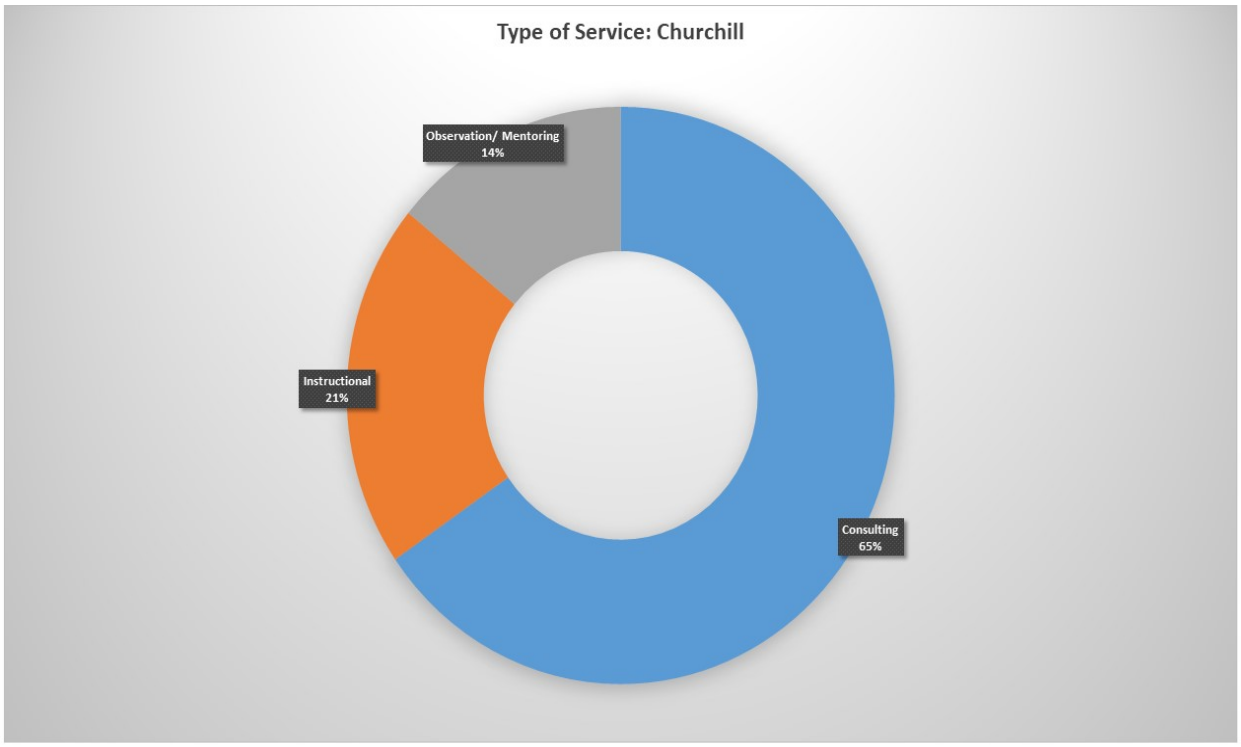


**Figure 1: Types of Services Provided**

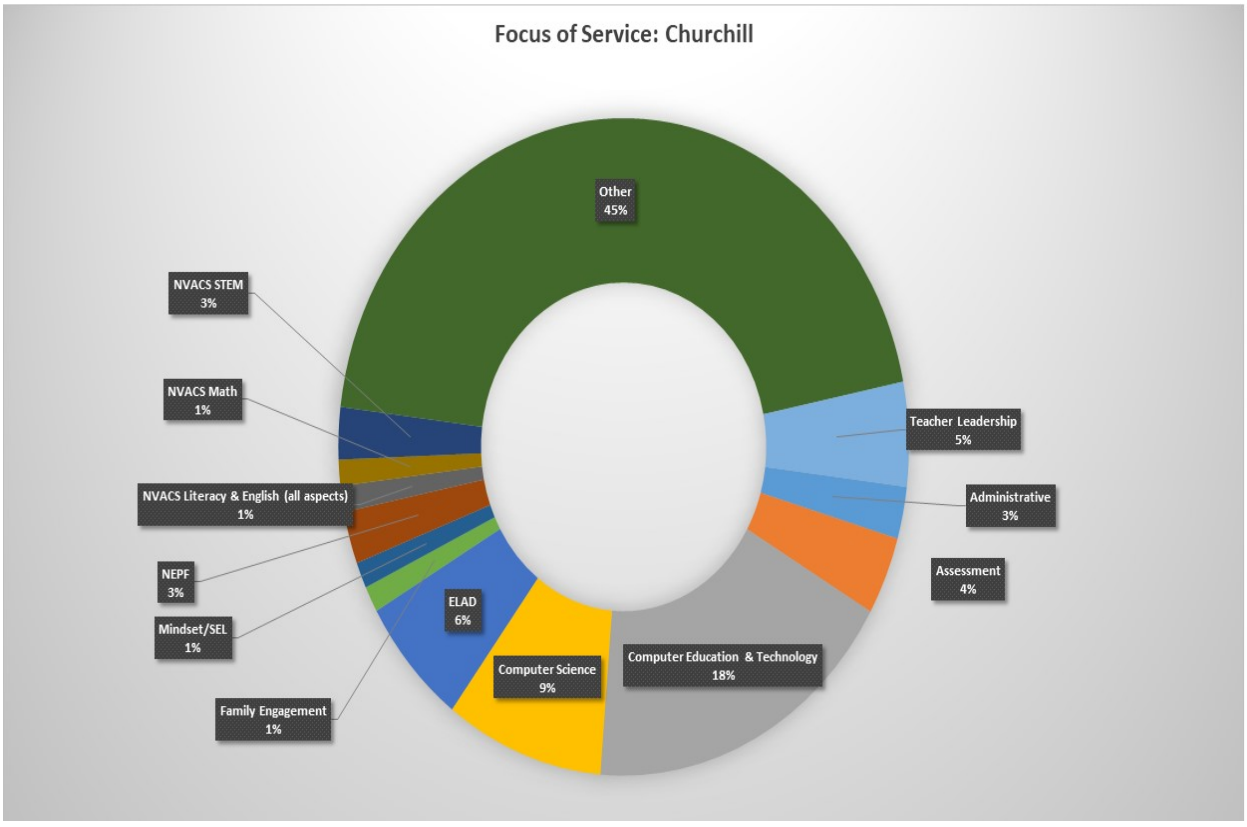


**Figure 2: Focus of Services**

# Appendix D: Douglas County School District Services Summary 2019-20

**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 | 4.65 | 4.55 |
| The activity provided opportunities for interactions and reflections | 4.81 | 4.73 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.84 | 4.78 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.88 | 4.78 |
| The presenter/facilitator modeled effective teaching strategies. | 4.86 | 4.72 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.58 | 4.59 |
| The activity will improve my teaching skills. | 4.73 | 4.60 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.77 | 4.70 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.61 | 4.49 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 192 | 608 |
| MS Teachers | 91 | 183 |
| HS Teachers | 119 | 244 |
| Administrators | 20 | 36 |
| Others | 65 | 97 |
| Totals | 487 | 1168 |

Douglas educators were 21% of the educators trained in the region (Using the Unduplicated regional count of 2,333 educators).

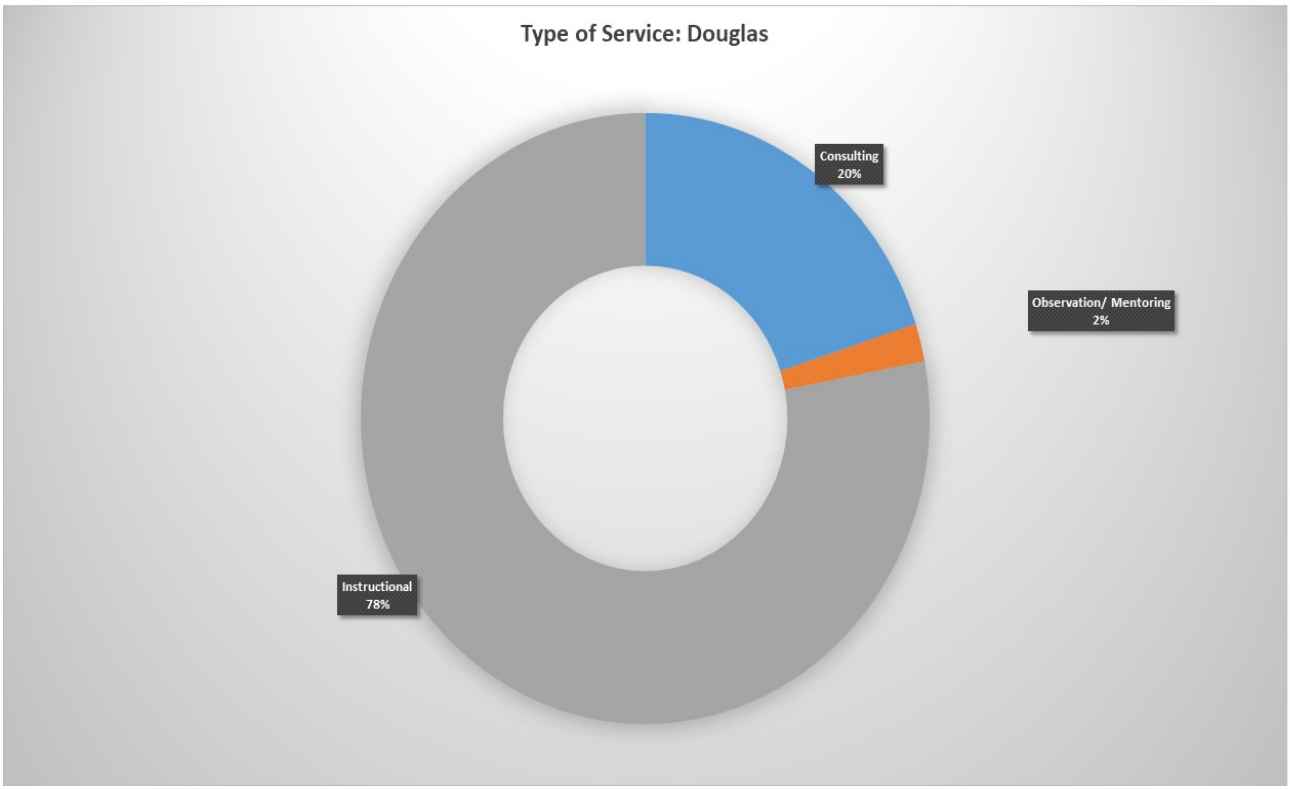


**Figure 1: Types of Services Provided**

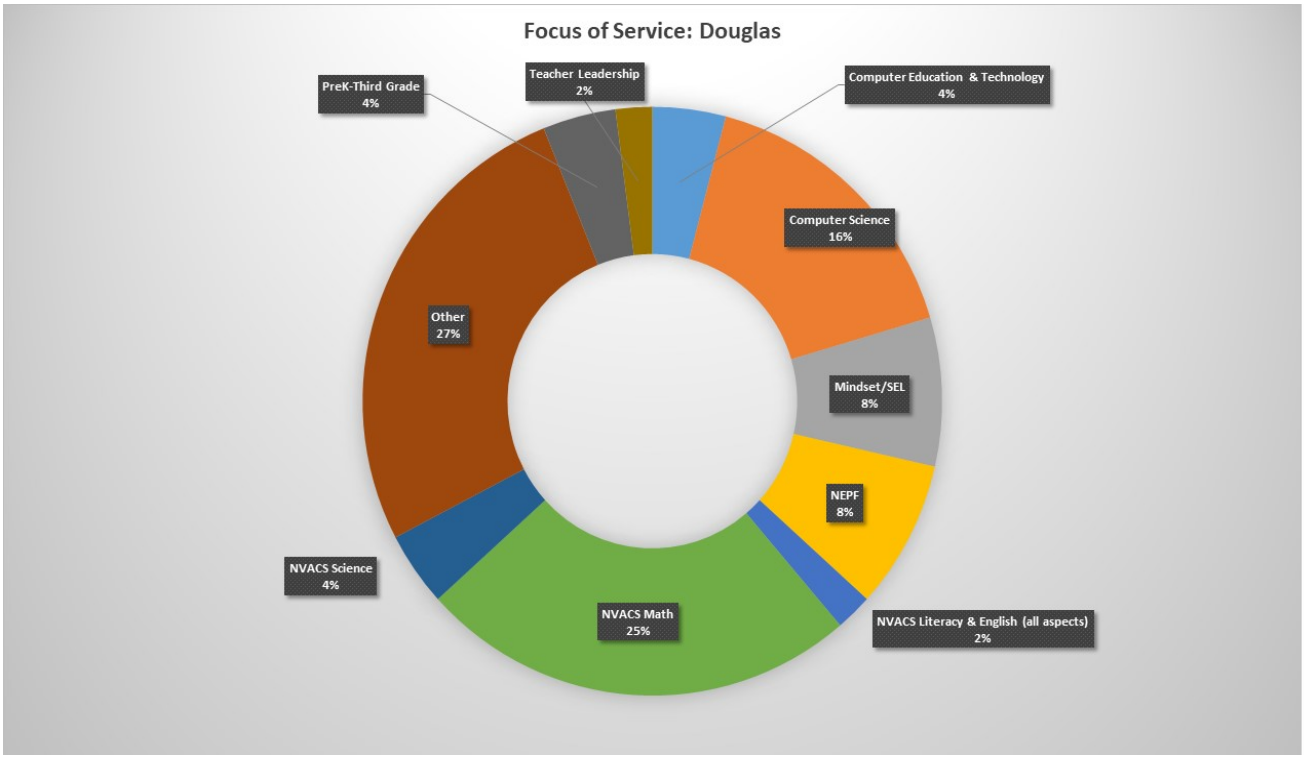


**Figure 2: Focus of Services**

# Appendix E: Lyon County School District Services Summary 2019-20

**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 | 4.67 | 4.55 |
| The activity provided opportunities for interactions and reflections | 4.78 | 4.73 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.75 | 4.78 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.74 | 4.78 |
| The presenter/facilitator modeled effective teaching strategies. | 4.70 | 4.72 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.64 | 4.59 |
| The activity will improve my teaching skills. | 4.58 | 4.60 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.69 | 4.70 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.66 | 4.49 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 180 | 361 |
| MS Teachers | 72 | 101 |
| HS Teachers | 40 | 74 |
| Administrators | 39 | 81 |
| Others | 24 | 30 |
| Totals | 355 | 647 |

Lyon educators were 15% of the educators trained in the region (Using the Unduplicated regional count of 2,333 educators).

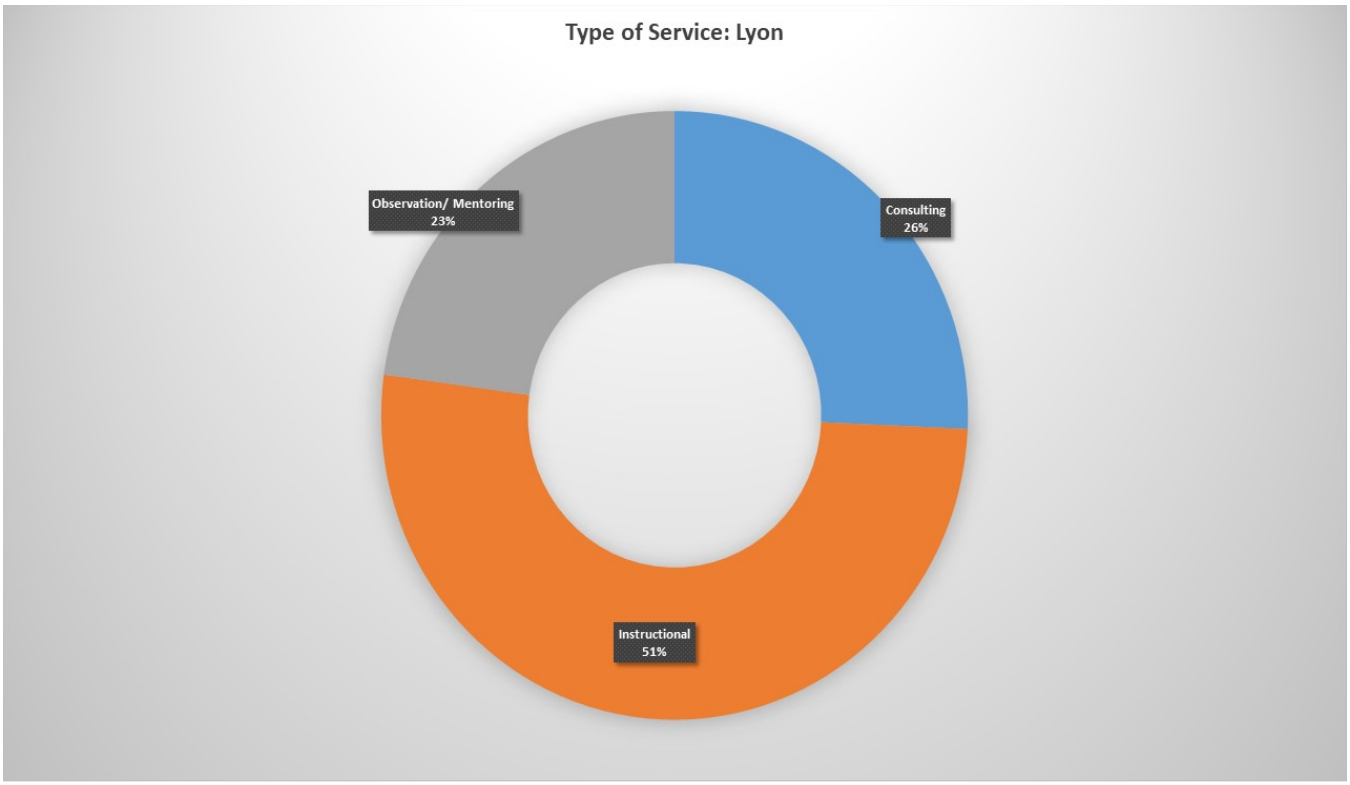


**Figure 1: Types of Services Provided**

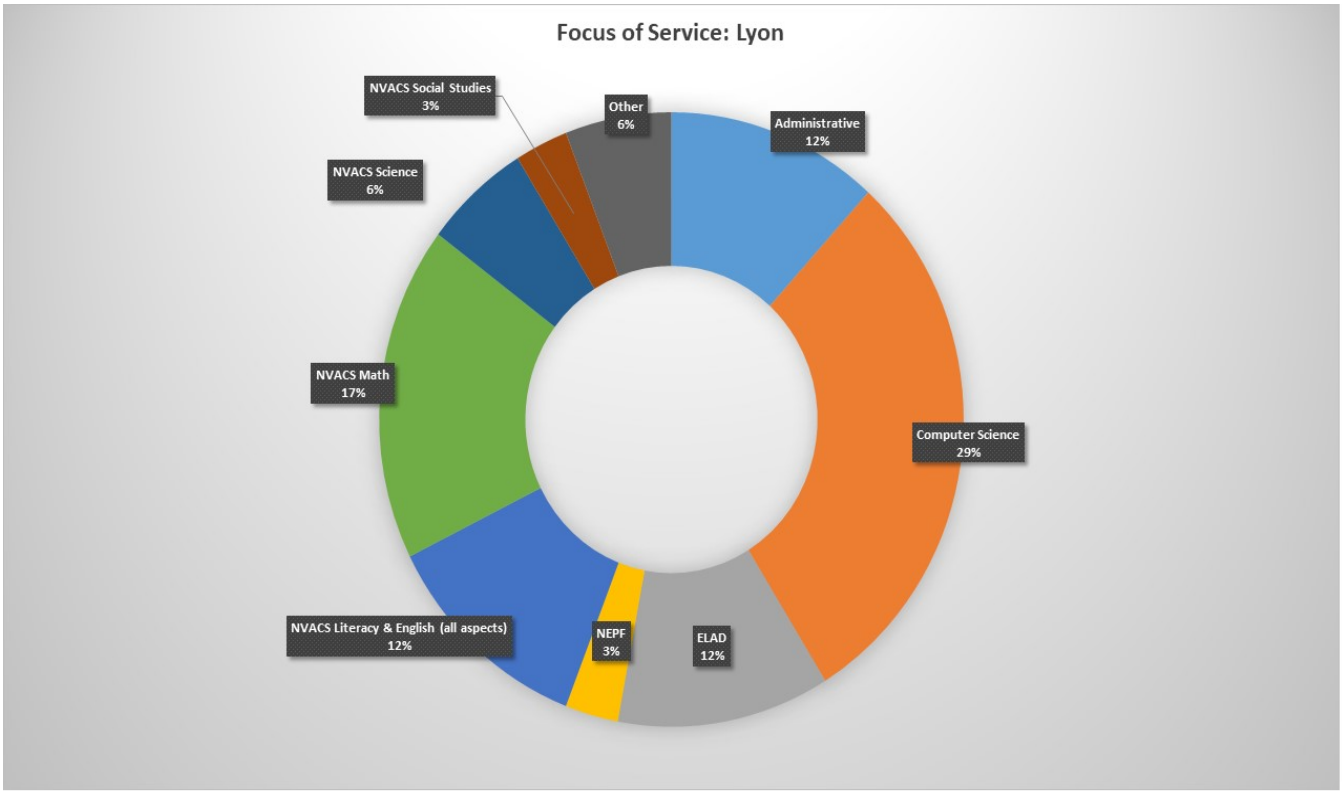


**Figure 2: Focus of Services**

# Appendix F: Storey County School District Services Summary 2019-20

**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 | 5.00 | 4.55 |
| The activity provided opportunities for interactions and reflections | 5.00 | 4.73 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 5.00 | 4.78 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 5.00 | 4.78 |
| The presenter/facilitator modeled effective teaching strategies. | 5.00 | 4.72 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.00 | 4.59 |
| The activity will improve my teaching skills. | 4.00 | 4.60 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.00 | 4.70 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.00 | 4.49 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 16 | 77 |
| MS Teachers | 11 | 18 |
| HS Teachers | 10 | 14 |
| Administrators | 4 | 17 |
| Others | 9 | 10 |
| Totals | 50 | 136 |

Storey educators were 2% of the educators trained in the region (Using the Unduplicated regional count of 2,333 educators).

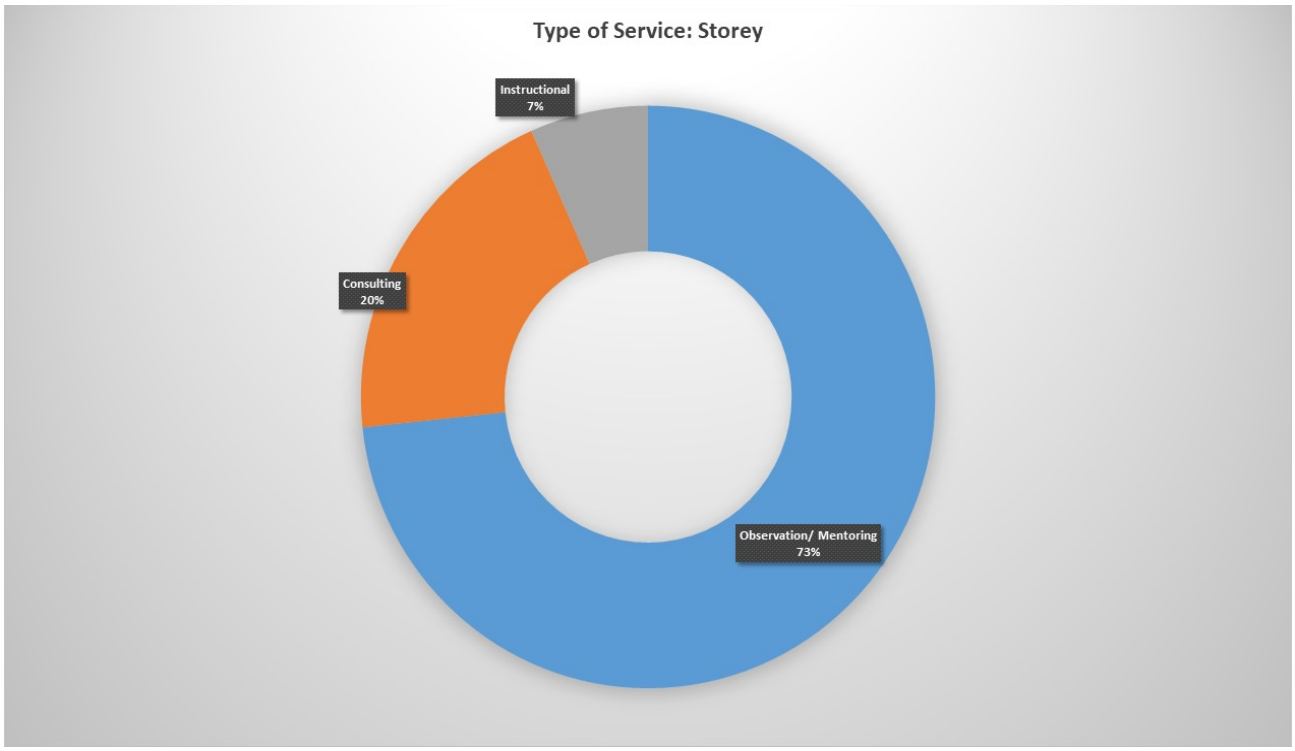


**Figure 1: Types of Services Provided**

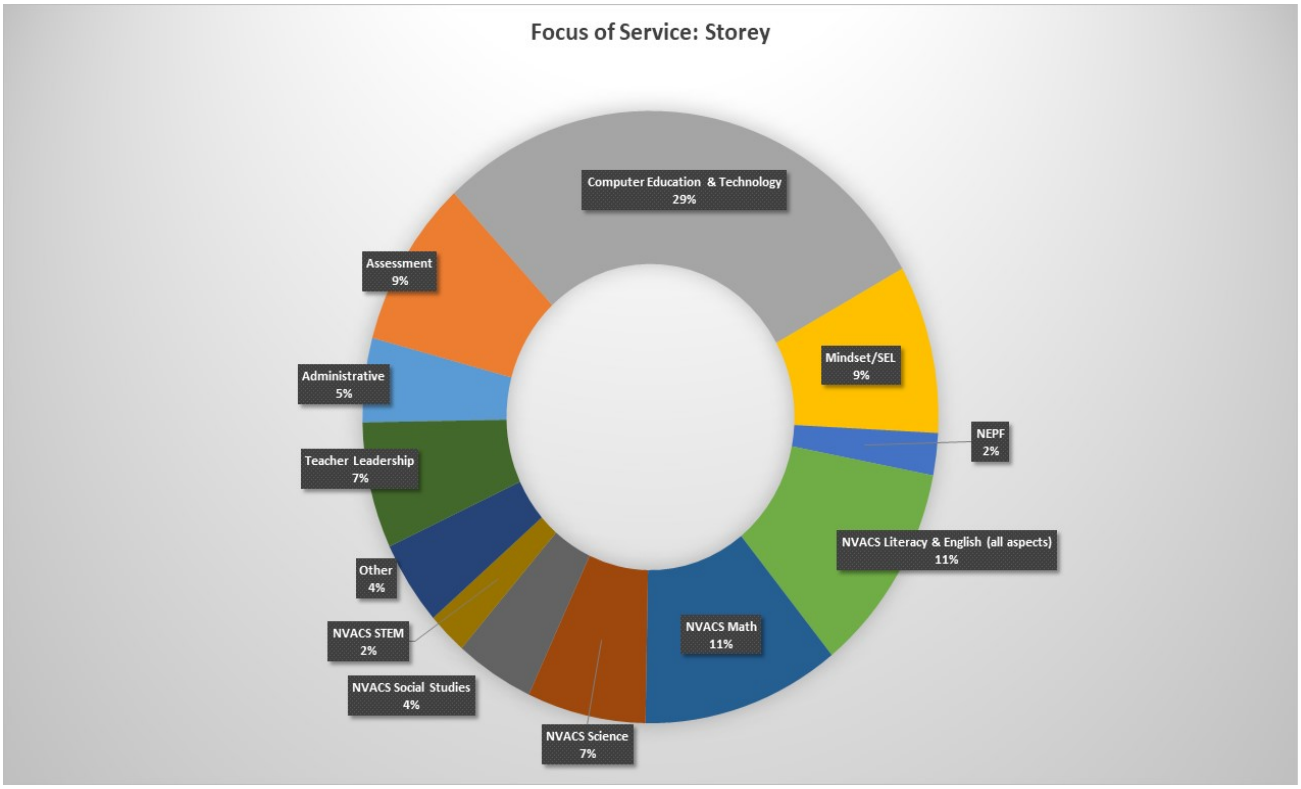


**Figure 2: Focus of Services**

# Appendix G: Washoe County School District Services Summary 2019-20

**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 | 4.62 | 4.55 |
| The activity provided opportunities for interactions and reflections | 4.81 | 4.73 |
| The presenter/facilitator's experience and expertise enhanced the quality of the activity. | 4.81 | 4.78 |
| The presenter/facilitator efficiently managed time and pacing of activities. | 4.76 | 4.78 |
| The presenter/facilitator modeled effective teaching strategies. | 4.75 | 4.72 |
| This activity added to my knowledge of standards and/or subject matter content. | 4.70 | 4.59 |
| The activity will improve my teaching skills. | 4.69 | 4.60 |
| I will use the knowledge and skills from this activity in my classroom or professional duties. | 4.78 | 4.70 |
| This activity will help me meet the needs of diverse student populations (e.g., gifted and talented, ELL, special education, at-risk students). | 4.63 | 4.49 |

**Number of Educators Trained by NWRPDP**

| | Unduplicated | Duplicated |
|---|---|---|
| ES Teachers | 441 | 692 |
| MS Teachers | 109 | 164 |
| HS Teachers | 150 | 264 |
| Administrators | 31 | 68 |
| Others | 234 | 289 |
| Totals | 965 | 1477 |

Washoe educators were 41% of the educators trained in the region (Using the Unduplicated regional count of 2,333 educators).

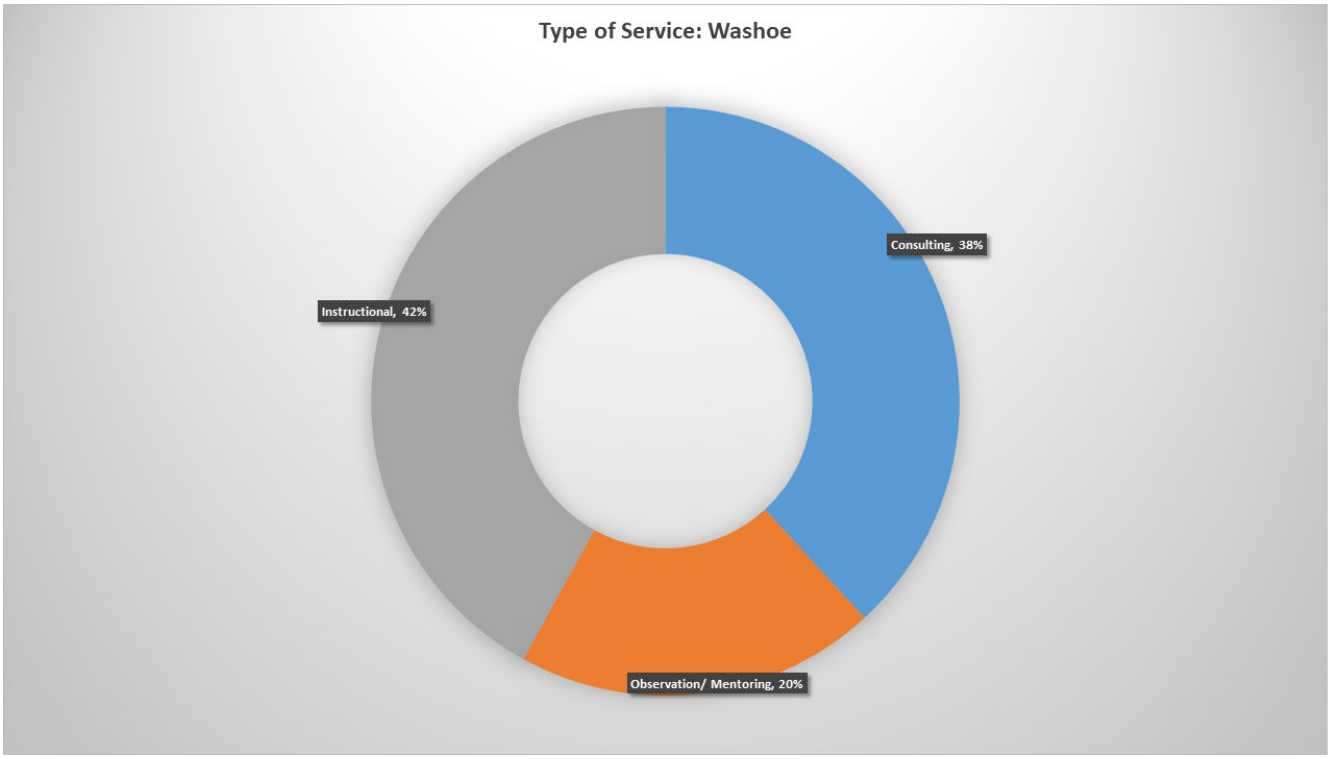


**Figure 1: Types of Services Provided**

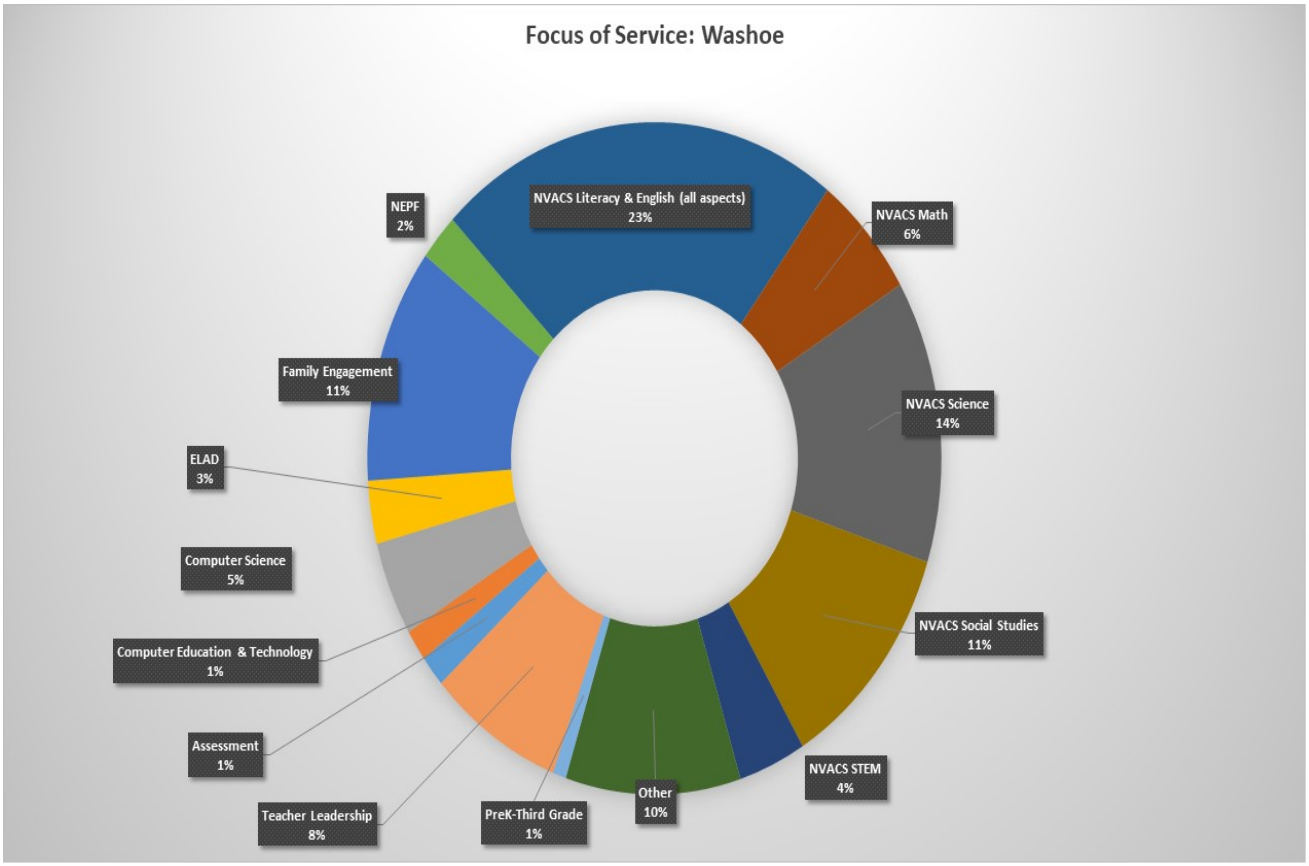


**Figure 2: Focus of Services**