

Optimum Learning for All Students
Implementing Alberta's 2018 Professional Practice Standards
2021-2022 Year 3 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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Table of Contents

LIST OF TABLES	6
LIST OF FIGURES.....	7
2021 – 2022 YEAR 3 PROVINCIAL SURVEY REPORT	9
BACKGROUND	9
A 4-YEAR LONGITUDINAL MIXED METHODS RESEARCH STUDY.....	10
<i>School Authority Case Studies.....</i>	<i>10</i>
<i>Online Surveys.....</i>	<i>10</i>
<i>Additional Sources of Evidence</i>	<i>10</i>
METHOD.....	10
SURVEY OVERVIEW.....	10
SAMPLE.....	10
SURVEY SCALES.....	11
<i>Implementation Advancement Scale</i>	<i>11</i>
<i>Professional Learning Need Scale</i>	<i>12</i>
<i>Forms of Professional Learning Accessed Scale</i>	<i>12</i>
<i>Scale Reliability</i>	<i>12</i>
ORGANIZATION OF THE SURVEY RESULTS	14
TEACHER SURVEY RESULTS AND DISCUSSION	15
IMPLEMENTATION ADVANCEMENT RELATED TO EACH TQS COMPETENCY	15
<i>Box and Whisker Plot</i>	<i>18</i>
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	<i>19</i>
PROFESSIONAL LEARNING LEVEL OF NEED RELATED TO SIX TQS COMPETENCIES	20
<i>Box and Whisker Plot</i>	<i>23</i>
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	<i>24</i>
PARTICIPATION IN AND IMPACT OF VARIOUS TYPES OF PROFESSIONAL LEARNING OPPORTUNITIES	25
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	<i>28</i>
DEMOGRAPHIC GROUP DIFFERENCES.....	28
MEANS OF TEACHER SURVEY RESULTS ANALYSED BY GRADE LEVEL TAUGHT	29
<i>Differences Among Groups – Competency 1: Fostering Effective Relationships.....</i>	<i>30</i>
<i>Differences Among Groups – Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit.....</i>	<i>31</i>
<i>Differences Among Groups - Competency 6: Adhering to Legal Frameworks and Policies.....</i>	<i>31</i>
MEANS OF TEACHER SURVEY RESULTS ANALYSED BY TEACHERS’ SUBJECT SPECIALIZATION	32
<i>Differences among Groups on Implementation Advancement – Subject Specialization.....</i>	<i>33</i>
MEANS OF TEACHER SURVEY RESULTS ANALYSED BY YEARS OF EXPERIENCE TEACHING IN ALBERTA.....	35
MEANS OF TEACHER SURVEY RESULTS COMPARED BY YEARS OF TEACHING EXPERIENCE IN ALBERTA	35
<i>Differences among Groups on Professional Learning Needs Competency 5: Applying Foundational Knowledge for First Nations, Métis and Inuit – Years of Teaching Experience in Alberta</i>	<i>36</i>
INFERENCE ANALYSES OF IMPLEMENTATION ADVANCEMENT AND PROFESSIONAL LEARNING NEEDS: TEACHERS	37
SUMMARY OF TEACHER SURVEY RESULTS	44
LEADER SURVEY RESULTS AND DISCUSSION	47
IMPLEMENTATION ADVANCEMENT RELATED TO EACH LQS COMPETENCY	47
<i>Box and Whisker Plot</i>	<i>52</i>

<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	53
PROFESSIONAL LEARNING LEVEL OF NEED RELATED TO NINE LQS COMPETENCIES	54
<i>Box and Whisker Plot</i>	58
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	59
LEADER PARTICIPATION IN PROFESSIONAL LEARNING OPPORTUNITIES	60
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	61
INFERENCEAL ANALYSES OF IMPLEMENTATION ADVANCEMENT AND PROFESSIONAL LEARNING NEEDS: LEADERS	62
ANNUAL COMPARISON OF PROFESSIONAL LEARNING – LEADERS	72
ANNUAL COMPARISON OF PROFESSIONAL LEARNING COMPETENCIES 2, 3, 4, 6, 7, AND 8	72
SUMMARY OF LEADER SURVEY RESULTS	74
SUPERINTENDENT SURVEY RESULTS AND DISCUSSION	77
IMPLEMENTATION ADVANCEMENT RELATED TO EACH SLQS COMPETENCY	77
<i>Box and Whisker Plot</i>	81
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	82
PROFESSIONAL LEARNING LEVEL OF NEED RELATED TO SEVEN SLQS COMPETENCIES	82
<i>Box and Whisker Plot</i>	86
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	86
SUPERINTENDENT PARTICIPATION IN PROFESSIONAL LEARNING OPPORTUNITIES.....	87
<i>Comparison of Year 1, Year 2 and Year 3 Results</i>	88
INFERENCEAL ANALYSES OF IMPLEMENTATION ADVANCEMENT AND PROFESSIONAL LEARNING NEEDS: SUPERINTENDENTS	89
SUMMARY OF SUPERINTENDENT SURVEY RESULTS.....	92
CONCLUSIONS FROM THE 2019-21 PROVINCIAL SURVEYS	94
REFERENCES	96
APPENDIX A: 2021-22 PROVINCIAL SURVEY: PARTICIPATING SCHOOL AUTHORITIES	100
APPENDIX B: 2021-22 PROVINCIAL SURVEY: PARTICIPATING SCHOOL AUTHORITIES WITHIN THE AISCA ORGANIZATION	101
APPENDIX C: MANOVA ANALYSIS AND ASSUMPTIONS	102

List of Tables

TABLE 1 SCALE USED TO DESCRIBE IMPLEMENTATION ADVANCEMENT	11
TABLE 2 SCALE USED TO DESCRIBE PROFESSIONAL LEARNING NEED.....	12
TABLE 3 CRONBACH ALPHA COEFFICIENTS OF THREE SURVEYS.....	12
TABLE 4 DESCRIPTIVE AND RELIABILITY STATISTICS FOR IMPLEMENTATION ADVANCEMENT RELATED TO SIX TQS COMPETENCIES	15
TABLE 5 OVERVIEW OF SIX COMPETENCIES RELATED TO IMPLEMENTATION ADVANCEMENT FOR TQS COMPETENCIES.....	18
TABLE 6 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS OF IMPLEMENTATION ADVANCEMENT.....	19
TABLE 7 DESCRIPTIVE AND RELIABILITY FOR PROFESSIONAL LEARNING NEED RELATED TO SIX TQS COMPETENCIES	21
TABLE 8 COMPARISON BETWEEN YEAR ONE AND YEAR TWO RESULTS OF NEED FOR PROFESSIONAL LEARNING.....	24
TABLE 9 FREQUENCIES OF VARIOUS TYPES OF PROFESSIONAL LEARNING ACCESSED AND THE IMPACT ON TEACHING PRACTICE	26
TABLE 10 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS OF FORMS OF PROFESSIONAL LEARNING ACCESSED	28
TABLE 11 MEAN AND STANDARD DEVIATION FOR IMPLEMENTATION ADVANCEMENT AND PROFESSIONAL LEARNING LEVEL OF NEEDS ACROSS THREE YEARS (2018-2022)	37
TABLE 12 UNIVARIATE RESULTS OF IMPLEMENTATION ADVANCEMENT COMPETENCIES	39
TABLE 13 UNIVARIATE RESULTS OF PROFESSIONAL LEARNING COMPETENCIES 1, 3, 4, AND 5	42
TABLE 14 AVERAGES AND VARIATION FOR THE IMPLEMENTATION ADVANCEMENT RELATED TO NINE LQS COMPETENCIES	47
TABLE 15 OVERVIEW OF NINE COMPETENCIES RELATED TO IMPLEMENTATION ADVANCEMENT FOR LQS COMPETENCIES	51
TABLE 16 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS OF IMPLEMENTATION ADVANCEMENT.....	54
TABLE 17 AVERAGES AND VARIATION FOR PROFESSIONAL LEARNING RELATED TO NINE LQS COMPETENCIES	55
TABLE 18 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS FOR PROFESSIONAL LEARNING NEEDS	59
TABLE 19 FREQUENCIES AND RELIABILITY OF VARIOUS TYPES OF PROFESSIONAL LEARNING ACCESSED.....	60
TABLE 20 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS OF FORMS OF PROFESSIONAL LEARNING ACCESSED	62
TABLE 21 AVERAGES AND VARIATION FOR IMPLEMENTATION ADVANCEMENT AND PROFESSIONAL LEARNING LEVEL OF NEEDS ACROSS THREE YEARS (2019-2021)	63
TABLE 22 UNIVARIATE RESULTS OF IMPLEMENTATION ADVANCEMENT COMPETENCIES	64
TABLE 23 UNIVARIATE RESULTS OF PROFESSIONAL LEARNING COMPETENCIES 2, 3, 4, 6, 7, AND 8	72
TABLE 24 UNIVARIATE RESULTS OF PROFESSIONAL LEARNING COMPETENCIES 1, 5, AND 9	74
TABLE 25 AVERAGES AND VARIATION FOR IMPLEMENTATION ADVANCEMENT RELATED TO SEVEN SLQS COMPETENCIES.....	77
TABLE 26 OVERVIEW OF SEVEN COMPETENCIES RELATED TO IMPLEMENTATION FOR SLQS COMPETENCIES	80
TABLE 27 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS OF IMPLEMENTATION ADVANCEMENT.....	82
TABLE 28 AVERAGES AND VARIATION FOR PROFESSIONAL LEARNING RELATED TO SEVEN SLQS COMPETENCIES	83
TABLE 29 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS OF IMPLEMENTATION ADVANCEMENT.....	86
TABLE 30 FREQUENCIES OF VARIOUS TYPES OF PROFESSIONAL LEARNING ACCESSED	87
TABLE 31 COMPARISON BETWEEN YEAR ONE, YEAR TWO AND YEAR THREE RESULTS OF FORMS OF PROFESSIONAL LEARNING ACCESSED	88
TABLE 32.....	89
AVERAGES AND VARIATION FOR IMPLEMENTATION ADVANCEMENT AND PROFESSIONAL LEARNING LEVEL OF NEEDS ACROSS THREE YEARS (2018-2022).....	89
TABLE 33 UNIVARIATE RESULTS OF IMPLEMENTATION ADVANCEMENT COMPETENCIES	91
TABLE 34 UNIVARIATE RESULTS OF PROFESSIONAL LEARNING COMPETENCIES 2, 4, AND 6	92

List of Figures

FIGURE 1 COMPARISON OF MEANS ON THE IMPLEMENTATION ADVANCEMENT RELATED TO SIX TQS COMPETENCIES	17
FIGURE 2 DISTRIBUTION AND VARIANCE IN IMPLEMENTATION ADVANCEMENT RELATED TO TQS COMPETENCIES.....	19
FIGURE 3 MEANS OF PROFESSIONAL LEARNING NEED RELATED TO SIX TQS COMPETENCIES	23
FIGURE 4 DISTRIBUTION AND VARIATION IN PROFESSIONAL LEARNING NEEDS RELATED TO FOUR TQS COMPETENCIES	24
FIGURE 5 FREQUENCY OF TYPES OF PROFESSIONAL LEARNING ACCESSED	27
FIGURE 6 IMPACT OF PROFESSIONAL LEARNING ON TEACHING PRACTICE	27
FIGURE 7 RESULTS FROM TEACHER SURVEY ANALYZED BY GRADE LEVEL TAUGHT DISPLAYED ON AN INTERVAL PLOT.....	29
FIGURE 8 DIFFERENCES AMONG GROUPS - COMPETENCY 1: FOSTERING EFFECTIVE RELATIONSHIPS.....	30
FIGURE 9 DIFFERENCES AMONG GROUPS - COMPETENCY 5: APPLYING FOUNDATIONAL KNOWLEDGE ABOUT FIRST NATIONS, MÉTIS, AND INUIT.....	31
FIGURE 10 DIFFERENCES AMONG GROUPS - COMPETENCY 6: ADHERING TO LEGAL FRAMEWORKS AND POLICIES	32
FIGURE 11 RESULTS OF TEACHER SURVEY ANALYZED BY SUBJECT SPECIALIZATION DISPLAYED ON AN INTERVAL PLOT	33
FIGURE 12 DIFFERENCES AMONG SUBJECT DISCIPLINE GROUPS ON IMPLEMENTATION ADVANCEMENT –SUBJECT SPECIALIZATIONS: COMPETENCY 5: APPLYING FOUNDATIONAL KNOWLEDGE ABOUT FIRST NATIONS, MÉTIS, AND INUIT	35
FIGURE 13 RESULTS OF TEACHER SURVEY ANALYZED BY YEARS OF TEACHING EXPERIENCE DISPLAYED ON AN INTERVAL PLOT	36
FIGURE 14 DIFFERENCES AMONG GROUPS ON PROFESSIONAL LEARNING NEEDS - YEARS OF TEACHING EXPERIENCE IN ALBERTA COMPETENCY 5	37
FIGURE 15 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 4: ESTABLISHING INCLUSIVE ENVIRONMENTS.....	40
FIGURE 16 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 5: APPLYING FOUNDATIONAL KNOWLEDGE ABOUT FIRST NATIONS, MÉTIS, AND INUIT	41
FIGURE 17 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 6: ADHERING TO LEGAL FRAMEWORKS AND POLICIES.....	41
FIGURE 19 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 3: DEMONSTRATING A PROFESSIONAL BODY OF KNOWLEDGE.....	44
FIGURE 20 COMPARISON OF MEANS ON THE IMPLEMENTATION ADVANCEMENT RELATED TO NINE LQS COMPETENCIES.....	51
FIGURE 21 DISTRIBUTION AND VARIANCE IN IMPLEMENTATION ADVANCEMENT RELATED TO LQS COMPETENCIES	53
FIGURE 22 MEANS OF PROFESSIONAL LEARNING NEED RELATED TO NINE LQS COMPETENCIES	58
FIGURE 23 DISTRIBUTION AND VARIANCE IN PROFESSIONAL LEARNING NEEDS RELATED TO NINE LQS COMPETENCIES	59
FIGURE 24 TYPES OF PROFESSIONAL LEARNING ACCESSED	61
FIGURE 25 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 1: FOSTERING EFFECTIVE RELATIONSHIPS.....	66
FIGURE 26 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 2: MODELING COMMITMENT TO PROFESSIONAL LEARNING	66
FIGURE 27 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 3: EMBODYING VISIONARY LEADERSHIP	67
FIGURE 28 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 4: LEADING A LEARNING COMMUNITY.....	68
FIGURE 29 PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 5: SUPPORTING THE APPLICATION OF FOUNDATIONAL KNOWLEDGE ABOUT FIRST NATIONS, MÉTIS, AND INUIT	69
FIGURE 30 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 6: PROVIDING INSTRUCTIONAL LEADERSHIP	69
FIGURE 31 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 7: DEVELOPING LEADERSHIP CAPACITY	70
FIGURE 32 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 8: MANAGING SCHOOL OPERATIONS AND RESOURCES	71

FIGURE 33 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 9: UNDERSTANDING AND RESPONDING TO THE LARGER SOCIETAL CONTEXT.....	71
FIGURE 34 YEAR OVER YEAR PROFILE PLOT USING THE ESTIMATED MARGINAL MEANS OF COMPETENCY 7: DEVELOPING LEADERSHIP CAPACITY	73
FIGURE 35	73
FIGURE 36 COMPARISON OF MEANS ON THE IMPLEMENTATION ADVANCEMENT RELATED TO SEVEN SLQS COMPETENCIES	81
FIGURE 37 DISTRIBUTION AND VARIANCE IN IMPLEMENTATION ADVANCEMENT RELATED TO SLQS COMPETENCIES	82
FIGURE 38 MEANS OF PROFESSIONAL LEARNING NEED RELATED TO SEVEN SLQS COMPETENCIES	85
FIGURE 39 DISTRIBUTION AND VARIANCE IN PROFESSIONAL LEARNING NEEDS RELATED TO SEVEN SLQS COMPETENCIES.....	86
FIGURE 40 TYPES OF PROFESSIONAL LEARNING ACCESSED	88

2021 – 2022 Year 3 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, which 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 from 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 standard 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)

In each standard statement professional practice 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 standard documents are structured in the same manner: 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) and the 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 two 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, three years findings can be seen as trend and can be used to infer directionality.

School Authority Case Studies

Qualitative case study data are being 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 scheduled in the fall of each year provide province wide insights from a large population of educators.

Additional Sources of Evidence

Evidence is being 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 to augment the 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.

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 a number of Independent schools within the Association of Independent Schools and Colleges of Alberta (AISCA). Online survey links were distributed in October and November 2021. Across Alberta, survey data were collected from 787 teachers, 387 leaders, and 27 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.

Cronbach's alpha can also be calculated for each construct or competency; however, as there are a low number of items for each construct or competency, the alpha associated with each tend to be lower. This is one of the limitations of Cronbach's alpha.

Table 3
Cronbach Alpha Coefficients of Three Surveys

Survey	Implementation Advancement Cronbach Alpha (excluding yes/no OECD items)	Number of Items (excluding yes/no OECD items)	Professional Learning Cronbach Alpha (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 SPSS v.26 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 A.

This Year 3 report summarizes the provincial results from a survey of 787 Alberta teachers, 387 leaders, and 27 superintendents in October 2021 in a representative sample of 14 school divisions along with 2¹ independent school authorities.

Interpretation

This year, results are interpreted using an implementation drivers' framework supplied by Bertram, Metz, Fixsen, Blase, and associates (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 introducing 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 29 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 2. 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 third year of implementation of the *Teaching Quality Standard* (Alberta Education, 2018c), *Leadership Quality Standard* (Alberta Education, Confidential 2021-22 Year 3 Survey Report for 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 and selected 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 adopt 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 3: Demonstrating a Professional Body of Knowledge, and
- Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit

This would indicate teachers are in the process of adapting their competencies by using evidence to further refine their practice.

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

- Competency 4: Establishing Inclusive Environments, and
- Competency 6: Adhering to Legal Frameworks and Policies.

These standards are now part of common everyday practice.

Table 4

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

Construct	Mean	Standard Deviation
Competency 1: Fostering Effective Relationships ($\alpha=0.74$)	3.56	0.63
1. I build trusting relationships with parents/guardians.	3.83	0.80
2. I build collaborative relationships with community service professionals.	3.18	1.09
3. I develop relationships built on fairness, respect, and integrity.	4.34	0.61
4. I develop relationships with parents/guardians by providing culturally meaningful opportunities to support student learning.	3.27	0.98
5. I build relationships that promote First Nations, Métis and Inuit understanding.	3.16	0.92
Competency 2: Engaging in Career-Long Learning ($\alpha=0.73$)	3.88	0.58
1. I engage with other teachers to build personal capacity.	4.06	0.77

Construct	Mean	Standard Deviation
2. I use evidence of student learning to engage in critical reflection on my practice.	4.15	0.72
3. I actively seek out feedback to enhance my teaching practice.	3.78	0.90
4. I apply educational research to improve my teaching practice.	3.70	0.94
5. I maintain an awareness of emerging technologies that support teaching and learning.	3.70	0.84
Competency 3: Demonstrating a Professional Body of Knowledge ($\alpha=0.84$)	3.96	0.62
1. I provide a learning environment that responds to the learning needs of every student.	3.94	0.75
2. I apply a current repertoire of effective instruction to meet the learning needs of every student.	4.02	0.74
3. I use comprehensive repertoire of effective instruction to meet the learning needs of every student.	3.92	0.77
4. I use a range of assessments as evidence to report on student progress and achievement.	3.94	0.79
Competency 4: Establishing Inclusive Environments ($\alpha=0.79$)	4.00	0.54
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> .	3.98	0.77
2. I draw upon a wide range of instructional strategies to engage students in meaningful learning activities.	4.04	0.72
3. I communicate high expectations for all students.	4.21	0.66
4. I use a variety of classroom management strategies that promote positive, engaging learning environments.	4.16	0.64
5. I incorporate students' personal and cultural strengths into teaching and learning.	3.59	0.82
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.94$)	3.18	0.86
1. I plan learning opportunities for all students that accurately demonstrate the strength and diversity of First Nations, Metis, and Inuit peoples of Canada.	3.11	0.94
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.	3.25	0.95
3. I use programs of study to provide opportunities for all students to develop an understanding of the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Metis, and Inuit.	3.21	0.94

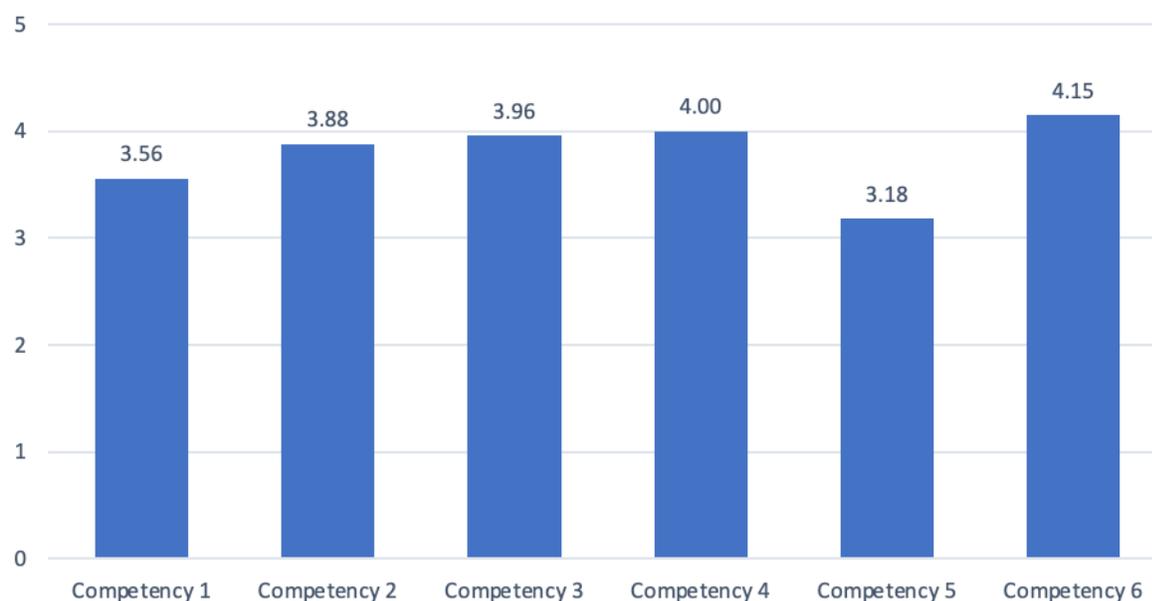
Construct	Mean	Standard Deviation
4. I support the learning experiences of all students by using resources that accurately reflect and demonstrate the strength and diversity of First Nations, Métis and Inuit	3.17	0.92
Competency 6: Adhering to Legal Frameworks and Policies ($\alpha=0.73$)	4.15	0.54
1. I maintain an awareness of, and respond in accordance with, requirements authorized under the <i>Education Act</i> and other relevant legislation.	3.88	0.76
2. I engage in practices consistent with policies and procedures established by the school authority.	4.16	0.64
3. I recognize that my professional practice is bound by a standards code of conduct.	4.40	0.58

Note. *Cronbach alpha values indicate internal consistency for each competency and was calculated using all Alberta teachers' survey responses ($n=787$). 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

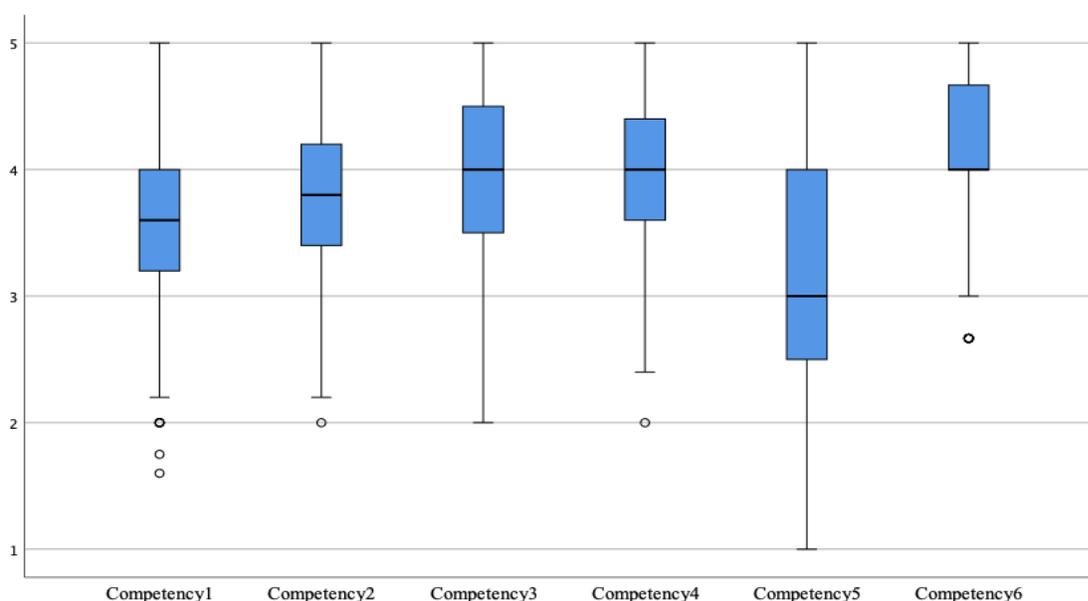
Scale Descriptor	Mean	Competency
Enacting – Individuals are using evidence from their practice to further refine their practices related to the competencies. They are adapting to new ways of working. Practices are evolving that allow individuals/systems to flexibly navigate the ill-structured, novel problem-solving nature of practice in response to the integrated nature of the competencies articulated in the standard.	3.56	Competency 1: Fostering Effective Relationships
	3.88	Competency 2: Engaging in Career—Long Learning
	3.96	Competency 3: Demonstrating a Professional Body of Knowledge
	3.18	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	4.00	Competency 4: Establishing Inclusive Environments
	4.15	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 (the blue box of the boxplot that represents the range between the 25th percentile and the 75th percentile) and median (the line in each box that represents the 50th percentile of the responses) illustrate differences across the six competencies, indicating that teacher responses to the competencies shifted markedly depending on which element in the standards we focused on.

Figure 2

Distribution and Variance in Implementation Advancement Related to TQS Competencies



Comparison of Year 1, Year 2 and Year 3 Results

Table 6 provides a comparison of year one, year two and year three results on implementation advancement of the TQS competencies for participating jurisdictions in Alberta.

Table 6

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

Competency	Year One (n=2300)	Year Two (n=1160)	Year Three (n=787)
Competency 1: Fostering Effective Relationships	3.57	3.55	3.56
Competency 2: Engaging in Career-Long Learning	3.96	3.91	3.88
Competency 3: Demonstrating a Professional Body of Knowledge	3.96	3.96	3.96
Competency 4: Establishing Inclusive Environments	4.21	4.05	4.00
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	2.99	3.20	3.18
Competency 6: Adhering to Legal Frameworks and Policies	4.34	4.17	4.15

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).

In general, 'needs' are different than 'wants'. Needs are requirements for something because it is essential or very important for sustaining the profession. Wants, on the other hand, describe what is desired, but is not essential for subsistence. 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 7 and Figure 3 below. Table 7 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 year one, 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 be still be warranted. Overall means disguise variation within. For example, under Competency 4 for Inclusive Environments, Alberta teachers express little need for professional learning on the *Alberta Human Rights Act* and the *Charter of Rights and Freedoms* (1.97), but a more pronounced need for PL on supporting students' emotional and mental health (2.79). Hence, overall,

- Competency 1: Fostering Effective Relationships, has an overall mean of 2.29 which expresses a "low level of need"
- Competency 2: Engaging in Career-Long Learning, has an overall mean of 2.24 which corresponds to a "low level of need"
- Competency 3: Demonstrating a Professional Body of Knowledge, has an overall mean of 2.35 which corresponds to "low level of need"
- Competency 4: Establishing Inclusive Environments, has an overall mean of 2.34 which expresses a "low level of need"
- Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit, has an overall mean of 2.79 which corresponds to a "low level of need"
- Competency 6: Adhering to Legal Frameworks and Policies, has an overall mean of 2.01 which indicates a "low level of need"

Table 7*Descriptive and Reliability for Professional Learning Need Related to Six TQS Competencies*

Construct	Mean	Standard Deviation
Competency 1: Fostering Effective Relationships ($\alpha=0.84$)	2.29	0.70
1. I require PL about building trusting relationships with parents/guardians.	1.88	0.95
2. I require PL on building working relationships with community service professionals.	2.35	0.86
3. I require PL on developing relationships built on fairness, respect, and integrity.	1.81	0.98
4. I require PL about building relationships through creating culturally meaningful opportunities to support student learning.	2.50	0.87
5. I require PL on building relationships that promote First Nations, Métis and Inuit understanding.	2.90	0.81
Competency 2: Engaging in Career-Long Learning ($\alpha=0.88$)	2.24	0.72
1. I require PL on building teachers' collective professional capacity.	2.19	0.90
2. I require PL on using evidence of student learning to critically reflect on my practice.	2.10	0.91
3. I require PL on seeking feedback about my teaching practice.	2.10	0.85
4. I require PL to keep abreast of educational research to improve my teaching practice.	2.40	0.83
5. I require PL on using emerging technologies to support teaching and learning.	2.39	0.87
Competency 3: Demonstrating a Professional Body of Knowledge ($\alpha=0.92$)	2.35	0.81
1. I require PL on providing a learning environment that responds to the learning needs of every student.	2.40	0.96
2. I require PL on applying current educational research to meet the learning needs of every student.	2.37	0.88
3. I require PL on effective instruction to meet the learning needs of every student.	2.30	0.91
4. I require PL on student assessment practices.	2.30	0.87
Competency 4: Establishing Inclusive Environments ($\alpha=0.87$)	2.34	0.74
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> .	1.98	0.89
2. I require PL on meeting the learning needs of a diverse group of students.	2.48	0.91
3. I require PL on using a range of instructional strategies.	2.15	0.92
4. I need PL on supporting the emotional and mental health needs of students.	2.74	0.95

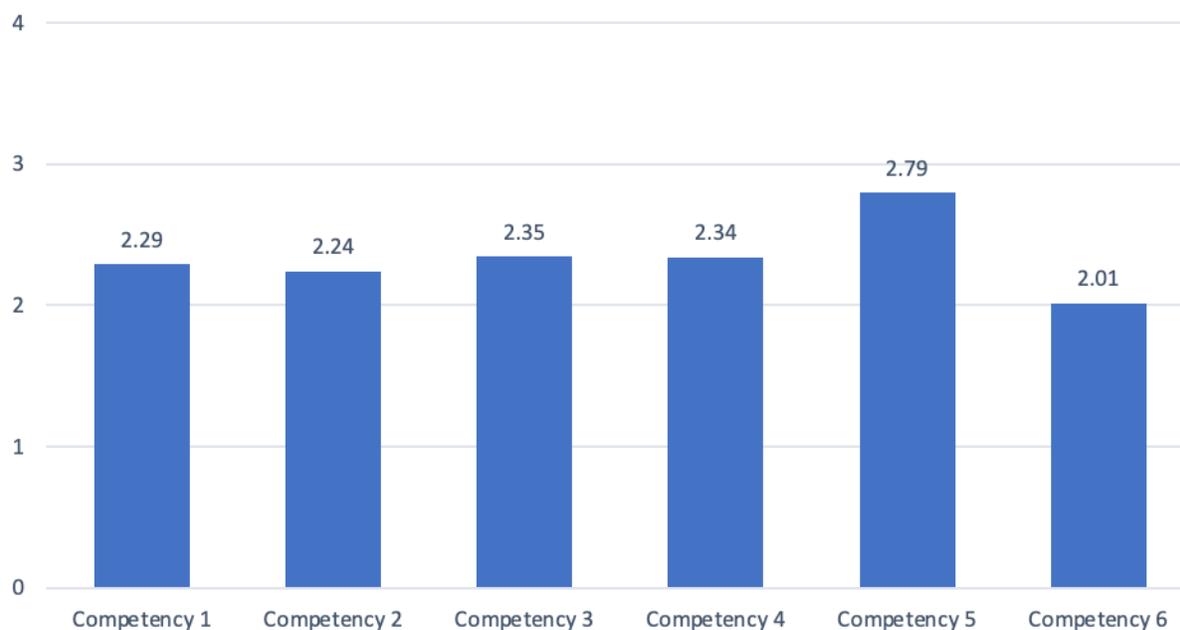
Construct	Mean	Standard Deviation
5. I require PL about incorporating students' personal and cultural strengths into teaching and learning.	2.33	0.85
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.92$)	2.79	0.76
1. I require PL on demonstrating the strength and diversity of First Nations, Metis, and Inuit peoples of Canada.	2.73	0.87
2. I require PL on developing knowledge of the histories, cultures, languages, contributions, perspectives, experiences, and contemporary contexts of First Nations, Metis, and Inuit.	2.93	0.82
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.	2.67	0.86
4. I require PL on resources that reflect and demonstrate the strength and diversity of First Nations, Métis and Inuit.	2.86	0.83
Competency 6: Adhering to Legal Frameworks and Policies ($\alpha=0.88$)	2.01	0.81
1. I require PL on how the <i>Education Act</i> and other relevant legislation impacts my teaching.	2.09	0.88
2. I require PL on policies and procedures established by the school authority.	1.97	0.89
3. I require PL on designing learning that addresses provincial learning outcomes.	1.98	0.91

Note. *Cronbach alpha values indicate internal consistency for each competency and were calculated using the survey responses from all participating Alberta teachers ($n=787$)

The following bar graph (Figure 3) provides a visual overview of the overall means related to the six competencies in the *Teaching Quality Standard*.

Figure 3

Means of Professional Learning Need Related to Six TQS Competencies



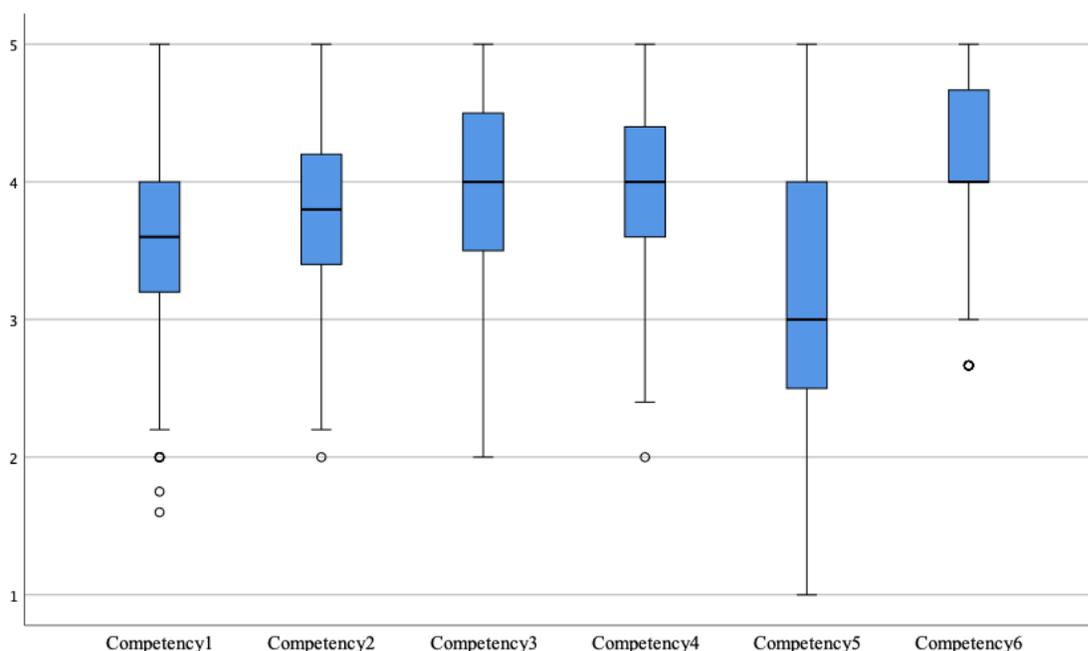
Note. 4-point Likert scale: 1= No need at present; 2= Low level of need; 3= Moderate level of need; 4= High level of need.

Box and Whisker Plot

The following box and whisker plot (Figure 4) 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. There are three outliers, one in Competency 1, one in Competency 2 and one in Competency 6. While there is some skewing in the data, a positive skewing is most evident in Competency 3 and a negative skewing in Competency 5 and 6. That is, more teachers than the average responded favourably about questions asking about needs relating to Professional Knowledge, but more teachers than the average spoke in the negative about needs relating to FNMI perspectives and Legal Frameworks and Policies.

Figure 4

Distribution and Variation in Professional Learning Needs Related to Four TQS Competencies



Comparison of Year 1, Year 2 and Year 3 Results

Table 8 provides a comparison of year one, year two and year three results for professional learning needs of the TQS competencies of participating teachers in Alberta. Perhaps most noticeable is the apparent overall increase in the need for professional learning beyond what teachers are currently accessing. However, the differences between the year 2 and year 3 results on professional learning need in the various competency areas were not statistically significant.

All competency areas were included in the survey this year. In subsequent years, participants will continue to respond to questions regarding their professional learning needs in each competency area.

Table 8

Comparison Between Year One and Year Two Results of Need for Professional Learning

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

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

The relatively low levels of need for professional learning across three years may best be explained by considering these results with the results from part one of the survey. There, Alberta teachers indicated they were already in the “enacting” phase for four of the competencies and “embedding” phase for two of the competencies. On one hand, teachers seemed to be accessing a variety of professional learning opportunities and many of these are discernably impacting their practice. On the other hand, results could also be interpreted as the professional learning teachers are accessing is not helping to further or deepen their practice at higher levels as articulated by the TQS.

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 9, Figure 5, and Figure 6. They indicate the majority of teachers attend courses or seminars online (89%) and read professional literature (87%). Thus, the majority of teachers have experienced high quality, high impact professional learning that was relevant to their practice.

Yet in the era of Covid and school disruption, one area that stands out and bears further investigation. It involves the impact of professional learning on practice that engages most colleagues from across the school (51%). That is, the professional learning communities within the schools require attention. Undoubtedly, these forms of professional learning must be modified or adapted to new technologies because of the continuing pandemic. Professional learning without an opportunity to collegially discuss new practices and processes, does not appear to impact teachers’ 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 change 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 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 third year, we would

expect to see implementation levels at the sustaining level. 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.

Table 9

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? ($\alpha=0.49$)		
Courses/seminars attended in person.	127 (27%)	352 (74%)
Courses/seminars online.	428 (89%)	52 (11%)
Education conferences.	289 (60%)	190 (40%)
Formal qualification program (degree program).	72 (15%)	407 (85%)
Observation visits to other schools.	40 (8%)	440 (92%)
Peer and/or self-observation and coaching as part of a formal school arrangement.	161 (34%)	318 (66%)
Participation in a network of teachers at the school authority level formed specifically for the professional learning of teachers.	314 (65%)	166 (35%)
Professional learning community within the school formed specifically for the professional learning of teachers.	354 (74%)	126 (26%)
Reading professional literature.	416 (87%)	64 (13%)
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? ($\alpha=0.70$)		
It built on my prior knowledge.	456 (97%)	15 (3%)
It adapted to my professional learning needs.	416 (89%)	54 (11%)
It had a coherent structure.	409 (87%)	60 (13%)
It appropriately focused on content needed to teach my subjects.	372 (79%)	98 (21%)
It provided opportunities for active learning.	394 (84%)	75 (16%)
It provided opportunities for collaborative learning.	382 (81%)	88 (19%)
It provided opportunities to practice/apply new ideas and knowledge in my own classroom.	408 (87%)	62 (13%)
It took place in my school.	272 (58%)	199 (42%)
It involved most colleagues from my school.	238 (51%)	232 (49%)
It took place over an extended period of time (e.g. several weeks or longer)	271 (58%)	199 (42%)
It focused on innovation in my teaching.	321 (68%)	148 (32%)

Note. Cronbach alpha values indicate internal consistency for each competency and were calculated using the survey responses from all participating Alberta teachers ($n=787$)

Figure 5

Frequency of Types of Professional Learning Accessed

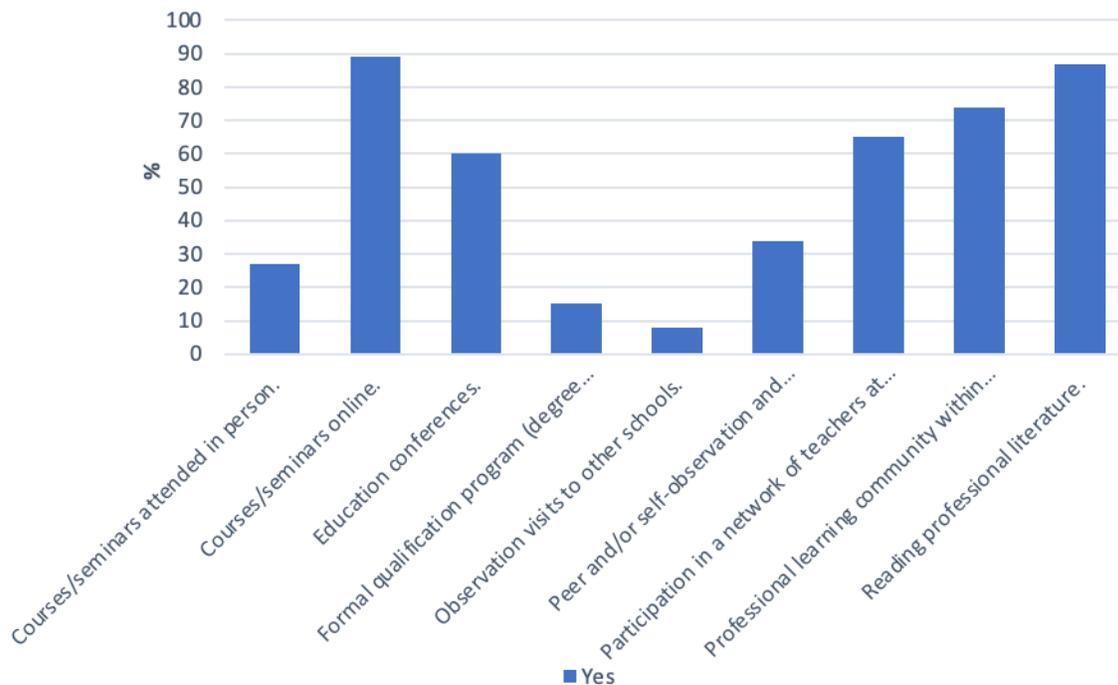
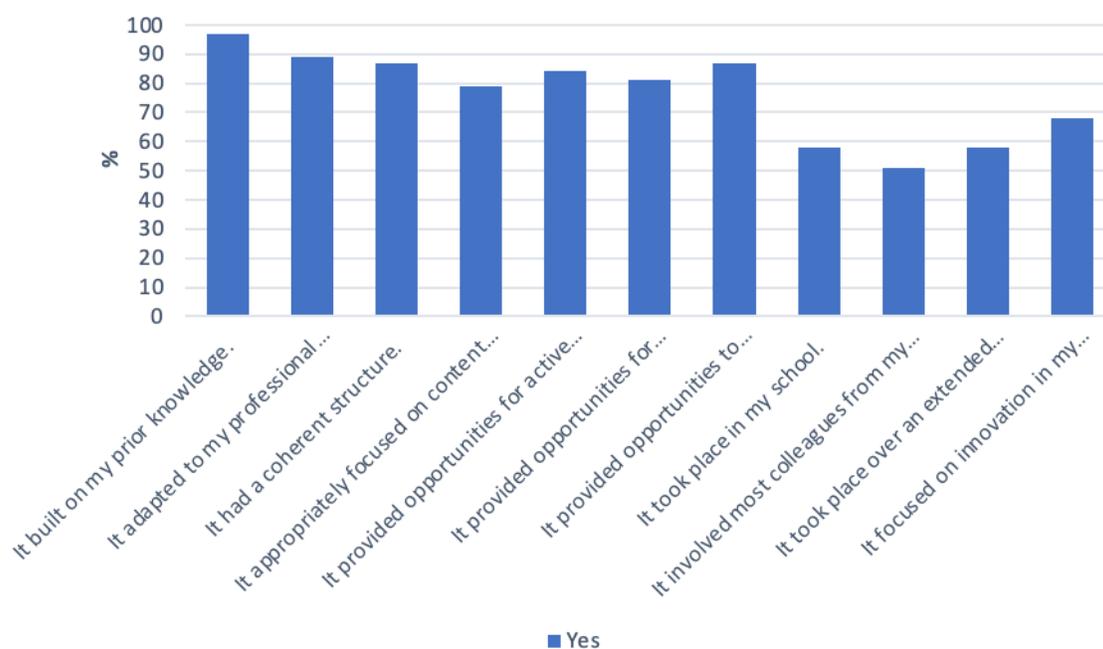


Figure 6

Impact of Professional Learning on Teaching Practice



Comparison of Year 1, Year 2 and Year 3 Results

Table 10 provides a comparison of year one, year two and year three results for form of professional learning accessed to support TQS implementation. It is evident, that teachers have shifted their professional learning to online opportunities from 48% in year one to 89% in year three. However, overall, the forms of professional learning teachers are accessing has not changed significantly over the three years.

Table 10

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

Form of Professional Learning Accessed	Year One (n=2300)	Year Two (n=1160)	Year Three (n=787)
Courses/seminars attended in person.	1562 (88%)	480 (65%)	127 (27%)
Courses/seminars online	852 (48%)	653 (88%)	428 (89%)
Education conferences.	1386 (79%)	522 (71%)	289 (60%)
Formal qualification program (degree program).	240 (14%)	108 (15%)	72 (15%)
Observation visits to other schools.	520 (30%)	116 (16%)	40 (8%)
Peer and/or self-observation and coaching as part of a formal school arrangement.	827 (47%)	279 (38%)	161 (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%)
Professional learning community within the school formed specifically for the professional learning of teachers.	1392 (79%)	570 (77%)	354 (74%)
Reading professional literature.	1547 (88%)	620 (84%)	416 (87%)

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

² Only statistically significant group differences from the demographic variables are presented here. Figure 7 presents confidence intervals. The error bars in Figures, 8, 9, and 10 highlight the differences between implementation advancement and professional learning needs. Differences are apparent in Figures 8, 9, and 10 which show the error bars.

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

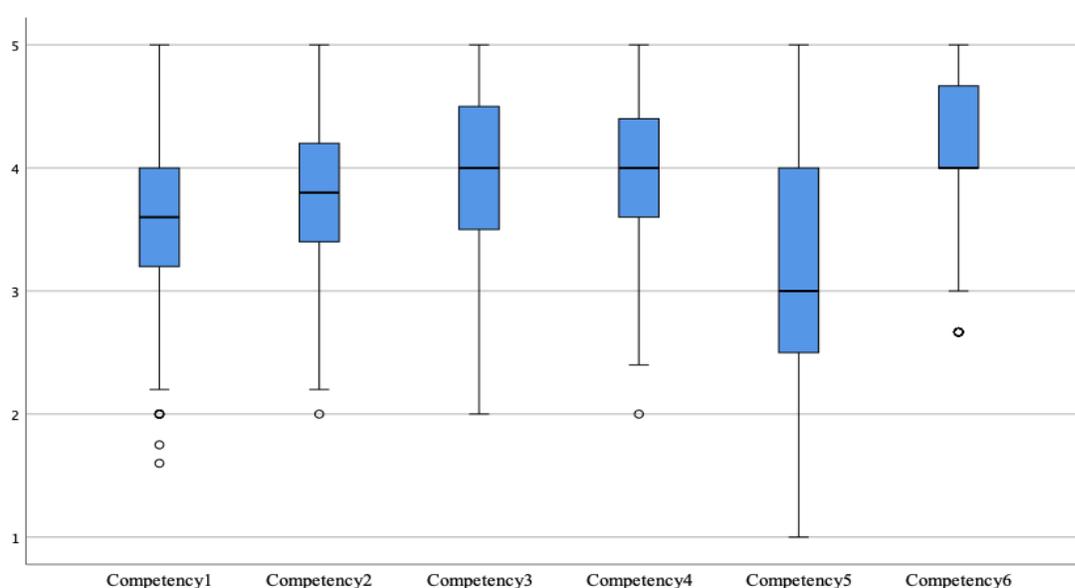
Teachers were asked to indicate the grade level they are teaching. Given the variety of grade configurations across the provinces, teachers were provided with six different options. The following results (Figure 7) show the means from *Implementation Advancement* and *Professional Learning Needs* at 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 ($F[60, 2275]=1.73, p<0.001, \text{Pillai's Trace}=0.22, \eta^2=0.044$). Specifically, competencies 1, 5 and 6 had statistically significant differences among grade level groups, but the effect sizes are very small.

Although statistically significant differences arise, there is little practical significance in the grade levels where teacher assignments fall. While differences between the various grade levels are statistically significant, 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. This means that for most professional learning, focused on competencies, it is appropriate to combine teachers from various grade levels. 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 and 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.

Figure 7

Results from Teacher Survey Analyzed by Grade Level Taught Displayed on an Interval Plot



Note: Implementation Advancement is abbreviated IA and Professional Learning is abbreviated to PL in the legend.

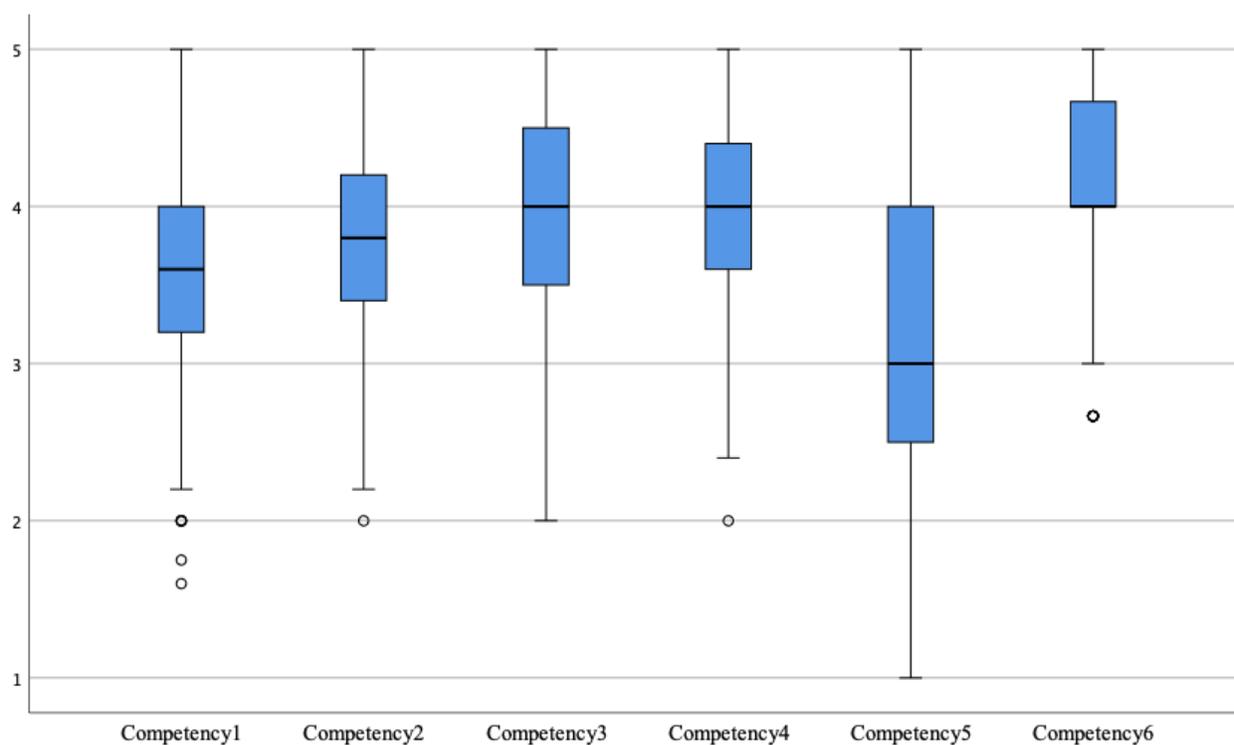
Differences Among Groups – Competency 1: Fostering Effective Relationships

Results indicate significant differences among the groups of teachers in how they responded to Competency 1: Fostering Effective Relationships ($F[5, 462]=2.84, p=0.015, \eta^2=0.030$). Specifically, the post-hoc tests indicate elementary and middle/junior high teachers are statistically significantly different (mean difference=0.242; $p=0.050$).

Although statistically significant difference arises, the magnitude or effect size of this difference between groups is small. The very small magnitude or effect size and the largely consistent averages suggest that professional needs for Competency 1: Fostering Effective Relationships are relatively uniform. One implication arising from this result is that professional learning addressing Competency 1: Fostering Effective Relationships would not need to be customized for groups of teachers working at different grade levels.

Figure 8

Differences Among Groups - Competency 1: Fostering Effective Relationships



Note. 95% CI means that you can be 95% certain that the results are an accurate depiction of the true mean for the particular configuration of grades taught by a teacher.

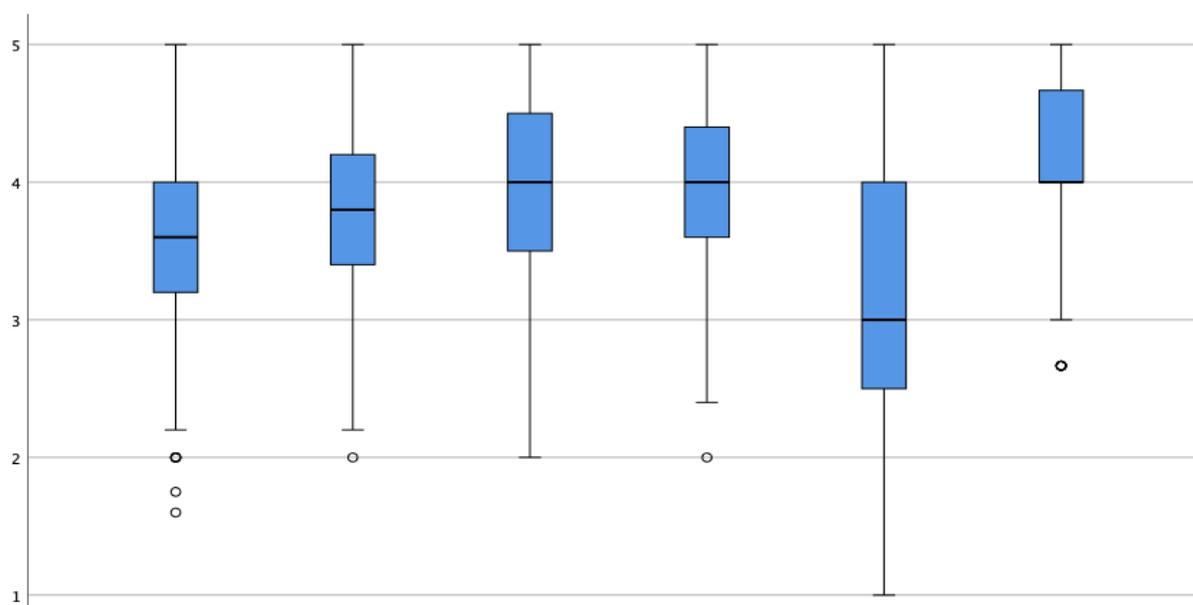
Differences Among Groups – Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit

Results indicate statistically significant differences among the groups of teachers in how they responded to Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit ($F[5, 462]=3.14, p=0.008, \eta^2=0.033$). Specifically, the post-hoc tests indicate elementary and middle/junior high school teachers are statistically significantly different (mean difference=0.401; $p=0.004$).

Although statistically significant differences arise, the magnitude or effect size of those differences is very small. The small effect sizes and the largely consistent averages suggest that professional needs for competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit are relatively uniform. One implication arising from this result is professional learning addressing Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit would not need to be customized for teachers working at different grade levels.

Figure 9

Differences Among Groups - Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit



Note. 95% CI means that you can be 95% certain that the results are an accurate depiction of the true mean for the particular configuration of grades taught by a teacher.

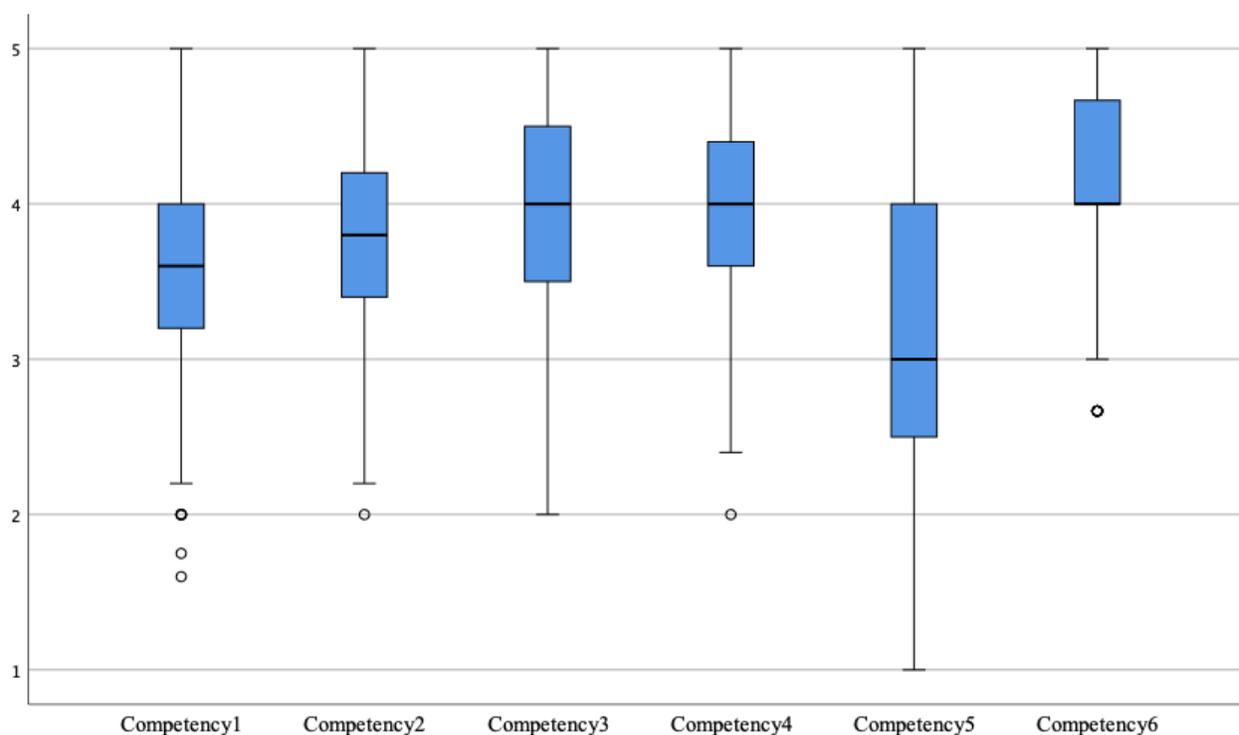
Differences Among Groups - Competency 6: Adhering to Legal Frameworks and Policies

Results indicate statistically significant differences among the groups of teachers in how they responded to Competency 6: Adhering to Legal Frameworks and Policies ($F[5, 462]=3.42, p=0.005, \eta^2=0.036$). Specifically, the post-hoc tests indicate elementary and high school teachers are statistically significantly different (mean difference=0.063; $p=0.030$) as well as middle/junior and high school teachers (mean difference =0.253; $p=0.019$).

Although statistically significant differences arise, the magnitude or effect size of those differences is small: although differences between teachers from various grade levels are statistically significant, the policy significance difference as magnitude or effect size is negligible. The small effect sizes and the largely consistent averages suggest that professional needs for Competency 6: Adhering to Legal Frameworks and Policies are relatively uniform. One implication arising from this result is any professional learning addressing Competency 6: Adhering to Legal Frameworks and Policies would not need to be customized for teachers working at different grade levels.

Figure 10

Differences Among Groups - Competency 6: Adhering to Legal Frameworks and Policies



Note. 95% CI means that you can be 95% certain that results are an accurate depiction of the true mean for the particular configuration of grades taught by a teacher.

Means of Teacher Survey Results Analysed by Teachers' Subject Specialization

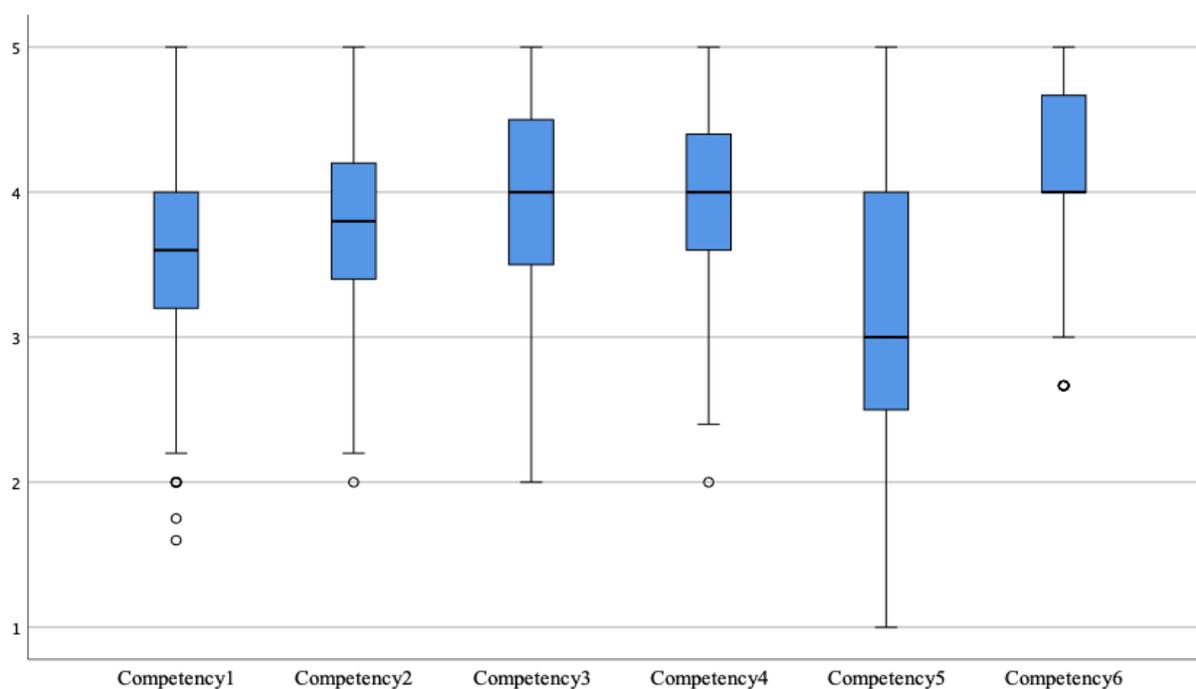
Teachers were asked to indicate their subject specialization. Figure 11 show the results from Implementation Advancement and Professional Learning Needs presented with confidence intervals. Results indicate teachers with different subject specializations responded in ways that are statistically significantly different ($F[120, 4470]=1.73$, $p<0.001$, Pillai's Trace=0.44, $\eta^2=0.044$). 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, and Competency 6: Adhering to Legal Frameworks and Policies.

In practical terms, there are modest differences between two groups, mathematics and generalist teachers, and mathematics and language arts teachers across the 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.

Figure 11

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 and Year 2, with pronounced differences among the Mathematics, Language Arts and Generalist specialization teachers. Specifically, results for mathematics teachers indicating *Implementation Advancement* for Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit were markedly ($p < 0.05$) different from all other specialization teachers: generalist (mean difference=0.91), language arts (mean difference=0.88), and social studies (mean difference=1.10).

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 and about orientations toward non-Indigenous and Indigenous views of mathematics.

This difference might also be attributed to differences in Programs of Study for the various subject areas. It might also be attributed to the forms of resources teachers are accessing in their teaching. Further, results could also be attributed to 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.

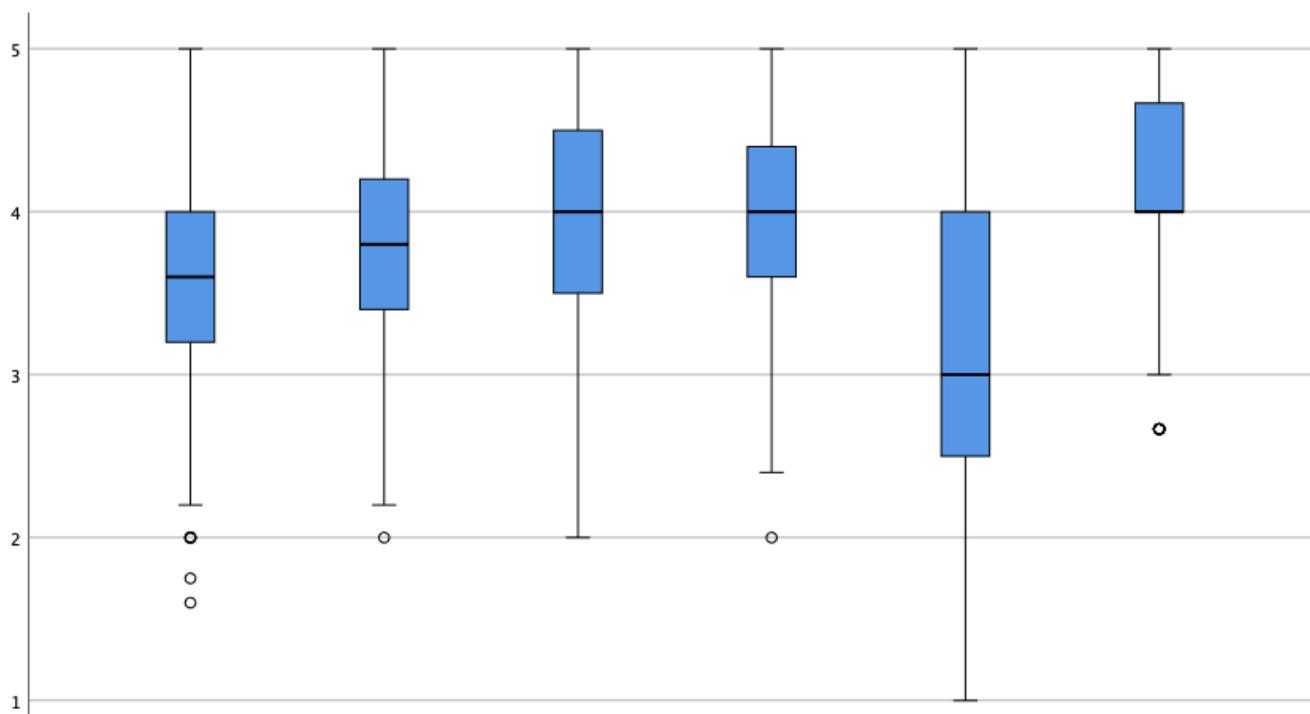
Working together through professional learning, over time, may provide teachers with opportunities to work through areas of strength to determine how to embed Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit into their practice. Further consideration should be given 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 current circumstances, land-based orientations act as counterweight 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 and year 2 survey results, Year 3 survey results are clear: further attention in professional learning for appropriate implementation advancement should be considered (Sternberg, 2013).

Figure 12

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.

Specifically, the mathematics teachers indicated they needed Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit professional learning significantly more ($p < 0.05$) so than other specialization teachers: generalist (mean difference=0.91), language arts (mean difference=0.88), and social studies (mean difference=1.10).

Means of Teacher Survey Results Analysed by Years of Experience Teaching in Alberta

Teachers were asked to indicate their years of teaching experience in Alberta. Figure 13 shows the results from *Implementation Advancement* and *Professional Learning Needs* presented as an interval plot. The error bars in Figure 14 highlight the differences between implementation advancement and professional learning needs at 95% confidence interval. The analysis was conducted using a multivariate analysis of variance (MANOVA).

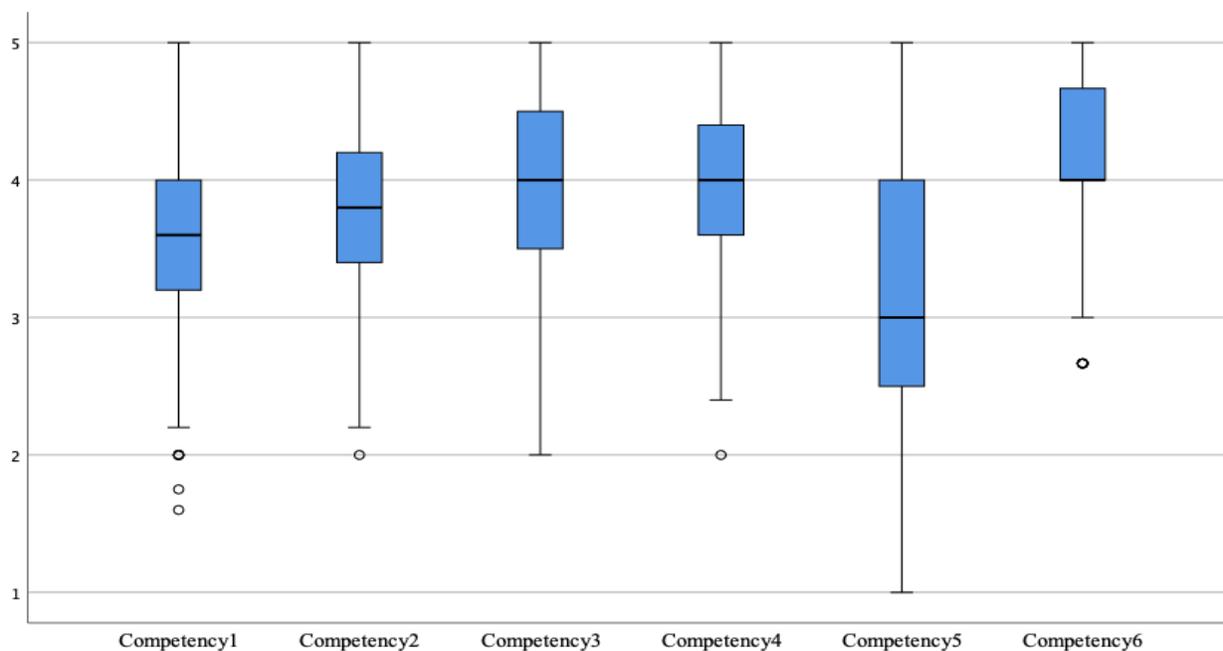
Means of Teacher Survey Results Compared by Years of Teaching Experience in Alberta

Teachers were asked to indicate their years of teaching experience in Alberta. Results indicate teachers with different years of teaching experience responded to the implementation advancement and professional learning items in ways that were statistically different. ($F[72, 2700]=2.65, p < 0.001$,

Pillai's Trace=0.396, $\eta^2=0.066$). Generally, the patterns within teachers' responses indicated the more years of experience they had teaching in Alberta, the more they enacted each competency and the less they needed professional learning for each competency. However, results for one of these measures are worth noting: Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit – and Professional Learning Needs. While these two competencies did not show a statistically significant difference based on different years of teaching experience, a statistically significant difference was noted in teachers' subject specialization. Effect sizes are also marginally larger for differences between more experienced versus less experienced teachers. As indicated previously, it would be advisable to find ways to integrate competencies 4, and 5 to meet teachers' professional learning needs in creating and enacting designs for learning that meet the needs of all students.

Figure 13

Results of Teacher Survey Analyzed by Years of Teaching Experience Displayed on an Interval Plot

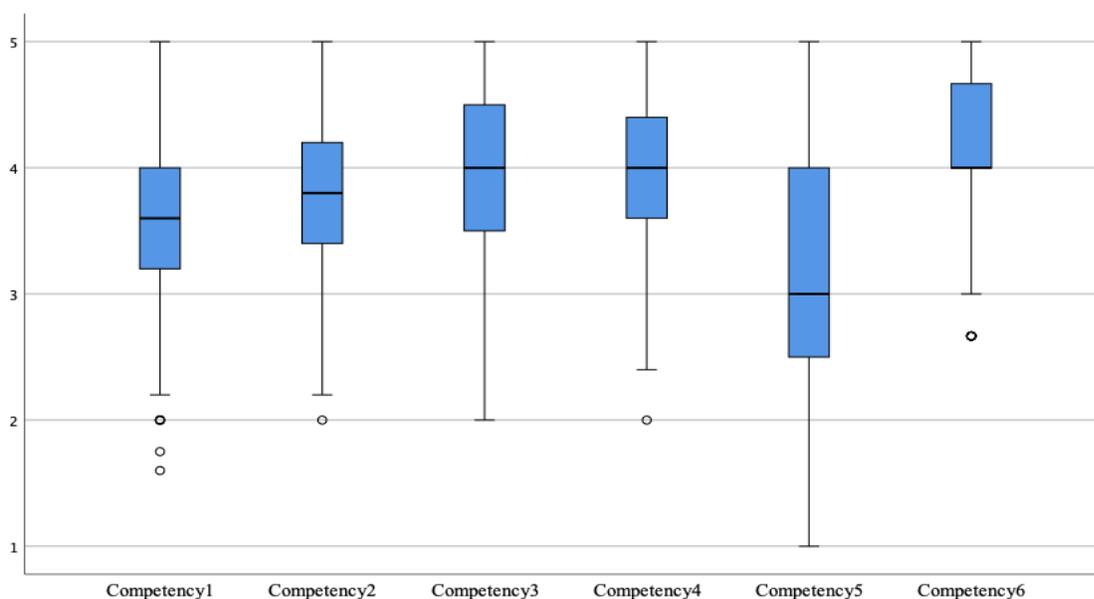


Differences among Groups on Professional Learning Needs Competency 5: Applying Foundational Knowledge for First Nations, Métis and Inuit – Years of Teaching Experience in Alberta

Teachers' responses to Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit (Figure 15) 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 14

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 three years are presented in Table 11.

Table 11

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

	Total (n=3041)		Year 1 (n=1783)		Year 2 (n=716)		Year 3 (n=542)		
	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	
Competency 2: Engaging in Career-Long Learning	3.93	0.61	3.96	0.62	3.90	0.58	3.88	0.58	
Competency 3: Demonstrating a Professional Body of Knowledge	3.96	0.66	3.95	0.69	3.95	0.61	3.96	0.62	

	Total (<i>n</i> =3041)		Year 1 (<i>n</i> =1783)		Year 2 (<i>n</i> =716)		Year 3 (<i>n</i> =542)	
	M	SD	M	SD	M	SD	M	SD
Competency 4: Establishing Inclusive Environments	4.14	0.58	4.22	0.59	4.04	0.54	4.00	0.54
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	3.08	0.97	3.00	1.00	3.21	0.94	3.18	0.86
Competency 6: Adhering to Legal Frameworks and Policies	4.26	0.63	4.34	0.67	4.17	0.53	4.15	0.54
Professional Learning Level of Needs								
Competency 1: Fostering Effective Relationships	2.10	0.68	1.95	0.61	2.34	0.72	2.29	0.70
Competency 2: Engaging in Career-Long Learning	2.29	0.71	X	X	2.33	0.71	2.24	0.72
Competency 3: Demonstrating a Professional Body of Knowledge	2.22	0.69	2.11	0.56	2.42	0.81	2.34	0.81
Competency 4: Establishing Inclusive Environments	2.36	0.72	2.36	0.69	2.40	0.76	2.34	0.74
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	2.71	0.85	2.67	0.90	2.75	0.78	2.80	0.76
Competency 6: Adhering to Legal Frameworks and Policies	2.07	0.81	X	X	2.11	0.82	2.01	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 within the Implementation Advancement variable, the results indicated a statistically significant intercept of the six variables over the three time periods (Pillai's Trace = 0.982; F-value = 26761.194; $p < 0.025$). Pillai's Trace was used to identify statistical significance because this dataset has an unbalanced sample size (i.e., $n_{Year\ 1} = 1783$, $n_{Year\ 2} = 716$, and $n_{Year\ 3} = 542$). 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 effects 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 13 for the statistical values of each analysis.

Table 12

Univariate Results of Implementation Advancement Competencies

	Type III Sum of Squares	Mean Square	F- Value	Significance	Partial Eta Squared
Competency 1: Fostering Effective Relationships	0.13	0.07	0.15	0.862	0.000
Competency 2: Engaging in Career-Long Learning	3.53	1.77	4.84	0.008*	0.003
Competency 3: Demonstrating a Professional Body of Knowledge	0.00	0.00	0.00	0.999	0.000
Competency 4: Establishing Inclusive Environments	27.82	13.91	43.08	<0.001*	0.028
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	30.17	15.08	16.19	<0.001*	0.011
Competency 6: Adhering to Legal Frameworks and Policies	22.79	11.39	29.75	<0.001*	0.019

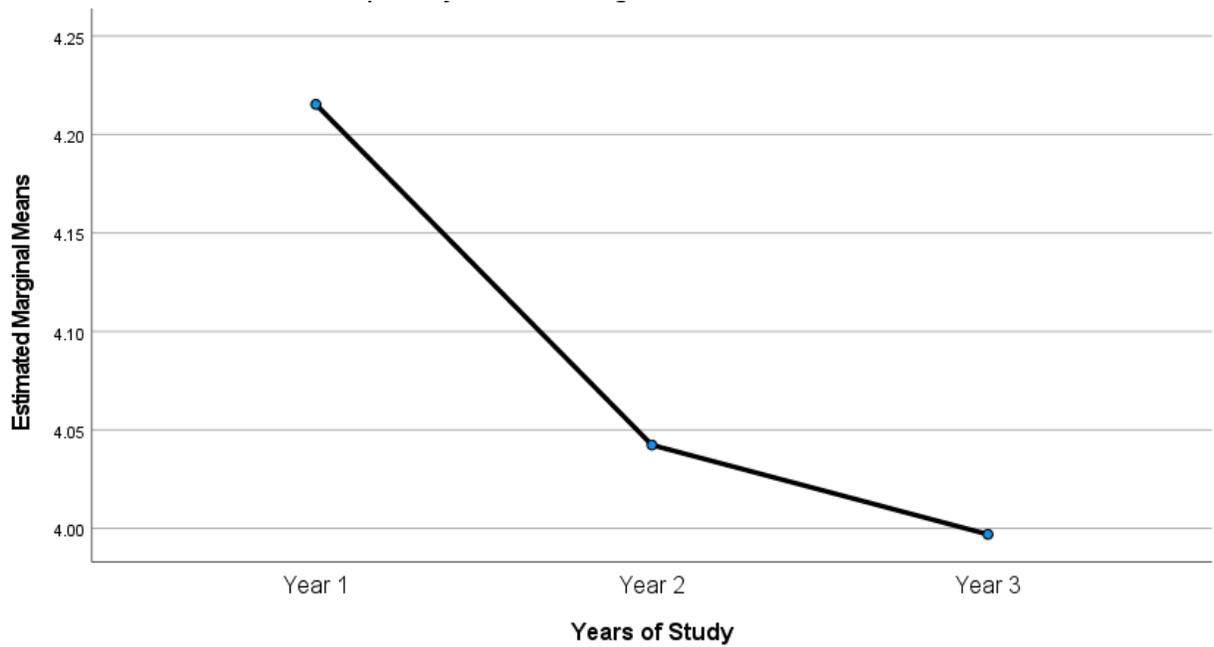
Each of the four statistically significant competencies were analyzed using post-hoc analyses (i.e., Scheffe multiple comparisons was used because it is more conservative) to identify the statistically significant differences among the three time points. Post-hoc results of Competency 2 indicate none of the differences between each of the time points were statistically significant. This situation, in which the univariate results indicate significance, but the post-hoc analyses do not indicate any significance, is often observed when researchers use a more conservative post-hoc test, such as the Scheffe test. Statistically, this situation is observed because the univariate F-test examines whether the three means are equal while the post-hoc tests analyze whether there is a linear contrast among the three time points that is significantly different from zero (Gravetter & Wallnau, 2017). When the univariate and post-hoc analyses contradict each other, it is best to assume the time points within Competency 2 are not statistically significant.

The results of the remaining three competencies showed statistically significant differences between Year 1 and 2 as well as Year 1 and 3. For all three of these competencies, there was no statistical significance between Year 2 and 3. Additionally, Competencies 4 and 6 decreased over the three years while Competency 5 was the only competency that increased.

For Competency 4, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.1730, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.2183, $p < 0.025$). A plot of the change among the three years is shown in Figure 15.

Figure 15

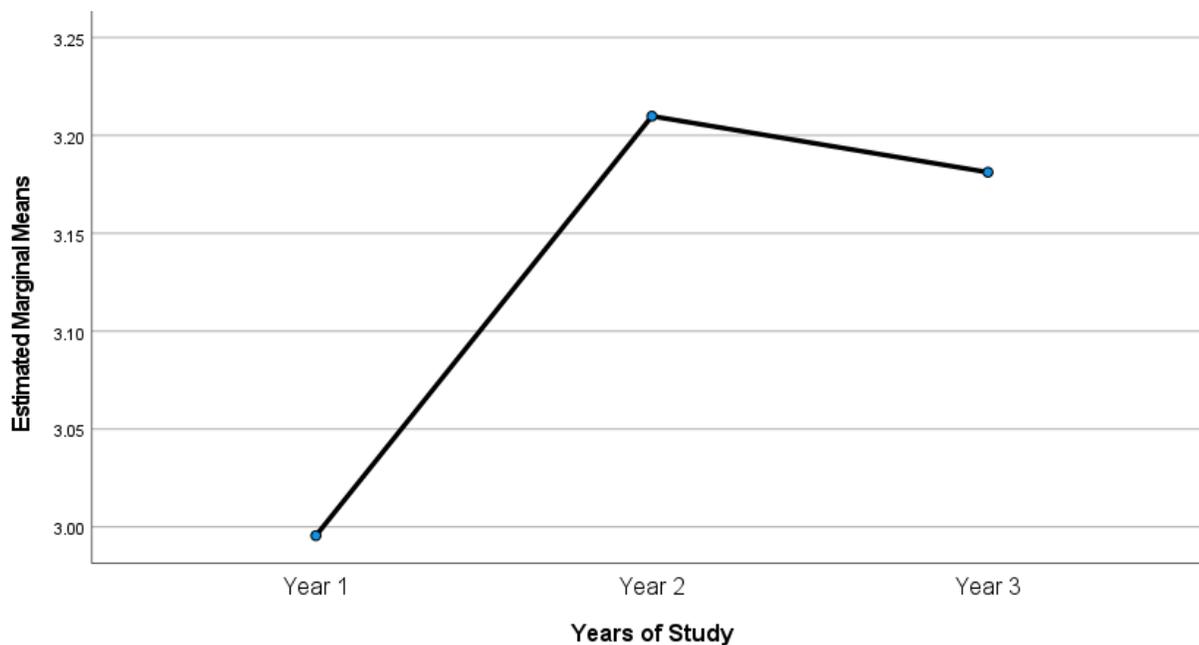
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 4: Establishing Inclusive Environments



Similarly, for Competency 5 the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.2143, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.1856, $p < 0.025$). A plot of the change among the three years is shown in Figure 17.

Figure 16

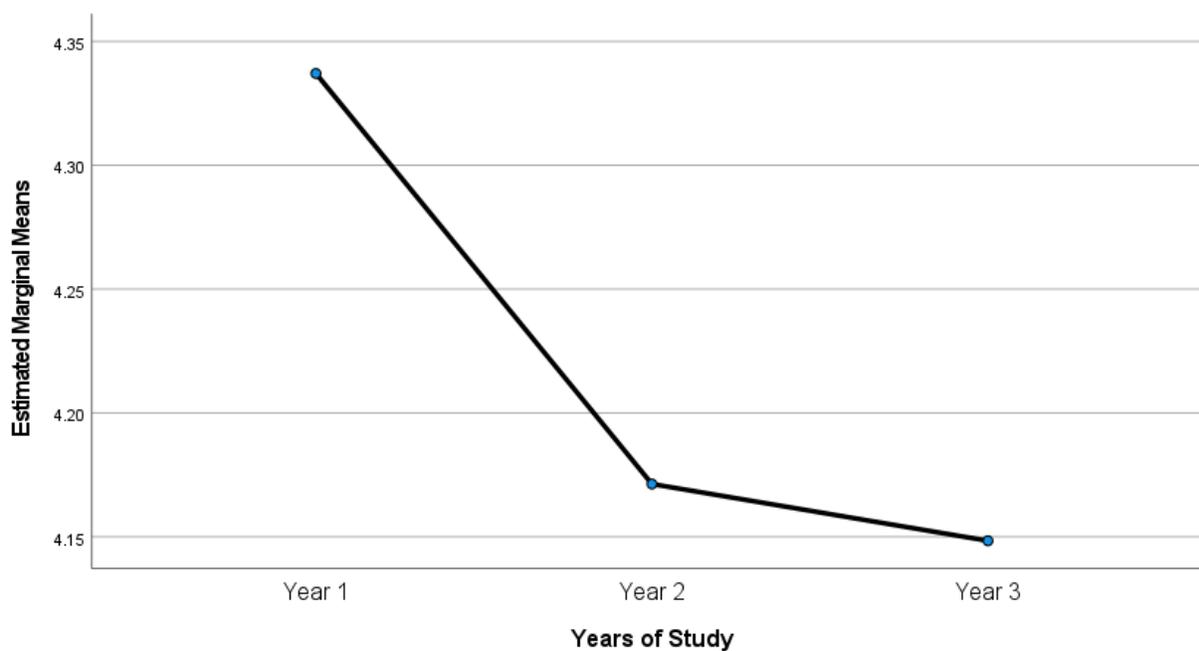
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit



Again, for Competency 6, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.16573, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.1887, $p < 0.025$). A plot of the change among the three years is shown in Figure 18.

Figure 17

Year over Year Profile Plot Using the Estimated Marginal Means of Competency 6: Adhering to Legal Frameworks and Policies



Annual Comparison of Professional Learning - Teachers

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

Annual Comparison of Professional Learning Competencies 1, 3, 4, and 5

The intercept for this analysis was again statistically significant (Pillai's Trace = 0.927; F-value = 8966.937; $p < 0.025$), which indicate some of the variables increased while others decreased at a rate that makes these competencies related.

Results of the four univariate analyses indicate Competencies 1, 3, and 5 are statistically significant. Please refer to Table 4 for the statistical values of each analysis.

Table 13

Univariate Results of Professional Learning Competencies 1, 3, 4, and 5

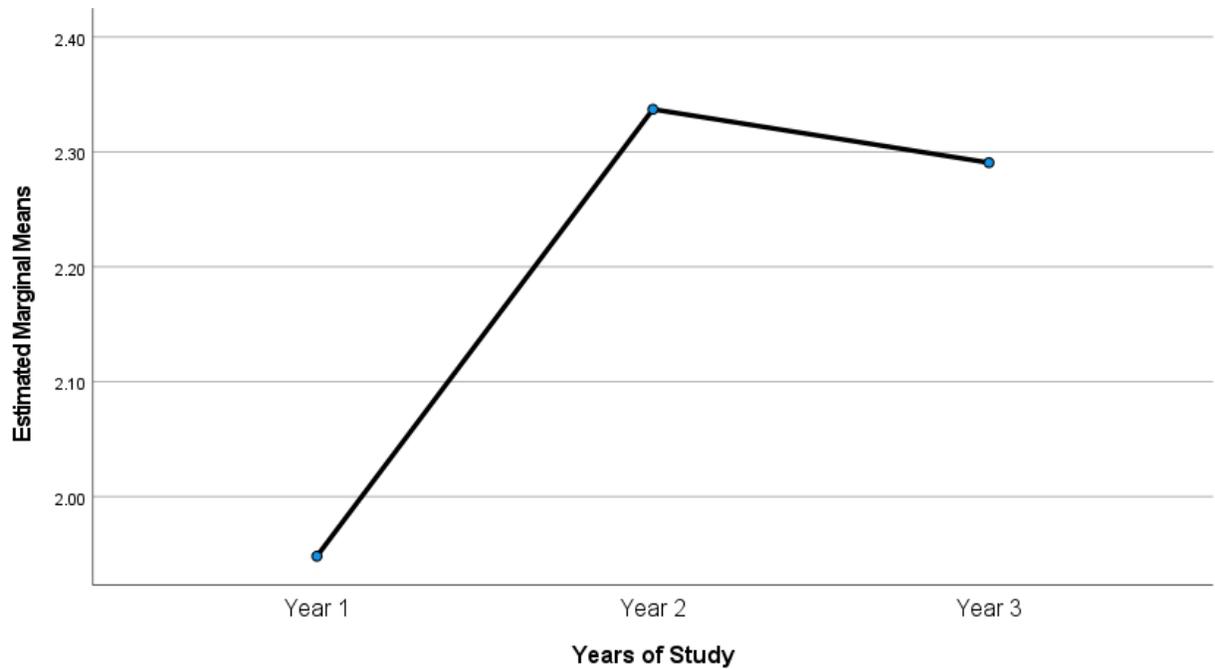
	Type III Sum of Squares	Mean Square	F-Value	Significance	Partial Eta Squared
Competency 1: Fostering Effective Relationships	92.36	46.18	108.25	<0.001*	0.072
Competency 3: Demonstrating a Professional Body of Knowledge	52.90	26.45	58.53	<0.001*	0.040
Competency 4: Establishing Inclusive Environments	1.02	0.51	1.00	0.368	0.001
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	7.48	3.74	5.16	<0.001*	0.004

Each of the three 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 Competencies 1 and 3 showed statistically significant differences between Year 1 and 2 as well as Year 1 and 3. For both of these competencies, there was no statistical significance between Year 2 and 3.

For Competency 1, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.3889, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.3425, $p < 0.025$). A plot of the change among the three years is shown in Figure 18.

Figure 18

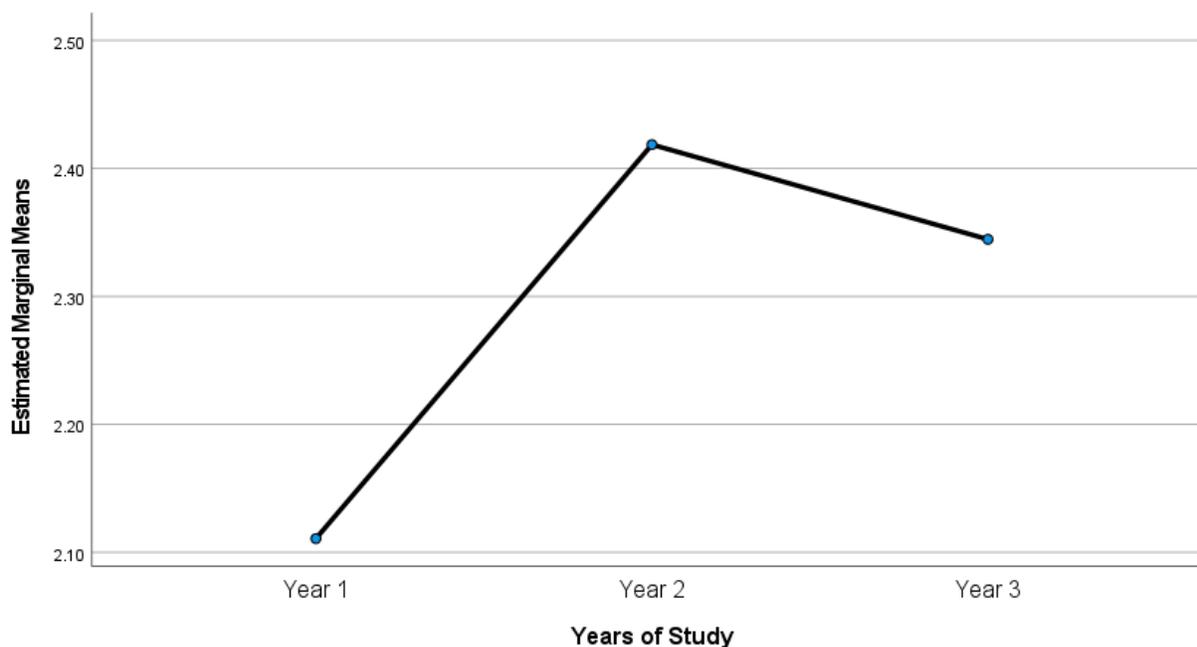
Year over Year Profile Plot Using the Estimated Marginal Means of Competency 1: Fostering Effective Relationships



Similarly, for Competency 3 the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.3078, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.2339, $p < 0.025$). A plot of the change among the three years is shown in Figure 19.

Figure 19

Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 3: Demonstrating a Professional Body of Knowledge



Post-hoc results of Competency 5 indicate none of the differences between each of the time points were statistically significant. When the univariate and post-hoc analyses contradict each other, it is best to assume the time points within Competency 5 are not statistically significant.

Annual Comparison of Professional Learning Competencies 2 and 6

The intercept for this analysis was again statistically significant (Pillai's Trace = 0.910; F-value = 5675.356; $p < 0.025$), which indicate one of these competencies decreased at a rate that is different from the second competency, which creates an interaction, or criss-cross, in their graphs. Results of the two univariate analyses indicate the two competencies are not statistically significant. Therefore, no further analyses were conducted.

Summary of Teacher Survey Results

This section of the report summarizes and interprets Year 3 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, in consideration of demographic data.

1. In terms of implementation advancement, Alberta teachers responded to Year 3 surveys in similar ways, indicating that for four of the competencies they report implementation in the enacting/adapting levels and for two of the competencies they report implementation at the higher embedding/sustaining levels.

2. Although a year-over-year comparison reveals an overall decrease in implementation advancement for competencies 1, 2, 3, 4, and 6, there is an increase in Competency 5.
3. There has been an overall increase in participating teachers' need for professional learning beyond the levels they are currently accessing.
4. Teachers indicated low levels of need of professional learning related to the six competencies. 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 modest differences among language arts, arts education, social studies, and mathematics/science teachers for Competency 5: Applying Foundational Knowledge about First Nations, Métis and Inuit.
5. Approaches to professional learning such as iterative cycles of learning sustained over time, integrating competencies 3, 4, and 5, and land-based approaches deserve consideration.
6. The comparison of the results with the demographic data indicated, although there is substantial variation at the individual teacher level about implementing the six (6) competencies in their classroom or school, there are similar patterns for most of the competencies. The exceptions are for Competency 4: Establishing Inclusive Learning Environments and Competency 5: Applying Foundational Knowledge about First Nations, Métis and Inuit. These two competencies showed no significant variation among teachers, but significant differences over time.
7. The comparison of the results with the demographic data indicated the grade level teaching assignment, the subject matter specialization, and experience levels of teachers have very small or modest impact on their perceptions. Teachers with more than two years of teaching experience are generally on par with teachers in their first year or two of teaching in understanding and enacting the competencies.
8. Similar to Year 1 survey results, math-science teachers in particular, but any teacher of mathematics and science subjects, continue to require sensitive and sensible knowledge about introducing traditional, foundational knowledge from a non-Indigenous perspective in the classroom as it relates to their subject area. Professional learning about land-based approaches to curriculum implementation, and the use the natural environment around schools and community to further mathematics and scientific inquiry, may be desirable.
9. To advance implementation, professional learning should attend to adapting existing routines to the six (6) competencies. Further work in using evidence from teachers' practice to further refine their instruction is relevant. Flexibility is required in adapting to new ways

of working. Teaching practices are evolving. The standard asks both individuals and school authorities to flexibly deal with ill-structured and novel problems. Alberta Standards policy supports flexibility and does not rigidify teaching practice.

10. Above all, a review of the types of professional learning that Alberta teachers have engaged in over the past year indicates a discernable shift away from face-to-face interactions, and collegial modes of professional learning, toward learning at a distance. Teachers have had to choose individually among online offerings, and have had restricted opportunity to build collective efficacy as crucial to enhanced student achievement.
11. Overall, when viewed within an Implementation Drivers framework, teachers' professional development in the six competencies of the Teacher Quality Standard has changed toward individual rather than collegial forms over the last three years.
12. Among five drivers for competency development---professional peer pressure; different job assignments within the local organization; pandemic circumstances; pupils and meeting their ongoing learning needs; or external professional practice standards---the pandemic and the demands of instructing students using different technological modes at a distance appear more influential than face-to-face interaction with school leaders or professional peers or community pressures. Online training and careful selection of Competency 5 have become more influential than peer or school leader coaching.
13. Implementation drivers are compensatory; shifts in one may be counterbalanced by others. Overall, Alberta teachers have not reported greater needs or demands for specific kinds of professional development over the past three years. Rather, they have shifted in what specific types of competencies are required and have changed in how they have pursued their professional development interests. The form and focal points of professional development are changing, but not the peripheral status of standards in professional practice.
14. Though Provincial attention may shift toward inconsistent applications of standards and the emergence of learning challenges among students over the past three years, we cannot say that this relates to overall shortfalls in teacher competency development. Teachers may have shifted in their attention toward acquiring First Nations, Metis and Inuit knowledge and away from ensuring an overall more inclusive environment within an online environment. Professional practice in Alberta appears integrated and relatively stable, but with significant shifts in emphases, not disintegrated because of structural changes from interpersonal classroom- to computer screen-based instruction. The general picture is one of adaptation, not dramatic disruption or 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 14 and Figure 17 below indicate that the overall mean for implementation advancement of the LQS competencies by participating leaders ($n=387$) is 3.76 which falls in the “enacting” phase on the 5-point scale outlined in Table 1 of this report. This result indicates that leaders are adapting to new ways of working related to the standard. School and jurisdiction leaders are using evidence from their practice to further refine their practices related to the competencies.

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

- Competency 1 – Fostering Effective Relationships (mean= 3.81),
- Competency 2 – Modeling Commitment to Professional Learning (mean=3.74),
- Competency 3 – Embodying Visionary Leadership (mean=3.84),
- Competency 4 – Leading a Learning Community (mean=3.88),
- Competency 5 – Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit (mean=3.44),
- Competency 6 – Providing Instructional Leadership (3.96)
- Competency 7 – Developing Leadership Capacity (mean=3.67), and
- Competency 9 – Understanding and Responding to the Larger Societal Context (mean=3.53).

Results further indicate that Competency 8 – Managing School Operations and Resources (mean=4.00) correspond to the “embedding” phase on the Implementation Advancement scale.

Table 14

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

Construct	Mean	Standard Deviation
Competency 1: Fostering Effective Relationships ($\alpha=0.72$)	3.81	0.53
1. I build trusting relationships with parents/guardians of the students in my school or community of schools.	3.95	0.74
2. I build relationships that create a welcoming, caring, respectful, and safe learning environment.	4.24	0.65

Construct	Mean	Standard Deviation
3. I establish relationships with First Nations, Métis and Inuit parents/guardians, Elders/knowledge keepers, local leaders and community members.	3.01	0.92
4. I demonstrate a commitment to the health and well-being of all teachers, staff, and students.	4.11	0.74
5. I promote collective collaborative complex problem solving with the school community.	3.75	0.84
Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.71$)	3.74	0.62
1. I engage with others such as teachers, principals, and other leaders to improve my leadership practice.	4.00	0.73
2. I actively seek out feedback from a variety of sources to enhance my leadership practice.	3.81	0.78
3. I actively apply educational research to inform my leadership practice.	3.70	0.86
4. I engage members of the school community to build a shared understanding of current trends and priorities in the education system.	3.47	0.85
Competency 3: Embodying Visionary Leadership ($\alpha=0.73$)	3.84	0.56
1. I communicate an education philosophy that is student-centered based on sound principles of effective teaching and leadership.	4.10	0.68
2. I demonstrate an appreciation for diversity.	4.27	0.71
3. I collaborate with other leaders and superintendents to address challenges and priorities.	3.65	0.92
4. I support school community members, including school councils, in fulfilling their roles and responsibilities.	3.56	0.86
5. I promote innovation that fosters a commitment to continuous improvement.	3.81	0.73
6. I use a range of data to determine progress towards achieving goals.	3.64	0.85
Competency 4: Leading a Learning Community ($\alpha=0.76$)	3.88	0.56
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> .	3.95	0.70
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.	4.15	0.71
3. I cultivate a culture of high expectations for all students and staff.	4.03	0.69
4. I create collaborative learning opportunities for other leaders, teachers, and support staff.	3.82	0.87

Construct	Mean	Standard Deviation
5. I collaborate with community service agencies to provide wrap-around supports for all students who may require them.	3.46	0.96
Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.93$)	3.44	0.77
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.	3.49	0.89
2. I align resources and building the capacity of the school and/or school authority to support First Nations, Métis, and Inuit student achievement.	3.39	0.84
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.	3.47	0.89
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.	3.45	0.89
5. I engage in practices to facilitate reconciliation efforts within the school and/or school authority.	3.43	0.84
Competency 6: Providing Instructional Leadership ($\alpha=0.84$)	3.96	0.54
1. I build the capacity of all teachers to respond to the learning needs of every student.	3.87	0.72
2. I ensure that student instruction addresses learning outcomes outlined in the programs of study.	4.03	0.66
3. I demonstrate a strong understanding of assessment.	4.03	0.73
4. I demonstrate a strong understanding of effective pedagogy.	4.10	0.64
5. I interpret a wide range of data to inform school practices.	3.75	0.79
Competency 7: Developing Leadership Capacity ($\alpha=0.80$)	3.67	0.64
1. I demonstrate collaborative decision-making informed by open dialogue.	4.01	0.71
2. I empower other educators (e.g. teachers) in educational leadership roles.	3.89	0.82
3. I facilitate the constructive involvement of school council(s) in school life.	3.29	0.91
4. I create opportunities for students to exercise their voice in school leadership and decision making.	3.30	0.94

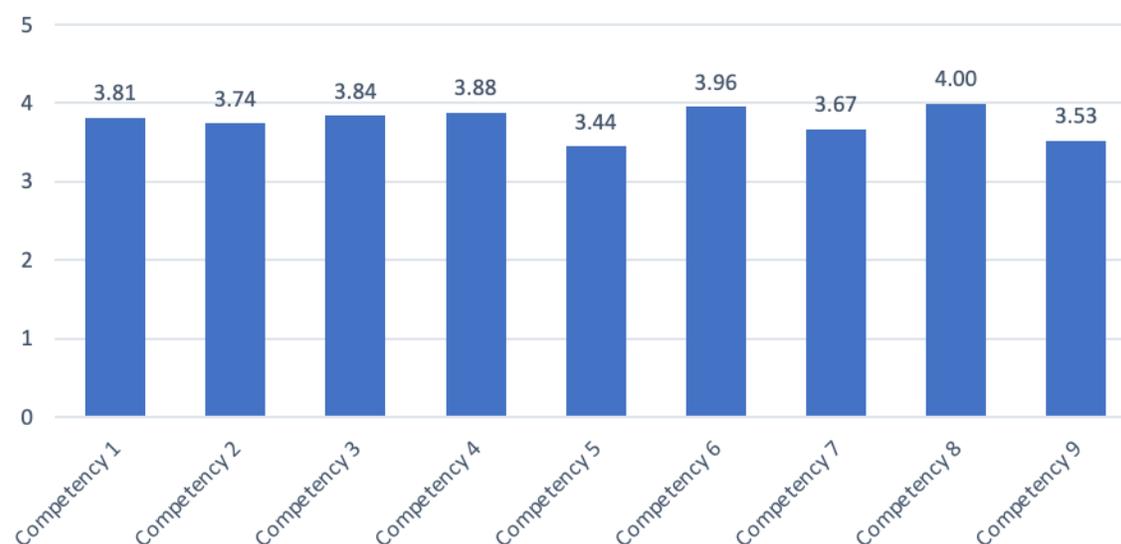
Construct	Mean	Standard Deviation
5. I promote shared leadership among members of the school community.	3.87	0.81
Competency 8: Managing School Operations and Resources ($\alpha=0.84$)	4.00	0.54
1. I apply principles of effective teaching and learning, child development, and ethical leadership to all decisions.	4.14	0.65
2. I align practices, procedures, policies, decisions, and resources with school and school authority vision, goals, and priorities.	3.95	0.66
3. I follow through on decisions by allocating resources to provide the learning environments need to improve learning for all students.	3.97	0.71
4. I facilitate access to appropriate technology and digital learning environments.	3.96	0.69
5. I ensure operations align with provincial legislation, regulations and policies, and the policies and processes of the school authority.	3.97	0.76
Competency 9: Understanding and Responding to the Larger Societal Context ($\alpha=0.78$)	3.53	0.66
1. I support members of the school community understand the legal frameworks and policies of the Alberta Education system.	3.41	0.89
2. I represent the needs of students at all levels of the education system.	4.00	0.77
3. I engage local community members to gain an understanding of the local context.	3.16	0.94
4. I demonstrate an understanding of the ways local, provincial, and international issues and trends impact education.	3.54	0.84
5. I facilitate conversations with stakeholders regarding matters impacting schools and school authorities.	3.51	0.91

Note. *Cronbach alpha values indicate internal consistency for each competency and were calculated using all Alberta leader survey responses ($n=387$).

Figure 20 provides a visual overview of the means related to implementation advancement for each of the nine LQS competencies.

Figure 20

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 16) provides an overview of the nine competencies in the Leadership Quality Standard to implementation advancement.

Table 15

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.	3.81	Competency 1: Fostering Effective Relationships
	3.74	Competency 2: Modeling Commitment to Professional Learning
	3.84	Competency 3: Embodying Visionary Leadership
	3.88	Competency 4: Leading a Learning Community
	3.44	Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit
	3.96	Competency 6: Providing Instructional Leadership
	3.67	Competency 7: Developing Leadership Capacity

Scale	Mean	Competency
	3.53	Competency 9: Understanding and Responding to the Larger Societal Context
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	4.00	Competency 8: Managing School Operations and Resources

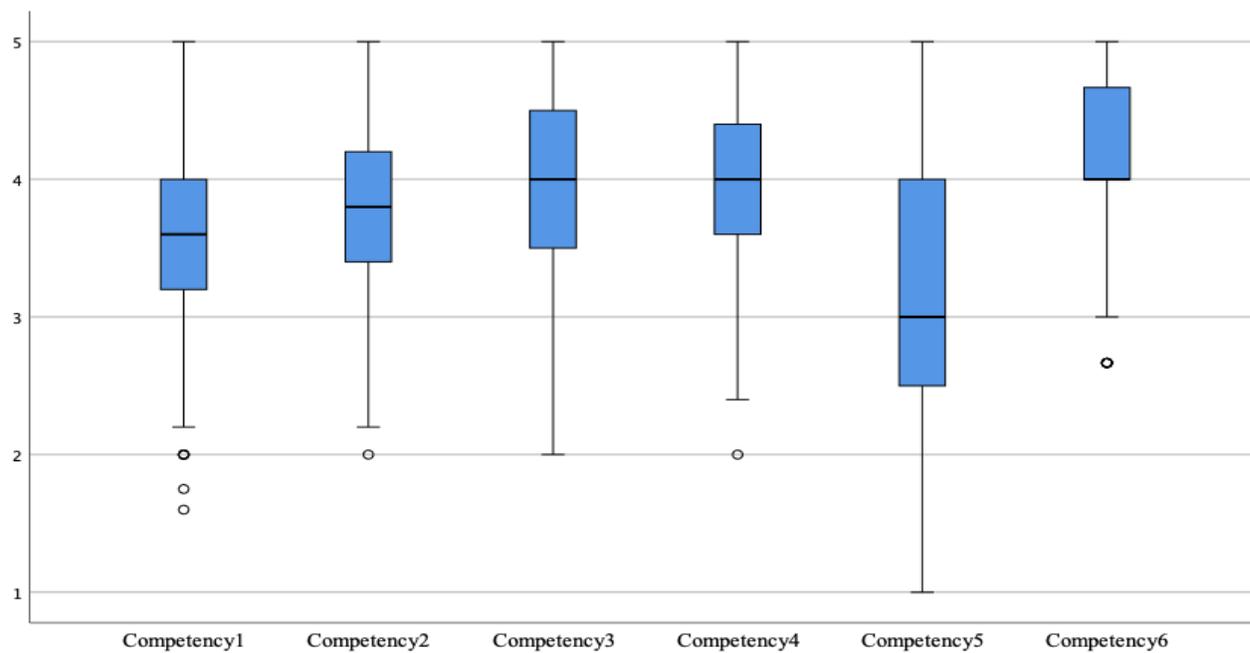
Box and Whisker Plot

The following box and whisker plot (Figure 21) shows 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 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 21 includes the outliers in the data set (indicated by small circles). The outliers in the data are all 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 some positive skewing in three of the competencies; however, for most competencies the median falls midpoint in the interquartile range indicating a fairly normal distribution. The upper range of the data is consistently at the top of the range indicating a number of the participating leaders are reporting they are now establishing the LQS competencies within a variety of school authority planning process, division-wide and school improvement plans, and growth plans.

Figure 21

Distribution and Variance in Implementation Advancement Related to LQS Competencies



Comparison of Year 1, Year 2 and Year 3 Results

Table 17 provides a comparison of year one, year two and year three results on implementation advancement of the LQS competencies.

Table 16*Comparison Between Year One, Year Two and Year Three Results of Implementation Advancement*

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

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 18 and Figure 22 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 2.32.

It is important to cross reference these results with those from Part 1 of the 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 (3.76) indicates that school and district leaders are at the enacting or adapting phase of implementation in their practice. As leaders are still adapting to new ways of working and leading, additional professional learning to support LQS competencies is warranted.

Table 17*Averages and Variation for Professional Learning Related to Nine LQS Competencies*

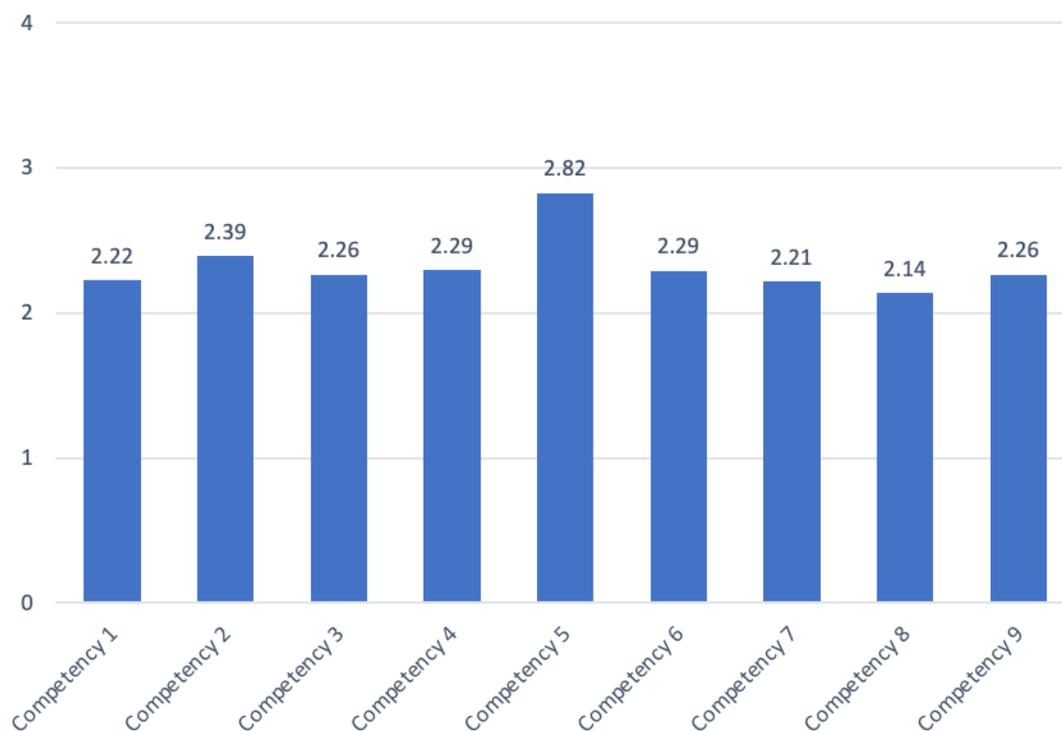
Construct	Mean	Standard Deviation
Competency 1: Fostering Effective Relationships ($\alpha=0.87$)	2.22	0.64
1. I require PL about building trusting relationships with parents/guardians of students in my school or community of schools.	1.91	0.85
2. I require PL about creating a welcoming, caring, respectful, 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	0.76
4. I require PL about demonstrating a commitment to the health and well-being of all teachers, staff, and students.	2.21	0.86
5. I require PL about strengthening relationships to promote collective, collaborative, complex problem solving with the school community.	2.24	0.78
Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.81$)	2.39	0.56
1. I require PL about engaging with others to improve my leadership practice (e.g. with teachers, principals, other leaders).	2.34	0.78
2. I require PL about seeking out feedback from a variety of sources to enhance my leadership practice.	2.27	0.75
3. I require PL about new developments in leadership research and theory.	2.57	0.68
4. I require PL about engaging members the school community to build a shared understanding of current trends and priorities in the education system.	2.41	0.73
Competency 3: Embodying Visionary Leadership ($\alpha=0.86$)	2.26	0.60
1. I need PL on communicating an educational philosophy that is student-centered and based on sound principles of effective teaching and leadership.	2.13	0.76
2. I require PL about better appreciating diversity.	2.29	0.88
3. I require PL about developing collaboration among leaders.	2.22	0.75
4. I require PL about promoting innovation and continuous improvement.	2.35	0.72
5. I require PL about using a range of data to determine progress towards goals.	2.34	0.77
Competency 4: Leading a Learning Community ($\alpha=0.86$)	2.29	0.63

Construct	Mean	Standard Deviation
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> .	2.27	0.83
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.	2.24	0.84
3. I require PL about cultivating a culture of high expectations for all students and staff.	2.18	0.84
4. I require PL about collaborative learning opportunities for other leaders, teachers, and support staff.	2.30	0.79
5. I require PL about collaborating with community service agencies to provide wrap-around supports for all students who may require them.	2.49	0.82
Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit ($\alpha=0.95$)	2.82	0.68
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.	2.91	0.74
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.	2.81	0.80
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.	2.85	0.74
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.	2.77	0.77
5. I require PL about facilitating reconciliation within the school and/or school authority.	2.78	0.75
Competency 6: Providing Instructional Leadership ($\alpha=0.90$)	2.29	0.62
1. I require PL about strengthening the capacity of all teachers to respond to the learning needs of every student.	2.67	0.77
2. I require PL about instruction that addresses learning outcomes outlined in the programs of study.	2.00	0.79
3. I require PL about assessment.	2.22	0.80
4. I require PL about effective pedagogy.	2.17	0.75
5. I require PL about using data for improving the quality of the school and/or school authority.	2.38	0.77
Competency 7: Developing Leadership Capacity ($\alpha=0.89$)	2.21	0.63

Construct	Mean	Standard Deviation
1. I require PL about collaborative decision making informed by open dialogue.	2.05	0.74
2. I require PL about empowering teachers in educational leadership roles.	2.17	0.80
3. I require PL about the constructive involvement of school council(s) in school life.	2.29	0.78
4. I require PL about strengthening students' voice in school leadership and decision making.	2.36	0.78
5. I require PL about promoting shared leadership among members of the school community.	2.20	0.82
Competency 8: Managing School Operations and Resources ($\alpha=0.91$)	2.14	0.67
1. I require PL about applying principles of effective teaching and learning, child development, and ethical leadership.	2.18	0.76
2. I require PL about aligning practices, procedures, policies, decisions, and resources with school and school authority vision, goals, and priorities.	2.07	0.74
3. I require PL about allocating resources to improve the learning environments of all students	2.16	0.82
4. I require PL about facilitating access to appropriate technology and digital learning environments.	2.17	0.85
5. I require PL about aligning operations with provincial legislation, regulations and policies, and the policies and processes of the school authority.	2.09	0.77
Competency 9: Understanding and Responding to the Larger Societal Context ($\alpha=0.91$)	2.26	0.64
1. I require PL about supporting members of the school community understand the legal frameworks and policies of the Alberta Education system.	2.31	0.78
2. I require PL about representing the needs of students at all levels of the education system.	2.20	0.86
3. I require PL about engaging local community to understand the local context.	2.28	0.75
4. I require PL about understanding the ways local, provincial, and international issues and trends impact education.	2.26	0.77
5. I require PL about facilitating conversations with stakeholders regarding matters impacting schools and school authorities.	2.27	0.77

Figure 22

Means of Professional Learning Need Related to Nine LQS Competencies



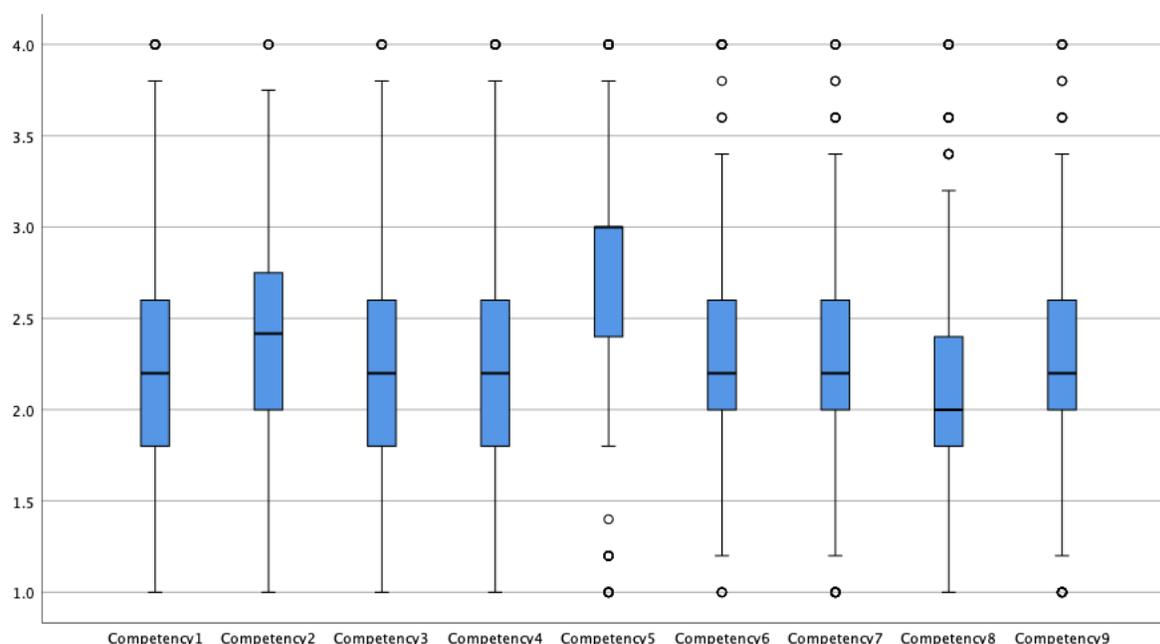
Note. 4-point Likert scale: 1= No need at present; 2= Low level of need; 3= Moderate level of need; 4= High level of need

Box and Whisker Plot

The following box and whisker plot (Figure 23) shows the distribution and variation within the data set for the four competencies. As can be observed in the box and whisker plot, there is a strong negative skewing in competencies 5. 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 23

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



Comparison of Year 1, Year 2 and Year 3 Results

Table 18 provides a comparison of year one, year two and year three results for professional learning needs of the LQS competencies. Perhaps most noticeable is a relatively low level of additional need beyond what leaders are currently accessing. However, the distribution as reported in the box and whisker plot (Figure 23) suggests many participants indicated a high level of need. School authorities are advised to examine their individual Year 3 division survey reports if they participated in the survey. Other school authorities might wish to conduct a needs analysis.

All competency areas were included in the survey this year. In subsequent years, participants will continue to respond to questions regarding their professional learning needs in each competency area to inform leadership development.

Table 18

Comparison Between Year One, Year Two and Year Three Results for Professional Learning Needs

Competency	Year One (n=630)	Year Two (n=444)	Year Three (n=387)
Competency 1: Fostering Effective Relationships	na	2.25	2.22
Competency 2: Modeling Commitment to Professional Learning	2.40	2.44	2.39
Competency 3: Embodying Visionary Leadership	2.29	2.28	2.26
Competency 4: Leading a Learning Community	2.36	2.27	2.29
Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit	na	2.72	2.82
Competency 6: Providing Instructional Leadership	2.42	2.28	2.29

Competency 7: Developing Leadership Capacity	2.41	2.21	2.21
Competency 8: Managing School Operations and Resources	2.36	2.17	2.14
Competency 9: Understanding and Responding to the Larger Societal	na	2.27	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 (95%, 83%, 82%), participating in a professional learning network formed at the school authority level (85%), and attending conferences (79%). The results indicate leaders are attending to Competency 2: Modeling a Commitment to Professional Learning. Online courses, formal qualifications programs, and peer or self-observation or coaching as part of a formal school arrangement are not as widely considered for principals’ professional learning, as in person professional learning, in person courses and seminars, or network participation.

Table 19

Frequencies and Reliability of Various Types of Professional Learning Accessed

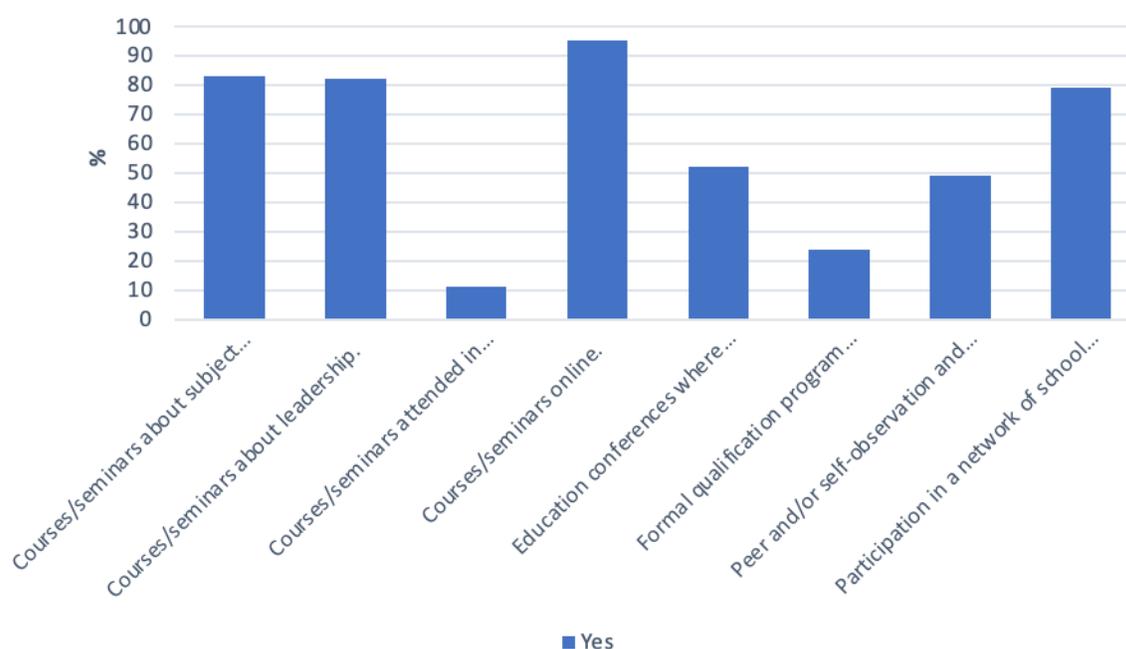
	Frequency (%)	
	Yes	No
In the last 12 months, did you participate in any of the following professional learning activities aimed at you as the school authority leader? ($\alpha=0.62$)		
Courses/seminars about subject matter, teaching methods, or pedagogical topics.	228 (83%)	47 (17%)
Courses/seminars about leadership.	226 (82%)	49 (18%)
Courses/seminars attended in person.	30 (11%)	245 (89%)
Courses/seminars online.	260 (95%)	14 (5%)
Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues.	143 (52%)	132 (48%)
Formal qualification program (degree program, certificate program).	67 (24%)	208 (76%)

Peer and/or self-observation and coaching as part of a formal school arrangement.	135 (49%)	140 (51%)
Participation in a network of school or school authority leaders formed specifically for the professional learning of school and school authority leaders.	218 (79%)	57 (21%)

The following graph (Figure 24) provides a visual representation of the data in Table 16.

Figure 24

Types of Professional Learning Accessed



Comparison of Year 1, Year 2 and Year 3 Results

Table 21 provides a comparison of year one, year two and year three results for form 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).

Table 20

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

Form of Professional Learning Accessed	Year One (n=630)	Year Two (n=444)	Year Three (n=387)
Courses/seminars about subject matter, teaching methods, or pedagogical topics.	480 (91%)	245 (83%)	228 (83%)
Courses/seminars about leadership.	426 (95%)	250 (84%)	226 (82%)
Courses/seminar attended in person.	437 (98%)	150 (51%)	30 (11%)
Courses/seminars online.	209 (47%)	284 (96%)	260 (95%)
Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues.	341 (76%)	182 (61%)	143 (52%)
Formal qualification program (degree program, certificate program).	200 (45%)	88 (30%)	67 (24%)
Peer and/or self-observation and coaching as part of a formal school arrangement.	257 (58%)	159 (54%)	135 (49%)
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%)

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 three years are presented in Table 22.

Table 21

Averages and Variation for Implementation Advancement and Professional Learning Level of Needs across Three Years (2019-2021)

	Total (n=941)		Year 1 (n=454)		Year 2 (n=212)		Year 3 (n=270)	
	M	SD	M	SD	M	SD	M	SD
Implementation Advancement								
Competency 1: Fostering Effective Relationships	3.77	0.52	3.84	0.60	3.68	0.40	3.70	0.44
Competency 2: Modeling Commitment to Professional Learning	3.92	0.69	4.20	0.71	3.66	0.52	3.64	0.56
Competency 3: Embodying Visionary Leadership	3.90	0.58	4.05	0.62	3.78	0.45	3.75	0.51
Competency 4: Leading a Learning Community	4.05	0.60	4.31	0.58	3.79	0.47	3.80	0.53
Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit	3.32	0.77	3.37	0.83	3.19	0.70	3.35	0.72
Competency 6: Providing Instructional Leadership	4.06	0.54	4.23	0.53	3.92	0.49	3.89	0.50
Competency 7: Developing Leadership Capacity	3.88	0.70	4.15	0.72	3.67	0.53	3.59	0.61
Competency 8: Managing School Operations and Resources	4.05	0.68	4.18	0.81	3.92	0.50	3.93	0.51
Competency 9: Understanding and Responding to the Larger Societal	3.56	0.72	3.66	0.80	3.52	0.60	3.44	0.63
Professional Learning Level of Needs								
Competency 1: Fostering Effective Relationships	2.26	0.63	X	X	2.28	0.67	2.24	0.60
Competency 2: Modeling Commitment to Professional Learning	2.42	0.63	2.40	0.70	2.47	0.57	2.42	0.51
Competency 3: Embodying Visionary Leadership	2.30	0.69	2.29	0.78	2.34	0.62	2.28	0.55
Competency 4: Leading a Learning Community	2.33	0.68	2.36	0.75	2.29	0.63	2.31	0.60

Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit	2.81	0.67	X	X	2.74	0.71	2.86	0.64
Competency 6: Providing Instructional Leadership	2.36	0.64	2.42	0.65	2.31	0.67	2.29	0.58
Competency 7: Developing Leadership Capacity	2.32	0.71	2.41	0.79	2.24	0.65	2.21	0.58
Competency 8: Managing School Operations and Resources	2.27	0.64	2.36	0.62	2.21	0.66	2.13	0.63
Competency 9: Understanding and Responding to the Larger Societal	2.28	0.60	X	X	2.29	0.63	2.27	0.59

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 three time periods (Pillai's Trace = 0.987; F-value = 7554.353; $p < 0.025$). A statistically significant intercept indicates as one competency increase, another decrease 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 all nine competencies are statistically significant. Please refer to Table 24 for the statistical values of each analysis.

Table 22

Univariate Results of Implementation Advancement Competencies

	Type III Sum of Squares	Mean Square	F- Value	Significance	Partial Eta Squared
Competency 1: Fostering Effective Relationships	5.53	2.76	10.27	<0.001*	0.022
Competency 2: Modeling Commitment to Professional Learning	72.69	36.35	91.00	<0.001*	0.163
Competency 3: Embodying Visionary Leadership	19.10	9.55	30.73	<0.001*	0.062
Competency 4: Leading a Learning Community	62.65	31.33	107.54	<0.001*	0.187

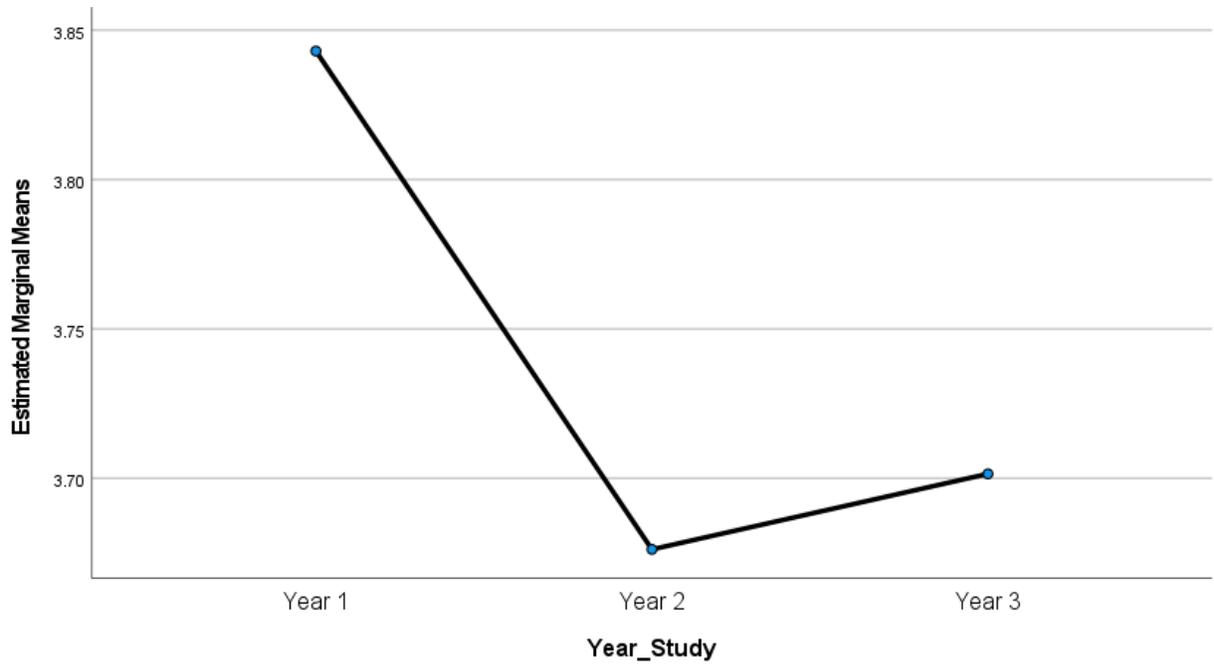
Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit	5.32	2.66	4.52	0.011*	0.010
Competency 6: Providing Instructional Leadership	25.50	12.75	48.06	<0.001*	0.093
Competency 7: Developing Leadership Capacity	66.30	33.15	78.70	<0.001*	0.144
Competency 8: Managing School Operations and Resources	15.10	7.55	16.81	<0.001*	0.035
Competency 9: Understanding and Responding to the Larger Societal	8.52	4.26	8.40	<0.001*	0.018

Each of the nine statistically significant competencies were analyzed using post-hoc analyses (i.e., Scheffe multiple comparisons was used because it is more conservative) to identify the statistically significant differences among the three time points. Post-hoc results indicate competencies 1, 2, 3, 4, 6, 7, and 8 showed statistically significant differences between Year 1 and 2 as well as Year 1 and 3. Additionally, Competency 5 only indicated statistically significant differences between Year 1 and 3 while Competency 9 only indicated statistically significant differences between Year 1 and 2.

For Competency 1, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.1669, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.1416, $p < 0.025$). A plot of the change among the three years is shown in Figure 25.

Figure 25

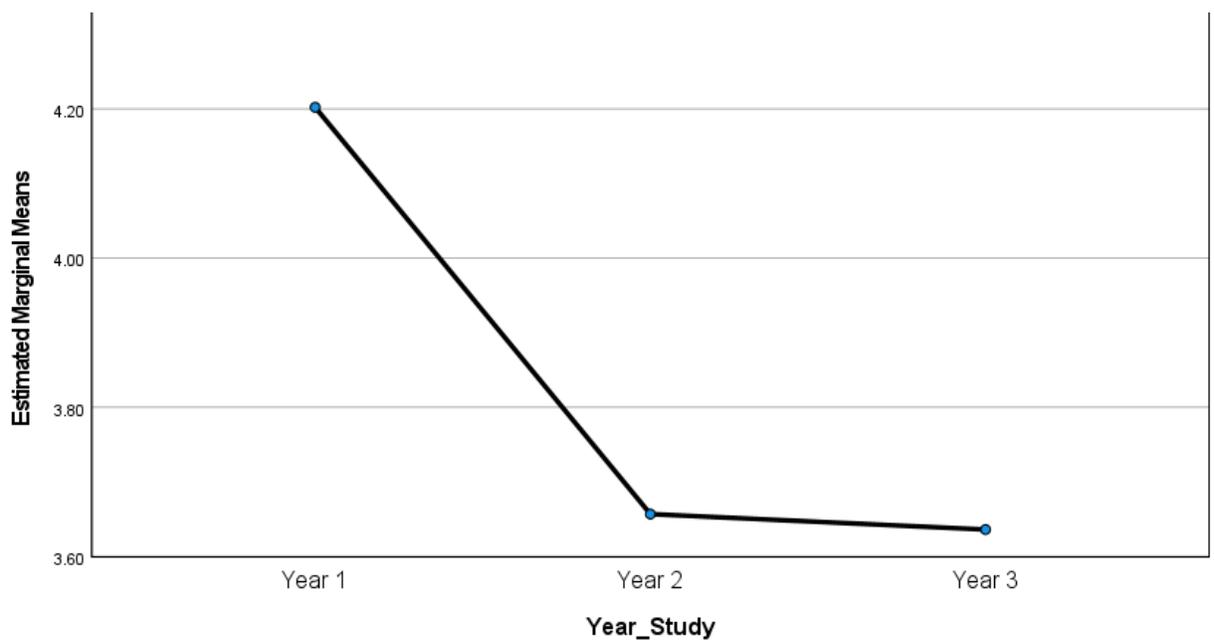
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 1: Fostering Effective Relationships



For Competency 2, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.5458, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.5665, $p < 0.025$). A plot of the change among the three years is shown in Figure 26.

Figure 26

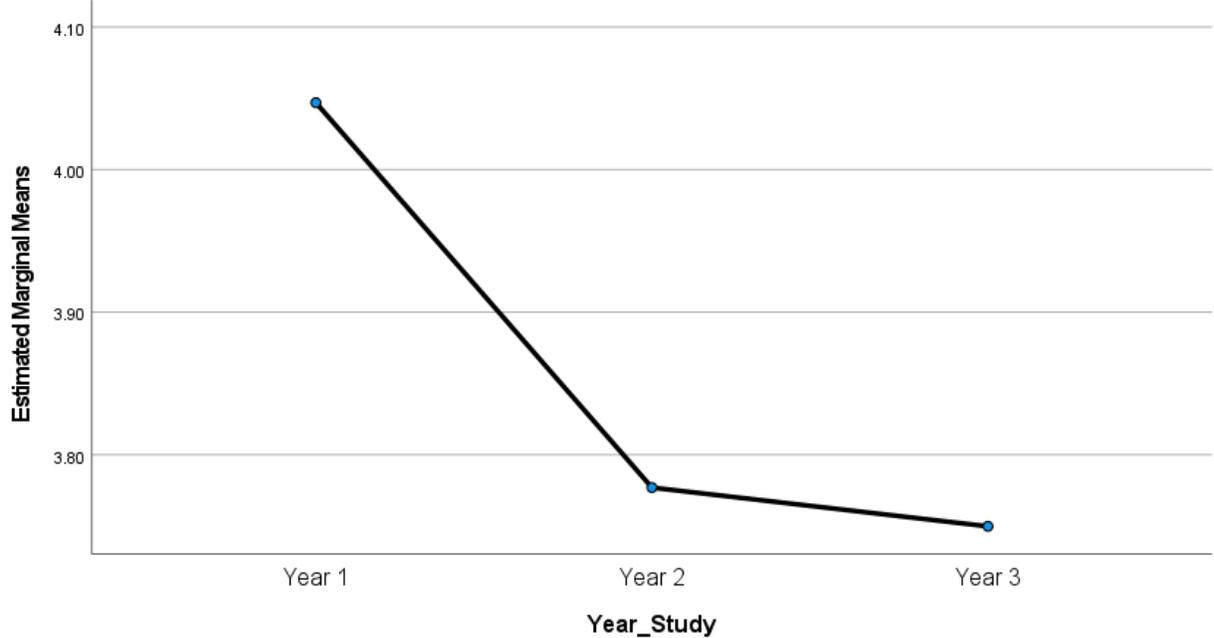
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 2: Modeling Commitment to Professional Learning



For Competency 3, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.2699, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.2971, $p < 0.025$). A plot of the change among the three years is shown in Figure 27.

Figure 27

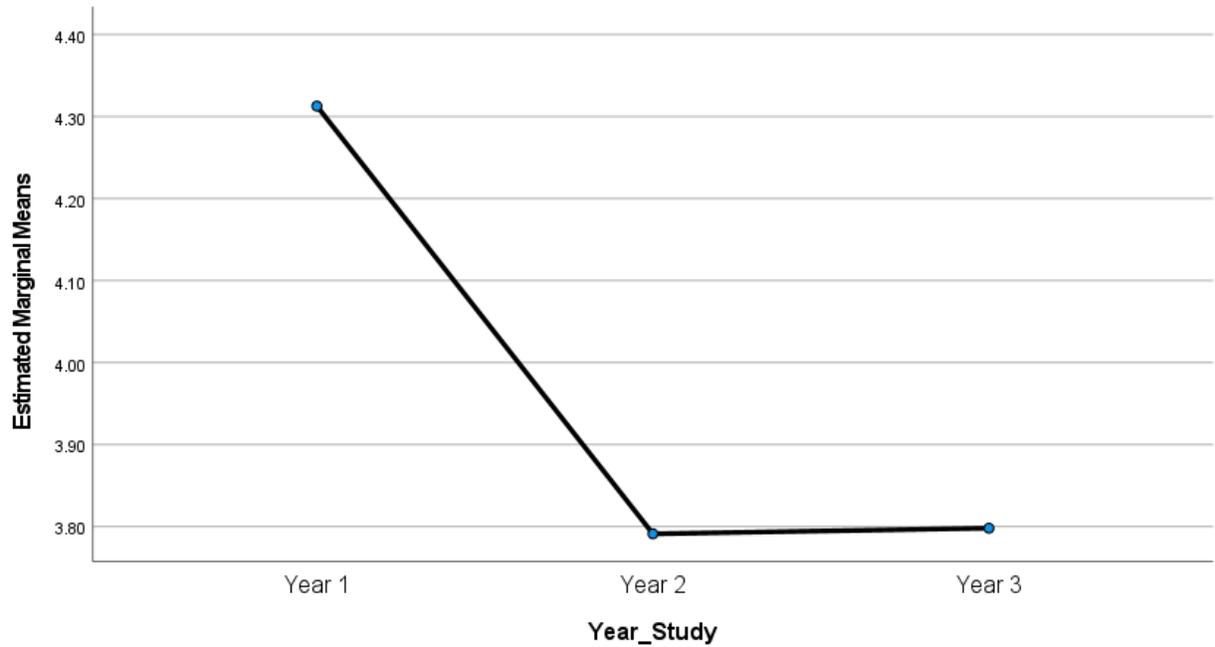
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 3: Embodying Visionary Leadership



For Competency 4, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.5215, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.5146, $p < 0.025$). A plot of the change among the three years is shown in Figure 28.

Figure 28

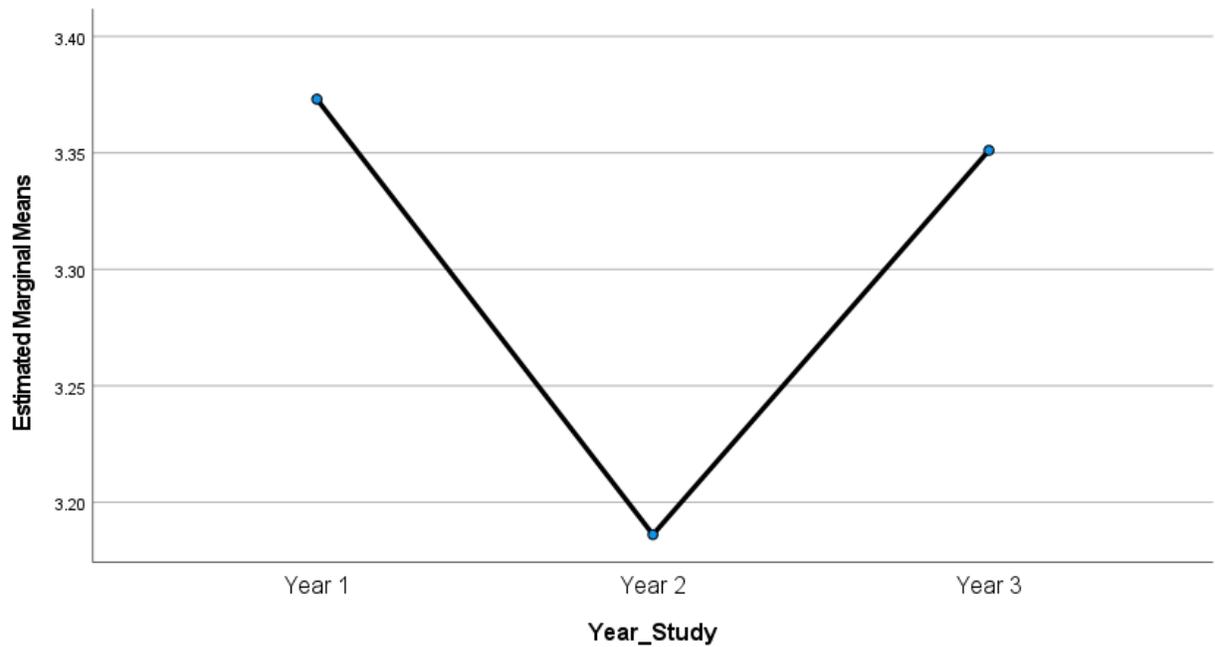
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 4: Leading a Learning Community



For Competency 5, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.1869, $p < 0.025$). A plot of the change among the three years is shown in Figure 29.

Figure 29

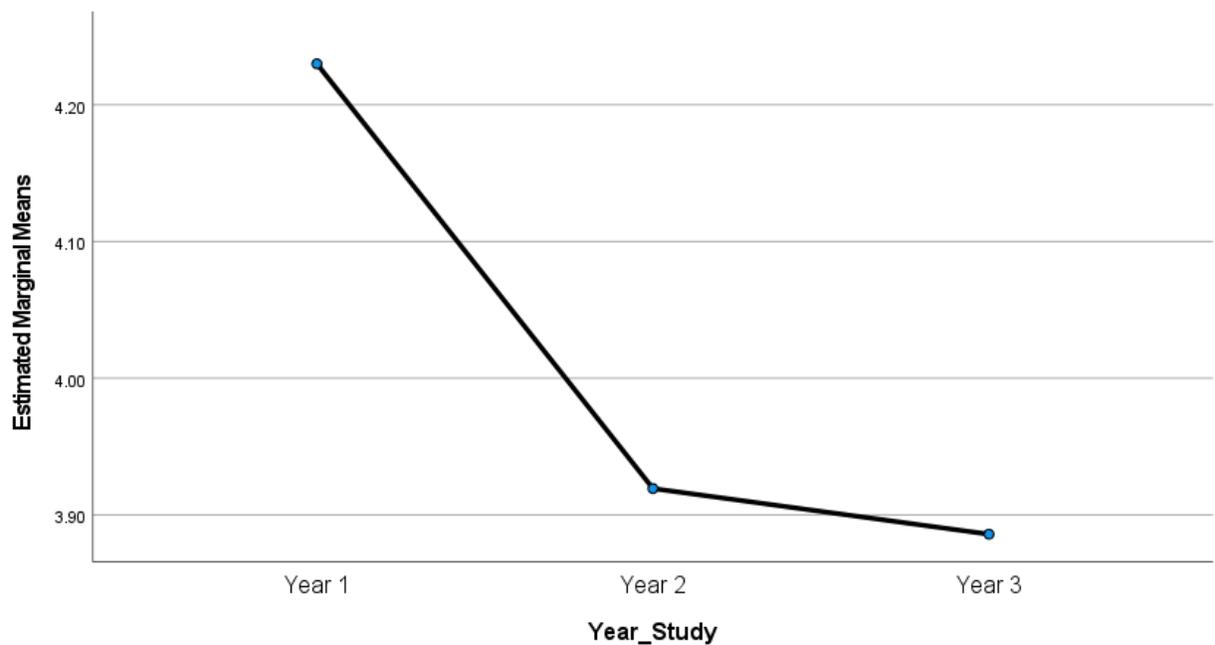
Profile Plot Using the Estimated Marginal Means of Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit



For Competency 6, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.3107, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.3441, $p < 0.025$). A plot of the change among the three years is shown in Figure 30.

Figure 30

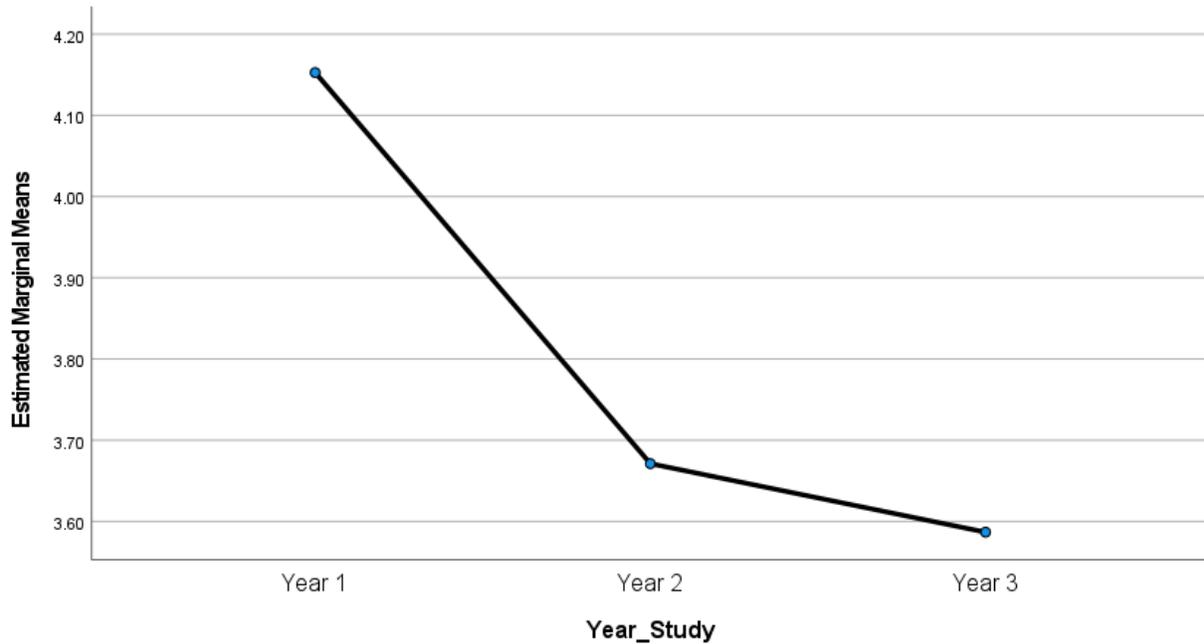
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 6: Providing Instructional Leadership



For Competency 7, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.4819, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.5662, $p < 0.025$). A plot of the change among the three years is shown in Figure 31.

Figure 31

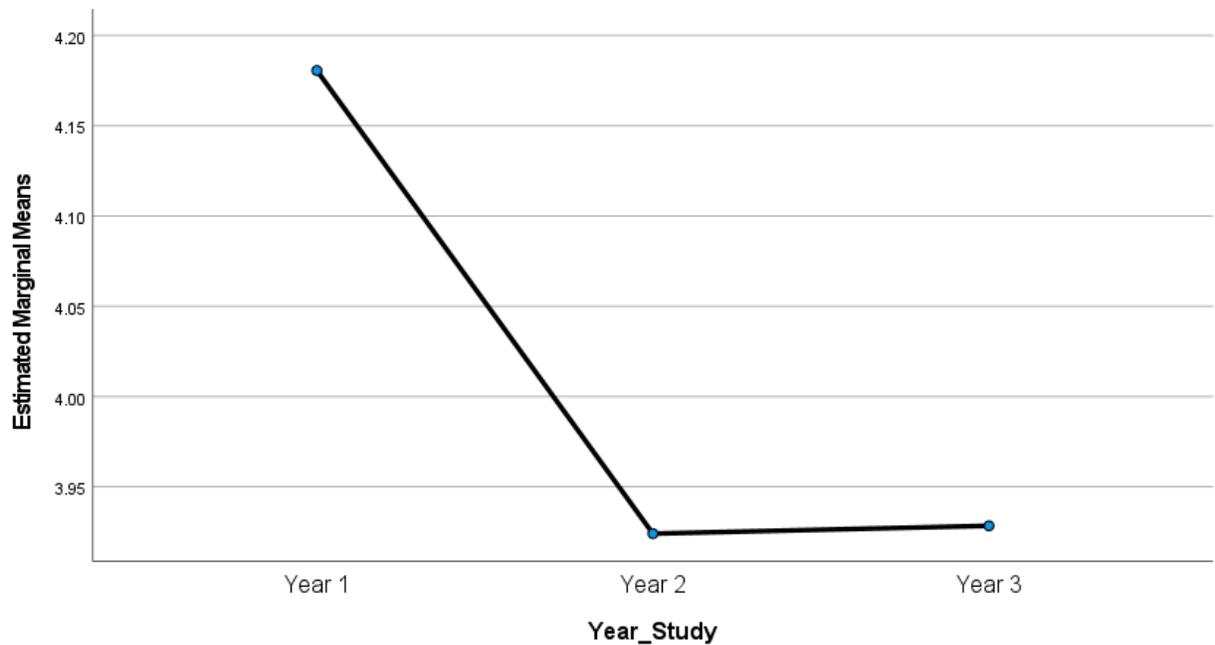
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 7: Developing Leadership Capacity



For Competency 8, the post-hoc results indicate a statistically significant difference between Year 1 and 2 (Mean difference = 0.2566, $p < 0.025$) as well as Year 1 and 3 (Mean difference = 0.2522, $p < 0.025$). A plot of the change among the three years is shown in Figure 32.

Figure 32

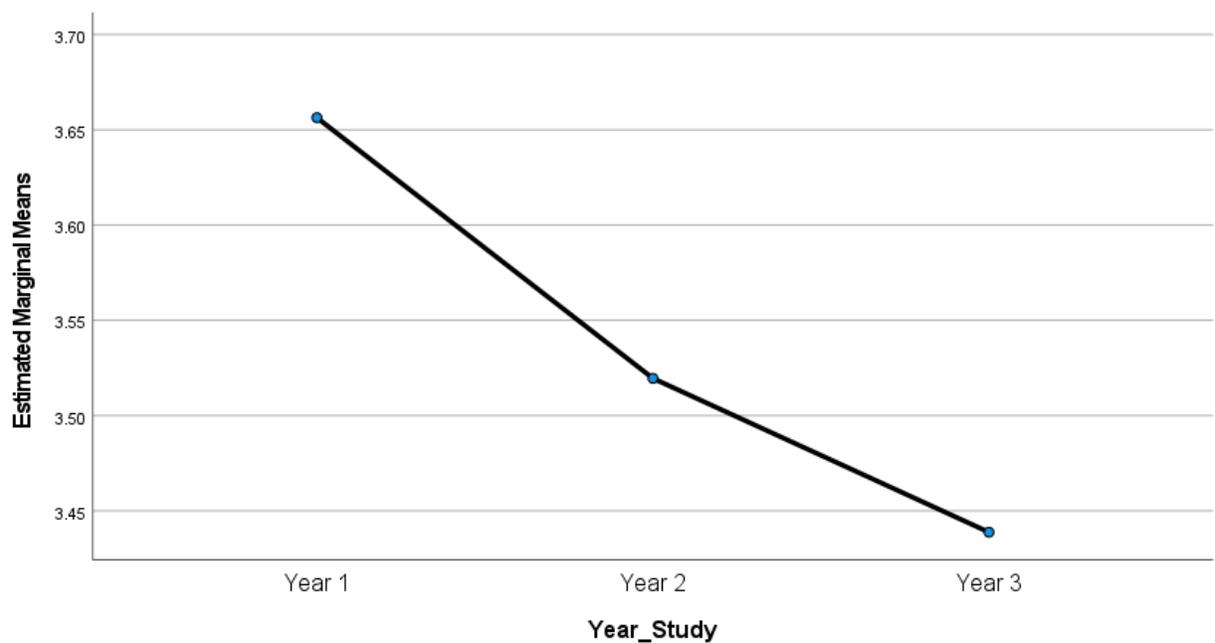
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 8: Managing School Operations and Resources



For Competency 9, the post-hoc results indicate a statistically significant difference between Year 1 and 3 (Mean difference = 0.2176, $p < 0.025$). A plot of the change among the three years is shown in Figure 33.

Figure 33

Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 9: Understanding and Responding to the Larger Societal Context



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 and 3 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 = 0.945; F-value = 2469.247; $p < 0.025$), 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 7 and 8 are statistically significant. Please refer to Table 25 for the statistical values of each analysis.

Table 23

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

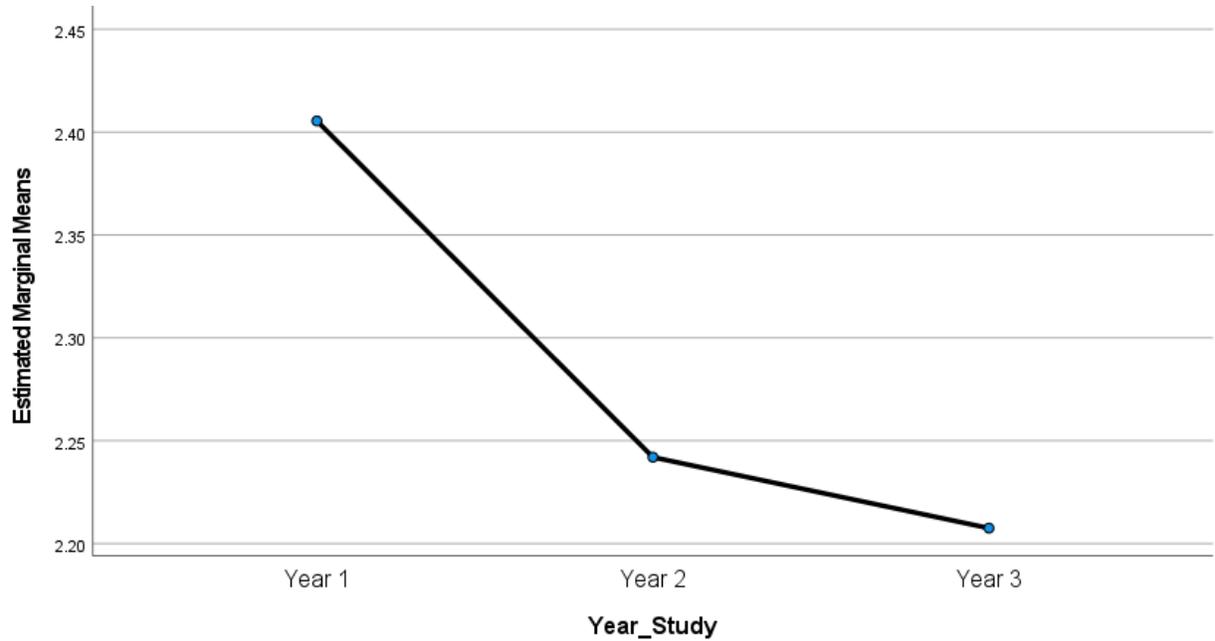
	Type III Sum of Squares	Mean Square	F- Value	Significance	Partial Eta Squared
Competency 2: Modeling Commitment to Professional Learning	0.72	0.36	0.92	0.400	0.002
Competency 3: Embodying Visionary Leadership	0.42	0.21	0.44	0.645	0.001
Competency 4: Leading a Learning Community	0.84	0.42	0.90	0.407	0.002
Competency 6: Providing Instructional Leadership	3.00	1.50	3.71	0.025	0.009
Competency 7: Developing Leadership Capacity	7.40	3.70	7.34	0.001*	0.017
Competency 8: Managing School Operations and Resources	8.98	4.49	11.30	0.000*	0.026

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 Competencies 7 and 8 showed statistically significant differences between Year 1 and 3.

For Competency 7, the post-hoc results indicate a statistically significant difference between Year 1 and 3 (Mean difference = 0.1979, $p < 0.025$). A plot of the change among the three years is shown in Figure 34.

Figure 34

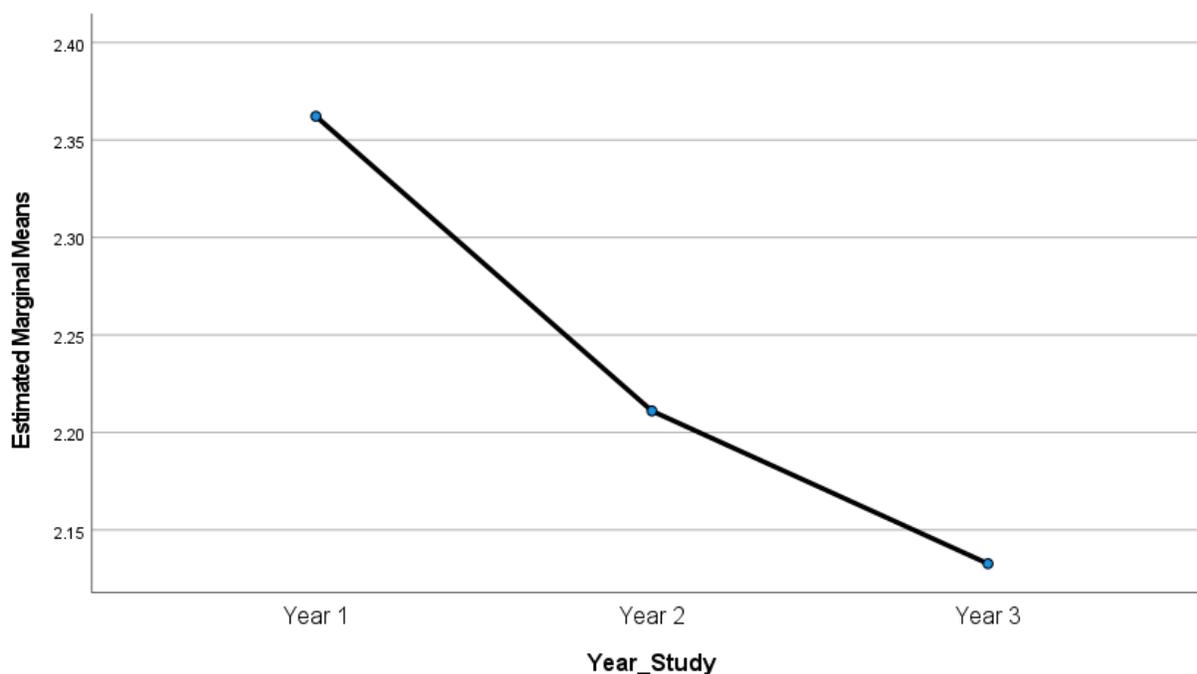
Year Over Year Profile Plot Using the Estimated Marginal Means of Competency 7: Developing Leadership Capacity



For Competency 8, the post-hoc results indicate a statistically significant difference between Year 1 and 3 (Mean difference = 0.2295, $p < 0.025$). A plot of the change among the three years is shown in Figure 35.

Figure 35

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



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

The intercept for this analysis was again statistically significant (Pillai's Trace = 0.958; F-value = 3246.800; $p < 0.025$), which indicate some of the variables increased while others decreased at a rate that makes these competencies related.

Results of the three univariate analyses indicate none of these competencies are statistically significant. Please refer to Table 26 for the statistical values of each analysis.

Table 24

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	0.17	0.17	0.43	0.510	0.001
Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit	1.42	1.42	3.14	0.077	0.007
Competency 9: Understanding and Responding to the Larger Societal	0.04	0.04	0.12	0.734	0.000

Summary of Leader Survey Results

This section of the report summarizes the results of the year 3 leader survey related to implementation advancement, professional learning needs, and participation in various types of

professional learning activities. Although the instrumentation was not identical for teachers and leaders, four overall contrasts can be made:

1. Consistent with year 1 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, 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 3, school and system leaders report having taken a step back in implementation of the LQS standard in seven of the competency areas. This is particularly evident in Competencies 3, 4, 5, 6, and 7. While the regression is minimal, it is also worthy of attention. Whether this is a response to leading schools and school authorities during a pandemic is unclear and deserves further investigation.
3. School and system leaders' expressions of need for professional learning continue to be low, as in years 1-2; however, negative skewing of the data and a number of outliers beyond the lower quartile range warrants further investigation.
4. School leaders and system leaders have continued to engage in multiple forms of professional learning to advance implementation efforts. It is encouraging to see many reporting they are participating in networks of leaders at the school and division levels designed for professional learning purposes.
5. The forms and formats of professional learning for Alberta school administrators have necessarily changed in the midst of a public health crisis. Addressing onerous demands in closing and opening schools, helping move students and teachers online, and responding to public health advisories have been a preoccupation. At the same time, leadership development as offered by provincial, national and international post-secondary institutions is also changing from predominately face-to-face interactions toward virtual offerings. What this means for implementation of the LQS standard is clear, but not so its enactment as behavioral change.
6. When viewed in terms of Implementation drivers, it is readily apparent that school level leaders have not had the time to move their own professional practice standards ahead over the past three years.
7. This is not to say that principals have not exercised leadership. Rather, it is to say that the LQS and its competencies have not advanced in their implementation, either technically or adaptively in the province over the past three years. Competency development has been arrested or more often put on the shelf to immediately address the rapid shifts occasioned by Covid-19 and its variants. This finding deserves further attention as it has the potential to impact teacher efficacy, i.e. leaders' report lower levels of implementation of Competency 4: Leading a Learning Community and Competency 6: Providing Instructional Leadership.
8. It remains unclear whether walkthroughs, professional growth planning, or other elements of professional practice standards for school leaders have occurred over the past two years. But if

we see implementation as translating policy words into concrete actions, many LQS requirements remain un(der)operationalized in many school offices.

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 27 and Figure 36 below indicate that the overall mean for implementation advancement of the SLQS competencies by participating superintendents ($n=27$) is 3.88 which falls in the “enacting” phase on the 5-point scale outlined in Table 1 in this report. This result indicates that superintendents are adapting to new ways of working related to the system level standard. School and jurisdiction leaders are using evidence from their practice to further refine their practices related to the competencies.

Out of the seven competencies measured in this part of the survey, five of the competencies correspond to the “enacting” or “adapting” phase on the Implementation Advancement scale: Competency 1 – Building Effective Relationships (mean= 3.92), Competency 4 – Leading Learning (mean=3.85), Competency 5 – Ensuring First Nations, Métis and Inuit Education for All Students (mean=3.53), Competency 6 – School Authority Operations and Resources (mean=3.91), and Competency 7 – Supporting Effective Governance (mean=3.88). Results further indicate that Competency 2 – Modeling Commitment to Professional Learning (mean=4.05), and Competency 3 – Visionary Leadership (mean=4.02) correspond to the “embedding” phase.

Table 25

Averages and Variation for Implementation Advancement Related to Seven SLQS Competencies

Construct	Mean	Standard Deviation
Competency 1: Building Effective Relationships ($\alpha=0.69$)	3.92	0.49
1. I build relationships through collaborating with leaders in the school authority to build trusting relationships with parents/guardians of the students.	4.18	0.73
2. I build relationships with First Nations, Métis and Inuit parents/guardians, Elders, local leaders and community members.	3.18	0.80
3. I build relationships by modelling ethical leadership practices.	4.36	0.66
4. I establish constructive relationships with all members of the educational community.	4.00	0.76
5. I build relationships by facilitating the meaningful participation of all members of the school and local community.	3.86	0.71

Construct	Mean	Standard Deviation
Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.83$)	4.05	0.58
1. I communicate a student-centered philosophy based on sound principles of effective teaching and leadership.	4.18	0.73
2. I collaborate with all members of the jurisdiction and other superintendents to build professional expertise.	4.09	0.87
3. I actively seek out feedback from a variety of sources to enhance my leadership practice.	4.00	0.62
4. I apply educational research to inform my leadership practice.	4.09	0.75
5. I engage members of the school authority to establish a shared understanding of current trends and priorities in the education system.	3.91	0.75
Competency 3: Visionary Leadership ($\alpha=0.79$)	4.02	0.51
1. I ensure the vision is informed by research on effective learning, teaching, and leadership.	3.86	0.47
2. I promote innovation that results in a commitment to continuous improvement.	3.82	0.85
3. I promote a common understanding of the school authority's goals, priorities, and strategic initiatives.	4.32	0.72
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.	4.05	0.72
5. I ensure that the vision meets all requirements identified in provincial legislation.	4.05	0.65
Competency 4: Leading Learning ($\alpha=0.81$)	3.85	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> .	4.09	0.75
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.	3.86	0.64
3. I ensure that all instruction in the school authority addresses learning outcomes outlined in the programs of study.	3.86	0.64
4. I build school and jurisdiction leaders' capacities and hold them accountable for providing instructional leadership through effective support, supervision and evaluation.	3.82	0.59
5. I ensure that student assessment and evaluation practices are evidence-based and accurate.	3.59	0.73

Construct	Mean	Standard Deviation
Competency 5: Ensuring First Nations, Métis and Inuit Education for All Students ($\alpha=0.81$)	3.53	0.58
1. I support staff in accessing the professional learning required to meet the learning needs of First Nations, Métis, Inuit and all other students.	3.64	0.79
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.	3.09	0.97
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.	3.59	0.67
4. I align school authority resources to support First Nations, Métis, and Inuit student achievement.	3.59	0.73
5. I engage in practice to facilitate reconciliation within the school community.	3.73	0.63
Competency 6: School Authority Operations and Resources ($\alpha=0.87$)	3.91	0.55
1. I provide direction on resource management in accordance with all statutory, regulatory, and school authority requirements.	3.77	0.69
2. I provide support for ongoing supervision and evaluation of all staff members in relation to their respective professional responsibilities.	3.68	0.72
3. I establish data-informed strategic planning that are responsive to changing contexts.	3.91	0.53
4. I respect cultural diversity in differing perspectives in the school community.	4.27	0.70
5. I implement programs and procedures for the effective management of human resources in support of mentorship, capacity-building and succession planning.	3.91	0.75
Competency 7: Supporting Effective Governance ($\alpha=0.88$)	3.88	0.60
1. I sustain a productive working relationship with the board, based on mutual trust, respect, and integrity.	3.77	0.81
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.	4.09	0.68
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.	3.86	0.64
4. I support the regular review and evaluation of the impact of board policies.	3.77	0.75
5. I build the capacity of the board and staff to predict, communicate and respond to emergent circumstances, including emergency readiness	3.91	0.75

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 ($n=36$).

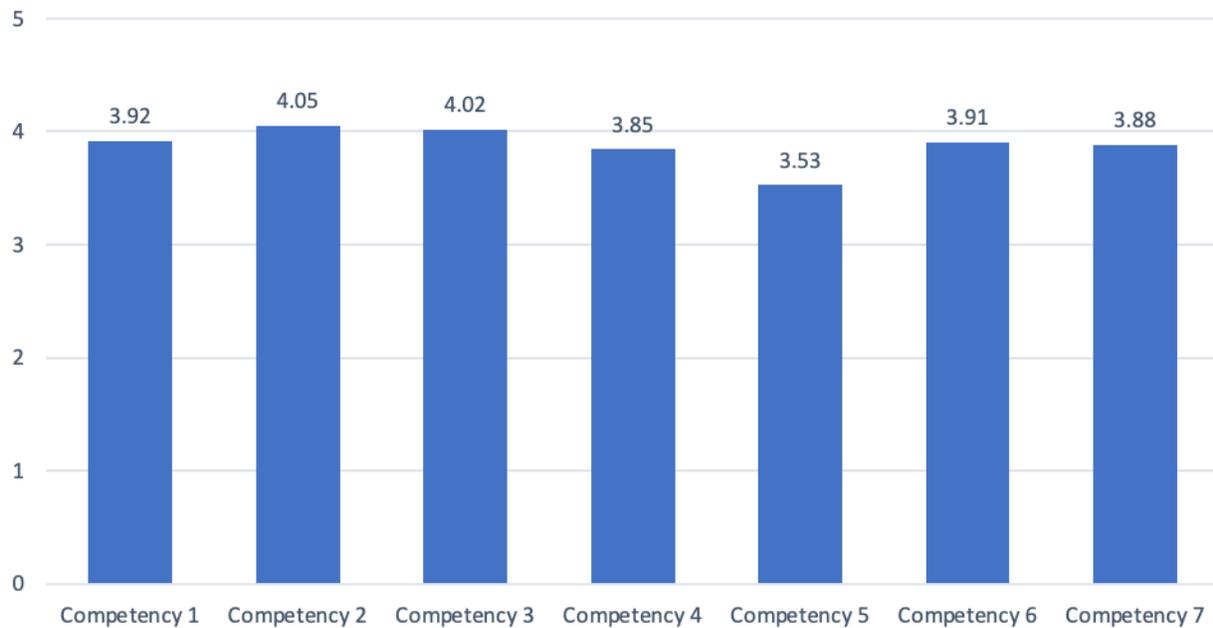
Table 26

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.	3.92	Competency 1: Building Effective Relationships
	3.85	Competency 4: Leading a Learning Community
	3.53	Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit
	3.91	Competency 6: School Authority Operations and Resources
	3.88	Competency 7: Supporting Effective Governance
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	4.05	Competency 2: Modeling Commitment to Professional Learning
	4.02	Competency 3: Visionary Leadership

Figure 36

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



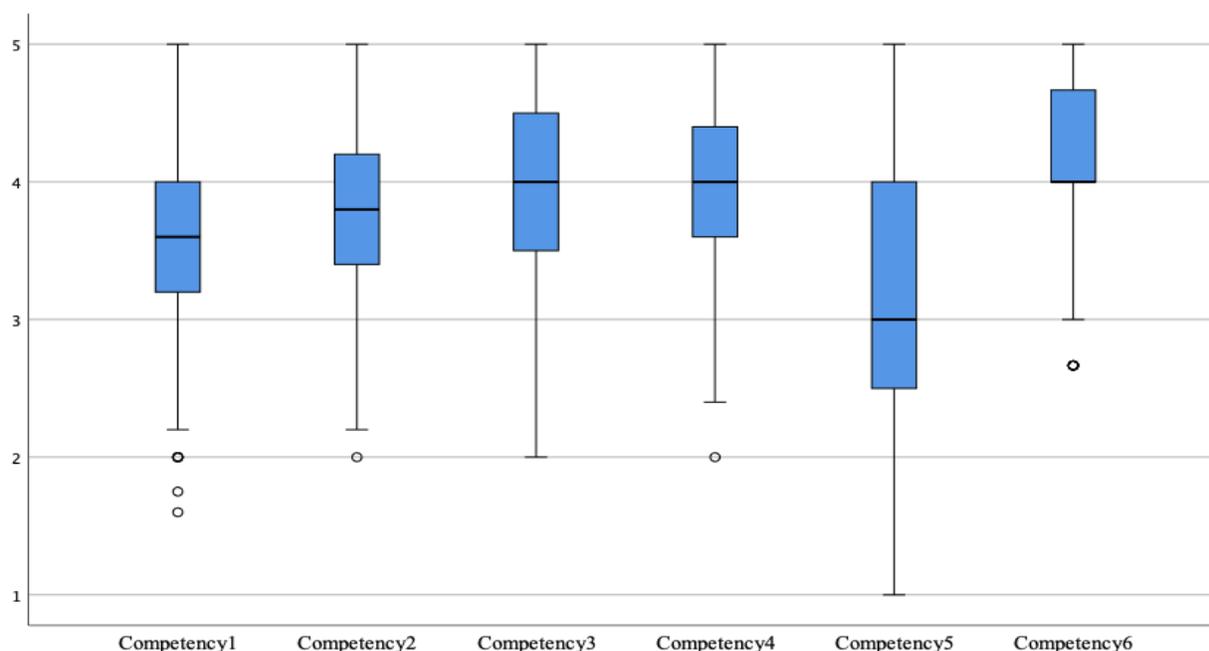
Box and Whisker Plot

The following box and whisker plot (Figure 37) shows both the distribution and variation within the data set. A box and whisker plot sets out 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 for each of the five 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 5.

As can be observed in the box and whisker plot below, there is positive skewness in the data for competencies 2 and 4 and negative skewness in competency 1 and 7; however, the other competencies' data are fairly symmetrical indicating a fairly normal distribution of the data.

Figure 37

Distribution and Variance in Implementation Advancement Related to SLQS Competencies



Comparison of Year 1, Year 2 and Year 3 Results

Table 19 provides a comparison of year one, year two and year three results for implementation advancement of the SLQS competencies.

Table 27

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)
Competency 1: Building Effective Relationships	3.69	3.68	3.92
Competency 2: Modeling Commitment to Professional Learning	4.11	3.94	4.05
Competency 3: Visionary Leadership	3.86	3.87	4.02
Competency 4: Leading Learning	3.87	3.91	3.85
Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students	3.48	3.43	3.53
Competency 6: School Authority Operations and Resources	3.97	3.95	3.91
Competency 7: Supporting Effective Governance	3.80	3.91	3.88

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 30 and Figure 38 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 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 (3.88) indicates that school and district leaders are at the enacting phase of implementation in their practice, using evidence from their practice to further refine their practices related to the competencies. As superintendents are still in the process of adapting to new ways of working and leading, it might be that additional professional learning to support some competencies in the SLQS is warranted.

Table 28

Averages and Variation for Professional Learning Related to Seven SLQS Competencies

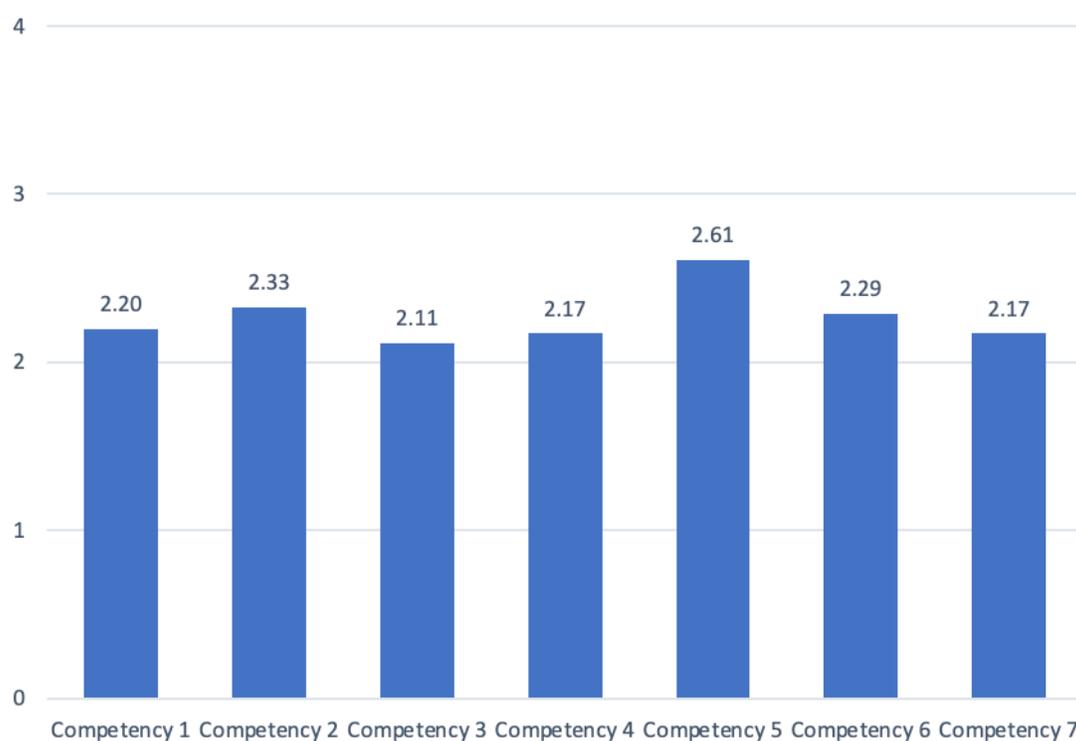
Construct	Mean	Standard Deviation
Competency 1: Building Effective Relationships ($\alpha=0.85$)	2.20	0.66
1. Building collaborative, trusting relationships with parents/guardians of the students.	1.95	0.79
2. Building relationships with First Nations, Métis and Inuit parents/guardians, Elders, local leaders and community members.	2.68	0.84
3. Modelling ethical leadership practices.	1.82	0.91
4. Establishing constructive relationships with all members of the educational community.	2.14	0.89
5. Facilitating the meaningful participation of all members of the school and local community.	2.41	0.80
Competency 2: Modeling Commitment to Professional Learning ($\alpha=0.87$)	2.33	0.74
1. Communicating a student-centered philosophy based on sound principles of effective teaching and leadership.	2.23	0.97
2. Collaborating with all members of the jurisdiction and other superintendents to build professional expertise.	2.09	0.87
3. Seeking feedback from a variety of sources to enhance my leadership practice.	2.27	0.99
4. New developments in leadership research and theory.	2.41	0.85
5. Current trends and priorities in the education system.	2.64	0.90
Competency 3: Visionary Leadership ($\alpha=0.89$)	2.11	0.69
1. Ensure the vision is informed by research on effective learning, teaching, and leadership.	2.29	0.72
2. Promoting innovation and commitment to continuous improvement.	2.32	0.95
3. Promoting a common understanding of the school authority's goals, priorities, and strategic initiatives.	2.14	0.94
4. Ensure that the vision in the school authority's education plan is responsive to ongoing review of the school authority's achievements.	2.05	0.72

Construct	Mean	Standard Deviation
5. Ensure that the vision meets all requirements identified in provincial legislation.	1.82	0.73
Competency 4: Leading Learning ($\alpha=0.87$)	2.17	0.64
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> .	2.00	0.69
2. How to design professional learning for/with school and school authority leaders.	2.09	0.81
3. Ensuring that all instruction in the school authority addresses learning outcomes outlined in the programs of study.	2.18	0.80
4. Building school and jurisdiction leaders' capacities and holding them accountable for providing instructional leadership.	2.36	0.90
5. Student assessment and evaluation practices that are evidence-based and accurate.	2.23	0.75
Competency 5: Ensuring First Nations, Métis and Inuit Education for All Students ($\alpha=0.91$)	2.61	0.65
1. Supporting staff in meeting the learning requires of First Nations, Métis, Inuit and all other students.	2.59	0.67
2. Collaborating with neighbouring First Nations and Métis leaders, organizations and communities to optimize learning.	2.77	0.69
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.	2.59	0.85
4. Aligning school authority resources to support First Nations, Métis, and Inuit student achievement.	2.45	0.80
5. Facilitating reconciliation within the school community.	2.64	0.79
Competency 6: School Authority Operations and Resources ($\alpha=0.89$)	2.29	0.69
1. Resource management in accordance with all statutory, regulatory, and school authority requirements.	2.09	0.81
2. Supervision and evaluation of all staff members regarding their respective professional responsibilities.	2.36	0.90
3. Data-informed strategic planning.	2.18	0.85
4. Culturally diverse perspectives in the school community.	2.50	0.80
5. Effective management of human resources for mentorship, capacity-building and succession planning.	2.32	0.78
Competency 7: Supporting Effective Governance ($\alpha=0.83$)	2.17	0.69
1. Sustaining productive working relationships with the board, based on mutual trust, respect, and integrity.	2.23	0.92
2. Providing a welcoming caring, respectful and safe learning environment that respects diversity and fosters a sense of belonging.	2.05	0.95

Construct	Mean	Standard Deviation
3. Meeting the standards of education set by the Minister of Education for students.	1.86	0.83
4. Regular review and evaluation of the impact of board policies.	2.27	0.94
5. Predicting, communicating and responding to emergent circumstances, including emergency readiness, crisis management, and to political, social, economic, legal and cultural contexts and trends.	2.45	0.80

Figure 38

Means of Professional Learning Need Related to Seven SLQS Competencies



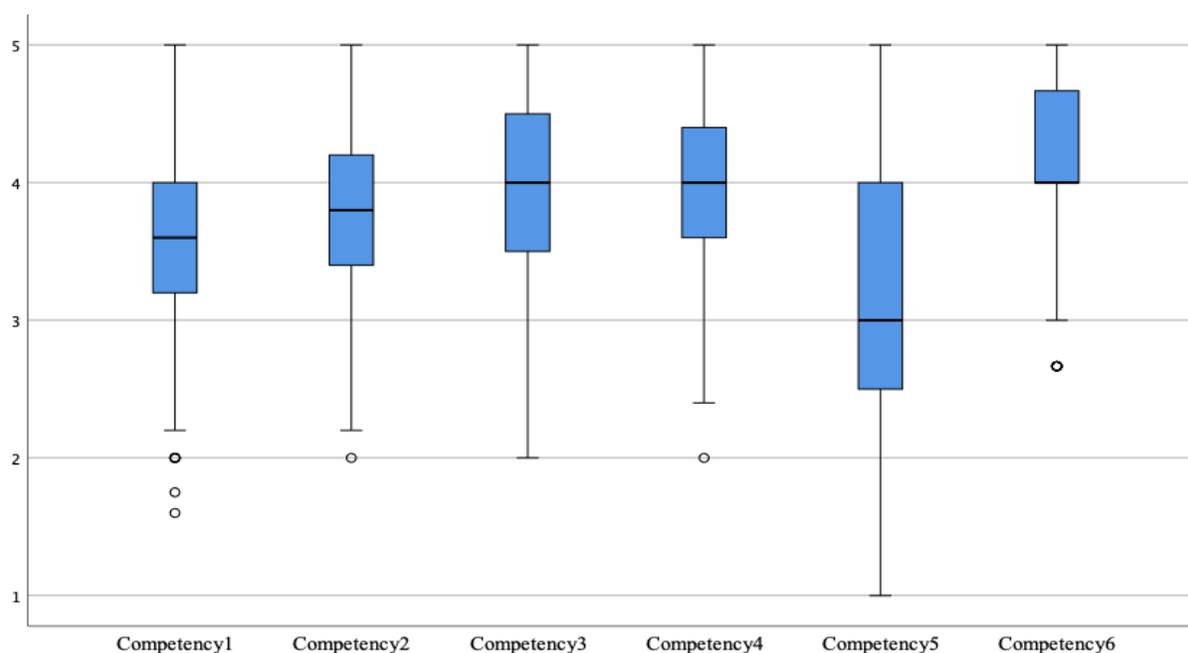
Note. 4-point Likert scale: 1= No need at present; 2= Low level of need; 3= Moderate level of need; 4= High level of need

Box and Whisker Plot

The following box and whisker plot (Figure 39) 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 for competencies 1, 2, 3, 6 and 7 indicate positive skewness of the data. The results also show some outliers for each of the competencies except competency 2 and 5.

Figure 39

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



Comparison of Year 1, Year 2 and Year 3 Results

Table 31 provides a comparison of year one, year two and year three results for professional learning needs of the SLQS competencies. The results indicate increasing need for additional professional learning to support SLQS implementation in the three competency areas measured last year. All competency areas were included in the survey this year. In subsequent years, participants will continue to respond to questions regarding their professional learning needs in each competency area.

Table 29

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)
Competency 1: Building Effective Relationships	na	2.34	2.20
Competency 2: Modeling Commitment to Professional Learning	2.16	2.52	2.33
Competency 3: Visionary Leadership	na	2.39	2.11
Competency 4: Leading Learning	2.21	2.34	2.17
Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students	na	2.61	2.61

Competency 6: School Authority Operations and Resources	2.41	2.44	2.29
Competency 7: Supporting Effective Governance	na	2.40	2.17

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 Negropones (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 21 and Figure 40 indicate that superintendents access a variety of professional learning opportunities including reading professional literature (96%), participating in seminars or courses about leadership (89%), 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 30

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?		
Courses/seminars about subject matter, teaching methods, or pedagogical topics.	17 (77%)	5 (23%)
Courses/seminars about leadership.	19 (91%)	2 (9%)
Courses/seminars attended in person.	5 (24%)	16 (76%)
Courses/seminars online.	22 (100%)	0 (0%)
Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues.	15 (68%)	7 (32%)
Formal qualification program (degree program, certificate program).	8 (36%)	14 (64%)
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 (91%)	2 (9%)
Reading professional literature.	22 (100%)	0 (0%)

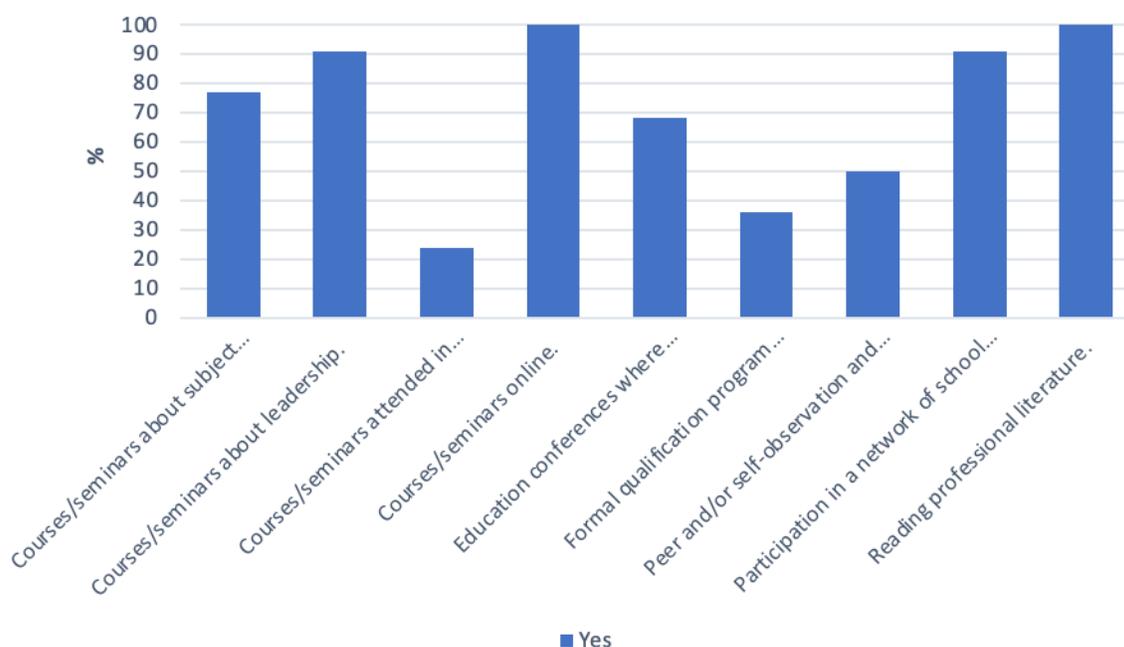
Figure 40*Types of Professional Learning Accessed***Comparison of Year 1, Year 2 and Year 3 Results**

Table 33 provides a comparison of year one, year two and year three results for form of professional learning accessed to support SLQS implementation.

Table 31

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

Form of Professional Learning Accessed	Year One (n=17)	Year Two (n=36)	Year Three (n=27)
Courses/seminars about subject matter, teaching methods, or pedagogical topics.	29 (91%)	19 (68%)	17 (77%)
Courses/seminars about leadership.	31 (97%)	25 (89%)	19 (91%)
Courses/seminar attended in person.	30 (94%)	16 (57%)	5 (24%)
Courses/seminars online.	20 (63%)	25 (89%)	22 (100%)
Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues.	30 (94%)	22 (79%)	15 (68%)

Form of Professional Learning Accessed	Year One (n=17)	Year Two (n=36)	Year Three (n=27)
Formal qualification program (degree program, certificate program).	21 (66%)	9 (32%)	8 (36%)
Peer and/or self-observation and coaching as part of a formal school arrangement.	17 (53%)	7 (25%)	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%)
Reading Professional Literature	31 (97%)	27 (96%)	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 three years are presented in Table 34.

Table 32

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

	Total (n=80)		Year 1 (n=17)		Year 2 (n=36)		Year 3 (n=27)		
	M	SD	M	SD	M	SD	M	SD	
Implementation Advancement									
Competency 1: Building Effective Relationships	3.75	0.57	3.69	0.54	3.68	0.65	3.92	0.49	
Competency 2: Modeling Commitment to Professional Learning	4.04	0.60	4.11	0.62	3.94	0.59	4.05	0.58	
Competency 3: Visionary Leadership	3.91	0.65	3.86	0.83	3.87	0.51	4.02	0.51	
Competency 4: Leading Learning	3.88	0.47	3.87	0.42	3.91	0.49	3.85	0.51	
Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students	3.48	0.85	3.48	1.07	3.43	0.76	3.53	0.58	

	Total		Year 1		Year 2		Year 3	
	(n=80)		(n=17)		(n=36)		(n=27)	
	M	SD	M	SD	M	SD	M	SD
Competency 6: School Authority Operations and Resources	3.95	0.61	3.97	0.77	3.95	0.45	3.91	0.55
Competency 7: Supporting Effective Governance	3.86	0.55	3.80	0.47	3.91	0.59	3.88	0.60
Professional Learning Level of Needs								
Competency 1: Building Effective Relationships	2.28	0.83	X	X	2.34	0.95	2.20	0.66
Competency 2: Modeling Commitment to Professional Learning	2.33	0.80	2.16	0.71	2.52	0.90	2.33	0.74
Competency 3: Visionary Leadership	2.27	0.86	X	X	2.39	0.97	2.11	0.69
Competency 4: Leading Learning	2.24	0.72	2.21	0.71	2.34	0.80	2.17	0.64
Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students	2.61	0.71	X	X	2.61	0.77	2.61	0.65
Competency 6: School Authority Operations and Resources	2.39	0.81	2.41	0.76	2.44	0.96	2.29	0.69
Competency 7: Supporting Effective Governance	2.30	0.86	X	X	2.40	0.98	2.17	0.69

Notes: Professional Learning Level of Needs Competencies 1, 3, 5, and 7 were not measured during 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. Please refer to Table 36 for the statistical values of each analysis. Since none of the competencies were statistically significant, and because effect sizes were negligible, no further analyses were conducted. Moreover, we must recognize that the small number of superintendents in the Alberta school system, and the absence of research controls in this study, prevent making strong statistical claims.

Table 33*Univariate Results of Implementation Advancement Competencies*

	Type III Sum of Squares	Mean Square	F- Value	Significance	Partial Eta Squared
Competency 1: Building Effective Relationships	0.87	0.44	1.34	0.268	0.032
Competency 2: Modeling Commitment to Professional Learning	0.48	0.24	0.67	0.513	0.016
Competency 3: Visionary Leadership	0.38	0.19	0.45	0.640	0.011
Competency 4: Leading Learning	0.06	0.03	0.14	0.868	0.003
Competency 5: Ensuring First Nations, Métis, and Inuit Education for All Students	0.12	0.06	0.08	0.925	0.002
Competency 6: School Authority Operations and Resources	0.05	0.02	0.06	0.939	0.002
Competency 7: Supporting Effective Governance	0.17	0.09	0.29	0.752	0.007

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 Competency 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 34*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	2.01	1.01	1.61	0.207	0.039
Competency 4: Leading Learning	0.43	0.21	0.41	0.667	0.010
Competency 6: School Authority Operations and Resources	0.29	0.15	0.22	0.804	0.006

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 that they continue to further refine their practices related to the competencies. Strong leadership is needed particularly during extraordinary times, such as a global pandemic. The results are clear: superintendents have continued to make some advances in the implementation of SLQS, particularly in the areas of leading learning (Competency 4) and supporting effective governance (Competency 7). Superintendents' report that competencies 2 and 3 are now embedded in everyday practice. It is encouraging to see this growth in the implementation of the practice standard.
2. Superintendents' expressions about professional learning needs 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, but increasingly pursuing online forums.
3. 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.
4. School and system leaders are key figures for enacting organizational change. Covid-19 has driven substantial organizational change as the Alberta Education system has responded to the multiple demands of a public health crisis. As a visible Implementation Driver, superintendents have been central to enabling their schools and central office to make organizational changes required by public health officers over the past two years. That may explain their high interest in governance issues.
5. But as Implementation drivers, we can be relatively certain that many Superintendents have not kept school district data management systems relating to the professional practice standards. We remain uncertain whether they have read or responded to previous reports from this project. We can be sure that they have attended to public health data and have intervened in

multiple ways to uphold public health standards, but whether educational standards have been pursued remains an open question.

6. It is probably fair to conclude that most Superintendents remain intensely aware of their system leadership roles, but the SLQS standards have not been a priority for implementation over the past three years in central offices. Public health standards may have over-shadowed, perhaps over-whelmed professional practice standards.

Conclusions From the 2019-21 Provincial Surveys

Online surveys undertaken in 21 Alberta school jurisdictions, and 13 independents in the fall of 2021, provide a reasonably accurate and reliable picture of teacher, leader, and 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 three of the implementation of the professional standards across Alberta. We may importantly note that in the midst of a global pandemic, implementation efforts of all three standards have continued in some fashion. Many competencies are at the enactment stage— where teachers, school leaders, and superintendents are still adapting in their practice to novel problems— they reported much flexibility. The public health situation in 2020 and 2021 have required such flexibility and continuing adaptivity. 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, leaders must engage the wider community in schools. Survey results indicate that those competencies in leading those within the system are stronger than for leading those beyond the system. While small gains in some respects, we cannot say that teachers, principals or superintendent competencies have been enhanced over the past three years. Leaders must continue to engage with the public to continue constructing public confidence. Continuing to engage in professional learning about successfully interacting with neo-immigrant parents, Indigenous leaders, and other community stakeholders is warranted.

At the same time, there are important indications that the forms and formats of professional learning and leadership development have shifted markedly over the past year and will continue to shift after the pandemic. 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.

Neither school leaders nor central office leaders have had sufficient time to attend to Ministry policy with regard to practice standards over the past two years. Because school leader and superintendent professional learning needs are nearly identical, similar packages and approaches may be suitable. Similarly, teachers report consistently that they are in the mid-level stages of implementation. Professional learning in relation to implementation characteristics rather than customization for specific competency development may be possible, except for Competency 5. Here additional attention will be needed to support teachers teaching mathematics and sciences.

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 be applied to establish, repurpose, adjust, and monitor the competency drivers and the organization drivers throughout the stages of implementation (Bertram et al., 2015).

These survey results may be interpreted with reference to these drivers. Results are meant to be used: first, to help guide school divisions' planning to deepen and extend implementation; to guide further the inquiry by research team members during year four of the study; to inform forthcoming decisions at Alberta universities and within the Ministry of Education; and to provide local planners with a provincial comparator when appraising their own results. In effect, results are the data base for driving implementation. Generating reports and getting them before educators over the next year may drive further implementation in the wake of so many other distractions.

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Appendix A: 2021-22 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. Foothills School Division	Rural
14. Fort McMurray School Division	Rural
15. Horizon School Division	Rural
16. Livingstone Range School Division	Rural
17. Northern Gateway School Division	Rural
18. Parkland School Division	Rural
19. Pembina Hills School Division	Rural
20. Fort McMurray Roman Catholic Separate School Division	Rurban
21. Grande Prairie Roman Catholic Separate School Division	Rurban
22. St. Thomas Aquinas Roman Catholic Separate School Division	Rural
Association of Independent Schools and Colleges of Alberta (AISCA)	29 School Authorities

Appendix B: 2021-22 Provincial Survey: Participating School Authorities Within the AISCA Organization

Participating School Authorities Within the AISCA Organization
1. ABC Head Start Society
2. Airdrie Christian Academy
3. AISCA
4. Alberta Conference of SDA
5. Asasa Academy
6. Aspen Hill Montessori
7. Bearspaw Christian School
8. Calgary Academy Society
9. Calvin Christian School
10. Centre for Autism Services Alberta
11. Cochrane Valley Montessori School
12. College Heights Christian School
13. Edmonton Menorah Academy
14. Foothills Alliance School
15. Glenmore Christian Academy
16. Janus Academy Society
17. Koinonia Christian School
18. Living Truth Christian School Society
19. Living Waters Christian Academy
20. Londonderry Child Development Society
21. Lycee Louis Pasteur
22. Menorah Academy
23. MAC Islamic School
24. MMEC Private Montessori School
25. Phoenix Home School Foundation
26. Prairie Adventist Christian eSchool
27. Progressive Academy Education Society
28. Rundle College Society
29. Universal Educational Institute

Appendix C: 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. 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. The normality assumption was violated (please see the Kolmogorov-Smirnov values presented in the table below). Although the data did not meet the normality assumption, large sample sizes of 100+ have been found to render such violation less problematic for MANOVA (see Tabachnik & Fidell, 2007; Waterman, 1976, 1984). The homogeneity of variance assumption was satisfied (please see the Levene's values presented in the table below) While one of the Levene's tests (i.e., Implementation Advancement Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit) was statistically significant, the other 11 variables satisfied the assumptions, so the researchers assumed homogeneity of variance. Based on these presumptions, the research team continued with the MANOVA.

Normality and Homogeneity of Variance Test Results

	Test of Normality		Test of Equality of Error Variances	
	Kolmogorov-Smirnov Statistic	Significance	Levene's	Significance
Implementation Advancement				
Competency 1: Fostering Effective Relationships	0.080	<0.001	0.835	0.361
Competency 2: Engaging in Career-Long Learning	0.083	<0.001	0.245	0.621
Competency 3: Demonstrating a Professional Body of Knowledge	0.154	<0.001	0.289	0.591
Competency 4: Establishing Inclusive Environments	0.099	<0.001	0.143	0.705
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	0.117	<0.001	7.538	0.006
Competency 6: Adhering to Legal Frameworks and Policies	0.167	<0.001	0.151	0.698
Professional Learning Level of Needs				
Competency 1: Fostering Effective Relationships	0.095	<0.001	0.934	0.334

	Test of Normality		Test of Equality of Error Variances	
	Kolmogorov-Smirnov Statistic	Significance	Levene's	Significance
Competency 2: Engaging in Career-Long Learning	0.103	<0.001	0.009	0.923
Competency 3: Demonstrating a Professional Body of Knowledge	0.120	<0.001	0.069	0.793
Competency 4: Establishing Inclusive Environments	0.101	<0.001	0.590	0.443
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	0.129	<0.001	1.632	0.202
Competency 6: Adhering to Legal Frameworks and Policies	0.172	<0.001	0.802	0.371

Two MANOVAs were used to analyze the two sets of six competencies separately. Since two analyses were conducted, the p-value used to identify the cut score for statistical significance is adjusted using the Bonferroni correction ($p\text{-value} = 0.05/2 = 0.025$) resulting in a p-value of 0.025.

Likewise, for the Leadership Quality Standard, MANOVA analyses were performed using similar assumptions.

Again, we tested the three basic assumptions for MANOVA: independence, normality, and homogeneity of variance. The independence of the sample was assumed to be satisfied because the links to the surveys were e-mailed to leaders and the researchers assumed each leader completed their survey independently. The normality assumption was violated (please see the Kolmogorov-Smirnov values presented in the table below). Although the data did not meet the normality assumption, large sample sizes of 100+ have been found to render such violation less problematic for MANOVA (see Tabachnik & Fidell, 2007; Waterman, 1976, 1984). The homogeneity of variance assumption was satisfied (please see the Levene's values presented in the table below). While two of the Levene's tests were statistically significant, the other 16 variables satisfied the assumptions, so the researchers presumed homogeneity of variance. On this basis, the research team continued with the MANOVA.

Normality and Homogeneity of Variance Test Results for LQS

	Test of Normality		Test of Equality of Error Variances	
	Kolmogorov-Smirnov Statistic	Significance	Kolmogorov-Smirnov Statistic	Significance

Implementation Advancement				
Competency 1: Fostering Effective Relationships	0.117	0.000	2.059	0.152
Competency 2: Modeling Commitment to Professional Learning	0.109	0.000	0.187	0.665
Competency 3: Embodying Visionary Leadership	0.107	0.000	0.909	0.341
Competency 4: Leading a Learning Community	0.112	0.000	0.890	0.346
Competency 5: Supporting the Application of Foundational Knowledge About First Nations, Métis, and Inuit	0.116	0.000	0.564	0.453
Competency 6: Providing Instructional Leadership	0.126	0.000	0.061	0.805
Competency 7: Developing Leadership Capacity	0.127	0.000	5.946	0.015
Competency 8: Managing School Operations and Resources	0.161	0.000	0.033	0.857
Competency 9: Understanding and Responding to the Larger Societal	0.093	0.000	0.766	0.382
Professional Learning Level of Needs				
Competency 1: Fostering Effective Relationships	0.145	0.000	3.090	0.079
Competency 2: Modeling Commitment to Professional Learning	0.108	0.000	1.794	0.181
Competency 3: Embodying Visionary Leadership	0.133	0.000	1.609	0.205
Competency 4: Leading a Learning Community	0.125	0.000	0.001	0.979
Competency 5: Supporting the Application of Foundational	0.171	0.000	3.930	0.048

Knowledge About First Nations, Métis, and Inuit				
Competency 6: Providing Instructional Leadership	0.127	0.000	2.523	0.113
Competency 7: Developing Leadership Capacity	0.115	0.000	5.824	0.016
Competency 8: Managing School Operations and Resources	0.144	0.000	0.110	0.741
Competency 9: Understanding and Responding to the Larger Societal	0.108	0.000	1.047	0.307

Two MANOVAs were again used to analyze the two sets of nine competencies separately. Since two analyses were conducted. The p-value used to identify the cut score for statistical significance was adjusted using the Bonferroni correction ($p\text{-value} = 0.05/2 = 0.025$) resulting in a p-value of 0.025.