

Optimum Learning for All Students
Implementing Alberta's 2018 Professional Practice Standards
2022-2023 Year 4 Survey Report

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Disclaimer:

The interpretations and conclusions contained herein are those of the researchers and do not necessarily represent the views of the Government of Alberta. The Government of Alberta does not express any opinion in relation to this study

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2022 – 2023 Year 4 Provincial Survey Report

Optimum Learning for All Students Implementing Alberta's 2018 Professional Practice Standards

Background

Alberta Education commissioned this 4-year longitudinal mixed methods research study. The investigation was designed to assess, deepen, and extend the implementation process for Alberta's three professional practice standards: The *Teaching Quality Standard (TQS)*, the *Leadership Quality Standard (LQS)*, and the *Superintendent Leadership Quality Standard (SLQS)*. A four-university research team is generating insights using both quantitative and qualitative methods and is reporting results to Alberta Education, participants, and stakeholders on a yearly basis (2019, 2020, 2021, and 2022).

The three Standards documents conceptualize professional practice in consistent ways:

Quality **teaching** occurs when the teacher's ongoing analysis of the context, and the teacher's decisions about what pedagogical knowledge and abilities to apply result in optimum learning for all students (Alberta Education, 2018c).

Quality **leadership** occurs when the leader's ongoing analysis of the context, and the leader's decisions about what leadership knowledge and abilities to apply, result in quality teaching and optimum learning for all students in the school (Alberta Education, 2018a).

Quality **superintendent leadership** occurs when the superintendent's ongoing analysis of the context, and the superintendent's decisions about what leadership knowledge and abilities to apply, result in quality school leadership, quality teaching and optimum learning for all students in the school authority (Alberta Education, 2018b).

Each Standards statement is based on the professional's reading of the context and the application of the professional's judgement about the professional knowledge and skills that will most likely lead to optimum learning for *all* students. All three Standards documents are similarly organized: one *standard*, six to nine required *competencies*, and several optional *indicators*.

In preparation for required implementation in September 2019, and in partnership with education stakeholders, Alberta Education made considerable investments in implementation readiness initiatives, structures, and frameworks to *support and assure the implementation advancement of quality leadership and quality teaching that results in optimum learning for all students*.

A 4-year Longitudinal Mixed Methods Research Study

Quantitative and qualitative methods complement each other in longitudinal research (Leisering & Walker, 1998). Longitudinal qualitative research seeks to understand change with respect to a prior state of a phenomenon as opposed to diachronically or synchronically identifying causality (Neale & Flowerdew, 2003) using time as a linear construct. Survey data allow us to “compare two or more snapshots over time” (Venn et al., 2014, p. 194) while case studies afford insights into the processes and factors that affect changes in phenomena such as principals’ or teachers’ beliefs, perceptions, or attitudes over time. Of note for year four of this study: two data points in time do not constitute a “trend”; we cannot yet infer directionality in findings by simply comparing this year’s findings with last year. However, four years findings can be seen as trend and can be used to infer directionality.

School Authority Case Studies

Qualitative case study data have been collected on a yearly basis through individual and/or focus group interviews of teachers, leaders (both school and school authority leaders as defined in the Leadership Quality Standard document (Alberta Education, 2018a, p.2), and superintendents in 10 school authority cases. These school authorities are serving as instrumental cases to illustrate and illuminate ways through which educators are enacting, embedding, and extending the three professional practice standards (Brinkman & Kvale, 2015; Creswell, 2012; Merriam & Tisdell, 2016; Stake, 2006).

Online Surveys

Online surveys of teachers, leaders, and superintendents were scheduled in the fall of each year to provide province wide insights from a large population of educators.

Additional Sources of Evidence

Evidence was gathered in two additional ways: (a) through analysis of school authority policies and (b) through interviews of education partner organization leaders.

Method

Survey Overview

Three variations of an online survey (one for teachers, one for leaders, and one for superintendents) were designed and developed to collect meaningful quantitative data in tandem with qualitative focus-group and interview data from the case studies. The surveys were developed by the research team, reviewed by members of the study’s advisory committee, and piloted in the Lethbridge School Division in the spring of 2019. Survey wording has remained consistent across the last four years for *Implementation Advancement* and across the last three years for *Professional Learning Needs* to permit longitudinal comparison.

Sample

Teacher, leader, and superintendent participants were invited to complete an online survey, which was sent by the research team to a random stratified sample of 36 Alberta school jurisdictions, several public charter schools, and multiple Independent schools within the Association of Independent Schools and Colleges of Alberta (AISCA). Online survey links were distributed in October and November 2022. Across Alberta, survey data were collected from 1289 teachers, 371 leaders, and 28 superintendents.

Survey Scales

Implementation Advancement Scale

The first portion of each survey asked participants to indicate advances in implementation on the 5-point Likert scale outlined in Table 1 below. Questions were designed to address specific TQS, LQS, and SLQS competencies in the standard documents (Alberta Education, 2018a 2018b, & 2018c).

Table 1

Scale Used to Describe Implementation Advancement

| |
|--|
| <p>1. Not yet indicates a level of Awareness (Strehlenert & Richter-Sundberg, 2015). No action has yet been taken in practice. Individuals indicate they are attempting to define what needs to change. They are establishing a strategy to get underway. They are considering strengths and barriers.</p> |
| <p>2. Initiating indicates Early Adoption (Strehlenert & Richter-Sundberg, 2015). Individuals indicate they and their school authorities are starting to address the competencies in their practice.</p> |
| <p>3. Enacting indicates Adapting. Individuals are using evidence from their practice to further refine their practices related to the competencies. They are adapting to new ways of working. Practices are evolving that allow individuals/school authorities to flexibly navigate the ill-structured, novel problem-solving nature of practice in response to the integrated nature of the competencies articulated in the standard (Kirton, 2003).</p> |
| <p>4. Embedding indicates Sustaining. Individuals/school authorities are improving/strengthening competency levels. Individuals/districts are using evidence to confirm that the competencies in this standard are now part of common everyday practice (McLaughlin & Mitra, 2001).</p> |
| <p>5. Extending indicates Scaling. Individuals/school authorities are establishing professional individual/district priorities and goals based on evidence from practice; thereby, incorporating the standard into other aspects of their practice (e.g. variety of planning processes, strategic plans, professional learning plans, growth plans, district and school improvement plans, unit plans, lesson plans, staff meetings) (McLaughlin & Mitra, 2001).</p> |

Professional Learning Need Scale

Questions in the second part of each survey were designed to determine the professional learning need of participants related to specific TQS, LQS, and SLQS competencies based on the 4-point Likert scale summarized in Table 2.

Table 2

Scale Used to Describe Professional Learning Need

| |
|--|
| 1. No need of professional learning in relation to the specific competency. |
| 2. Low level of professional learning need in relation to the specific competency. |
| 3. Moderate level of professional learning need in relation to the specific competency. |
| 4. High level of professional learning need in relation to the specific competency. |

Forms of Professional Learning Accessed Scale

Questions in the third and fourth parts of the teacher survey and the third part of the leader survey were drawn, with permission, from the 2018 Organization for Economic Cooperation and Development's (OECD) Teaching and Learning International Survey (TALIS). Participants were asked to identify the types of professional learning and development activities they had accessed from a list of activities provided in each survey.

Scale Reliability

Cronbach's alpha (Table 3) was calculated to determine the internal consistency or reliability of each of the survey instruments, Teacher Survey, Leader Survey, and Superintendent Leader Survey. The closer the alpha is to 1.0 the greater the reliability of the survey. An alpha of 0.70 to 0.90 is considered to have strong reliability.

Table 3

Cronbach Alpha Coefficients of Three Surveys

| Survey | Implementation Advancement (excluding yes/no OECD items) | Number of Items (excluding yes/no OECD items) | Professional Learning (including yes/no OECD items) | Number of Items (including yes/no OECD items) |
|-----------------|---|--|--|--|
| Teachers | 0.91 | 52 | 0.89 | 72 |
| Leaders | 0.95 | 89 | 0.94 | 97 |
| Superintendents | 0.94 | 70 | 0.93 | 79 |

Analysis

Descriptive and inferential analysis using R were conducted. The descriptive analysis consisted of measures of central tendency (mean and median), spread (quartile ranges, standard deviation, and variance), and frequency. The results from the analysis are displayed in tables and figures (bar graphs and box and whisker plots). Box and whisker diagrams show both the distribution and variation within the data set. A box and whisker plot indicates five measures: the minimum score, lower quartile, median, upper quartile, maximum score, with the whiskers representing the lower 25% of the scores and 25% of the upper scores. In addition, the box and whisker plots displayed include outliers in the data set. These are indicated using small circles. Each circle represents one person. Outliers are participants' extremist responses that are numerically distant from the main corpus of data. Outlier analyses can be revealing, but are not included in this study.

Inferential analyses are used to test for differences in the means between multiple groups as registered in the demographic information. Here, we are interested in calculations of statistically significant relationships among multiple variables. A multivariate analysis of variance (MANOVA) is a technique for several such dependent variables. A Pillai's Trace determined the significance levels on the F-distributions. The analysis of the data was carried out by comparing vectors of means from the items from two sections of the survey (Implementation Advancement and Professional Learning Needs) with the demographic data. Post hoc tests were conducted as they are an integral part of MANOVA analysis and used to explore particular differences among groups while controlling for error. Post hoc figures provide those competency differences that were statistically significant. Please note the assumptions that must be made when generating MANOVA results, and ways that these assumptions can be easily violated, as found in Appendix B.

This Year 4 report summarizes the provincial results from a survey of 1289 Alberta teachers, 371 leaders, and 28 superintendents in October 2022 in a representative sample of 35 school divisions along with 15¹ independent school authorities.

Interpretation

The results are interpreted using the implementation drivers' framework (Sims & Melcher, 2017) which was adapted for an educational context from Bertram et al. (2013,2015). Implementation drivers are competency-related, organizationally-related, and leadership-related factors that improve implementation efforts. When they are integrated and balanced, these drivers improve the implementation and enactment of policies and programs. Our objectives in adopting such a framework are:

- a) to elevate discussions about what works (and doesn't) in translating an innovation such as professional practice standards from words on a page (policy) to actions (practices),
- b) to generate consistent "use" of the policy across the province, and
- c) to eventually yield benefits as better student outcomes, whether in student achievement or student inclusion.

¹ 15 of the participating school authorities are members of the Association of Independent Schools and Colleges of Alberta (AISCA). Many participating independent school authorities received a personalized survey report in year 4. For the purposes of this report, all participating school authorities are represented in the analysis and findings.

Organization of the Survey Results

This report presents the results from the fourth year of implementation of the *Teaching Quality Standard* (Alberta Education, 2018c), *Leadership Quality Standard* (Alberta Education, 2018a), and the *Superintendent Leadership Standard* (Alberta Education, 2018b). The aggregated results are organized into three major sections: results from the teacher survey, results from the leadership survey, and results from the superintendent survey. Each section is further organized into sub-sections:

- Implementation advancement related to each competency in the Standard (Teaching, Leadership, and Superintendent Leadership) – 5-point Likert scale
- Professional learning level of need related to each competency in the Standard (Teaching, Leadership, and Superintendent Leadership) – 4-point Likert scale
- Participation in various types of professional learning opportunities accessed – binary choice (yes/no)
- Teacher and Leader survey MANOVA results using the demographic data.

Teacher Survey Results and Discussion

In this section we present and discuss the provincial results from the third year of implementation of the revised *Teaching Quality Standard* (Alberta Education, 2018c) in four sub-sections:

1. Implementation advancement related to each TQS competency;
2. Professional learning level of need related to four TQS competency indicators;
3. Participation in various types of professional learning activities; and
4. Impact of professional learning on teaching practice

Implementation Advancement Related to Each TQS Competency

To describe implementation, we adopted the rule that aggregated competency mean scores must reach the nearest whole number to signify level placement. Results displayed in Table 4 and Figure 1 below indicate teachers report they are in the enacting or adapting phase for:

- Competency 1: Fostering Effective Relationships,
- Competency 2: Engaging in Career-Long Learning,
- Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit

Results further indicate that teachers report they are in the embedding or sustaining phase for:

- Competency 3: Demonstrating a Professional Body of Knowledge, and
- Competency 4: Establishing Inclusive Environments, and
- Competency 6: Adhering to Legal Frameworks and Policies.

In reviewing these results there are a number of indicators that are at or below 3.5 in the fourth year of implementation. These are areas that have been brought to the attention of school authorities in their confidential 4th year district survey results reports. As you review the results you will notice that these indicators can be categorized as those that involve relationships with individuals beyond the school and practices related to Knowledge About First Nations, Métis, and Inuit.

Table 4

Descriptive and Variability Statistics for Implementation Advancement Related to Six TQS Competencies

| Construct | Mean | Standard Deviation |
|---|------|--------------------|
| Competency 1: Fostering Effective Relationships ($\alpha=0.75$) | 3.61 | 0.64 |
| 1. I build trusting relationships with parents/guardians. | 3.86 | 0.83 |
| 2. I build collaborative relationships with community service professionals. | 3.21 | 1.11 |
| 3. I develop relationships built on fairness, respect, and integrity. | 4.38 | 0.61 |
| 4. I develop relationships with parents/guardians by providing culturally meaningful opportunities to support student learning. | 3.38 | 0.95 |
| 5. I build relationships that promote First Nations, Métis and Inuit understanding. | 3.20 | 0.94 |

| Construct | Mean | Standard Deviation |
|--|------|--------------------|
| Competency 2: Engaging in Career-Long Learning ($\alpha=0.72$) | 3.91 | 0.57 |
| 1. I engage with other teachers to build personal capacity. | 4.09 | 0.79 |
| 2. I use evidence of student learning to engage in critical reflection on my practice. | 4.17 | 0.71 |
| 3. I actively seek out feedback to enhance my teaching practice. | 3.84 | 0.90 |
| 4. I apply educational research to improve my teaching practice. | 3.75 | 0.92 |
| 5. I maintain an awareness of emerging technologies that support teaching and learning. | 3.71 | 0.85 |
| Competency 3: Demonstrating a Professional Body of Knowledge ($\alpha=0.84$) | 4.01 | 0.61 |
| 1. I provide a learning environment that responds to the learning needs of every student. | 4.00 | 0.74 |
| 2. I apply a current repertoire of effective instruction to meet the learning needs of every student. | 4.07 | 0.73 |
| 3. I use comprehensive repertoire of effective instruction to meet the learning needs of every student. | 3.98 | 0.78 |
| 4. I use a range of assessments as evidence to report on student progress and achievement. | 3.98 | 0.74 |
| Competency 4: Establishing Inclusive Environments ($\alpha=0.82$) | 4.09 | 0.55 |
| 1. I design learning that fosters equality and respect with regard to rights provided for in the <i>Alberta Human Rights Act</i> and the <i>Canadian Charter of Rights and Freedoms</i> . | 4.10 | 0.75 |
| 2. I draw upon a wide range of instructional strategies to engage students in meaningful learning activities. | 4.12 | 0.70 |
| 3. I communicate high expectations for all students. | 4.28 | 0.67 |
| 4. I use a variety of classroom management strategies that promote positive, engaging learning environments. | 4.21 | 0.68 |
| 5. I incorporate students' personal and cultural strengths into teaching and learning. | 3.72 | 0.83 |
| Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.94$) | 3.25 | 0.88 |
| 1. I plan learning opportunities for all students that accurately demonstrate the strength and diversity of First Nations, Metis, and Inuit peoples of Canada. | 3.24 | 0.96 |
| 2. I use programs of study to provide opportunities for all students to develop knowledge of the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Metis, and Inuit. | 3.26 | 0.95 |
| 3. I use programs of study to provide opportunities for all students to develop an understanding of the histories, cultures, languages, | 3.23 | 0.95 |

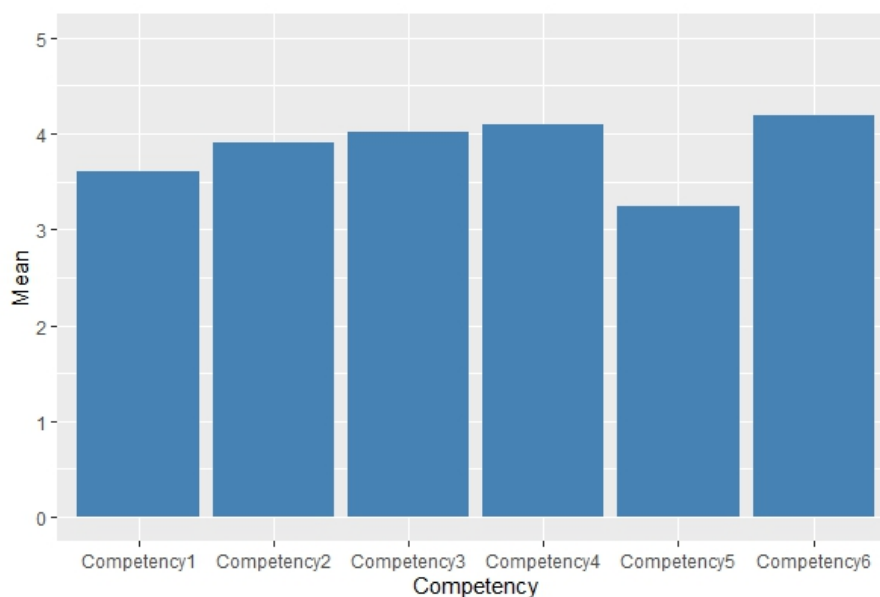
| Construct | Mean | Standard Deviation |
|---|------|--------------------|
| contributions, perspectives, experiences, and contemporary contexts of First Nations, Metis, and Inuit. | | |
| 4. I support the learning experiences of all students by using resources that accurately reflect and demonstrate the strength and diversity of First Nations, Métis and Inuit | 3.26 | 0.94 |
| Competency 6: Adhering to Legal Frameworks and Policies ($\alpha=0.71$) | 4.19 | 0.55 |
| 1. I maintain an awareness of, and respond in accordance with, requirements authorized under the <i>Education Act</i> and other relevant legislation. | 3.94 | 0.78 |
| 2. I engage in practices consistent with policies and procedures established by the school authority. | 4.19 | 0.67 |
| 3. I recognize that my professional practice is bound by a standards code of conduct. | 4.45 | 0.60 |

Note. *Cronbach alpha values indicate internal consistency for each competency and were calculated using all Alberta teachers' survey responses ($n=1289$). Cronbach's alpha is a measure of internal scale reliability. The closer the value to one, the stronger the reliability.

Note. Standard Deviation describes spread in the data. The lower the value, the less the variability in the answers to the question.

Figure 1

Comparison of Means on the Implementation Advancement Related to Six TQS Competencies



Note. 4-point Likert scale: 1=not yet, 2=initiating, 3=enacting, 4=embedding, and 5=extending

Table 5

Overview of Six Competencies Related to Implementation Advancement for TQS Competencies

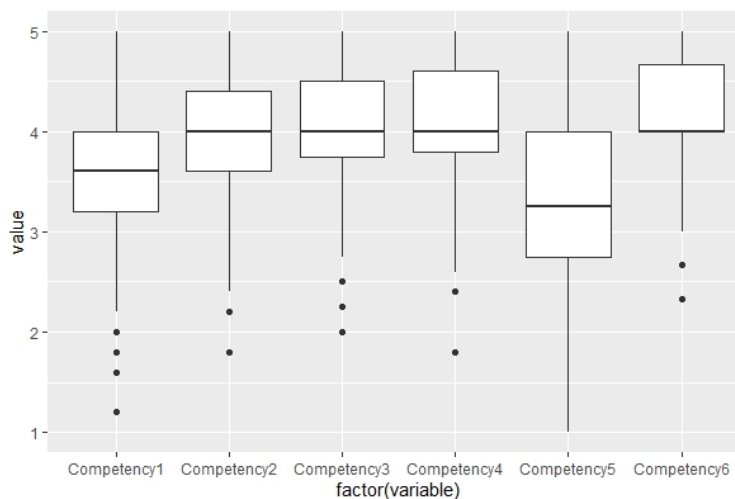
| Scale Descriptor | Mean | Competency |
|---|------|--|
| Enacting – Individuals are using evidence from their practice to further refine their practices related to the competencies. They are adapting to new ways of working. Practices are evolving that allow individuals/systems to flexibly navigate the ill-structured, novel problem-solving nature of practice in response to the integrated nature of the competencies articulated in the standard. | 3.61 | Competency 1: Fostering Effective Relationships |
| | 3.91 | Competency 2: Engaging in Career—Long Learning |
| | 3.25 | Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit |
| Embedding - Individuals are improving/strengthening competency levels. Individuals/systems are using evidence to confirm that the competencies in this standard are now part of common everyday practice | 4.01 | Competency 3: Demonstrating a Professional Body of Knowledge |
| | 4.09 | Competency 4: Establishing Inclusive Environments |
| | 4.19 | Competency 6: Adhering to Legal Frameworks and Policies |

Box and Whisker Plot

The following box and whisker plot (Figure 2) shows both the distribution and variation within the data set. Visual analysis of the boxplot indicates that the distribution of teacher responses on the interquartile range and median illustrate differences across the six competencies. Teacher appraisal of self-competency shifted noticeably depending on which element in the Teacher Standard one focused on.

Figure 2

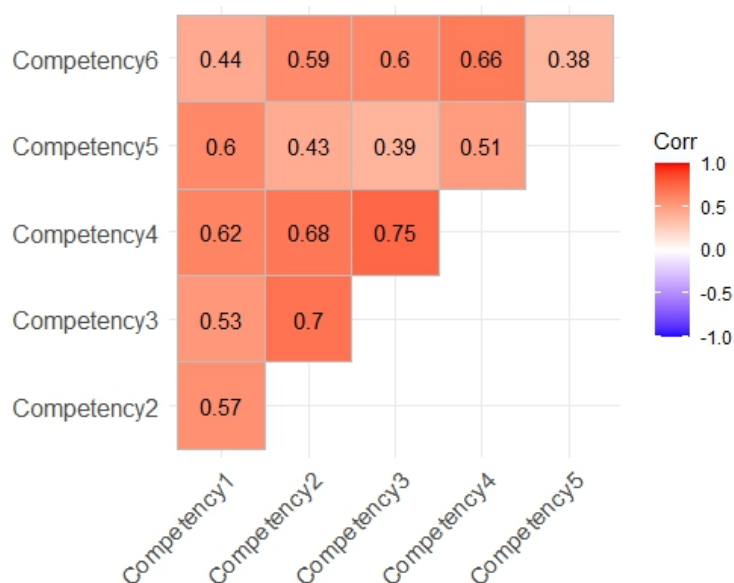
Distribution and Variance in Implementation Advancement Related to TQS Competencies



We were interested in determining how the various competencies within TQS were correlated with each other as reported by teachers in Year 4 implementation advancement (Table 4).

Figure 3

Correlation Matrix for Implementation Advancement Related to TQS Competencies



What are the inter-relationships among the competencies? A correlation matrix is a table to show the relationship between the various competencies. The correlation matrix for the competencies within the TQS are all positively correlated (Figure 3). For example, Competency 2 is closely correlated with Competencies 3 and 4, meaning that the teachers who are more engaged in career-long learning are more likely to demonstrate a professional body of knowledge and establish inclusive environments. When reading the correlation matrix it is helpful to be able to interpret the strength of the relationship so a t-test on the correlation coefficients was carried out.

Table 6

Interpreting a Correlation Coefficient

| Correlation Coefficient | Correlation Strength |
|-------------------------|----------------------|
| 0.7 to 1.0 | Very strong |
| 0.5 – 0.7 | Strong |
| 0.3 – 0.5 | Moderate |

As can be observed in Table 6, the correlation coefficients are all positive and linear. The positive and linear relationship between each pair of competencies are statistically significant as indicated by the p-values ($p < 0.05$), as shown in Table 7, of these correlations

Table 7

The p-values for t Tests for the Pearson Correlation Coefficients in Figure 3

| | Competency2 | Competency3 | Competency4 | Competency5 | Competency6 |
|-------------|-------------|-------------|-------------|-------------|-------------|
| Competency1 | <2.2e-16 | <2.2e-16 | <2.2e-16 | <2.2e-16 | <2.2e-16 |
| Competency2 | | <2.2e-16 | <2.2e-16 | <2.2e-16 | <2.2e-16 |
| Competency3 | | | <2.2e-16 | <2.2e-16 | <2.2e-16 |
| Competency4 | | | | <2.2e-16 | <2.2e-16 |
| Competency5 | | | | | <2.2e-16 |

This is useful information for professional development purposes. Targeting workshops or professional activities to improve specific competencies may be anticipated to have a small but significant impact on those other competencies in the professional learning session.

Comparison of Years 1 to 4 Results

Table 8 provides a comparison of years one to four results on implementation advancement of the TQS competencies for participating jurisdictions in Alberta. Results in the fourth year indicate an increase in all six competencies from year 3 to year 4. Yet when comparing the various competencies across all four years, some noticeable dips are evident. Stability in fostering effective professional relationships is evident (Competency 1) and demonstrating a body of professional knowledge (Competency 3). Substantial improvements can be seen in acquiring a foundational knowledge of First Nations, Métis, and Unit perspectives (Competency 5). However, there are modest or substantial declines in competencies relating to establishing inclusive environments (Competency 4), undertaking career-long learning (Competency 2), and adhering to legal frameworks (Competency 6) over the last four years. There are a number of reasons why this might be the case which range from the effects attributed to the pandemic to changes to the school authority's organizational drivers (decision support data systems, facilitative administration, and systems intervention) and school authority's senior-level technical leadership drivers.

Table 8

Comparison Between Year One to Year Four Results for Implementation Advancement

| Competency | Year One (n=2300) | Year Two (n=1160) | Year Three (n=787) | Year Four (n=1289) |
|---|----------------------|----------------------|-----------------------|-----------------------|
| Competency 1: Fostering Effective Relationships | 3.57 | 3.55 | 3.56 | 3.61 |
| Competency 2: Engaging in Career-Long Learning | 3.96 | 3.91 | 3.88 | 3.91 |

| | | | | |
|---|------|------|------|------|
| Competency 3: Demonstrating a Professional Body of Knowledge | 3.96 | 3.96 | 3.96 | 4.01 |
| Competency 4: Establishing Inclusive Environments | 4.21 | 4.05 | 4.00 | 4.09 |
| Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit | 2.99 | 3.20 | 3.18 | 3.25 |
| Competency 6: Adhering to Legal Frameworks and Policies | 4.34 | 4.17 | 4.15 | 4.19 |

Overall, four trends can be observed in this four-year picture. First, Alberta teachers' competencies are neither fixed nor accumulative, but rather fluid and variable over time. Second, while competencies relating to professional knowledge and professional relationships appear stable, there have been substantial gains in acquiring knowledge about Indigenous peoples in Canada, but a noticeable deterioration is evident in fostering inclusive learning environments and operating within current legal frameworks. Third, the so-called "implementation dip"—“a dip in performance and confidence as one encounters an innovation that requires new skills and new understandings” (Fullan, 2007)—is evident in year 2 and year 3 of Alberta teachers' competency development. And fourth, that teachers' competencies have remained durable overall indicates a remarkable professional resilience over the last four years.

Professional Learning Level of Need Related to Six TQS Competencies

Professional learning is a significant part of successful implementation. The professional learning accompanying the *Teaching Quality Standard* acknowledges that learning occurs over time and requires support for implementation to embed the new learning into practices. Professionals' use of time, collaborative inquiry, and the ability to change multiple areas of practice are necessary for professionals to influence learning outcomes of their students. Teachers need time to develop, absorb, discuss, and practice new knowledge over a sustained and intensive period of time (Garet et al., 2001; Guskey, 2000; Timperley et al., 2007).

Teacher perspectives on their professional learning needs are described in relation to the following six TQS competencies:

- Competency 1: Fostering Effective Relationships
- Competency 2: Engaging in Career-Long Learning
- Competency 3: Demonstrating a Professional Body of Knowledge
- Competency 4: Establishing Inclusive Environments
- Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit
- Competency 6: Adhering to Legal Frameworks and Policies

Results in this subsection are displayed in Table 9 and Figure 4 below. Table 9 provides a descriptive statistical summary of teacher need for professional learning based on a 4-point Likert scale. Figure 3 displays these same data as a bar graph.

Similar to previous years, teachers report an overall low level of need for professional learning related to the implementation of the six TQS competencies. However, further professional learning in some sub-areas within each competency may still be warranted as indicated by the mean scores of 2.5 or greater for any of the questions within the competency. You will notice these areas of need can be found in Competency 1, Question 5; Competency 4, Question 4; and Competency 5.

Table 9

Descriptive and Reliability for Professional Learning Need Related to Six TQS Competencies

| Construct | Mean | Standard Deviation |
|--|-------------|---------------------------|
| Competency 1: Fostering Effective Relationships ($\alpha=0.85$) | 2.25 | 0.72 |
| 1. I require PL about building trusting relationships with parents/guardians. | 1.87 | 0.97 |
| 2. I require PL on building working relationships with community service professionals. | 2.34 | 0.85 |
| 3. I require PL on developing relationships built on fairness, respect, and integrity. | 1.81 | 1.01 |
| 4. I require PL about building relationships through creating culturally meaningful opportunities to support student learning. | 2.44 | 0.91 |
| 5. I require PL on building relationships that promote First Nations, Métis and Inuit understanding. | 2.83 | 0.82 |
| Competency 2: Engaging in Career-Long Learning ($\alpha=0.89$) | 2.21 | 0.74 |
| 1. I require PL on building teachers' collective professional capacity. | 2.15 | 0.92 |
| 2. I require PL on using evidence of student learning to critically reflect on my practice. | 2.08 | 0.93 |
| 3. I require PL on seeking feedback about my teaching practice. | 2.07 | 0.86 |
| 4. I require PL to keep abreast of educational research to improve my teaching practice. | 2.33 | 0.86 |
| 5. I require PL on using emerging technologies to support teaching and learning. | 2.43 | 0.86 |
| Competency 3: Demonstrating a Professional Body of Knowledge ($\alpha=0.91$) | 2.35 | 0.82 |
| 1. I require PL on providing a learning environment that responds to the learning needs of every student. | 2.39 | 0.96 |
| 2. I require PL on applying current educational research to meet the learning needs of every student. | 2.39 | 0.88 |
| 3. I require PL on effective instruction to meet the learning needs of every student. | 2.33 | 0.95 |
| 4. I require PL on student assessment practices. | 2.28 | 0.91 |
| Competency 4: Establishing Inclusive Environments ($\alpha=0.88$) | 2.31 | 0.75 |

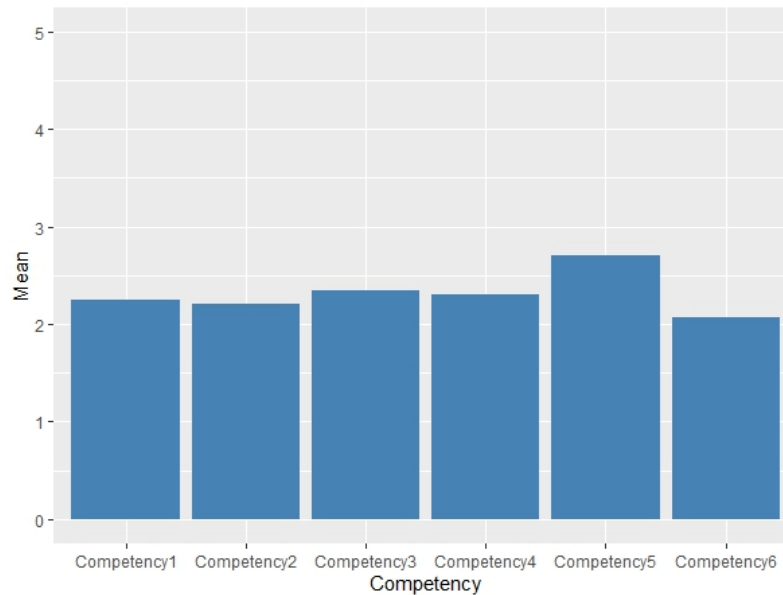
| Construct | Mean | Standard Deviation |
|--|------|--------------------|
| 1. I require PL on fostering equality and respect for the rights provided in <i>Alberta Human Rights Act</i> and the <i>Canadian Charter of Rights and Freedoms</i> . | 1.85 | 0.84 |
| 2. I require PL on meeting the learning needs of a diverse group of students. | 2.46 | 0.94 |
| 3. I require PL on using a range of instructional strategies. | 2.20 | 0.96 |
| 4. I need PL on supporting the emotional and mental health needs of students. | 2.73 | 0.96 |
| 5. I require PL about incorporating students' personal and cultural strengths into teaching and learning. | 2.29 | 0.86 |
| Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.92$) | 2.71 | 0.75 |
| 1. I require PL on demonstrating the strength and diversity of First Nations, Metis, and Inuit peoples of Canada. | 2.60 | 0.84 |
| 2. I require PL on developing knowledge of the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Metis, and Inuit. | 2.82 | 0.83 |
| 3. I require PL on effectively using the programs of study for all students to develop an understanding of the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Metis, and Inuit. | 2.63 | 0.84 |
| 4. I require PL on resources that reflect and demonstrate the strength and diversity of First Nations, Métis and Inuit. | 2.77 | 0.84 |
| Competency 6: Adhering to Legal Frameworks and Policies ($\alpha=0.85$) | 2.07 | 0.81 |
| 1. I require PL on how the <i>Education Act</i> and other relevant legislation impacts my teaching. | 2.04 | 0.87 |
| 2. I require PL on policies and procedures established by the school authority. | 1.82 | 0.91 |
| 3. I require PL on designing learning that addresses provincial learning outcomes. | 2.25 | 1.00 |

Note. *Cronbach alpha values indicate internal consistency for each competency and were calculated using the survey responses from all participating Alberta teachers ($n=1289$)

The following bar graph (Figure 4) provides a visual overview of the overall means related to the six competencies in the *Teaching Quality Standard*.

Figure 4

Means of Professional Learning Need Related to TQS Competencies



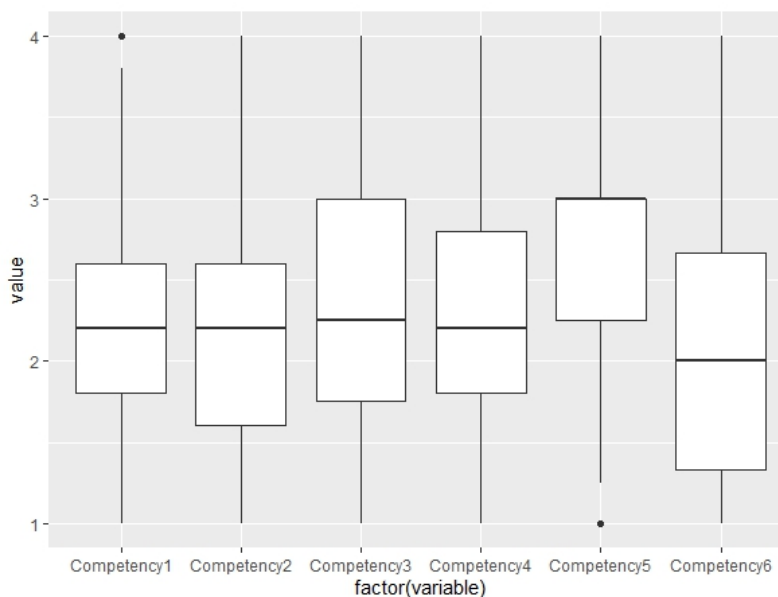
Note. 4-point Likert scale: 1= No need at present; 2= Low level of need; 3= Moderate level of need; 4= High level of need.

Box and Whisker Plot

The following box and whisker plot (Figure 5) shows both the distribution and variation within the data set for the six competencies. Consistent with a four-level scale, the box and whisker plots indicate the minimum score, lower quartile, median, upper quartile, maximum score, with the whisker representing the lower 25% of the scores and 25% of the upper scores for each of six competencies. While there is some skewing of the data in all competency areas, the one worth attending to is Competency 5 where the median is also the upper range of the data set showing some negative skewing in the data set.

Figure 5

Distribution and Variation in Professional Learning Needs Related to TQS Competencies



Comparison of Years 1 to 4 Results

Table 10 provides a comparison of years one to four results for professional learning needs of the TQS competencies. Perhaps most noticeable is a slight decrease in the need for professional learning from year three to year four. It is important to note that the results indicate teachers continue to request additional professional learning in Competency 5.

Table 10

Comparison Between Year One to Year Four Results of Need for Professional Learning

| Competency | Year One (n=2300) | Year Two (n=1160) | Year Three (n=787) | Year Four (n=1289) |
|--|------------------------------|------------------------------|-------------------------------|-------------------------------|
| Competency 1: Fostering Effective Relationships | 1.95 | 2.33 | 2.29 | 2.25 |
| Competency 2: Engaging in Career-Long Learning | na | 2.31 | 2.24 | 2.21 |
| Competency 3: Demonstrating a Professional Body of Knowledge | 2.11 | 2.41 | 2.35 | 2.35 |
| Competency 4: Establishing Inclusive Environments | 2.36 | 2.39 | 2.34 | 2.31 |

| | | | | |
|---|------|------|------|------|
| Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit | 2.67 | 2.75 | 2.79 | 2.71 |
| Competency 6: Adhering to Legal Frameworks and Policies | na | 2.08 | 2.01 | 2.07 |

The relatively consistent levels of need for additional professional learning across four years may best be explained by considering these results with the results from part one of the survey. Alberta teachers indicated they continue to make adaptations to their practice in response to three (3) of the competencies and are moving towards full implementation in three (3) of the competencies.

Participation in and Impact of Various Types of Professional Learning Opportunities

Research strongly links teaching quality and student learning outcomes (Darling-Hammond, 2000; Hattie, 2009; Jensen et al., 2016; Rowe, 2003; Wenglinsky, 2002). The types of professional learning over which teachers engage during their career is of paramount importance to student learning and the successful implementation of the competencies.

The results in this final portion of the teacher survey are displayed in Table 11. Teacher participants in the 4th year of the study reported participating in a variety of professional learning activities which included online courses, reading professional literature, coaching, and professional learning communities.

One area that stands out and bears further investigation are related to the positive impact the professional learning had on teaching practice, in particular the factors that contribute to collective teacher efficacy. These four factors are: collaborative learning, school-based, extended over a period of time, and involved colleagues from within the school. While teachers indicated that the majority of teachers indicated that collaborative learning opportunities impacted their learning (86%), the other three factors rate considerably lower, with only half the teachers reporting that those forms of professional learning were impacting their practice.

Research demonstrates that collective efficacy— or the sustained collective effort and action to change practice to improve learning outcomes for students over and above the educational impact of their homes and communities (Friesen & Brown, 2020)—is highly correlated (effect size $d=1.57$) with student achievement. Eells' (2011) meta-analysis demonstrated that “teacher collective efficacy is strongly and positively associated with student achievement across subject areas and in multiple locations” (p. 110). The literature further suggests use of time, collaborative inquiry, and the ability to address multiple areas of influence are necessary for the professional learning to enhance teachers' learning and the learning outcomes of their students. Teachers need time to develop, absorb, discuss, and practice new knowledge over a sustained and intensive period (Garet et al., 2001; Guskey, 2000; Timperley et al., 2007).

Professional learning is an essential component of any successful implementation. Ensuring that teachers are receiving high quality professional learning by highly qualified personnel is essential to ensuring the fidelity of implementation of the Teaching Quality Standard. In this fourth year. Many teachers report that they have a low level of need to continuous professional learning as it relates to the implementation of the standards; however, in reporting on the forms of professional learning they are

accessing, they appear to be missing the forms of professional learning that build collective efficacy, which evidence indicates has a significant impact on student learning (Donohoo et al., 2018; Ells, 2011; Hattie, 2023)

Table 11

Frequencies of Various Types of Professional Learning Accessed and the Impact on Teaching Practice

| | Frequency Count (%) | |
|--|---------------------|-----------|
| | Yes | No |
| In the last 12 months, did you participate in any of the following professional learning activities? ($\alpha=0.50$) | | |
| Courses/seminars attended in person. | 451 (62%) | 282 (38%) |
| Courses/seminars online. | 656 (89%) | 77 (11%) |
| Education conferences. | 449 (61%) | 286 (39%) |
| Formal qualification program (degree program). | 85 (12%) | 648 (88%) |
| Observation visits to other schools. | 116 (16%) | 618 (84%) |
| Peer and/or self-observation and coaching as part of a formal school arrangement. | 249 (34%) | 485 (66%) |
| Participation in a network of teachers at the school authority level formed specifically for the professional learning of teachers. | 505 (69%) | 229 (31%) |
| Professional learning community within the school formed specifically for the professional learning of teachers. | 570 (78%) | 163 (22%) |
| Reading professional literature. | 615 (84%) | 119 (16%) |
| Thinking of the professional learning activity that had the greatest positive impact on your teaching during the last 12 months, did it have any of the following characteristics? ($\alpha=0.69$) | | |
| It built on my prior knowledge. | 698 (96%) | 28 (4%) |
| It adapted to my professional learning needs. | 622 (86%) | 103 (14%) |
| It had a coherent structure. | 629 (87%) | 96 (13%) |
| It appropriately focused on content needed to teach my subjects. | 585 (81%) | 140 (19%) |
| It provided opportunities for active learning. | 591 (82%) | 131 (18%) |
| It provided opportunities for collaborative learning. | 623 (86%) | 101 (14%) |
| It provided opportunities to practice/apply new ideas and knowledge in my own classroom. | 634 (88%) | 90 (12%) |
| It took place in my school. | 398 (55%) | 327 (45%) |
| It involved most colleagues from my school. | 349 (48%) | 375 (52%) |
| It took place over an extended period of time (e.g. several weeks or longer) | 389 (54%) | 335 (46%) |
| It focused on innovation in my teaching. | 495 (68%) | 229 (32%) |

Note. Cronbach alpha values indicate internal consistency for each competency and were calculated using the survey responses from all participating Alberta teachers ($n=1289$)

Comparison of Years 1 to 4 Results

Table 12 provides a comparison of year one to year four results for the type of professional learning teachers accessed to support TQS implementation.

Table 12

Comparison Between Year One to Year Four Results of Forms of Professional Learning Accessed and Impact on Professional Practice

| Form of Professional Learning Accessed | Year One (n=2300) | Year Two (n=1160) | Year Three (n=787) | Year Four (n=1289) |
|---|------------------------------|------------------------------|-------------------------------|-------------------------------|
| Courses/seminars attended in person. | 1562 (88%) | 480 (65%) | 127 (27%) | 451 (62%) |
| Courses/seminars online | 852 (48%) | 653 (88%) | 428 (89%) | 656 (89%) |
| Education conferences. | 1386 (79%) | 522 (71%) | 289 (60%) | 449 (61%) |
| Formal qualification program (degree program). | 240 (14%) | 108 (15%) | 72 (15%) | 85 (12%) |
| Observation visits to other schools. | 520 (30%) | 116 (16%) | 40 (8%) | 116 (16%) |
| Peer and/or self-observation and coaching as part of a formal school arrangement. | 827 (47%) | 279 (38%) | 161 (34%) | 249 (34%) |
| Participation in a network of teachers at the school authority level formed specifically for the professional learning of teachers. | 1301 (74%) | 540 (73%) | 314 (65%) | 505 (69%) |
| Professional learning community within the school formed specifically for the professional learning of teachers. | 1392 (79%) | 570 (77%) | 354 (74%) | 570 (78%) |
| Reading professional literature. | 1547 (88%) | 620 (84%) | 416 (87%) | 615 (84%) |
| Positive Impact on Teaching | | | | |
| It built on my prior knowledge. | 1703 (98%) | 708 (97%) | 456 (97%) | 698 (96%) |
| It adapted to my professional learning needs. | 1570 (90%) | 648 (89%) | 416 (89%) | 622 (86%) |
| It had a coherent structure. | 1540 (89%) | 645 (88%) | 409 (87%) | 629 (87%) |

| | | | | |
|--|------------|-----------|-----------|-----------|
| It appropriately focused on content needed to teach my subjects. | 1437 (83%) | 565 (77%) | 372 (79%) | 585 (81%) |
| It provided opportunities for active learning. | 1537 (88%) | 612 (84%) | 394 (84%) | 591 (82%) |
| It provided opportunities for collaborative learning. | 1543 (89%) | 632 (86%) | 382 (81%) | 623 (86%) |
| It provided opportunities to practice/apply new ideas and knowledge in my own classroom. | 1590 (92%) | 644 (88%) | 408 (87%) | 634 (88%) |
| It took place in my school. | 810 (47%) | 397 (54%) | 272 (58%) | 398 (55%) |
| It involved most colleagues from my school. | 784 (45%) | 383 (52%) | 238 (51%) | 349 (48%) |
| It took place over an extended period of time (e.g. several weeks or longer) | 888 (51%) | 378 (52%) | 271 (58%) | 389 (54%) |
| It focused on innovation in my teaching. | 1254 (72%) | 523 (71%) | 321 (68%) | 495 (68%) |

Two major messages are found in the foregoing four-year comparison. First, Alberta teachers are remarkably consistent year-over-year in describing the essential traits of effective professional learning that fosters effective teaching. Second, Alberta teachers have seen a deterioration in those professional learning activities that foster collaborative learning through networks, peer observation, and conference attendance---that is, for building collective efficacy.

Demographic Group Differences²

The cross-tabulated results which follow reflect relationships between the various forms of professional learning accessed and the impact of the professional learning with particular subgroups of teachers. Part 1- Implementation Advancement Related to Each Competency and Part 2- Professional Learning Level of Need Related to Each Competency are involved in these cross tabulations.

Means of Teacher Survey Results Analysed by Grade Level Taught

Teachers were asked to indicate the grade level they are teaching. In the survey, there are in total six different grade levels: Elementary (“1”), Middle/Junior High (“2”), High (“3”), K-12 (“4”), K-9 (“5”), Other (“6”). Given the variety of grade configurations across the provinces, teachers were provided with six different options. The following Figure 7 displays the means from *Implementation*

² Only statistically significant group differences from the demographic variables are presented here.

Advancement and Professional Learning Needs at a 95% confidence interval. The analysis was conducted using a multivariate analysis of variance (MANOVA). A Pillai Trace was conducted because it is robust to departures from the assumptions.

Results indicate teachers who teach at different grade levels responded in ways that were significantly different ($F[30, 3450]=2.37, p<3.88 \times 10^{-5}$, Pillai's Trace=0.22, $\eta^2 = 0.02$). Specifically, statistically significant differences (at the significance level 5%), were found among grade level groups for Competencies 1, 5, and 6. It is important to note that while the results were statistically significant, the effect sizes are very small. That is, the magnitude of the difference between the groups is small. Very small effect sizes and the largely consistent averages suggest that professional needs across the various competencies are relatively uniform. The analysis further indicates that for Competency 1: Fostering Effective Relationships, and Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit, some customization of professional learning might be considered for elementary and middle/junior high school teachers. Also, further analysis reveals that for Competency 6: Adhering to Legal Frameworks and Policies, some individualization of professional learning might be considered between elementary and high school teachers, as well as middle/junior high and high school teachers.

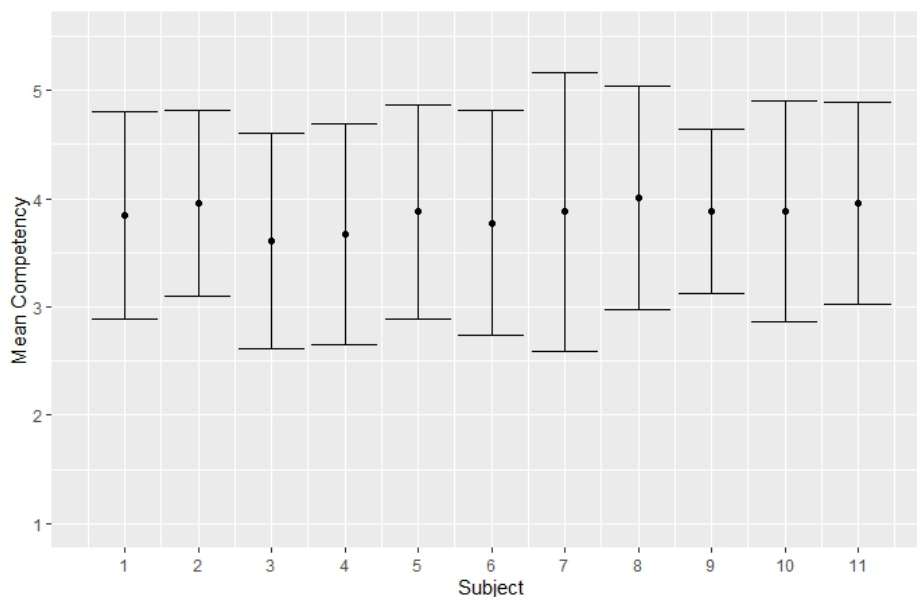
Means of Teacher Survey Results Analysed by Teachers' Subject Specialization

Teachers were asked to indicate their subject specialization. In the survey, there are in total eleven different subjects: Generalist ("1"), Language Arts ("2"), Mathematics ("3"), Science ("4"), Social Studies ("5"), Physical Education ("6"), Fine Arts ("7"), Music ("8"), Career and Technology Studies ("9"), French ("10"), Other ("11"). Figure 11 shows the results from Implementation Advancement and Professional Learning Needs presented with confidence intervals. Results indicate teachers with different subject specializations responded in ways that are statistically significantly different ($F[60, 4116]=3.39, p<2.2 \times 10^{-16}$, Pillai's Trace=0.28, $\eta^2=0.05$). Specifically, Competency 1: Fostering Effective Relationships, Competency 4: Establishing Inclusive Environments, Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit had statistically significant differences among these groups.

In practical terms, there are modest differences between the two groups, mathematics and generalist teachers, and mathematics and language arts teachers across Competencies 4 and 5. By implication, those planning professional learning opportunities might differentiate the professional learning for Competency 4: Establishing Inclusive Environments and Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit according to this subject area difference. Inclusive environments and Foundational Indigenous Knowledges look very different for math/science teachers than for teachers of the humanities. Section One results in this report underlines this distinction.

Figure 6

Results of Teacher Survey Analyzed by Subject Specialization Displayed on an Interval Plot



Differences among Groups on Implementation Advancement – Subject Specialization

While most of the teachers in each subject area responded relatively similarly, Competency 5: Applying Foundational Knowledge for First Nations, Métis and Inuit education demonstrated distinct differences. Similar patterns were evident in Year 1, 2, and 3 with pronounced differences among the Mathematics, Language Arts and Generalist specialization teachers. Specifically, results for mathematics teachers indicate that *Implementation Advancement* for Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit were markedly ($p < 0.05$) different from most other specialization teachers: generalist (mean difference=0.74), language arts (mean difference=1.016), and social studies (mean difference=-1.083).

Table 13*Mean Difference t-test on Competency 5 Between Teachers Teaching Mathematics and Other Subjects*

| Subject Matter Proficiency | Mathematics v. Other Subject Areas |
|-----------------------------------|---|
| Generalist | 0.740 (4.875×10^{-7})* |
| Language Arts | 1.016 (1.010×10^{-8})* |
| Science | -0.121 (0.475) |
| Social Studies | -1.083 (1.240×10^{-8})* |
| Physical Education | -0.631 (0.022) |
| Fine Arts | -0.589 (0.025) |
| Music | -0.810 (0.002) |
| Career and Technology Studies | -0.537 (0.019) |
| French | -0.862 (0.0001) |
| Other | -0.748 (5.661×10^{-6})* |

Note. The numbers in brackets are p-values for the t-tests.

Note. Small p-values indicate that the test results are significant (and are marked with an asterisk*).

Note: e = exponential.

In other words, mathematics teachers reported in ways that were significantly lower than generalist, social studies, and language arts teachers for Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit. Social studies teachers were significantly further along than all other teachers in implementation advancement. These results suggest a substantial break in disciplinary knowledge about Competency 5 requirements.

This difference might also be attributed to differences in the mathematics mandated curriculum and that for other subject areas. Referring to Figure 3, it is apparent that Competency 5 is only moderately correlated to Competency 3. While we did not run an analysis on the implementation advancement of only math teachers in terms of implementation advancement, it is important to note that Competency 5, Indicator 3, in Table 4 has the lowest mean at 3.23.

The differences could also stem from the forms of resources teachers are able to access for their teaching. Further, results could also derive from the forms of professional learning that teachers access. There are forms of professional learning that have a positive impact on teaching practices, including teaching practices and improvements in mathematics and sciences; however, these forms of professional learning typically extend over a lengthy interval and require teachers to work through iterative cycles of improvement (Chu et al., 2020; Timperley et al., 2007). In looking at the results from Table 9, teachers report that these forms of professional learning are not positively impacting their

practices to fulfill their potential. It is also worth considering professional learning that integrates Competency 3: Demonstrating a Professional Body of Knowledge, Competency 4: Establishing Inclusive Environments, and Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit as these three competencies touch on the core of teaching.

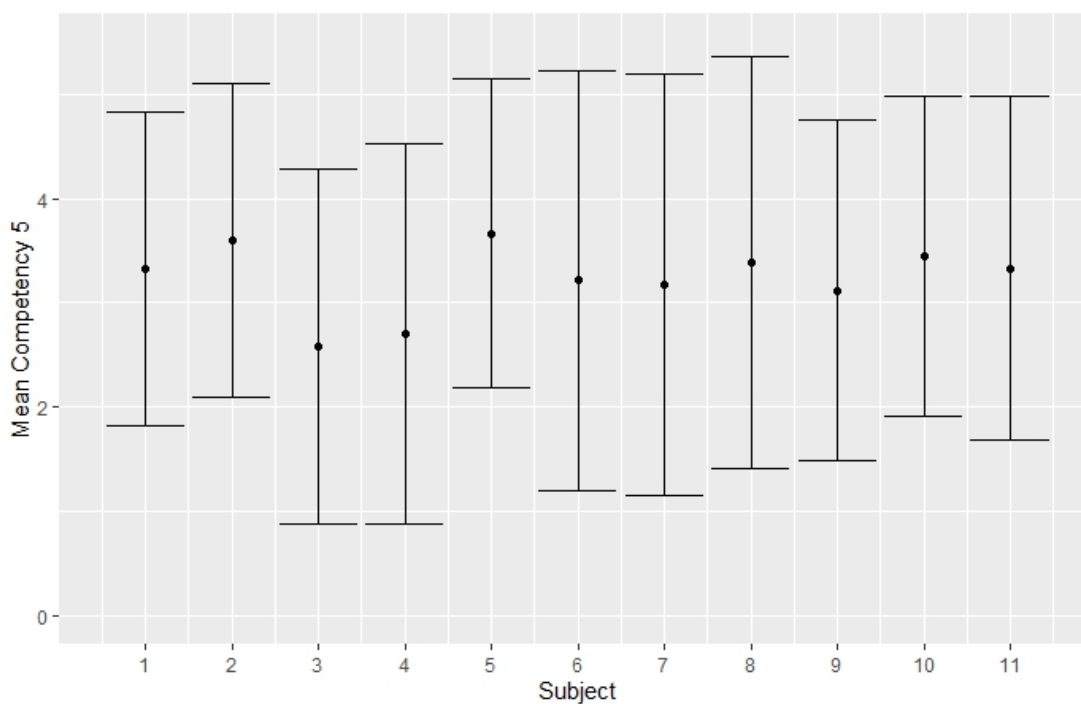
In sum, results suggests that the math curriculum be reviewed, resources be made available to support math learning, and professional learning for math teachers be provided. Working together through professional learning, over time, may provide teachers with opportunities to work through areas of strength to determine how to embed Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit into their practice. Further consideration should be given to providing teachers and leaders (Carr-Stewart, 2019) with professional learning focused on:

- land-based models of learning for all students. Land-based learning designs and pedagogies are appropriate in face-to-face and online learning environments. Given recent circumstances, land-based orientations act as a counterweight and remediation to web-based or distance learning.
- drawing on the natural environment around schools, homes, and in communities for mathematics and scientific inquiry (Mitchell, 2009)

Consistent with Year 1, 2, and 3 survey results, Year 4 survey results are clear: further attention in professional learning for appropriate implementation advancement should be considered for math teachers (Stereberg, 2013).

Figure 7

Differences among Subject Discipline Groups on Implementation Advancement –Subject Specializations: Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit



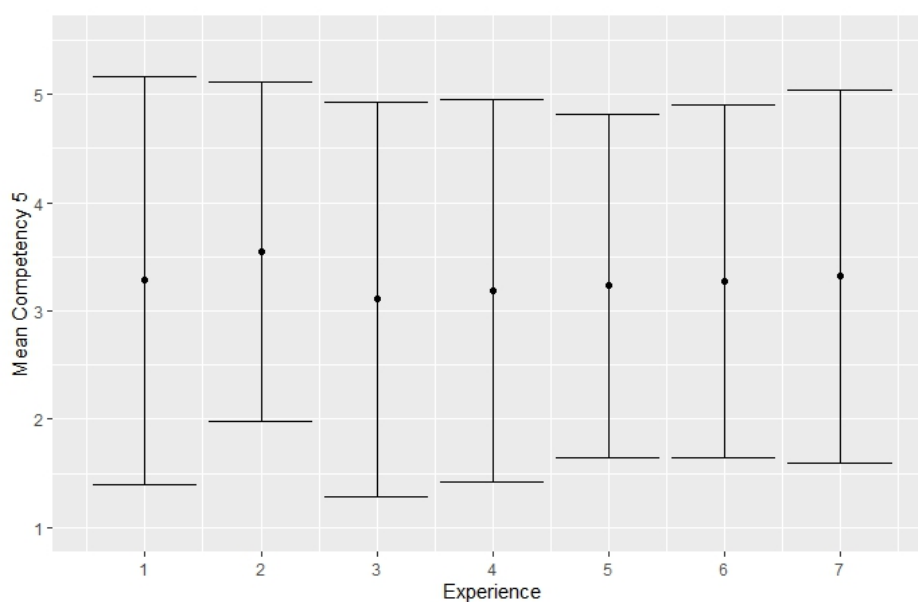
Note. 95% confidence levels (CI) indicate where we can be 95% certain that the average for this subject specialization is accurate. Non overlapping confidence intervals signify significant differences.

Differences among Groups on Professional Learning Needs Competency 5: Applying Foundational Knowledge for First Nations, Métis and Inuit – Years of Teaching Experience in Alberta

Teachers' responses to Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit (Figure 8) indicated no statistically significant differences among any of the groups in terms of Professional Learning Needs. This indicates all teachers, regardless of the years of teaching in Alberta, enact a similar level for Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit.

Figure 8

Differences Among Groups on Professional Learning Needs - Years of Teaching Experience in Alberta Competency 5



Note. Error bars 95% CI

Inferential Analyses of Implementation Advancement and Professional Learning Needs: Teachers

The mean (M) and standard deviation (SD) for the implementation advancement and professional learning level of needs related to the six competencies across the four years are presented in Table 14.

Table 14

Mean and Standard Deviation for Implementation Advancement and Professional Learning Level of Needs across four Years (2018-2022)

| | Total (n=4330) | | Year 1 (n=1783) | | Year 2 (n=716) | | Year 3 (n=542) | | Year 4 (n=1289) | |
|---|-------------------|------|--------------------|------|-------------------|------|-------------------|------|--------------------|------|
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Implementation | | | | | | | | | | |
| Advancement | | | | | | | | | | |
| Competency 1: Fostering Effective Relationships | 3.57 | 0.66 | 3.57 | 0.67 | 3.56 | 0.65 | 3.55 | 0.63 | 3.61 | 0.64 |
| Competency 2: Engaging in Career- Long Learning | 3.93 | 0.60 | 3.96 | 0.62 | 3.90 | 0.58 | 3.88 | 0.58 | 3.91 | 0.57 |
| Competency 3: Demonstrating a Professional Body of Knowledge | 3.97 | 0.65 | 3.95 | 0.69 | 3.95 | 0.61 | 3.96 | 0.62 | 4.01 | 0.61 |
| Competency 4: Establishing Inclusive Environments | 4.13 | 0.57 | 4.22 | 0.59 | 4.04 | 0.54 | 4.00 | 0.54 | 4.09 | 0.55 |
| Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit | 3.11 | 0.95 | 3.00 | 1.00 | 3.21 | 0.94 | 3.18 | 0.86 | 3.25 | 0.88 |
| Competency 6: Adhering to Legal Frameworks and Policies | 4.25 | 0.61 | 4.34 | 0.67 | 4.17 | 0.53 | 4.15 | 0.54 | 4.19 | 0.55 |
| Professional Learning Level of Needs | | | | | | | | | | |
| Competency 1: Fostering Effective Relationships | 2.13 | 0.69 | 1.95 | 0.61 | 2.34 | 0.72 | 2.29 | 0.70 | 2.25 | 0.72 |
| Competency 2: Engaging in Career- Long Learning | 2.26 | 0.72 | X | X | 2.33 | 0.71 | 2.24 | 0.72 | 2.21 | 0.74 |

| | Total (n=4330) | | Year 1 (n=1783) | | Year 2 (n=716) | | Year 3 (n=542) | | Year 4 (n=1289) | |
|---|-------------------|------|--------------------|------|-------------------|------|-------------------|------|--------------------|------|
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Competency 3: Demonstrating a Professional Body of Knowledge | 2.25 | 0.72 | 2.11 | 0.56 | 2.42 | 0.81 | 2.34 | 0.81 | 2.35 | 0.82 |
| Competency 4: Establishing Inclusive Environments | 2.35 | 0.72 | 2.36 | 0.69 | 2.40 | 0.76 | 2.34 | 0.74 | 2.31 | 0.75 |
| Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit | 2.71 | 0.83 | 2.67 | 0.90 | 2.75 | 0.78 | 2.80 | 0.76 | 2.71 | 0.75 |
| Competency 6: Adhering to Legal Frameworks and Policies | 2.6 | 0.81 | X | X | 2.11 | 0.82 | 2.01 | 0.81 | 2.07 | 0.81 |

Note: Professional Learning Level of Needs Competencies 2 and 6 were not measured during Year 1

Annual Comparison of Implementation Advancement - Teachers

For the six competencies considered within Implementation Advancement, the results indicated a statistically significant intercept for the six variables over the four time periods (Pillai's Trace = 0.085; F-value = 19.024; $p < 2.2 \times 10^{-16}$). Pillai's Trace was used to identify statistical significance because this dataset has an unbalanced sample size (i.e., $n_{Year 1} = 1783$, $n_{Year 2} = 716$, $n_{Year 3} = 542$, and $n_{Year 4} = 1289$). A statistically significant intercept indicates as one competency increases, another decreases at a rate that is statistically different. While this is an interesting finding, the results of a significant intercept when there are multiple dependent variables (i.e., six competencies) often do not present a clear picture of how each competency affects the other. To present a clearer picture of the analysis, univariate analyses need to be conducted.

While this is an interesting finding, the results of a significant intercept when there are multiple dependent variables (i.e., six competencies) often do not present a clear picture of how each competency affects the other. To present a clearer picture of the analysis, univariate analyses need to be conducted. Results of the six univariate analyses indicate Competencies 2, 4, 5, and 6 are statistically significant. Please refer to Table 15 for the statistical values of each analysis. In all cases, the effect size or magnitude is very small and thus of no practical significance. In other words, the correlations found in Figure 3 are sufficient and appropriate for untangling interrelationships among the competencies.

Table 15*Univariate Results of Implementation Advancement Competencies*

| | Type III Sum of Squares | Mean Square | F- Value | Significance | Partial Eta Squared |
|---|----------------------------|----------------|-------------|--------------|------------------------|
| Competency 1: Fostering Effective Relationships | 1.700 | 0.557 | 1.293 | 0.275 | 0.001 |
| Competency 2: Engaging in Career-Long Learning | 3.500 | 1.182 | 3.315 | 0.019* | 0.002 |
| Competency 3: Demonstrating a Professional Body of Knowledge | 1.800 | 0.613 | 1.449 | 0.227 | 0.001 |
| Competency 4: Establishing Inclusive Environments | 27.800 | 9.281 | 29.80 | <2e-16* | 0.021 |
| Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit | 51 | 16.925 | 18.870 | 3.77e-12* | 0.014 |
| Competency 6: Adhering to Legal Frameworks and Policies | 27.200 | 9.068 | 25.080 | 4.51e-16* | 0.019 |

Note. The numbers in brackets are p-values for the t-tests.

Note. Small p-values indicate that the test results are significant (and are marked with an asterisk*).

Note: e = exponential.

Summary of Teacher Survey Results

This section of the report summarizes Year 4 results of the Alberta teacher survey related to implementation advancement, professional learning needs, participation in various types of professional learning activities, impact of professional learning on teaching practice, and the results when demographic data is considered.

- In terms of implementation advancement, the results indicate advances in all six competency areas in Year 4 of the survey. Three competency areas are within the range reported for enacting or adapting practice to meet the requirements of the competency.
 - Competency 1: Fostering Effective Relationships
 - Competency 2: Engaging in Career-Long Learning
 - Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit.

Results further indicate that teachers report they are in the embedding or sustaining phase for:

- Competency 3: Demonstrating a Professional Body of Knowledge
 - Competency 4: Establishing Inclusive Environments
 - Competency 6: Adhering to Legal Frameworks and Policies.
- Overall, there has been a slight decrease in participating teachers' need for professional learning beyond current levels.

3. Teachers continued to report relatively low levels of need of professional learning related to the six competencies.
4. Teachers' responses to Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit indicated no statistically significant differences among any of the groups in terms of Professional Learning Needs. This suggests that professional learning does not need to be differentiated for early and later career teachers for Competency 5.
5. Although generic or similarly structured professional learning may be designed to further implementation in most cases, customization by the teacher's subject discipline background is warranted for Competency 5: Applying Foundational Knowledge about First Nations, Métis and Inuit. Distinctions about the professional learning needs of K-9 and high school teachers could also be considered for Competency 5. Similarly, those responsible for designing and leading professional learning might recognize significant differences between mathematics teachers' learning needs and those of the other subject areas.
6. While the results indicate that teachers are accessing various forms of professional learning within their school, only half the teachers indicate that the school-based professional learning is having a positive impact on their practice. Those responsible for designing and enacting professional learning for teachers within the school should consider the learning needs of teachers. It further suggests that either teachers don't associate their learning within the professional learning communities with their professional learning (i.e., professional development is associated with PD Days) or that leaders need to examine the learning activities carried out in the professional learning communities.
7. Approaches to professional learning such as iterative cycles of learning sustained over time, to build collective efficacy deserve consideration given the strong effect size of collective efficacy on student outcomes.
8. Though Provincial attention may shift toward inconsistent applications of standards and the emergence of learning challenges among students over the past four years, we cannot say that this relates to overall shortfalls in teacher competency development. Teachers reported increases in implementation advancement in all six competency areas in Year 4. The general picture is one of continued adaptation, not dramatic disruption nor dramatic decline in overall competency development.

Leader Survey Results and Discussion

In this section we present, discuss, and interpret provincial results from the third year of implementation of the *Leadership Quality Standard* (LQS) (Alberta Education, 2018a) in three subsections:

1. Implementation advancement related to each LQS competency;
2. Professional learning level of need related to nine LQS competency and selected indicators; and
3. Participation in various types of professional learning activities.

Implementation Advancement Related to Each LQS Competency

Results displayed in Table 16 and Figure 9 below indicate that the overall mean for implementation advancement of the LQS competencies by participating leaders ($n=371$) is 3.88. This falls in the “enacting” phase on the 5-point scale outlined in Table 1 of this report.

Six of the nine competencies measured in this part of the survey correspond to the “enacting”/adapting phase on the *Implementation Advancement* scale:

- Competency 1 – Fostering Effective Relationships (mean= 3.90),
- Competency 2 – Modeling Commitment to Professional Learning (mean=3.87),
- Competency 3 – Embodying Visionary Leadership (mean=3.93),
- Competency 5 – Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit (mean=3.53),
- Competency 7 – Developing Leadership Capacity (mean=3.78), and
- Competency 9 – Understanding and Responding to the Larger Societal Context (mean=3.71).

Three of the nine competencies measured in this part of the survey correspond to the “embedding”/sustaining phase on the *Implementation Advancement* scale:

- Competency 4 – Leading a Learning Community (mean=4.02)
- Competency 6 – Providing Instructional Leadership (4.08)
- Competency 8 – Managing School Operations and Resources (mean=4.06)

Table 16

Averages and Variation for the Implementation Advancement Related to Nine LQS Competencies

| Construct | Mean | Standard Deviation |
|--|-------------|---------------------------|
| Competency 1: Fostering Effective Relationships ($\alpha=0.72$) | 3.90 | 0.53 |
| 1. I build trusting relationships with parents/guardians of the students in my school or community of schools. | 4.05 | 0.77 |
| 2. I build relationships that create a welcoming, caring, respectful, and safe learning environment. | 4.32 | 0.66 |
| 3. I establish relationships with First Nations, Métis and Inuit parents/guardians, Elders/knowledge keepers, local leaders, and community members. | 3.16 | 0.96 |
| 4. I demonstrate a commitment to the health and well-being of all teachers, staff, and students. | 4.17 | 0.67 |
| 5. I promote collective collaborative complex problem solving with the school community. | 3.81 | 0.8 |
| Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.74$) | 3.87 | 0.58 |
| 1. I engage with others such as teachers, principals, and other leaders to improve my leadership practice. | 4.12 | 0.72 |
| 2. I actively seek out feedback from a variety of sources to enhance my leadership practice. | 3.87 | 0.77 |
| 3. I actively apply educational research to inform my leadership practice. | 3.85 | 0.79 |
| 4. I engage members of the school community to build a shared understanding of current trends and priorities in the education system. | 3.63 | 0.8 |
| Competency 3: Embodying Visionary Leadership ($\alpha=0.77$) | 3.93 | 0.52 |
| 1. I communicate an education philosophy that is student-centered based on sound principles of effective teaching and leadership. | 4.18 | 0.67 |
| 2. I demonstrate an appreciation for diversity. | 4.3 | 0.71 |
| 3. I collaborate with other leaders and superintendents to address challenges and priorities. | 3.75 | 0.78 |
| 4. I support school community members, including school councils, in fulfilling their roles and responsibilities. | 3.74 | 0.82 |
| 5. I promote innovation that fosters a commitment to continuous improvement. | 3.92 | 0.79 |
| 6. I use a range of data to determine progress towards achieving goals. | 3.70 | 0.76 |
| Competency 4: Leading a Learning Community ($\alpha=0.74$) | 4.02 | 0.51 |
| 1. I foster in the school community equality and respect with regard to rights as provided for in the <i>Alberta Human Rights Act</i> and the <i>Canadian Charter of Rights and Freedoms</i> . | 4.06 | 0.72 |

| Construct | Mean | Standard Deviation |
|--|-------------|--------------------|
| 2. I create an inclusive learning environment in which diversity is embraced, a sense of belonging is emphasized, and all students and staff are welcomed, cared for, respected, and safe. | 4.30 | 0.65 |
| 3. I cultivate a culture of high expectations for all students and staff. | 4.13 | 0.67 |
| 4. I create collaborative learning opportunities for other leaders, teachers, and support staff. | 3.94 | 0.72 |
| 5. I collaborate with community service agencies to provide wrap-around supports for all students who may require them. | 3.65 | 0.86 |
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.93$) | 3.53 | 0.75 |
| 1. I support the school community in acquiring, designing, and planning learning opportunities for all students that accurately demonstrate the strength and diversity of First Nations, Métis, and Inuit peoples of Canada. | 3.53 | 0.84 |
| 2. I align resources and building the capacity of the school and/or school authority to support First Nations, Métis, and Inuit student achievement. | 3.45 | 0.85 |
| 3. I enable all school and/or school authority staff to gain an understanding of the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Métis, and Inuit. | 3.54 | 0.86 |
| 4. I enable all school and/or school authority staff to gain respect for the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Métis, and Inuit. | 3.57 | 0.82 |
| 5. I engage in practices to facilitate reconciliation efforts within the school and/or school authority. | 3.55 | 0.88 |
| Competency 6: Providing Instructional Leadership ($\alpha=0.84$) | 4.08 | 0.54 |
| 1. I build the capacity of all teachers to respond to the learning needs of every student. | 3.97 | 0.71 |
| 2. I ensure that student instruction addresses learning outcomes outlined in the programs of study. | 4.11 | 0.62 |
| 3. I demonstrate a strong understanding of assessment. | 4.18 | 0.74 |
| 4. I demonstrate a strong understanding of effective pedagogy. | 4.24 | 0.63 |
| 5. I interpret a wide range of data to inform school practices. | 3.91 | 0.75 |
| Competency 7: Developing Leadership Capacity ($\alpha=0.83$) | 3.78 | 0.64 |
| 1. I demonstrate collaborative decision-making informed by open dialogue. | 4.04 | 0.72 |

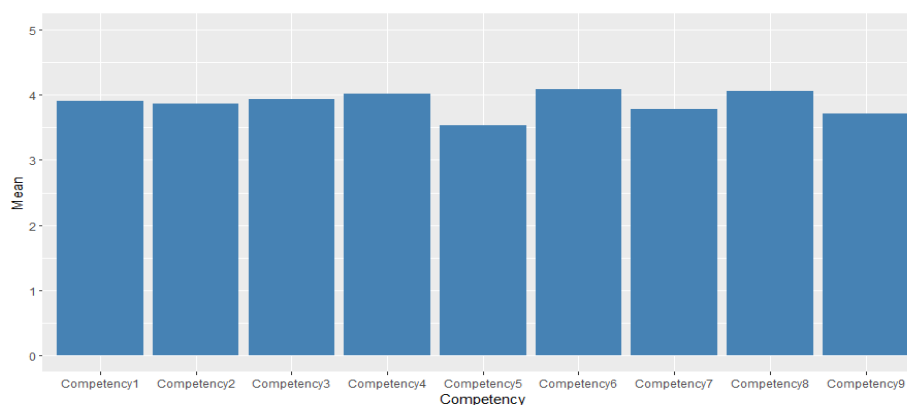
| Construct | Mean | Standard Deviation |
|---|-------------|---------------------------|
| 2. I empower other educators (e.g. teachers) in educational leadership roles. | 4.02 | 0.74 |
| 3. I facilitate the constructive involvement of school council(s) in school life. | 3.43 | 0.95 |
| 4. I create opportunities for students to exercise their voice in school leadership and decision making. | 3.42 | 0.94 |
| 5. I promote shared leadership among members of the school community. | 3.99 | 0.71 |
| Competency 8: Managing School Operations and Resources ($\alpha=0.84$) | 4.06 | 0.52 |
| 1. I apply principles of effective teaching and learning, child development, and ethical leadership to all decisions. | 4.22 | 0.62 |
| 2. I align practices, procedures, policies, decisions, and resources with school and school authority vision, goals, and priorities. | 3.99 | 0.61 |
| 3. I follow through on decisions by allocating resources to provide the learning environments need to improve learning for all students. | 4.04 | 0.68 |
| 4. I facilitate access to appropriate technology and digital learning environments. | 4.02 | 0.71 |
| 5. I ensure operations align with provincial legislation, regulations and policies, and the policies and processes of the school authority. | 4.03 | 0.71 |
| Competency 9: Understanding and Responding to the Larger Societal Context ($\alpha=0.81$) | 3.71 | 0.60 |
| 1. I support members of the school community understand the legal frameworks and policies of the Alberta Education system. | 3.67 | 0.82 |
| 2. I represent the needs of students at all levels of the education system. | 4.13 | 0.68 |
| 3. I engage local community members to gain an understanding of the local context. | 3.41 | 0.9 |
| 4. I demonstrate an understanding of the ways local, provincial, and international issues and trends impact education. | 3.66 | 0.78 |
| 5. I facilitate conversations with stakeholders regarding matters impacting schools and school authorities. | 3.66 | 0.81 |

Note. *Cronbach alpha values indicate internal consistency for each competency and were calculated using all Alberta leader survey responses ($n=371$).

Figure 9 provides a visual overview of the means related to implementation advancement for each of the nine LQS competencies.

Figure 9

Comparison of Means on the Implementation Advancement Related to Nine LQS Competencies



Note. 5-point Likert scale: 1=not yet, 2=initiating, 3=enacting, 4=embedding, and 5=extending.

The following table (Table 17) provides an overview of the nine competencies in the Leadership Quality Standard to implementation advancement.

Table 17

Overview of Nine Competencies Related to Implementation Advancement for LQS Competencies

| Scale | Mean | Competency |
|---|------|--|
| Enacting – Individuals are using evidence from their practice to further refine their practices related to the competencies. They are adapting to new ways of working. Practices are evolving that allow individuals/systems to flexibly navigate the ill-structured, novel problem-solving nature of practice in response to the integrated nature of the competencies articulated in the standard. | 3.90 | Competency 1: Fostering Effective Relationships |
| | 3.87 | Competency 2: Modeling Commitment to Professional Learning |
| | 3.93 | Competency 3: Embodying Visionary Leadership |
| | 3.53 | Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit |
| | 3.78 | Competency 7: Developing Leadership Capacity |
| | 3.71 | Competency 9: Understanding and Responding to the Larger Societal Context |
| Embedding - Individuals are improving/strengthening | 4.02 | Competency 4: Leading a Learning Community |
| | 4.08 | Competency 6: Providing Instructional Leadership |

| Scale | Mean | Competency |
|---|------|--|
| competency levels. Individuals/systems are using evidence to confirm that the competencies in this standard are now part of common everyday practice | 4.06 | Competency 8: Managing School Operations and Resources |

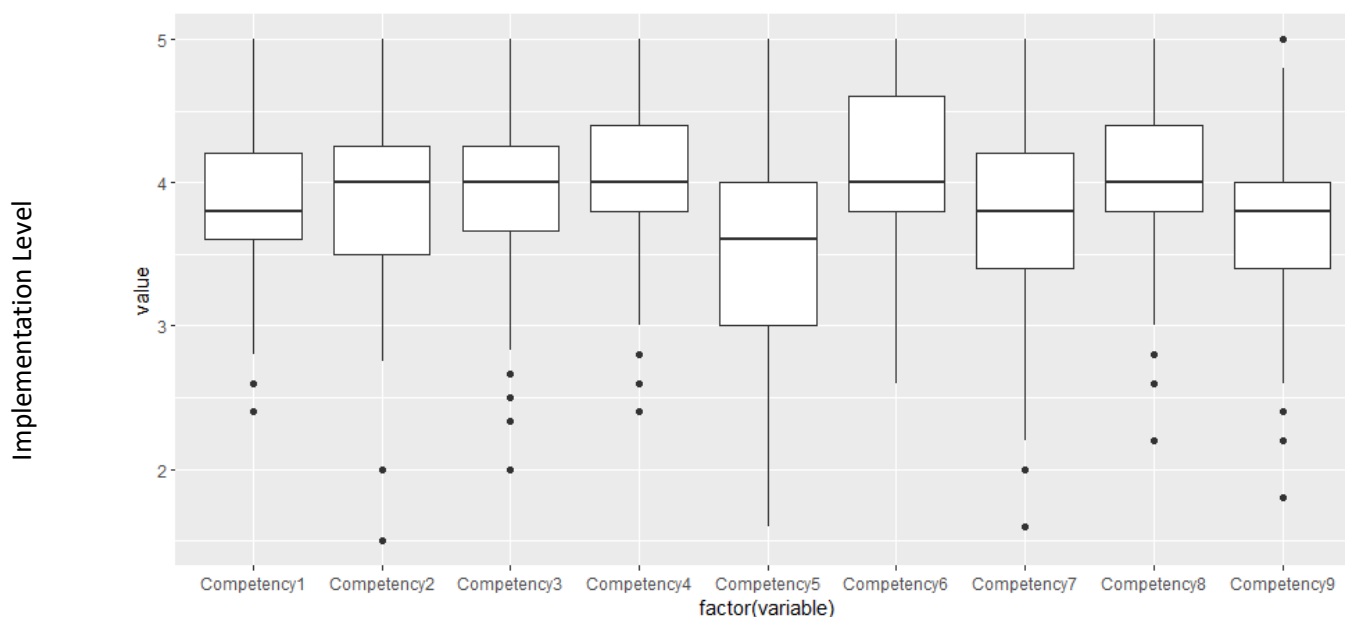
Box and Whisker Plot

The following box and whisker plot (Figure 10) shows both the distribution and variation within the data set. A box and whisker plot illustrates five measures: the minimum score, lower quartile, median, upper quartile, maximum score, with the whiskers representing the lower 25% of the scores and the upper 25% of the scores for each of the five competencies. In addition to these five measures, the box and whisker plot in Figure 10 includes the outliers in the data set (indicated by small circles). All but one of the outliers in the data set are beyond the lower quartile, indicating some leaders are still within the awareness and initiating or early adoption phases of implementation advancement.

As can be observed in the box and whisker plot, there is skewing in most of the competencies. The data range is the greatest for Competency 5 ranging from just above 1.5 to 5. The upper range of the data is consistently at, or near the top of the upper interquartile range indicating some participating leaders are now establishing the LQS competencies within a school authority planning process, division-wide and school improvement plans, or growth plans.

Figure 10

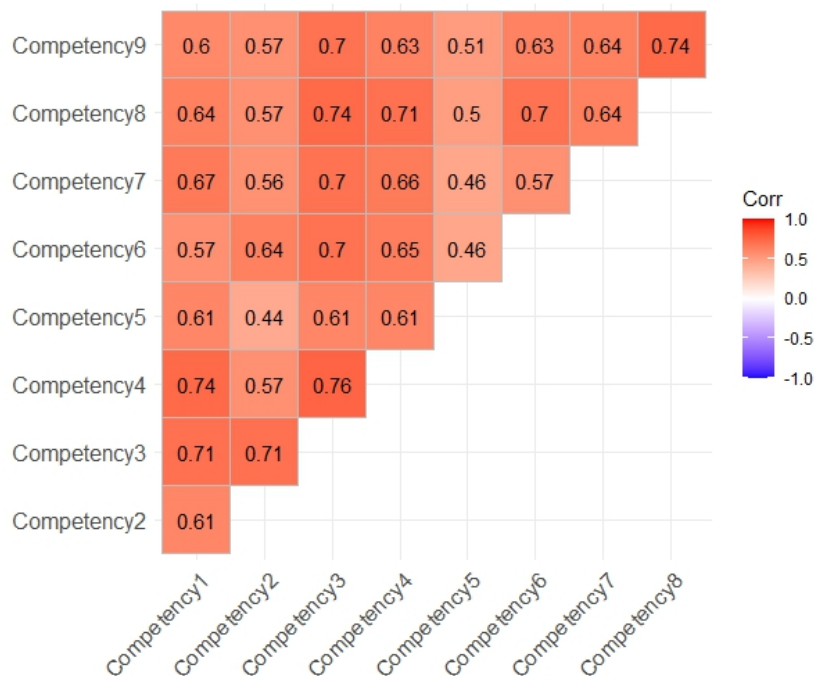
Distribution and Variance in Implementation Advancement Related to LQS Competencies



We were interested in determining how the various competencies within LQS were correlated with each other as reported by leaders in Year 4 implementation advancement (Table 16, Figure 10).

Figure 11

Correlation Matrix for Implementation Advancement Related to LQS Competencies



School leaders' perception of the competencies is more holistic than it is for teachers, rather than analytically distinct. A correlation matrix is a table to show the relationship between the various competencies. A further significance test shows that all the correlation coefficients shown in Figure 11 are significantly non-zero. The correlation plot shows that all the Leader's LQS competencies are positively correlated, where some of them show very strong correlation (see Table 18). For example, Competency 3 and Competency 4, Competency 3 and Competency 8, Competency 8, and Competency 9. These high correlations show that a leader is more likely to be competent overall. The correlation matrix is a table to show the relationship between the various competencies. The correlation matrix for the competencies within the LQS are all positively correlated (Figure 11).

Table 18*Interpreting a Correlation Coefficient*

| Correlation Coefficient | Correlation Strength |
|-------------------------|----------------------|
| 0.7 to 1.0 | Very strong |
| 0.5 – 0.7 | Strong |
| 0.3 – 0.5 | Moderate |

Comparison of Year 1 to Year 4 Results

Table 19 provides a comparison of year one to year results on implementation advancement of the LQS competencies.

Table 19*Comparison Between Year One to Year Four Results of Implementation Advancement*

| Competency | Year One (n=630) | Year Two (n=444) | Year Three (n=387) | Year Four (n=371) |
|--|---------------------|---------------------|-----------------------|----------------------|
| Competency 1: Fostering Effective Relationships | 3.84 | 3.91 | 3.81 | 3.90 |
| Competency 2: Modeling Commitment to Professional Learning | 4.20 | 3.84 | 3.74 | 3.87 |
| Competency 3: Embodying Visionary Leadership | 4.05 | 3.94 | 3.84 | 3.93 |
| Competency 4: Leading a Learning Community | 4.31 | 3.97 | 3.88 | 4.02 |
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit | 3.37 | 3.38 | 3.44 | 3.53 |
| Competency 6: Providing Instructional Leadership | 4.23 | 4.05 | 3.96 | 4.08 |
| Competency 7: Developing Leadership Capacity | 4.15 | 3.81 | 3.67 | 3.78 |
| Competency 8: Managing School Operations and Resources | 4.28 | 4.07 | 4.00 | 4.06 |
| Competency 9: Understanding and Responding to the Larger Societal | 3.66 | 3.67 | 3.53 | 3.71 |

School leaders report that overall competence levels have declined over the past four years. Although there have been modest improvements in competencies in building Effective Relationships, Foundational Indigenous Knowledge, and Understanding the broader Societal Context, they are modest, and the remaining six competencies revealed an overall decline. Again, an “implementation dip” (Fullan

2007) or decline in performance and confidence is evident in year 2 and year 3 becomes evident in means. Research has identified common causes for such dips: changes in leadership at the provincial or local levels; newly introduced practices are too loosely or not clearly defined; results data are poor or are not known; a shift has occurred in priorities based on the administrative climate; implementation is not managed well or has lost momentum after a period of initial enthusiasm. Whether the ‘dip’ is social-psychological or technical skills-related is an issue in the research. In the North American-wide context, priorities and the pandemic are important considerations over the past four years. Nevertheless, this is an educational and leadership issue in Alberta that merits further investigation.

Professional Learning Level of Need Related to Nine LQS Competencies

The survey asked leaders to indicate their need for professional learning for nine of the LQS competencies. Table 20 and Figure 12 provide the aggregated results from the leaders responding to this survey. Consistent with Year 1 results, leaders report a low level of need with an overall mean around 2.31.

It is important to cross reference these results with those from Part 1 of the School Leadership survey (Implementation Advancement Related to Each Competency) and Part 3 of the survey (Participation in Various Types of Professional Learning Opportunities). The overall mean for Implementation Advancement (3.88) indicates that overall school and district leaders continue to adapt their practice to meet the LQS competency requirements; however, they reported making implementation advancements into the embedding/sustaining levels in Competencies 4, 6, and 8. Results also indicate that leaders made year over advances in Competencies 1, 2, 3, 5, 7, and 9 in 2022 as compared with 2021.

Table 20

Averages and Variation for Professional Learning Related to Nine LQS Competencies

| Construct | Mean | Standard Deviation |
|---|-------------|---------------------------|
| Competency 1: Fostering Effective Relationships ($\alpha=0.85$) | 2.28 | 0.69 |
| 1. I require PL about building trusting relationships with parents/guardians of students in my school or community of schools. | 2.03 | 0.92 |
| 2. I require PL about creating a welcoming, caring, respectful, and safe learning environment. | 1.86 | 0.85 |
| 3. I require PL about establishing stronger relationships with First Nations, Métis and Inuit parents/guardians, Elders/knowledge keepers, local leaders and community members. | 2.91 | 0.82 |
| 4. I require PL about demonstrating a commitment to the health and well-being of all teachers, staff, and students. | 2.31 | 0.90 |
| 5. I require PL about strengthening relationships to promote collective, collaborative, complex problem solving with the school community. | 2.3 | 0.85 |
| Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.78$) | 2.28 | 0.69 |
| 1. I require PL about engaging with others to improve my leadership practice (e.g. with teachers, principals, other leaders). | 2.38 | 0.83 |

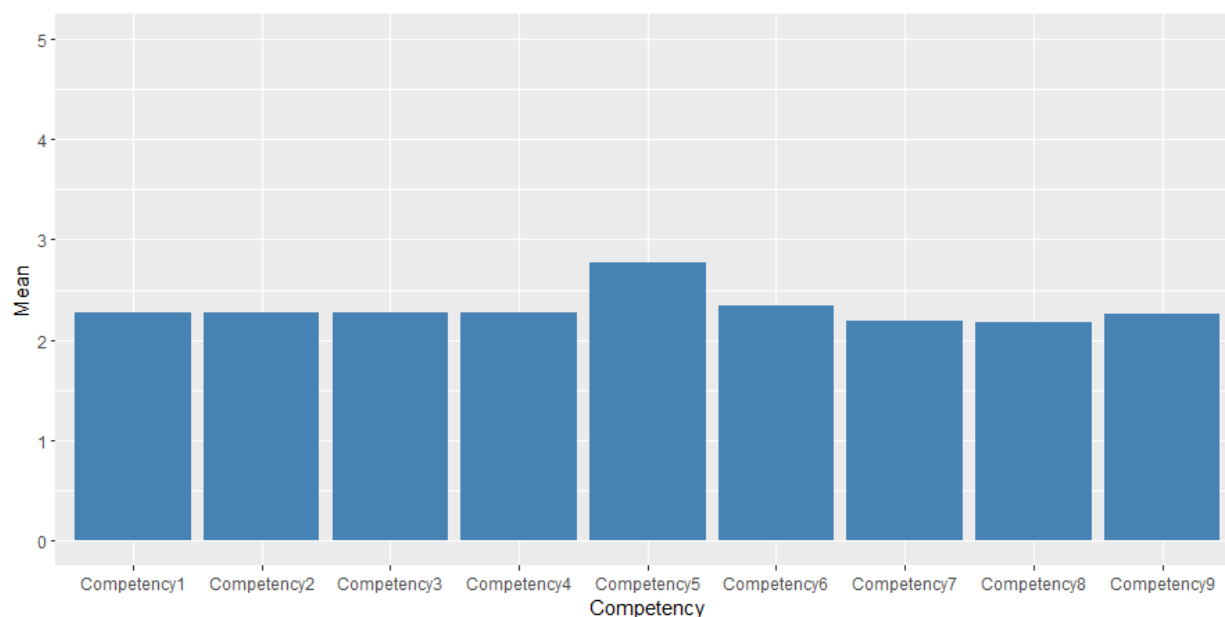
| Construct | Mean | Standard Deviation |
|---|-------------|---------------------------|
| 2. I require PL about seeking out feedback from a variety of sources to enhance my leadership practice. | 2.3 | 0.82 |
| 3. I require PL about new developments in leadership research and theory. | 2.62 | 0.73 |
| 4. I require PL about engaging members the school community to build a shared understanding of current trends and priorities in the education system. | 2.46 | 0.73 |
| Competency 3: Embodying Visionary Leadership ($\alpha=0.87$) | 2.27 | 0.67 |
| 1. I need PL on communicating an educational philosophy that is student-centered and based on sound principles of effective teaching and leadership. | 2.14 | 0.8 |
| 2. I require PL about better appreciating diversity. | 2.15 | 0.9 |
| 3. I require PL about developing collaboration among leaders. | 2.26 | 0.87 |
| 4. I require PL about promoting innovation and continuous improvement. | 2.44 | 0.78 |
| 5. I require PL about using a range of data to determine progress towards goals. | 2.33 | 0.8 |
| Competency 4: Leading a Learning Community ($\alpha=0.84$) | 2.27 | 0.68 |
| 1. I require PL about fostering equality and respect for rights as provided in the <i>Alberta Human Rights Act</i> and the <i>Canadian Charter of Rights and Freedoms</i> . | 2.16 | 0.87 |
| 2. I require PL about creating an inclusive learning environment in which diversity is embraced, a sense of belonging is emphasized, and all students and staff are welcomed, cared for, respected, and safe. | 2.22 | 0.9 |
| 3. I require PL about cultivating a culture of high expectations for all students and staff. | 2.21 | 0.91 |
| 4. I require PL about collaborative learning opportunities for other leaders, teachers, and support staff. | 2.29 | 0.83 |
| 5. I require PL about collaborating with community service agencies to provide wrap-around supports for all students who may require them. | 2.48 | 0.86 |
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.94$) | 2.77 | 0.7 |
| 1. I require PL about acquiring, designing, and planning learning opportunities that demonstrate the strength and diversity of First Nations, Métis, and Inuit peoples of Canada. | 2.85 | 0.78 |
| 2. I require PL about aligning resources and building capacity of the school and/or school authority to support First Nations, Métis, and Inuit student achievement. | 2.79 | 0.79 |

| Construct | Mean | Standard Deviation |
|---|-------------|---------------------------|
| 3. I require PL about enabling all school and/or school authority staff to understand the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Métis, and Inuit. | 2.75 | 0.77 |
| 4. I require PL about enabling all school and/or school authority staff to respect the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Métis, and Inuit. | 2.75 | 0.77 |
| 5. I require PL about facilitating reconciliation within the school and/or school authority. | 2.71 | 0.82 |
| Competency 6: Providing Instructional Leadership ($\alpha=0.88$) | 2.34 | 0.7 |
| 1. I require PL about strengthening the capacity of all teachers to respond to the learning needs of every student. | 2.6 | 0.89 |
| 2. I require PL about instruction that addresses learning outcomes outlined in the programs of study. | 2.21 | 0.85 |
| 3. I require PL about assessment. | 2.27 | 0.86 |
| 4. I require PL about effective pedagogy. | 2.22 | 0.83 |
| 5. I require PL about using data for improving the quality of the school and/or school authority. | 2.41 | 0.85 |
| Competency 7: Developing Leadership Capacity ($\alpha=0.88$) | 2.19 | 0.7 |
| 1. I require PL about collaborative decision making informed by open dialogue. | 2.14 | 0.82 |
| 2. I require PL about empowering teachers in educational leadership roles. | 2.1 | 0.87 |
| 3. I require PL about the constructive involvement of school council(s) in school life. | 2.27 | 0.9 |
| 4. I require PL about strengthening students' voice in school leadership and decision making. | 2.28 | 0.81 |
| 5. I require PL about promoting shared leadership among members of the school community. | 2.14 | 0.8 |
| Competency 8: Managing School Operations and Resources ($\alpha=0.91$) | 2.17 | 0.72 |
| 1. I require PL about applying principles of effective teaching and learning, child development, and ethical leadership. | 2.16 | 0.84 |
| 2. I require PL about aligning practices, procedures, policies, decisions, and resources with school and school authority vision, goals, and priorities. | 2.12 | 0.81 |
| 3. I require PL about allocating resources to improve the learning environments of all students | 2.23 | 0.89 |
| 4. I require PL about facilitating access to appropriate technology and digital learning environments. | 2.19 | 0.85 |

| Construct | Mean | Standard Deviation |
|--|------|--------------------|
| 5. I require PL about aligning operations with provincial legislation, regulations and policies, and the policies and processes of the school authority. | 2.16 | 0.81 |
| Competency 9: Understanding and Responding to the Larger Societal Context ($\alpha=0.87$) | 2.26 | 0.66 |
| 1. I require PL about supporting members of the school community understand the legal frameworks and policies of the Alberta Education system. | 2.26 | 0.83 |
| 2. I require PL about representing the needs of students at all levels of the education system. | 2.24 | 0.88 |
| 3. I require PL about engaging local community to understand the local context. | 2.26 | 0.79 |
| 4. I require PL about understanding the ways local, provincial, and international issues and trends impact education. | 2.27 | 0.8 |
| 5. I require PL about facilitating conversations with stakeholders regarding matters impacting schools and school authorities. | 2.28 | 0.77 |

Figure 12

Means of Professional Learning Need Related to Nine LQS Competencies



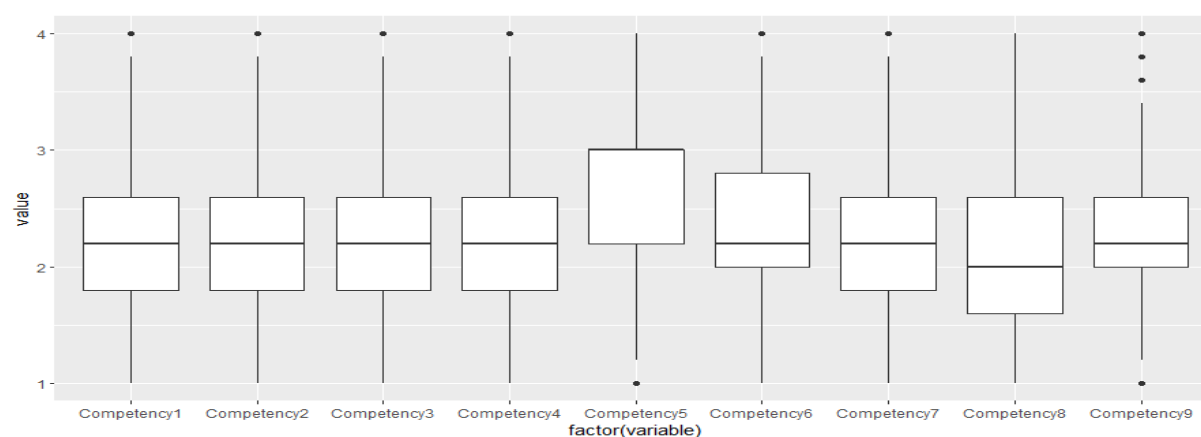
Note. 4-point Likert scale: 1= No need at present; 2= Low level of need; 3= Moderate level of need; 4= High level of need

Box and Whisker Plot

The following box and whisker plot (Figure 13) shows the distribution and variation within the data set for the nine competencies. As can be observed in the box and whisker plot, there is some skewing in four of the competencies in the data set. The outliers are all reporting a high level of professional learning need (level 4). Because scales are inverted for level of professional learning need—with 1 indicating no need and 4 indicating a high level of need—the results suggest that many school leaders are requesting they receive more professional learning than they currently receive for implementing the LQS.

Figure 13

Distribution and Variance in Professional Learning Needs Related to Nine LQS Competencies



Comparison of Year 1, Year 2, Year 3, and Year 4 Results

Table 18 provides a comparison of year one, year two, year three and year four results for professional learning needs of the LQS competencies. Perhaps most noticeable is leaders' perception of a relatively low level of additional need beyond what they are currently accessing. However, the distribution as reported in the box and whisker plot (Figure 23) suggests a number of participants indicated a high level of need. School authorities are advised to examine their individual Year 4 division survey reports if they participated in the survey to identify the area of need. This can best be ascertained by reviewing the Indicators under Competencies in Table 14. School authorities might also consider conducting a needs analysis.

Table 21

Comparison Between Year One to year Four Results for Professional Learning Needs

| Competency | Year One (n=630) | Year Two (n=444) | Year Three (n=387) | Year Four (n=371) |
|--|---------------------|---------------------|-----------------------|----------------------|
| Competency 1: Fostering Effective Relationships | na | 2.25 | 2.22 | 2.28 |
| Competency 2: Modeling Commitment to Professional Learning | 2.40 | 2.44 | 2.39 | 2.28 |

| | | | | |
|--|------|------|------|------|
| Competency 3: Embodying Visionary Leadership | 2.29 | 2.28 | 2.26 | 2.27 |
| Competency 4: Leading a Learning Community | 2.36 | 2.27 | 2.29 | 2.27 |
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit | na | 2.72 | 2.82 | 2.77 |
| Competency 6: Providing Instructional Leadership | 2.42 | 2.28 | 2.29 | 2.34 |
| Competency 7: Developing Leadership Capacity | 2.41 | 2.21 | 2.21 | 2.19 |
| Competency 8: Managing School Operations and Resources | 2.36 | 2.17 | 2.14 | 2.17 |
| Competency 9: Understanding and Responding to the Larger Societal | na | 2.27 | 2.26 | 2.26 |

Leader Participation in Professional Learning Opportunities

“Successful leadership can play a highly significant role in improving student learning” (Leithwood et al., 2004, p. 5). The work of district and school leaders can be conceptualized as complex, practical, problem solving. Leaders require a special type of thinking that is embedded in educational activity (Leithwood et al, 2004; Robinson, 2011; Hallinger, 2011, 2018). As calls for leaders to focus their attention on teaching and learning continue to grow, leaders increasingly must change their leadership practice (Mombourquette & Sproule, 2019). Mombourquette and Sproule contend, “to model a commitment to professional learning, effective educational leaders demonstrate the qualities of self-leadership” (p. 154). Learning how to increase their self-leadership, self-awareness, confidence, and proficiency leaders engage in a process of reflecting on action (Ibarra, 2015, p. 3).

It is evident from the results that leaders are engaged in numerous forms of professional learning to build their professional expertise, including attending courses and seminars and participating in a professional learning network formed at the school authority level.

Table 22

Frequencies and Reliability of Various Types of Professional Learning Accessed

| | Frequency (%) | | | |
|--|---------------|--------|----|--------|
| | Yes | | No | |
| In the last 12 months, did you participate in any of the following professional learning activities aimed at you as the school authority leader? ($\alpha=0.54$) | | | | |
| Courses/seminars about subject matter, teaching methods, or pedagogical topics. | 184 | 80.00% | 46 | 20.00% |
| Courses/seminars about leadership. | 197 | 85.70% | 33 | 14.30% |
| Courses/seminars attended in person. | 140 | 60.90% | 90 | 39.10% |
| Courses/seminars online. | 215 | 93.50% | 15 | 6.50% |

| | | | | |
|--|-----|--------|-----|--------|
| Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues. | 121 | 52.60% | 109 | 47.40% |
| Formal qualification program (degree program, certificate program). | 58 | 25.20% | 172 | 74.80% |
| Peer and/or self-observation and coaching as part of a formal school arrangement. | 110 | 47.80% | 120 | 52.20% |
| Participation in a network of school or school authority leaders formed specifically for the professional learning of school and school authority leaders. | 179 | 77.80% | 51 | 22.20% |

Comparison of Year 1, Year 2, Year 3 and Year 4 Results

Table 23 provides a comparison of year one, year two, year three and year four results for the types of professional learning accessed to support LQS implementation. Presuming that random sampling is accurate, we are witnessing a transformation in the forms and formats chosen for professional leadership learning, or what is called the emergence of a Professional Learning Cloud (Moldoveanu & Narayandas, 2019). School leaders in Alberta, are dramatically changing in their approach to building their competencies, moving from face to face conferences and courses toward online networking.

Table 23

Comparison Between Year One, Year Two, Year Three and Year Four Results of Forms of Professional Learning Accessed

| Form of Professional Learning Accessed | Year One (n=630) | Year Two (n=444) | Year Three (n=387) | Year Four (n=371) |
|--|-----------------------------|-----------------------------|-------------------------------|------------------------------|
| Courses/seminars about subject matter, teaching methods, or pedagogical topics. | 480 (91%) | 245 (83%) | 228 (83%) | 184 (80%) |
| Courses/seminars about leadership. | 426 (95%) | 250 (84%) | 226 (82%) | 197 (86.7%) |
| Courses/seminar attended in person. | 437 (98%) | 150 (51%) | 30 (11%) | 140 (60.9%) |
| Courses/seminars online. | 209 (47%) | 284 (96%) | 260 (95%) | 215 (93.5%) |
| Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues. | 341 (76%) | 182 (61%) | 143 (52%) | 121 (52.6%) |

| Form of Professional Learning Accessed | Year One (n=630) | Year Two (n=444) | Year Three (n=387) | Year Four (n=371) |
|--|---------------------|---------------------|-----------------------|----------------------|
| Formal qualification program (degree program, certificate program). | 200 (45%) | 88 (30%) | 67 (24%) | 58 (25.2%) |
| Peer and/or self-observation and coaching as part of a formal school arrangement. | 257 (58%) | 159 (54%) | 135 (49%) | 110 (47.8%) |
| Participation in a network of school or school authority leaders formed specifically for the professional learning of school and school authority leaders. | 381 (85%) | 231 (78%) | 218 (79%) | 179 (77.8%) |

Inferential Analyses of Implementation Advancement and Professional Learning Needs: Leaders

The mean and standard deviation for the implementation advancement and professional learning level of needs related to the nine competencies across the four years are presented in Table 24.

Table 24

Averages and Variation for Implementation Advancement and Professional Learning Level of Needs across four Years (2019-2022)

| | Total (n=1312) | | Year 1 (n=454) | | Year 2 (n=212) | | Year 3 (n=270) | | Year 4 (n=371) | |
|--|----------------|------|----------------|------|----------------|------|----------------|------|----------------|------|
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Implementation Advancement | | | | | | | | | | |
| Competency 1: Fostering Effective Relationships | 3.87 | 0.55 | 3.84 | 0.6 | 3.68 | 0.4 | 3.7 | 0.44 | 3.9 | 0.53 |
| Competency 2: Modeling Commitment to Professional Learning | 3.94 | 0.66 | 4.2 | 0.71 | 3.66 | 0.52 | 3.64 | 0.56 | 3.87 | 0.58 |
| Competency 3: Embodying Visionary Leadership | 3.95 | 0.56 | 4.05 | 0.62 | 3.78 | 0.45 | 3.75 | 0.51 | 3.93 | 0.52 |
| Competency 4: Leading a Learning Community | 4.07 | 0.57 | 4.31 | 0.58 | 3.79 | 0.47 | 3.8 | 0.53 | 4.02 | 0.51 |

| | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit | 3.42 | 0.78 | 3.37 | 0.83 | 3.19 | 0.7 | 3.35 | 0.72 | 3.53 | 0.75 |
| Competency 6: Providing Instructional Leadership | 4.10 | 0.54 | 4.23 | 0.53 | 3.92 | 0.49 | 3.89 | 0.5 | 4.08 | 0.54 |
| Competency 7: Developing Leadership Capacity | 3.89 | 0.68 | 4.15 | 0.72 | 3.67 | 0.53 | 3.59 | 0.61 | 3.78 | 0.64 |
| Competency 8: Managing School Operations and Resources | 4.09 | 0.64 | 4.18 | 0.81 | 3.92 | 0.5 | 3.93 | 0.51 | 4.06 | 0.52 |
| Competency 9: Understanding and Responding to the Larger Societal | 3.64 | 0.70 | 3.66 | 0.8 | 3.52 | 0.6 | 3.44 | 0.63 | 3.71 | 0.6 |
| Professional Learning Level of Needs | | | | | | | | | | |
| Competency 1: Fostering Effective Relationships | 2.25 | 0.69 | X | X | 2.28 | 0.67 | 2.24 | 0.6 | 2.28 | 0.69 |
| Competency 2: Modeling Commitment to Professional Learning | 2.39 | 0.66 | 2.4 | 0.7 | 2.47 | 0.57 | 2.42 | 0.51 | 2.28 | 0.69 |
| Competency 3: Embodying Visionary Leadership | 2.28 | 0.70 | 2.29 | 0.78 | 2.34 | 0.62 | 2.28 | 0.55 | 2.27 | 0.67 |

| | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|
| Competency 4: Leading a Learning Community | 2.31 | 0.70 | 2.36 | 0.75 | 2.29 | 0.63 | 2.31 | 0.6 | 2.27 | 0.68 |
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit | 2.77 | 0.72 | X | X | 2.74 | 0.71 | 2.86 | 0.64 | 2.77 | 0.70 |
| Competency 6: Providing Instructional Leadership | 2.34 | 0.68 | 2.42 | 0.65 | 2.31 | 0.67 | 2.29 | 0.58 | 2.34 | 0.7 |
| Competency 7: Developing Leadership Capacity | 2.27 | 0.73 | 2.41 | 0.79 | 2.24 | 0.65 | 2.21 | 0.58 | 2.19 | 0.70 |
| Competency 8: Managing School Operations and Resources | 2.23 | 0.69 | 2.36 | 0.62 | 2.21 | 0.66 | 2.13 | 0.63 | 2.17 | 0.72 |
| Competency 9: Understanding and Responding to the Larger Societal | 2.27 | 0.67 | X | X | 2.29 | 0.63 | 2.27 | 0.59 | 2.26 | 0.66 |

Note: Professional Learning Level of Needs Competencies 1, 5, and 9 were not measured during Year 1.
M=Means, SD=Standard Deviation

Annual Comparison of Implementation Advancement – Leaders

For the nine competencies within the Implementation Advancement variable, the results indicated a statistically significant intercept of the nine variables over the four time periods (Pillai's Trace = 0.329; F-value = 17.849; $p < 2.2e-16$). A statistically significant intercept indicates as one competency increase, another decreases at a rate that is statistically different. While this is an interesting finding, the results of a significant intercept when there are multiple dependent variables (i.e., nine competencies) often does not present a clear picture of how each competency effects the other. To present a clearer picture of the analysis, the univariate results need to be conducted.

Results of the nine univariate analyses indicate seven competencies, i.e., Competency 2, 3, 4, 6, 7, 8, 9, are statistically significantly different. Please refer to Table 25 for the statistical values of each analysis.

Table 25

Univariate Results of Implementation Advancement Competencies

| | Type III Sum of Squares | Mean Square | F- Value | Significance | Partial Eta Squared |
|--|-------------------------------|----------------|-------------|--------------|------------------------|
| Competency 1: Fostering Effective Relationships | 2.10 | 0.70 | 2.29 | 0.077 | 0.005 |
| Competency 2: Modeling Commitment to Professional Learning | 48.80 | 16.28 | 40.46 | <2e-16* | 0.085 |
| Competency 3: Embodying Visionary Leadership | 9.00 | 2.99 | 9.691 | 2.5e-06* | 0.022 |
| Competency 4: Leading a Learning Community | 43.20 | 14.39 | 47.84 | <2e-16* | 0.099 |
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit | 4.30 | 1.44 | 2.32 | 0.074 | 0.005 |
| Competency 6: Providing Instructional Leadership | 14.8 | 4.92 | 17.35 | 4.8e-11* | 0.038 |
| Competency 7: Developing Leadership Capacity | 53.6 | 17.87 | 42.15 | <2e-16* | 0.088 |
| Competency 8: Managing School Operations and Resources | 6.8 | 2.27 | 5.67 | 0.001* | 0.013 |
| Competency 9: Understanding and Responding to the Larger Societal | 5.7 | 1.91 | 3.99 | 0.008* | 0.009 |

Note. The numbers in brackets are p-values for the t-tests.

Note. Small p-values indicate that the test results are significant (and are marked with an asterisk*).

Note: e = exponential.

Annual Comparison of Professional Learning – Leaders

This section of the analyses is split into two sections because during the first year, data was only collected for Competencies 2, 3, 4, 6, 7, and 8. Hence, the analyses presented here will first focus on Competencies 2, 3, 4, 6, 7, and 8 during Years 1, 2, and 3 while Competencies 2, 5, and 9 during Years 2 to 4 will be presented second.

Annual Comparison of Professional Learning Competencies 2, 3, 4, 6, 7, and 8

The intercept for this analysis was again statistically significant (Pillai's Trace = 0.076; F-value = 5.253; $p=3.31e-12$), which indicate some of the variables increased while others decreased at a rate that makes these competencies related.

Results of the six univariate analyses indicate Competencies 6, 7 and 8 are **statistically significant**. Please refer to Table 26 for the statistical values of each analysis.

Table 26

Univariate Results of Professional Learning Competencies 2, 3, 4, 6, 7, and 8

| | Type III Sum of Squares | Mean Square | F- Value | Significance | Partial Eta Squared |
|--|----------------------------|----------------|-------------|--------------|------------------------|
| Competency 2: Modeling Commitment to Professional Learning | 3.40 | 1.14 | 2.62 | 0.05 | 0.006 |
| Competency 3: Embodying Visionary Leadership | 0.10 | 0.04 | 0.08 | 0.97 | 0.0002 |
| Competency 4: Leading a Learning Community | 1.80 | 0.61 | 1.24 | 0.29 | 0.003 |
| Competency 6: Providing Instructional Leadership | 4.10 | 1.35 | 2.96 | 0.03* | 0.007 |
| Competency 7: Developing Leadership Capacity | 11.50 | 3.82 | 7.30 | 7.51e-05* | 0.018 |
| Competency 8: Managing School Operations and Resources | 11.50 | 3.84 | 8.31 | 1.8e-05* | 0.020 |

Note. The numbers in brackets are p-values for the t-tests.

Note. Small p-values indicate that the test results are significant (and are marked with an asterisk*).

Note: e = exponential.

Each of the two statistically significant competencies were analyzed using post-hoc analyses (i.e., Scheffe multiple comparisons) to identify the statistically significant differences among the three time points. The results of Competency 6 show no statistically significant differences between any two years, while the results of Competencies 7 and 8 showed **statistically significant differences between Year 1 and 3**.

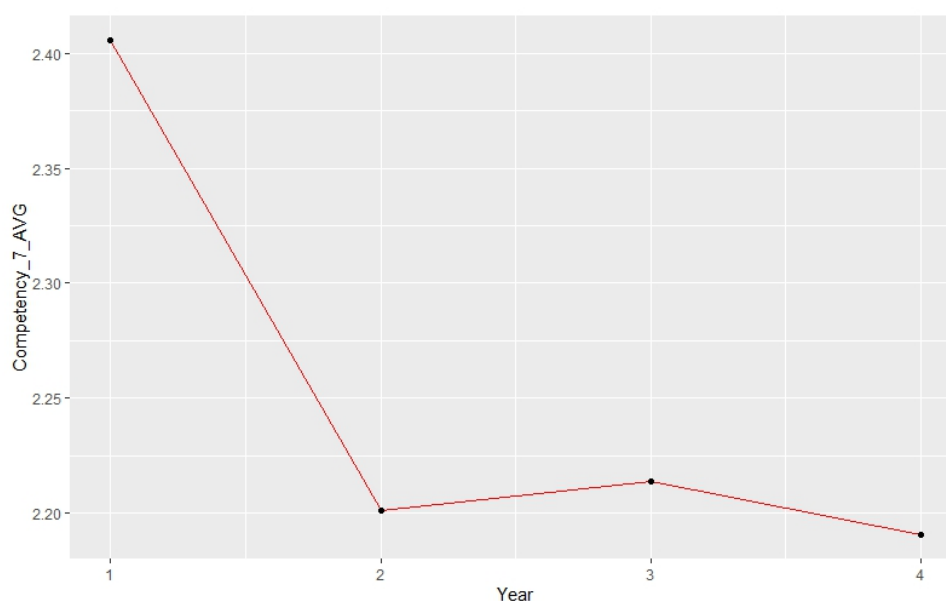
Table 27
Post-hoc Analyses for Competency 6 Using Scheffe's Test

| Year-Year | Difference | Lower CI | Upper CI | p-value |
|-----------|------------|----------|----------|---------|
| 2-1 | -0.134 | -0.277 | 0.009 | 0.075 |
| 3-1 | -0.121 | -0.268 | 0.026 | 0.149 |
| 4-1 | -0.075 | -0.229 | 0.078 | 0.598 |
| 3-2 | 0.013 | -0.147 | 0.174 | 0.997 |
| 4-2 | 0.059 | -0.107 | 0.226 | 0.804 |
| 4-3 | 0.046 | -0.124 | 0.216 | 0.903 |

For Competency 6, the post-hoc results indicate no statistically significant differences between any two years.

For Competency 7, the post-hoc results indicate a statistically **significant difference between Year 1 and 2** (Mean difference = 0.201, $p=0.004$), Year 1 and 3 (Mean difference = 0.180, $p=0.017$), as well as Year 1 and 4 (Mean difference = 0.221, $p=0.003$). A plot of the change among the four years is shown in Figure 14.

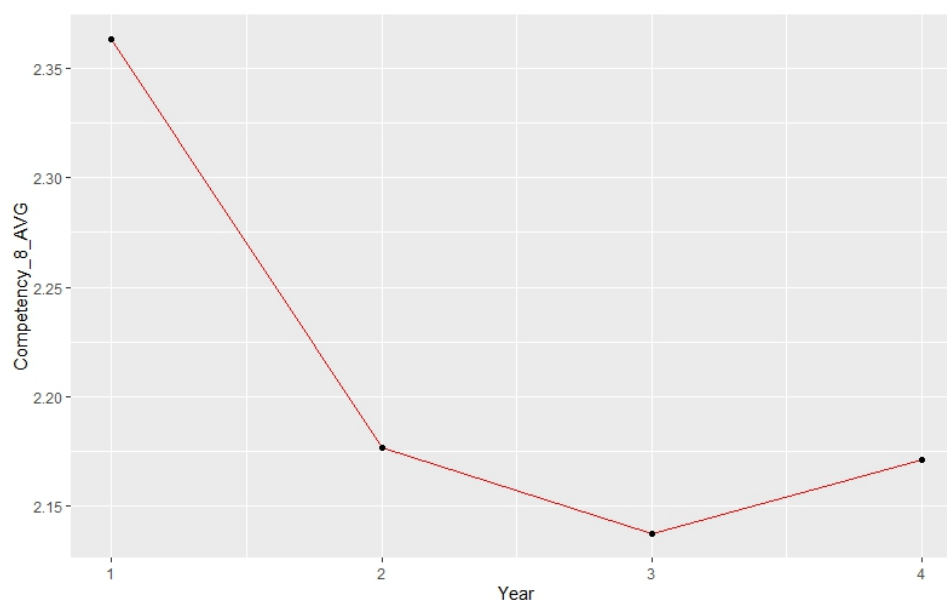
Figure 14
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 7: Developing Leadership Capacity



For Competency 8, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.0191, $p=0.003$), Year 1 and 3 (Mean difference = 0.220, $p=0.0006$), as well as Year 1 and 4 (Mean difference = 0.192, $p=0.008$). A plot of the change among the four years is shown in Figure 15.

Figure 15

Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 8: Managing School Operations and Resources



Annual Comparison of Professional Learning Competencies 1, 5, and 9

The intercept for this analysis is not statistically significant (Pillai's Trace = 0.008; F-value = 1.074; $p=0.376$). Results of the three univariate analyses indicate none of these competencies are statistically significant. Please refer to Table 28 for the statistical values of each analysis.

Table 28

Univariate Results of Professional Learning Competencies 1, 5, and 9

| | Type III Sum of Squares | Mean Square | F- Value | Significance | Partial Eta Squared |
|--|-------------------------------|----------------|-------------|--------------|------------------------|
| Competency 1: Fostering Effective Relationships | 0.40 | 0.20 | 0.41 | 0.664 | 0.001 |
| Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit | 1.30 | 0.64 | 1.26 | 0.283 | 0.003 |
| Competency 9: Understanding and Responding to the Larger Societal | 0.00 | 0.002 | 0.003 | 0.997 | 8.60e-06 |

Summary of Leader Survey Results

This section of the report summarizes the results of the Year 4 leader survey related to implementation advancement, professional learning needs, and participation in various types of professional learning activities. Although the survey instruments were not identical for teachers and leaders, four overall contrasts can be made:

1. Consistent with previous years' survey results, school and system leaders report that internal-to-school-system competencies are further advanced in implementation than those which require leadership outside the school system, such with parents, guardians, community service providers, First Nations, and Métis stakeholders, or in a larger social context. While leaders report small gains have been made in engaging as community leaders rather than just as instructional leaders, this is still an area that needs to be addressed to further advance LQS implementation.
2. In year 4, school and system leaders report making advances in all nine of the LQS competency areas when compared with year 3. However, there are not advances in 6 of the 8 competencies when looking at mean scores across four years.
3. School and system leaders' expressions of need for professional learning continue to be relatively low; however, the range of data is from 1 to 4, indicating some leaders are still requesting high level of support in the form of professional learning is needed to continue making implementation advancements.
4. School leaders and system leaders have continued to engage in multiple forms of professional learning to advance implementation efforts. There appears a dramatic change toward online forms of professional learning relating to leadership.
5. Leaders have reported they participate in a network of school or school authority leaders formed for the purpose of professional learning; however, the numbers of leaders reporting participating in such networks has noticeably decreased across the four years (85%, 78%, 79%, 77.8%). As also found for the teachers, research is clear that engaging in professional learning activities that designed to engage leaders in collaborative professionalism (Hargreaves & O'Connor, 2018) build collective efficacy which has been shown to have a significant positive impact on student learning (Donohoo et al., 2018).
6. The forms and formats of professional learning for Alberta school administrators have necessarily changed in the midst of a public health crisis. What this means for implementation of the LQS standard is clear, but not so its enactment as behavioral change.
7. It remains unclear whether walkthroughs, professional growth planning, or other elements of professional practice standards for school leaders have occurred in all participating school authorities over the four years. The analysis conducted in the ten case studies conducted in school authorities concurrently with the survey data, indicate that in six of the ten school authorities, leaders continued to emphasize practices that are known to improve student learning. It is unclear how representative these six school authorities might be of the participating 35 school authorities in this study.
8. What the sources are for the 'implementation dip' for the Leadership Quality Standard is an important question for educational leadership in Alberta.

Superintendent Survey Results and Discussion

In this section we present and discuss the provincial results from the third year of implementation of the *Superintendent Leadership Quality Standard (SLQS)* (Alberta Education, 2018b) in three sub-sections:

1. Implementation advancement related to each SLQS competency;
2. Professional learning level of need related to seven SLQS competency and selected indicators; and
3. Participation in various types of professional learning activities.

Implementation Advancement Related to Each SLQS Competency

Results displayed in Table 29 and Figure 16 below indicate that the overall mean for implementation advancement of the SLQS competencies by participating superintendents ($n=28$) is 4.03 which falls in the “embedding” phase on the 5-point scale outlined in Table 1 in this report. Superintendents are “embedding”/sustaining the majority of the competencies using evidence to confirm that the competencies in this standard are now part of common everyday practice.

Two of the seven competencies measured in this part of the survey correspond to the “enacting”/adapting phase on the *Implementation Advancement* scale:

Competency 1 – Building Effective Relationships (mean= 3.92)

Competency 5 – Ensuring First Nations, Métis and Inuit Education for All Students (mean=3.53)

Five of the seven competencies measured in this part of the survey correspond to the “embedding”/sustaining phase on the *Implementation Advancement* scale:

Competency 2 – Modeling Commitment to Professional Learning (mean=4.05)

Competency 3 – Visionary Leadership (mean=4.02)

Competency 4 – Leading Learning (mean=3.85)

Competency 6 – School Authority Operations and Resources (mean=3.91)

Competency 7 – Supporting Effective Governance (mean=3.88)

Table 29

Averages and Variation for Implementation Advancement Related to Seven SLQS Competencies

| Construct | Mean | Standard Deviation |
|---|-------------|--------------------|
| Competency 1: Building Effective Relationships ($\alpha=0.71$) | 3.98 | 0.51 |
| 1. I build relationships through collaborating with leaders in the school authority to build trusting relationships with parents/guardians of the students. | 4.17 | 0.76 |
| 2. I build relationships with First Nations, Métis and Inuit parents/guardians, Elders, local leaders and community members. | 3.17 | 0.96 |
| 3. I build relationships by modelling ethical leadership practices. | 4.50 | 0.51 |

| Construct | Mean | Standard Deviation |
|--|-------------|---------------------------|
| 4. I establish constructive relationships with all members of the educational community. | 4.13 | 0.74 |
| 5. I build relationships by facilitating the meaningful participation of all members of the school and local community. | 3.96 | 0.75 |
| Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.87$) | 4.18 | 0.58 |
| 1. I communicate a student-centered philosophy based on sound principles of effective teaching and leadership. | 4.42 | 0.58 |
| 2. I collaborate with all members of the jurisdiction and other superintendents to build professional expertise. | 4.17 | 0.76 |
| 3. I actively seek out feedback from a variety of sources to enhance my leadership practice. | 3.96 | 0.69 |
| 4. I apply educational research to inform my leadership practice. | 4.38 | 0.71 |
| 5. I engage members of the school authority to establish a shared understanding of current trends and priorities in the education system. | 4.00 | 0.78 |
| Competency 3: Visionary Leadership ($\alpha=0.88$) | 4.26 | 0.61 |
| 1. I ensure the vision is informed by research on effective learning, teaching, and leadership. | 4.08 | 0.78 |
| 2. I promote innovation that results in a commitment to continuous improvement. | 4.25 | 0.85 |
| 3. I promote a common understanding of the school authority's goals, priorities, and strategic initiatives. | 4.38 | 0.58 |
| 4. I ensure that the vision is expressed in the school authority's education plan and is responsive to the ongoing review of the school authority's achievements. | 4.29 | 0.69 |
| 5. I ensure that the vision meets all requirements identified in provincial legislation. | 4.29 | 0.81 |
| Competency 4: Leading Learning ($\alpha=0.88$) | 4.01 | 0.61 |
| 1. I foster in the school community equality and respect with regard to rights as provided for in the <i>Alberta Human Rights Act</i> and the <i>Canadian Charter of Rights and Freedoms</i> . | 4.25 | 0.61 |
| 2. I provide learning opportunities based on research informed principles to support building the capacity for all members of the school community to fulfill their educational roles. | 4.00 | 0.66 |
| 3. I ensure that all instruction in the school authority addresses learning outcomes outlined in the programs of study. | 4.00 | 0.78 |
| 4. I build school and jurisdiction leaders' capacities and hold them accountable for providing instructional leadership through effective support, supervision and evaluation. | 4.04 | 0.75 |

| Construct | Mean | Standard Deviation |
|---|-------------|---------------------------|
| 5. I ensure that student assessment and evaluation practices are evidence-based and accurate. | 3.75 | 0.90 |
| Competency 5: Ensuring First Nations, Métis and Inuit Education for All Students ($\alpha=0.89$) | 3.61 | 0.68 |
| 1. I support staff in accessing the professional learning required to meet the learning needs of First Nations, Métis, Inuit and all other students. | 3.88 | 0.80 |
| 2. I collaborate with neighbouring First Nations and Métis leaders, organizations and communities to optimize learning success and development of First Nations, Métis, Inuit and all other students. | 2.79 | 0.93 |
| 3. I seek to understand the historical, social, economic, and political implications of treaties and agreements with First Nations; legislation and agreements negotiated with Métis; and residential schools and their legacy. | 3.96 | 0.75 |
| 4. I align school authority resources to support First Nations, Métis, and Inuit student achievement. | 3.79 | 0.83 |
| 5. I engage in practice to facilitate reconciliation within the school community. | 3.63 | 0.77 |
| Competency 6: School Authority Operations and Resources ($\alpha=0.80$) | 4.13 | 0.53 |
| 1. I provide direction on resource management in accordance with all statutory, regulatory, and school authority requirements. | 4.17 | 0.70 |
| 2. I provide support for ongoing supervision and evaluation of all staff members in relation to their respective professional responsibilities. | 4.17 | 0.70 |
| 3. I establish data-informed strategic planning that are responsive to changing contexts. | 4.08 | 0.72 |
| 4. I respect cultural diversity in differing perspectives in the school community. | 4.25 | 0.68 |
| 5. I implement programs and procedures for the effective management of human resources in support of mentorship, capacity-building and succession planning. | 4.00 | 0.72 |
| Competency 7: Supporting Effective Governance ($\alpha=0.76$) | 4.01 | 0.54 |
| 1. I sustain a productive working relationship with the board, based on mutual trust, respect, and integrity. | 4.04 | 0.75 |
| 2. I ensure all students and staff are provided with a welcoming caring, respectful and safe learning environment that respects diversity and fosters a sense of belonging. | 4.04 | 0.86 |
| 3. I ensure that all students in the school authority have the opportunity to meet the standards of education set by the Minister of Education. | 4.04 | 0.62 |
| 4. I support the regular review and evaluation of the impact of board policies. | 4.08 | 0.88 |
| 5. I build the capacity of the board and staff to predict, communicate and respond to emergent circumstances, including emergency readiness | 3.92 | 0.65 |

| Construct | Mean | Standard Deviation |
|--|------|--------------------|
| and crisis management, and to political, social, economic, legal and cultural contexts and trends. | | |

Note. *Cronbach alpha values indicate internal consistency for each competency and were calculated using all Alberta superintendent survey responses ($n=28$). High reliability values may reflect the low numbers of participants in this survey.

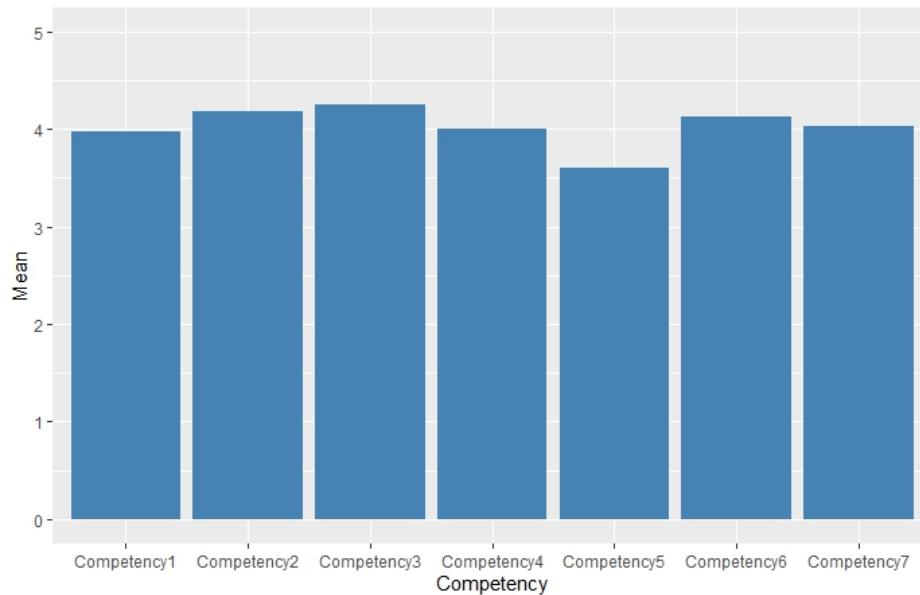
Table 30

Overview of Seven Competencies Related to Implementation for SLQS Competencies

| Scale | Mean | Competency |
|---|------|--|
| Enacting – Individuals are using evidence from their practice to further refine their practices related to the competencies. They are adapting to new ways of working. Practices are evolving that allow individuals/systems to flexibly navigate the ill-structured, novel problem-solving nature of practice in response to the integrated nature of the competencies articulated in the standard. | 3.98 | Competency 1: Building Effective Relationships |
| | 3.61 | Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit |
| Embedding - Individuals are improving/strengthening competency levels. Individuals/systems are using evidence to confirm that the competencies in this standard are now part of common everyday practice | 4.18 | Competency 2: Modeling Commitment to Professional Learning |
| | 4.26 | Competency 3: Visionary Leadership |
| | 4.01 | Competency 4: Leading a Learning Community |
| | 4.13 | Competency 6: School Authority Operations and Resources |
| | 4.01 | Competency 7: Supporting Effective Governance |

Figure 16

Comparison of Means on the Implementation Advancement Related to Seven SLQS Competencies



Box and Whisker Plot

The following box and whisker plot (Figure 17) shows both the distribution and variation within the data set. A box and whisker plot illustrate five measures within a data set: the minimum score, lower quartile, median, upper quartile, maximum score, with the whiskers representing the lower 25% of the scores and 25% of the upper scores for each of the seven competencies. In addition to these five measures, the box and whisker plot includes the outliers in the data set (indicated by small circles). The results indicate outliers in competencies 1 and 6.

As can be observed in the box and whisker plot below, there is a skewing in a number of the competencies in the data set. The competency with the largest range of responses is Competency 5 within a range of approximately 1.75 to approximately 4.5.

Figure 17

Distribution and Variance in Implementation Advancement Related to SLQS Competencies

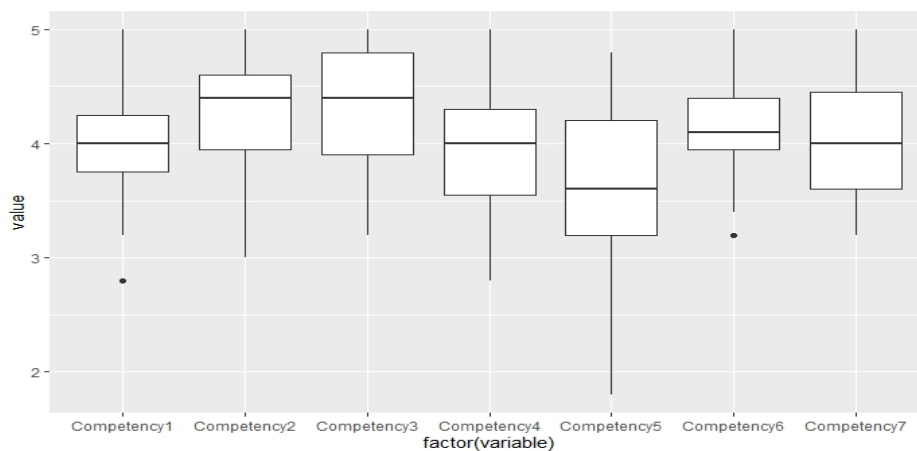
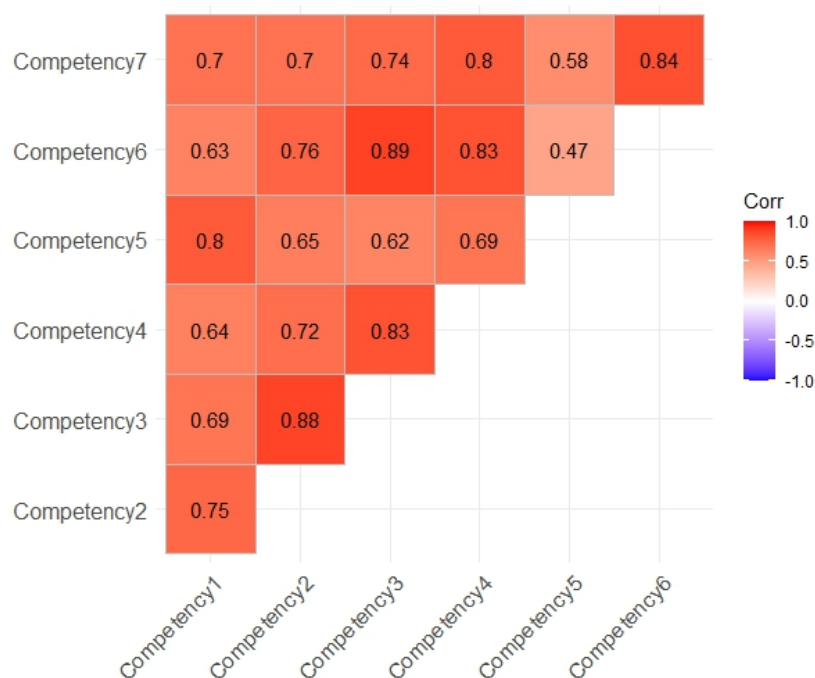


Figure 18

Correlation Matrix for Implementation Advancement Related to SLQS Competencies



Overall, Alberta school superintendents perceive the system leadership standard as a whole, rather than as a discrete set of analytic elements. A further significance test shows that all the correlation coefficients shown in Figure 18 are significantly non-zero. The correlation plot shows that all the superintendents' perceptions are highly positively correlated, where some of them are very close to 1. For example, Competency 2 and Competency 3, Competency 3 and Competency 6. These high correlations indicate that a superintendent self appraises in highly similar ways for these competencies.

Comparison of Year 1, Year 2, Year 3 and Year 4 Results

Table 31 provides a comparison of year one, year two, year three and year four results for implementation advancement of the SLQS competencies. The results indicate that the superintendents made gains in all seven competency areas in Year 4.

Table 31

Comparison Between Year One, Year Two and Year Three Results of Implementation Advancement

| Competency | Year One (n=17) | Year Two (n=36) | Year Three (n=27) | Year Four (n=28) |
|---|----------------------------|----------------------------|------------------------------|-----------------------------|
| Competency 1: Building Effective Relationships | 3.69 | 3.68 | 3.92 | 3.98 |
| Competency 2: Modeling Commitment to Professional Learning | 4.11 | 3.94 | 4.05 | 4.18 |
| Competency 3: Visionary Leadership | 3.86 | 3.87 | 4.02 | 4.26 |
| Competency 4: Leading Learning | 3.87 | 3.91 | 3.85 | 4.01 |
| Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students | 3.48 | 3.43 | 3.53 | 3.61 |
| Competency 6: School Authority Operations and Resources | 3.97 | 3.95 | 3.91 | 4.13 |
| Competency 7: Supporting Effective Governance | 3.80 | 3.91 | 3.88 | 4.03 |

Unlike teachers and school leaders, superintendents did not report an ‘implementation dip’ in enacting the system leadership standard over the past four years. The overall pattern is one of continuous advancement. The sources, scope, and implications for policy implementation at multiple levels of the system in Alberta deserve further investigation.

Professional Learning Level of Need Related to Seven SLQS Competencies

The survey asked superintendents to indicate their need for professional learning related to seven of the SLQS competencies. Table 32 and Figure 19 provide the aggregated results from the superintendents responding to this survey.

It is important to cross reference these results with the results from Part 1 of the Superintendent survey- Implementation Advancement Related to Each Competency and Part 3 of the survey - Participation in Various Types of Professional Learning Opportunities. The overall mean for implementation advances (4.03) indicates that school and district leaders are now embedding/sustaining the competencies in five of the seven SLQS competency areas.

Table 32

Averages and Variation for Professional Learning Related to Seven SLQS Competencies

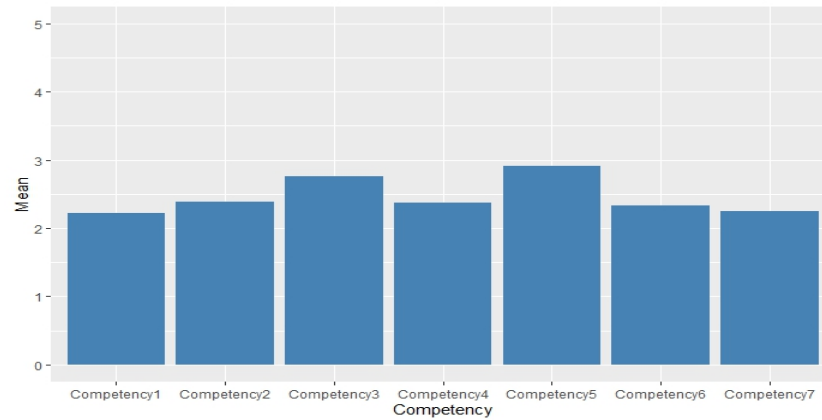
| Construct | Mean | Standard Deviation |
|---|-------------|---------------------------|
| Competency 1: Building Effective Relationships ($\alpha=0.84$) | 2.23 | 0.70 |
| 1. Building collaborative, trusting relationships with parents/guardians of the students. | 2.17 | 0.94 |
| 2. Building relationships with First Nations, Métis and Inuit parents/guardians, Elders, local leaders and community members. | 2.61 | 0.72 |
| 3. Modelling ethical leadership practices. | 1.91 | 1.08 |

| Construct | Mean | Standard Deviation |
|--|-------------|---------------------------|
| 4. Establishing constructive relationships with all members of the educational community. | 2.09 | 0.90 |
| 5. Facilitating the meaningful participation of all members of the school and local community. | 2.35 | 0.83 |
| Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.92$) | 2.39 | 0.71 |
| 1. Communicating a student-centered philosophy based on sound principles of effective teaching and leadership. | 2.17 | 0.83 |
| 2. Collaborating with all members of the jurisdiction and other superintendents to build professional expertise. | 2.17 | 0.83 |
| 3. Seeking feedback from a variety of sources to enhance my leadership practice. | 2.52 | 0.79 |
| 4. New developments in leadership research and theory. | 2.43 | 0.79 |
| 5. Current trends and priorities in the education system. | 2.65 | 0.83 |
| Competency 3: Visionary Leadership ($\alpha=0.78$) | 2.76 | 0.80 |
| 1. Ensure the vision is informed by research on effective learning, teaching, and leadership. | 4.08 | 0.78 |
| 2. Promoting innovation and commitment to continuous improvement. | 2.57 | 0.73 |
| 3. Promoting a common understanding of the school authority's goals, priorities, and strategic initiatives. | 2.30 | 1.06 |
| 4. Ensure that the vision in the school authority's education plan is responsive to ongoing review of the school authority's achievements. | 2.35 | 0.88 |
| 5. Ensure that the vision meets all requirements identified in provincial legislation. | 2.04 | 0.98 |
| Competency 4: Leading Learning ($\alpha=0.88$) | 2.37 | 0.76 |
| 1. Fostering equality and respect for rights as provided in the Alberta <i>Human Rights Act</i> and the <i>Canadian Charter of Rights and Freedoms</i> . | 2.22 | 0.85 |
| 2. How to design professional learning for/with school and school authority leaders. | 2.35 | 0.93 |
| 3. Ensuring that all instruction in the school authority addresses learning outcomes outlined in the programs of study. | 2.43 | 0.99 |
| 4. Building school and jurisdiction leaders' capacities and holding them accountable for providing instructional leadership. | 2.39 | 0.99 |
| 5. Student assessment and evaluation practices that are evidence-based and accurate. | 2.48 | 0.90 |
| Competency 5: Ensuring First Nations, Métis and Inuit Education for All Students ($\alpha=0.59$) | 2.91 | 0.52 |
| 1. Supporting staff in meeting the learning requires of First Nations, Métis, Inuit and all other students. | 3.88 | 0.80 |

| Construct | Mean | Standard Deviation |
|--|-------------|---------------------------|
| 2. Collaborating with neighbouring First Nations and Métis leaders, organizations and communities to optimize learning. | 2.70 | 0.82 |
| 3. The historical, social, economic, and political implications of treaties and agreements with First Nations; legislation and agreements negotiated with Métis; and residential schools and their legacy. | 2.48 | 0.73 |
| 4. Aligning school authority resources to support First Nations, Métis, and Inuit student achievement. | 2.57 | 0.66 |
| 5. Facilitating reconciliation within the school community. | 2.70 | 0.82 |
| Competency 6: School Authority Operations and Resources ($\alpha=0.92$) | 2.34 | 0.85 |
| 1. Resource management in accordance with all statutory, regulatory, and school authority requirements. | 2.17 | 1.11 |
| 2. Supervision and evaluation of all staff members regarding their respective professional responsibilities. | 2.17 | 1.07 |
| 3. Data-informed strategic planning. | 2.61 | 0.94 |
| 4. Culturally diverse perspectives in the school community. | 2.52 | 0.79 |
| 5. Effective management of human resources for mentorship, capacity-building and succession planning. | 2.22 | 0.90 |
| Competency 7: Supporting Effective Governance ($\alpha=0.91$) | 2.25 | 0.84 |
| 1. Sustaining productive working relationships with the board, based on mutual trust, respect, and integrity. | 2.26 | 1.05 |
| 2. Providing a welcoming caring, respectful and safe learning environment that respects diversity and fosters a sense of belonging. | 2.09 | 0.85 |
| 3. Meeting the standards of education set by the Minister of Education for students. | 2.09 | 0.90 |
| 4. Regular review and evaluation of the impact of board policies. | 2.30 | 1.11 |
| 5. Predicting, communicating and responding to emergent circumstances, including emergency readiness, crisis management, and to political, social, economic, legal and cultural contexts and trends. | 2.52 | 0.99 |

Figure 18

Means of Professional Learning Need Related to Seven SLQS Competencies



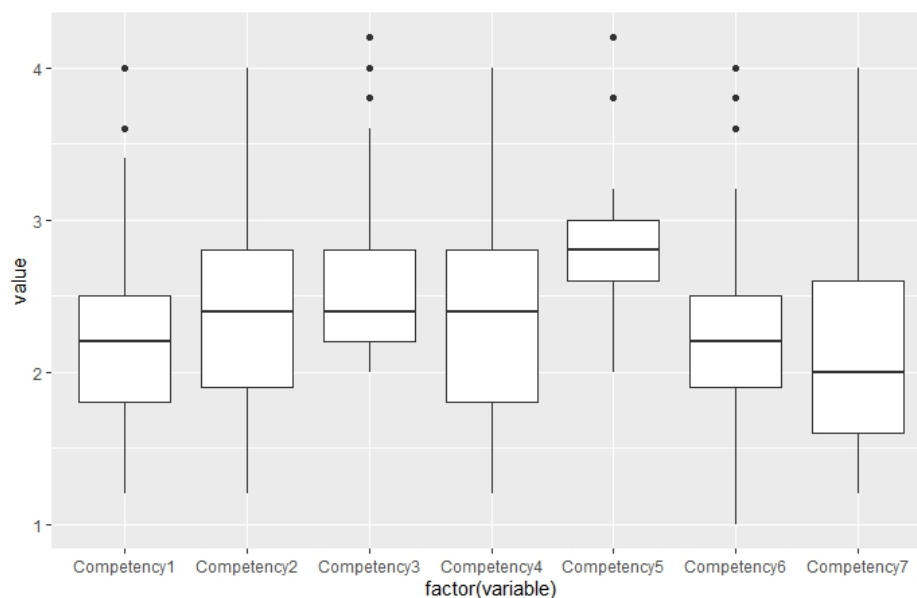
Note. 4-point Likert scale: 1= No need at present; 2= Low level of need; 3= Moderate level of need; 4= High level of need

Box and Whisker Plot

The following box and whisker plot (Figure 19) shows both the distribution and variation within the data set for the four competencies. As can be observed in the box and whisker plot, the interquartile ranges and the whiskers indicate some skewness in the data set in all competency areas. The results also show some outliers for competencies 1, 3, 5, and 6. In viewing Figure 19, it is important to remember that 4 on the scale represents a high level of need.

Figure 19

Distribution and Variance in Professional Learning Needs Related to Seven SLQS Competencies



Comparison of Year 1, Year 2, Year 3 and Year 4 Results

Table 33 provides a comparison of year one to year four results for professional learning needs of the superintendents relative to the SLQS competencies. The results indicate an increased need for additional professional learning to support SLQS implementation in all seven competency areas.

Table 33

Comparison Between Year One, Year Two, Year Three and Year Four Results of Implementation Advancement

| Competency | Year One (n=17) | Year Two (n=36) | Year Three (n=27) | Year Four (n=28) |
|---|----------------------------|----------------------------|------------------------------|-----------------------------|
| Competency 1: Building Effective Relationships | na | 2.34 | 2.20 | 2.23 |
| Competency 2: Modeling Commitment to Professional Learning | 2.16 | 2.52 | 2.33 | 2.39 |
| Competency 3: Visionary Leadership | na | 2.39 | 2.11 | 2.66 |
| Competency 4: Leading Learning | 2.21 | 2.34 | 2.17 | 2.37 |
| Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students | na | 2.61 | 2.61 | 2.86 |
| Competency 6: School Authority Operations and Resources | 2.41 | 2.44 | 2.29 | 2.34 |
| Competency 7: Supporting Effective Governance | na | 2.40 | 2.17 | 2.25 |

Superintendent Participation in Professional Learning Opportunities

The research literature shows a strong association between the effects of Superintendent leadership and student achievement (Leithwood, 2008, 2010, 2011; Louis, et al., 2010; Marzano & Waters, 2006, 2009). Brandon, Hanna, and Negropontes (2015) highlight the importance of making professional learning a central priority in high performing school divisions. They further indicate the importance of the superintendency teams in leading learning “based on research derived frameworks in authentically engaging professional leadership learning communities that are informed by evidence of impact on teaching and learning” (Brandon et al., 2015, p. 83).

The results in Table 34 and Figure 20 indicate that superintendents access a variety of professional learning opportunities including reading professional literature, participating in seminars or courses about leadership, and participating in a network of school or school authority leaders. It is encouraging to see such high levels of superintendents’ involvement and participation in professional learning, which might help to understand the relatively low levels of further need to access additional professional learning.

Table 34

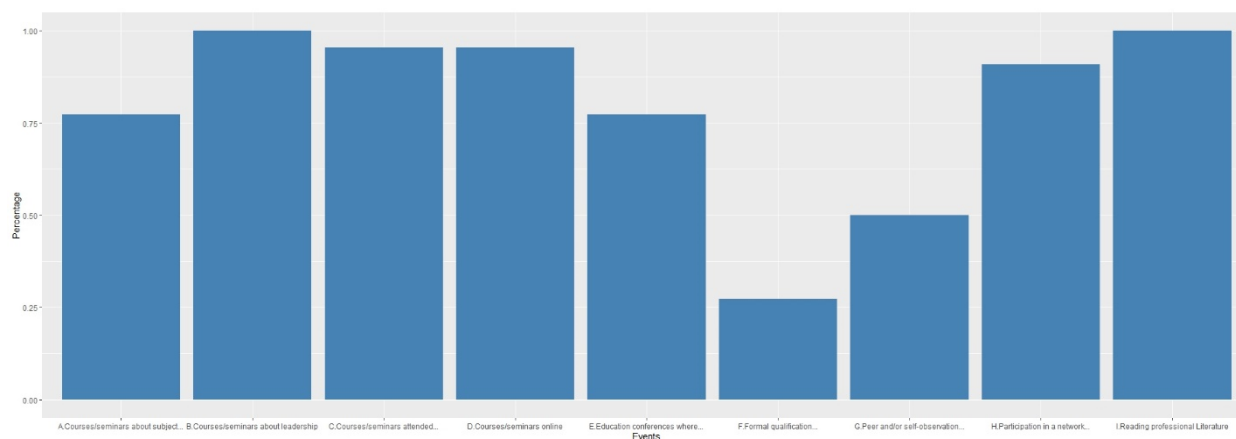
Frequencies of Various Types of Professional Learning Accessed

Frequency (%)

| | Yes | No |
|--|------------|------------|
| In the last 12 months, did you participate in any of the following professional learning activities aimed at you as the school authority leader? (Cronbach's alpha=0.47) | | |
| Courses/seminars about subject matter, teaching methods, or pedagogical topics. | 17 (77.3%) | 5 (22.7%) |
| Courses/seminars about leadership. | 22 (100%) | 0 (0%) |
| Courses/seminars attended in person. | 21 (95.5%) | 1 (4.5%) |
| Courses/seminars online. | 21 (95.5%) | 1 (4.5%) |
| Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues. | 17 (77.3%) | 5 (22.7%) |
| Formal qualification program (degree program, certificate program). | 6 (27.3%) | 16 (72.7%) |
| Peer and/or self-observation and coaching as part of a formal school arrangement. | 11 (50%) | 11 (50%) |
| Participation in a network of school or school authority leaders formed specifically for the professional learning of school and school authority leaders. | 20 (90.9%) | 2 (9.1%) |
| Reading professional literature. | 22 (100%) | 0 (0%) |

Figure 20

Types of Professional Learning Accessed



Comparison of Year 1, Year 2, Year 3, and Year 4 Results

Table 35 provides a comparison of year one to year four results for the various types of professional learning accessed to support SLQS implementation.

Table 35*Comparison Between Year One to year Four Results of Types of Professional Learning Accessed*

| Type of Professional Learning Accessed | Year One (n=17) | Year Two (n=36) | Year Three (n=27) | Year Four (n=28) |
|--|----------------------------|----------------------------|------------------------------|-----------------------------|
| Courses/seminars about subject matter, teaching methods, or pedagogical topics. | 29 (91%) | 19 (68%) | 17 (77%) | 17 (77.3%) |
| Courses/seminars about leadership. | 31 (97%) | 25 (89%) | 19 (91%) | 22 (100%) |
| Courses/seminar attended in person. | 30 (94%) | 16 (57%) | 5 (24%) | 21 (95.5%) |
| Courses/seminars online. | 20 (63%) | 25 (89%) | 22 (100%) | 21 (95.5%) |
| Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues. | 30 (94%) | 22 (79%) | 15 (68%) | 17 (77.3%) |
| Formal qualification program (degree program, certificate program). | 21 (66%) | 9 (32%) | 8 (36%) | 6 (27.3%) |
| Peer and/or self-observation and coaching as part of a formal school arrangement. | 17 (53%) | 7 (25%) | 11 (50%) | 11 (50%) |
| Participation in a network of school or school authority leaders formed specifically for the professional learning of school and school authority leaders. | 28 (88%) | 23 (82%) | 20 (91%) | 20 (90.9%) |
| Reading Professional Literature | 31 (97%) | 27 (96%) | 22 (100%) | 22 (100%) |

**Inferential Analyses of Implementation Advancement and Professional Learning Needs:
Superintendents**

The mean and standard deviation for the implementation advancement and professional learning level of needs related to the six competencies across the four years are presented in Table 36.

Table 36

Averages and Variation for Implementation Advancement and Professional Learning Level of Needs across Four Years (2018-2022)

| | Total (n=108) | | Year 1 (n=17) | | Year 2 (n=36) | | Year 3 (n=27) | | Year 4 (n=28) | |
|--|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Implementation Advancement | | | | | | | | | | |
| Competency 1: Building Effective Relationships | 3.80 | 0.57 | 3.69 | 0.54 | 3.68 | 0.65 | 3.92 | 0.49 | 3.98 | 0.51 |
| Competency 2: Modeling Commitment to Professional Learning | 4.07 | 0.59 | 4.11 | 0.62 | 3.94 | 0.59 | 4.05 | 0.58 | 4.18 | 0.58 |
| Competency 3: Visionary Leadership | 3.98 | 0.65 | 3.86 | 0.83 | 3.87 | 0.51 | 4.02 | 0.51 | 4.26 | 0.61 |
| Competency 4: Leading Learning | 3.90 | 0.50 | 3.87 | 0.42 | 3.91 | 0.49 | 3.85 | 0.51 | 4.01 | 0.61 |
| Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students | 3.51 | 0.81 | 3.48 | 1.07 | 3.43 | 0.76 | 3.53 | 0.58 | 3.61 | 0.68 |

| | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|
| Competency 6: School Authority Operations and Resources | 3.99 | 0.60 | 3.97 | 0.77 | 3.95 | 0.45 | 3.91 | 0.55 | 4.13 | 0.53 |
| Competency 7: Supporting Effective Governance | 3.90 | 0.55 | 3.8 | 0.47 | 3.91 | 0.59 | 3.88 | 0.60 | 4.01 | 0.54 |
| Professional Learning Level of Needs | | | | | | | | | | |
| Competency 1: Building Effective Relationships | 2.28 | 0.79 | X | X | 2.34 | 0.95 | 2.2 | 0.66 | 2.23 | 0.70 |
| Competency 2: Modeling Commitment to Professional Learning | 2.34 | 0.78 | 2.16 | 0.71 | 2.52 | 0.9 | 2.33 | 0.74 | 2.39 | 0.71 |
| Competency 3: Visionary Leadership | 2.59 | 0.70 | X | X | 2.39 | 0.97 | 2.11 | 0.69 | 2.76 | 0.80 |
| Competency 4: Leading Learning | 2.27 | 0.73 | 2.21 | 0.71 | 2.34 | 0.8 | 2.17 | 0.64 | 2.37 | 0.76 |
| Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students | 2.86 | 0.57 | X | X | 2.61 | 0.77 | 2.61 | 0.65 | 2.91 | 0.52 |
| Competency 6: School Authority Operations and Resources | 2.38 | 0.81 | 2.41 | 0.76 | 2.44 | 0.96 | 2.29 | 0.69 | 2.34 | 0.85 |

| | | | | | | | | | | |
|---|------|------|---|---|------|------|------|------|------|------|
| Competency 7: Supporting Effective Governance | 2.28 | 0.85 | X | X | 2.40 | 0.98 | 2.17 | 0.69 | 2.25 | 0.84 |
|---|------|------|---|---|------|------|------|------|------|------|

Note: Professional Learning Level of Needs Competencies 1, 3, 5, and 7 were not measured in Year 1. M=Means, SD=Standard Deviation

Annual Comparison of Implementation Advancement - Superintendent

Results of the six univariate analyses indicate none of the competencies are statistically significant. An analysis of this type is not appropriate with such a small number of participants.

Table 36

Univariate Results of Implementation Advancement Competencies

| | Type III Sum of Squares | Mean Square | F-Value | Significance | Partial Eta Squared |
|---|-------------------------|-------------|---------|--------------|---------------------|
| Competency 1: Building Effective Relationships | 1.97 | 0.66 | 2.10 | 0.11 | 0.058 |
| Competency 2: Modeling Commitment to Professional Learning | 1.05 | 0.35 | 0.99 | 0.40 | 0.028 |
| Competency 3: Visionary Leadership | 2.76 | 0.92 | 2.22 | 0.09 | 0.061 |
| Competency 4: Leading Learning | 0.05 | 0.15 | 0.58 | 0.63 | 0.017 |
| Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students | 0.49 | 0.16 | 0.24 | 0.87 | 0.007 |
| Competency 6: School Authority Operations and Resources | 0.69 | 0.23 | 0.64 | 0.59 | 0.018 |
| Competency 7: Supporting Effective Governance | 0.67 | 0.22 | 0.74 | 0.53 | 0.021 |

Annual Comparison of Professional Learning - Superintendent

This section of the analyses is split into two sections because during the first year, data was only collected for Competencies 2, 4, and 6. Hence, the analyses presented here will first focus on Competencies 2, 4, and 6 during Years 1, 2, and 3 while Competencies 1, 3, 5, and 7 during Years 2 and 3 will be presented second.

Annual Comparison of Professional Learning Competencies 2, 4, and 6

Results of the three univariate analyses indicate none of the competencies are statistically significant. Please refer to Table 37 for the statistical values of each analysis. Three of the nine univariate analyses were statistically significant, but only Modelling Professional Commitment to Professional Learning - Competency 2 has a noticeable effect size demonstrating impact. Results of the four univariate analyses for Competencies, 1,3, 5 and 7 are not statistically significant, with trivial effect sizes. Therefore, no further analyses were conducted.

Table 37

Univariate Results of Professional Learning Competencies 2, 4, and 6

| | Type III Sum of Squares | Mean Square | F- Value | Significance | Partial Eta Squared |
|--|----------------------------|----------------|-------------|--------------|------------------------|
| Competency 2: Modeling Commitment to Professional Learning | 2.15 | 0.72 | 1.19 | 0.319 | 0.034 |
| Competency 4: Leading Learning | 0.84 | 0.28 | 0.52 | 0.668 | 0.015 |
| Competency 6: School Authority Operations and Resources | 0.48 | 0.16 | 0.24 | 0.869 | 0.007 |

Summary of Superintendent Survey Results

This section of the report summarizes the results of the superintendent leader survey related to implementation advancement, professional learning needs, and participation in various types of professional learning activities.

1. In terms of implementation advancement, Alberta School superintendents report having made gains in all seven competency areas in Year 4.
2. Superintendents report that competencies 2, 3, 4, 6, and 7 are now moving toward full implementation in everyday practice. It is encouraging to see this growth in the implementation of the practice standard. As competency 1 is very close to 4 (3.98) it could also be considered as approaching embedded for practical purposes.
3. Unlike the “implementation dip” that was evident in teachers’ and school principals’ enactment of their two professional practice standards in multiple dimensions, central office officials reported no changes in the implementation of their own policy standard over the past four years. Further study of this difference across the Alberta school system is warranted.
4. Superintendents’ expressions about professional learning needs generally mirror those for teachers and school and system level leaders. The results suggest that superintendents, like teachers and school leaders, are accessing various forms of professional learning, and increasingly pursuing online forums while also attending in person forms of professional learning.

5. Means scores indicate that Alberta Superintendents recognize they are not sufficiently engaging FNMI parents, elders and community leaders in local policy and planning, and that they need further professional development in this regard (see Competency 1 – Indicator 2, and Competency 5 – Indicator 2 in Table 29).

Conclusions From the Year 4 2022-23 Provincial Surveys

Online surveys undertaken in 40 Alberta school authorities fall of 2022, provide a reasonably accurate and reliable picture of teacher, leader and—perhaps-- superintendent perceptions of implementation processes for Alberta’s three professional practice standards at the onset of the implementation process. These results are provided to support ongoing educator efforts to assess, deepen, and extend implementation of the TQS, the LQS, and the SLQS such that the application of professional judgement, reading of context, and application of teaching and leadership competencies are more likely to lead to optimum learning for *all* students.

These survey results provide a broad-brush picture of year four of the implementation of the professional standards across Alberta. We may importantly note that in year four, teachers, leaders, and superintendents have all reported making a year-over-year gain in implementation advancement in many competency areas of their respective Professional Practice Standard. Some competencies are still at the enactment stage— where teachers, school leaders, and superintendents are still adapting in their practice to novel problems— they reported much flexibility. Other competencies are now at the embedding stage, indicating that the educators are using evidence to confirm that the competencies are now part of common everyday practice. The standards and their implementation do not appear to be rigidifying practice since interquartile ranges and standard deviations remain professionally healthy for fostering discussion and multiple perspectives.

At the same time, teachers and leaders must continue to engage the wider community. This is particularly evidenced in TQS - Competency 1, Indicators 2, 4, and 5 and Competency 5; LQS – Competency 1, Indicator 3, Competency 5, Competency 7, Indicator 3, Competency 9, Indicators 1,3, and 5; and SLQS Competency 1, Indicator 2 and Competency 5, Indicator 5. Survey results indicate that those competencies in leading those within the system are stronger than for leading those beyond the system. That distinction has become especially important during the public health crisis. Continuing to engage in professional learning about successfully interacting with neo-immigrant parents, Indigenous leaders, and other community stakeholders are warranted.

Concurrently, there are important indications that professional learning and leadership development forms and formats have shifted markedly over the past three years. More technological delivery of customized courses, more collegial approaches in virtual learning space, and greater demand for both credentialed and non-credentialed learning will be necessary. What that means for changing educator behaviour and enacting standards to support “optimal” learning remains unclear.

Attention must be drawn to a troubling trend in both the teacher and leader data. While only teachers report the impact of professional learning on their professional practice, both teachers and leaders report participation in a network formed specifically for the professional learning. The teacher results indicate that teachers are accessing various forms of professional learning within their school; however, only half the teachers indicate that the school based professional learning is having a positive impact on their practice. Leaders report a decline in a network formed specifically for the purposes of professional learning over the four years. This leads us to conclude that one of the essential conditions required to realize collective efficacy is not being met. Collective efficacy has been shown to have significant impact on improvement in student learning (Donohoo et al., 2018).

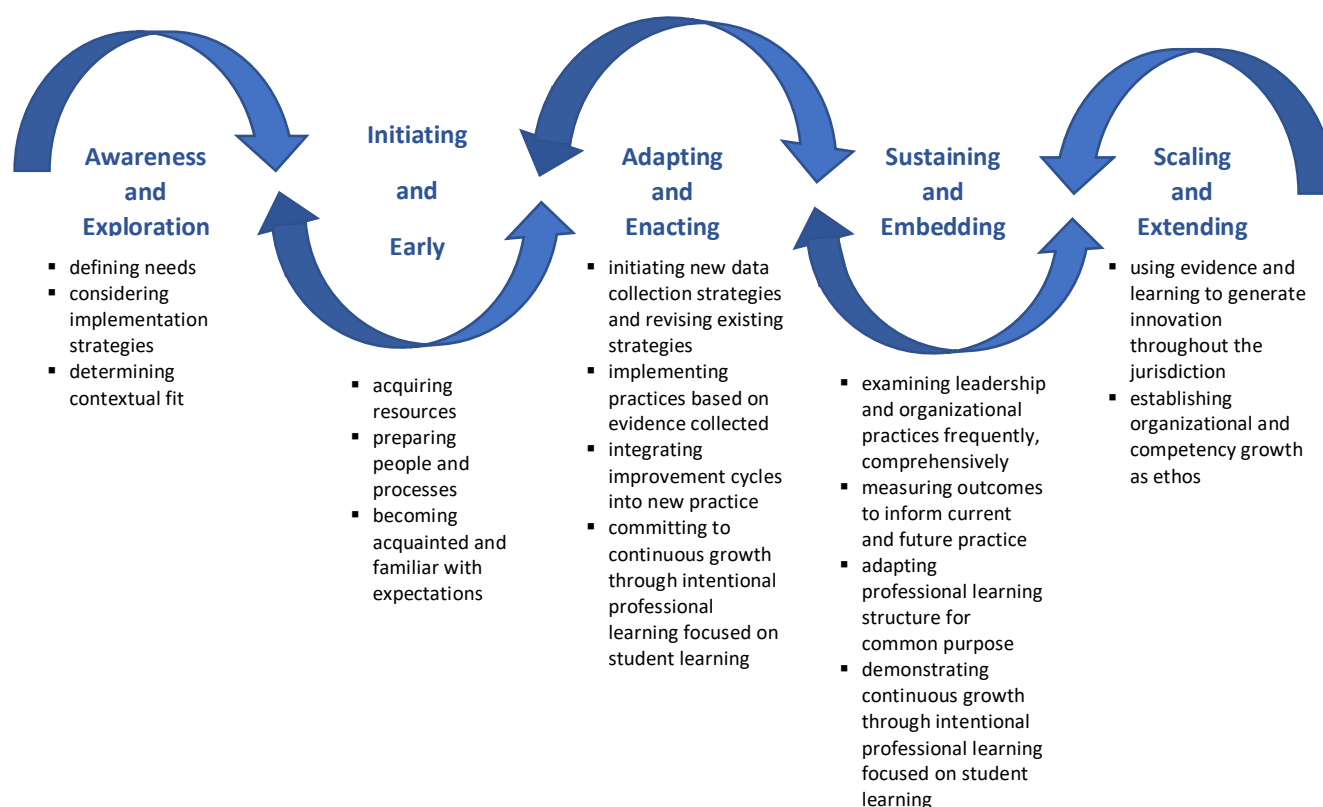
Implementation drivers are of three types. Competency drivers develop the competence and confidence of practitioners by attending to staff selection, training, coaching, and performance assessment (fidelity). Organization drivers create a more hospitable administrative, funding, policy, and procedures to ensure that the competency drivers are accessible and effective as well as to ensure continuous quality monitoring and improvement with attention to student outcomes. Leadership drivers discriminate adaptive challenges from technical challenges to implementation. Appropriate leadership strategies and expertise must continue be applied to establish, repurpose, adjust, and monitor the competency drivers and the organization drivers throughout the stages of implementation (Bertram et al., 2015).

Closing Remarks

Given the Year 4 survey results from TQS, LQS, and SLQS it appears that provincially the educators have continued to adapt and enact in some competency areas and sustain and embed in other competency areas, albeit with shifting levels of vigour over the past four years. Given improvements in all competency areas in all three Professional Practice Standards, we can confidently conclude Alberta teachers, leaders, and superintendent leaders are moving in fluid and diverse ways towards a sustainable professional practice guided by the professional practice standards.

Figure 21

Implementation Advancement of Professional Practice Standards in Alberta



The following compelling questions are offered to inform future directions:

- How might school authorities go about attending to the connection between practice (teachers, leaders, and superintendent leaders) and student outcomes to determine the impact of teaching and leading practices on student learning?
- How might school authorities develop a more intentional focus on collecting, interpreting, and understanding evidence (including evidence from students) in leading and teaching to continue to make improvements and impact student outcomes to ensure optimum learning for all students?
- How might teachers, leaders, and superintendent leaders go about creating the types of professional learning that build collective efficacy on behalf of improved student learning outcomes?
- If implementation is the translation of policy words/prose on a page into action/changes in behaviour, what is an implementation 'dip'?

References

- Ainley, J. & Carstens, R. (2018). *Teaching and learning International survey (TALIS) 2018 conceptual framework*. Organization of Economic Cooperation and Development (OECD).
- Alberta Education (2019a). *Teaching quality standard*. Alberta Government.
- Alberta Education (2019b). *Leadership quality standard*. Alberta Government.
- Alberta Education (2019c). *Superintendent leadership quality standard*. Alberta Government.
- Bertram, R. M., Blase, K. A., & Fixsen, D. L. (2015). Improving programs and outcomes: Implementation frameworks and organization change. *Research on Social Work Practice, 25*(4), 477-487.
- Brandon, J., Hanna, P., & Negropontes, D. (2015). *Superintendents who lead learning*. College of Alberta School Superintendents.
- Brinkman, S., & Kvale, S. (2015). *Interviews: Learning the craft of qualitative research interviewing*. Sage.
- Carr-Stewart, S. (Ed.). (2019). *Knowing the past, Facing the future: Indigenous education in Canada*. Purich Books.
- Cheng, Y. C. (2009). Educational reforms in Hong Kong in the last decade: Reform syndrome and new developments. *International Journal of Educational Management, 23*(1), 505-521.
- Chu, M-W., Brown, B., & Friesen, S. (2020). Psychometric properties of the design-based professional learning for teachers survey. *Professional development in Education*. <https://doi.org/10.1080/19415257.2019.1709219>
- Cochran-Smith, M. & Lytle, S. (1999). Relationships of knowledge and practice: Teacher learning in communities. *Review of Research in Education, 24*, 249-305. <https://doi.org/10.2307/1167272>
- Cresswell, J. & Plano Clark, V. (2017). *Designing and conducting mixed methods research*. SAGE.
- Creswell, J. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson Education, Inc.
- Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives, 8*(1), pp. 1-44, <http://dx.doi.org/10.14507/epaa.v8n1.2000>.
- David, J. (2008/2009). What research says about collaborative inquiry. *Educational Leadership, 66*(4), 87-88.
- Derrington, M. L. & Anderson, L. S. (2020). Expanding the role of teacher leaders: Professional learning for policy advocacy. *Education Policy Analysis Archives, 28*(68). <https://doi.org/10.14507/epaa.28.4850>
- Donohoo, J., Hattie, J., Ells, R. (2018). The power of collective efficacy. *Educational Leadership, 75*(6), 40-44.
- Donohoo, J. & Velasco, M. (2016). *The transformative power of collaborative inquiry: Realizing change in schools and classrooms*. Corwin.

- Eells, R. (2011). *Meta-analysis of the relationship between collective teacher efficacy and student achievement*. [Doctoral dissertation, Loyola University of Chicago]. Digital Archive. https://ecommons.luc.edu/luc_diss/133
- Fixsen, D., Blase, K., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children*, 79(2), 213-230.
- Fullan, M. (2000). The return of large-scale reform. *Journal of Educational Change*, 1(1), 5–28.
- Fullan, M. (2007). *The new meaning of educational change (4th ed.)*. Teachers College Press.
- Garet, M., Porter, A., Desimone, L., Birman, B., & Yoon, K-S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915-945. <https://doi.org/10.3102/00028312038004915>
- Guskey, T. R. (2000). *Evaluating professional development*. Corwin Press.
- Hallinger, P. (2018). Bringing context out of the shadows of leadership. *Educational Management Administration & Leadership*, 46(1), 5-24. <https://doi.org/10.1177/1741143216670652>
- Hallinger, P. (2011). Leadership for learning: Lessons from 40 years. *Journal of Educational Administration*, 49(2), 125-142.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Hattie, J. (2023). *Visible learning: The sequel*. Routledge.
- Ibarra, H. (2016). *Act like a leader, think like a leader*. Harvard Business Review Press.
- Jensen, B., Sonnemann, J., Roberts-Hull, K., & Hunter, A. (2016). *Beyond PD: Teacher professional learning in high-performing systems*. National Center on Education and the Economy. <http://ncee.org/wp-content/uploads/2015/08/BeyondPDDec2016.pdf>.
- Kirton, M. (2003). *Adaption-innovation in the context of diversity and change*. Routledge.
- Leisering, L. & Walker, R. (Eds.). (1998). *The dynamics of modern society: Poverty, policy, and welfare*. Polity Press.
- Leithwood, K. (2008). *Evidence-based characteristics of high performing school systems*. Paper presented at the Moving and Improving Symposium, College of Alberta School Superintendents.
- Leithwood, K. (2010). *Turning around underperforming school systems: Guidelines for system leaders*. Paper prepared for the College of Alberta School Superintendents.
- Leithwood, K. (2011). *System effectiveness framework*. Paper presented at the Annual Pre-Conference of the College of Alberta School Superintendents. College of Alberta School Superintendents.
- Leithwood, K., Louis, K.S., Anderson, S., & Wahlstrom, K. (2004). *Review of Research: How Leadership Influences Student Learning*. The Wallace Foundation. Retrieved from <https://www.wallacefoundation.org/knowledge-center/Documents/How-Leadership-Influences-Student-Learning.pdf>

- Leithwood, K., Sun, J., & McCullough, C., (2019). How school systems influence student achievement. *Journal of Educational Administration*, 57(5), 519-539. <https://doi.org/10.1108/JEA-09-2018-0175>
- Lieberman, A. & Miller, L. (2004). Teacher leadership. Jossey-Bass. McLaughlin, M. & Mitra, D. (2001). Theory-based change and change-based theory: Going deeper, going broader. *Journal of Educational Change*, 2(4), 301-323.
- Louis, K.S., Leithwood, K. Anderson, S. & Wahlstrom, K. (2010b). *Key findings: Learning from leadership: Investigating the links to improved student learning*. The Wallace Foundation.
- Marzano, R. & Waters, T. (2006). *School system leadership that works: The effect of superintendent leadership on student achievement*. A working paper for McRel Publishing.
- Marzano, R. & Waters, T. (2009). *System leadership that works: Striking the right balance*. Solution Tree Press / McRel Publishing.
- McLaughlin, M. & Mitra, D. (2001). Theory-based change and change-based theory: Going deeper, going broader. *Journal of Educational Change*, 2(4), 301-323. <https://doi.org/10.1023/A:1014616908334>
- McLaughlin, M. & Talbert, J. (1993). *Contexts that matter for teaching and learning: Strategic opportunities for meeting the nation's educational goals*. Center for Research on the Context of Secondary School Teaching.
- Merriam, S. & Tisdell, E. (2016). *Qualitative research: A guide to design and implementation*. Jossey-Bass.
- Mitchell, H. (2009). Introduction to the Special Issue on Indigenous Science Education From Place: Best Practices on Turtle Island/Introduction au Numéro spécial sur l'enseignement des sciences en milieu autochtone et sens du lieu: Pratiques d'excellence à Turtle Island, *Canadian Journal of Science, Mathematics and Technology Education*, 9(3), 137-140, DOI: [10.1080/14926150903129018](https://doi.org/10.1080/14926150903129018)
- Moldoveanu, M., & Narayandas, D. (2019). The future of leadership development. *Harvard Business Review*, 97(2), 40-48.
- Mombourquette, C. & Sproule, L. (2019). What is quality leadership? In B. Stelmach & P. Adams (Eds.) *A literature synthesis: Optimum learning for all students*. (pp. 147-175). <https://prism.ucalgary.ca/handle/1880/110729>
- Neale, B. & Flowerdew, J. (2003). Time, texture and childhood: The contours of longitudinal qualitative research. *International Journal of Social Research Methodology*, 6(3), 189-199. doi: [10.1080/1364557032000091798](https://doi.org/10.1080/1364557032000091798)
- Organization of Economic Cooperation and Development (OECD) (2018). *Teacher Questionnaire*. Organization of Economic Cooperation and Development.

- Richardson, V. & Anders, P. L. (1994). A theory of change. In V. Richardson (Ed.), *Teacher change and the staff development process* Volume number (pp. 199-216). Teachers College Press
- Robinson, V. (2011). *Student-centered leadership*. Jossey-Bass.
- Rowe, K. (2003). The importance of teacher quality as a key determinant of students' experiences and outcomes of schooling, in M. Meiers (Ed.), *Building teacher Quality: ACER Research Conference 2003: Proceedings, Melbourne, 19-21 October 2003, Australian Council for Educational Research*. https://research.acer.edu.au/cgi/viewcontent.cgi?article=1001&context=research_conference_2003.
- Schnellert, L. & Butler, D. (2014). *Collaborative inquiry: Empowering teachers in their professional development*. Education Canada. Volume number <https://www.edcan.ca/articles/collaborative-inquiry/>
- Sims, B., & Melcher, B. (2017). Active implementation frameworks: Their importance to implementing and sustaining effective mental health programs in rural schools. In K. D. Michael and J. P. Jameson (Eds.), *Handbook of rural school mental health* (pp. 339 -361). Springer International.
- Stake, R. (2006). *Multiple case study analysis*. The Guilford Press.
- Sterenbergh, G. (2013). Considering indigenous knowledges and mathematics curriculum. *Canadian Journal of Science, Mathematics and Technology Education*, 13(1), 18-32.
- Strehlenert, H. & Richter-Sundberg, L. (2015). Evidence-informed policy formulation and implementation: A comparative case study of two national policies for improving health and social care in Sweden. *Implementation Science*, 10(169), <https://doi.org/10.1186/s13012-015-0359-1>
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.
- Thomas, G., Wineburg, S., Grossman, P., Myhre, O., & Woolworth, S. (1998). In the company of teachers: An interim report on the development of a community of teacher learners. *Teaching and Teacher Education*, 14(1), 21-32. [https://doi.org/10.1016/S0742-051X\(97\)00058-9](https://doi.org/10.1016/S0742-051X(97)00058-9)
- Timperley, H., Ell, F., Le Fevre, D., Twyford, K. (2020). *Leading professional learning*. ACER Press
- Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development*. New Zealand Ministry of Education.
- Venn, S., Burningham, K., Christie, I., & Jackson, T. (2014). Exploring lifestyle changes in transition: A longitudinal mixed-methods approach. *SAGE Research Methods. Volume/number Cases*. doi:10.4135/978144627305013512763
- Waternaux, C. M. (1984). Principal components in the nonnormal case: The test of equality of Q roots. *Journal of Multivariate Analysis*, 14, 323-335.
- Waternaux, C.M. (1976). Asymptotic distribution of the sample roots for a nonnormal population. *Biometrika*, 63(3), 639-645.
- Wenglinsky, H. (2002). How schools matter: The link between teacher classroom practices and student academic achievement. *Education Policy Analysis Archives*, 10(12), 1-30, <http://dx.doi.org/10.14507/epaa.v10n12.2002>.

Appendix A: 2022-23 Provincial Survey: Participating School Authorities

| Mixed Methods Case Studies | Type |
|--|-------------|
| 1. Almadina School Society | Charter |
| 2. Calgary Catholic School District | Metro |
| 3. Edmonton Public School Board | Metro |
| 4. Golden Hills School Division | Rural |
| 5. Grande Prairie Public School District | Urban |
| 6. Greater St. Albert Catholic School Division | Rurban |
| 7. Northland School Division | Rural |
| 8. Palliser School Division | Rural |
| 9. Red Deer Catholic Regional Schools | Urban |
| 10. Rundle College Society | Independent |
| Additional Participating Divisions | Type |
| 11. Battle River School Division | Rural |
| 12. Black Gold School Division | Rural |
| 13. Calgary Board of Education | Metro |
| 14. Christ the Redeemer Catholic Schools | Rural |
| 15. Foothills School Division | Rural |
| 16. Fort McMurray Catholic School Division | Rural |
| 17. Fort McMurray School Division | Rural |
| 18. Grande Prairie Catholic Schools | Urban |
| 19. Grande Yellowhead Public School Division | Rural |
| 20. Holy Spirit School Division | Urban |
| 21. Horizon School Division | Rurban |
| 22. Lethbridge School Division | Urban |
| 23. Livingstone Range School Division | Rural |
| 24. Northern Gateway School Division | Rural |
| 25. Parkland School Division | Rural |

| | |
|--|--------|
| 26. Pembina Hills School Division | Rural |
| 27. Rocky View Schools | Rurban |
| 28. St. Albert Public Schools | Rurban |
| 29. St. Thomas Aquinas Roman Catholic Separate School Division | Rural |
| 30. AISCA | |

Appendix B: MANOVA Analysis and Assumptions

MANOVA analysis does not work with mean scores (as one would with a univariate analysis), but rather with vectors of means. Practically speaking, rather than dealing with averages per individual group, we are looking at the directionality of averages over multiple groups.

For the TQS survey, there are three basic assumptions for multivariate analysis of variance (MANOVA): independence, normality, and homogeneity of variance (or homoscedasticity). The independence of the sample was assumed to be satisfied because the links to the surveys were e-mailed to teachers, and the researchers assumed each teacher completed their survey independently. Among the three assumptions, the normality assumption can be easily violated. However, large sample sizes of 100+ have been found to render such violation less problematic for MANOVA (see Tabachnik & Fidell, 2007; Waternaux, 1976, 1984). The assumption of homoscedasticity can also be violated. However, MANOVA is robust to slight heteroskedasticity (departure from homoscedasticity). We will use the Shapiro-Wilk test and Levene's test to examine normality and homoscedasticity respectively. We will focus on the three grouping cases with teacher's survey results.

1. Grouping by grade levels

| Comp\Grade | P-values of Shapiro-Wilk test | | | | | |
|------------|-------------------------------|--------|--------|-------|--------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | <0.001 | 0.136 | 0.032 | 0.103 | 0.224 | 0.247 |
| 2 | <0.001 | 0.031 | <0.001 | 0.286 | 0.187 | 0.105 |
| 3 | <0.001 | <0.001 | <0.001 | 0.118 | 0.008 | 0.019 |
| 4 | <0.001 | <0.001 | <0.001 | 0.133 | 0.001 | 0.341 |
| 5 | <0.001 | 0.011 | <0.001 | 0.031 | 0.005 | 0.220 |
| 6 | <0.001 | <0.001 | <0.001 | 0.017 | <0.001 | 0.038 |

The Shapiro-Wilk test results show that the normality assumption does not hold for about half of these groups. However, as stated at the beginning of this section, we can still move on with MANOVA since it is less problematic when the sample size is large. Next, we do Levene's test.

| | Levene's test | |
|--------------|---------------|---------|
| | F-value | P-value |
| Competency 1 | 2.133 | 0.060 |
| Competency 2 | 2.226 | 0.050 |
| Competency 3 | 0.865 | 0.504 |
| Competency 4 | 1.611 | 0.155 |
| Competency 5 | 2.127 | 0.060 |

| | | |
|--------------|-------|-------|
| Competency 6 | 0.781 | 0.564 |
|--------------|-------|-------|

The p values for Levene's tests are all greater than 0.05, which indicate that the assumption of homoscedasticity is satisfied. In view of this, we can proceed with the MANOVA analyses.

2. Grouping by teaching subjects

| Subject\Comp | P-values for Shapiro-Wilk test | | | | | |
|--------------|--------------------------------|--------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| 2 | 0.085 | 0.316 | 0.003 | 0.004 | 0.045 | 0.009 |
| 3 | 0.478 | 0.054 | 0.109 | 0.047 | 0.075 | <0.001 |
| 4 | 0.484 | 0.131 | 0.028 | 0.120 | 0.017 | 0.001 |
| 5 | 0.832 | 0.315 | 0.172 | 0.072 | 0.192 | 0.004 |
| 6 | 0.693 | 0.437 | 0.225 | 0.281 | 0.812 | 0.194 |
| 7 | 0.973 | 0.109 | 0.183 | 0.194 | 0.680 | 0.005 |
| 8 | 0.138 | 0.051 | 0.027 | 0.010 | 0.103 | <0.001 |
| 9 | 0.077 | 0.561 | 0.056 | 0.097 | 0.634 | 0.013 |
| 10 | 0.348 | 0.747 | 0.217 | 0.042 | 0.548 | 0.051 |
| 11 | 0.272 | 0.005 | 0.002 | 0.004 | <0.001 | <0.001 |

While the p values for Shapiro-Wilk test are significant for some of these groups, for most groups, we cannot reject the null hypothesis. We next do Levene's test.

| | Levene's test | |
|--------------|---------------|---------|
| | F-value | P-value |
| Competency 1 | 1.281 | 0.237 |
| Competency 2 | 1.104 | 0.357 |
| Competency 3 | 0.896 | 0.537 |
| Competency 4 | 0.689 | 0.735 |
| Competency 5 | 1.100 | 0.359 |
| Competency 6 | 1.033 | 0.414 |

Again, none of the Levene's tests are significant, which indicates that the assumption of homoscedasticity is satisfied for this grouping case. In view of this, we can proceed with the MANOVA analyses.

3. Grouping by teaching experiences

| | P-values of Shapiro-Wilk test | | | | | | |
|-----------------|-------------------------------|-------|--------|--------|--------|--------|--------|
| Comp\Experience | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | 0.837 | 0.001 | 0.499 | 0.043 | 0.009 | 0.065 | 0.017 |
| 2 | 0.750 | 0.376 | 0.232 | 0.013 | 0.034 | 0.007 | <0.001 |
| 3 | 0.820 | 0.068 | 0.046 | <0.001 | <0.001 | 0.001 | <0.001 |
| 4 | 0.711 | 0.072 | 0.014 | <0.001 | <0.001 | 0.008 | <0.001 |
| 5 | 0.111 | 0.228 | 0.077 | 0.002 | <0.001 | 0.001 | <0.001 |
| 6 | 0.045 | 0.414 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

After checking these p values, we find that the normality assumption does not hold for more than half of these groups. We do Levene's test next.

| | Levene's test | |
|--------------|---------------|---------|
| | F-value | P-value |
| Competency 1 | 1.581 | 0.150 |
| Competency 2 | 0.535 | 0.782 |
| Competency 3 | 2.253 | 0.037 |
| Competency 4 | 2.293 | 0.034 |
| Competency 5 | 0.352 | 0.909 |
| Competency 6 | 1.663 | 0.127 |

While most p-values are not significant, the p-values for Competencies 3 and 4 are smaller than 0.05, indicating slightly departure from the assumption of homoscedasticity. Again, since MANOVA is robust to the slight departure of such assumption, we can proceed with the MANOVA analyse