Optimum Learning for All Students Implementing Alberta's 2018 Professional Practice Standards A Longitudinal, Mixed Methods Research Study

2019-20 Provincial Year 1 Survey Report

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2019 – 2020 Provincial Year 1 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 is 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 standards documents conceptualize professional practice in consistent ways.

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

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

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

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 enactment 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. In contrast, time series studies are focused on diachronically or synchronically identifying causal factors (Neale & Flowerdew, 2003) using time as a linear construct in quantitative research. Survey data allow us to "compare two or more snapshots over time" (Venn et al., 2014, p. 194). In short, the case studies afford insights into the processes and 'textures' that influence changes in phenomena such as principals' or teachers' beliefs, perceptions or attitudes over time, whereas a time series design looks at the magnitude of changes.

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 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 the foregoing 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 2019. Across Alberta, survey data were collected from 2300 teachers, 630 leaders, and 17 superintendents.

Survey Scales

The first portion of each survey asked participants to indicate their advancements 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).

Implementation Advancement Scales

The first area of teacher, leader, and superintendent surveys asked participants about their advancements in implementation. Questions were designed to address the specific TQS, LQS, and SLQS competencies in the standard documents. The following 5-point Likert scale for this first area of the survey: 1=not yet, 2=initiating, 3=enacting, 4=embedding, and 5=extending.

Table 1

Scale Used to Describe Implementation Advancement

Not yet indicates a level of **Awareness** (Strehlenert & Richter-Sundberg, 2015). No action has yet been taken in practice. Individuals are attempting to define what needs to change. They are establishing a strategy to get underway. They are considering the strengths and barriers.

Initiating indicates **Early Adoption** (Strehlenert & Richter-Sundberg, 2015). Individuals/systems are starting to address the competencies in their practice.

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/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 (Kirton, 2003).

Embedding indicates **Sustaining**. Individuals/systems 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 (McLaughlin & Mitra, 2001).

Extending indicates **Scaling**. Individuals/systems are establishing professional individual/system priorities and goals based on the evidence from practice; thereby, they incorporate the standard into other aspects of their practice (e.g. variety of planning processes, strategic plans, professional

learning plans, growth plans, system and school improvement plans, unit plans, lesson plans, staff meetings, etc.) (McLaughlin & Mitra, 2001).

Professional Learning Needs Scale

This area of teacher, leader, and superintendent surveys asked participants about their professional learning needs related to selected competencies. The following 4-point Likert scale for this area of the survey: 1=no need, 2=low level, 3=moderate level, and 4=high level.

Table 2

Scale Used to Describe Professional Learning Needs

1.	No need of	professional	learning ne	ed in relation	i to the s	pecific com	petency.
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- 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.

Types 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 3Cronbach Alpha Coefficiencies of Three Surveys

Survey	Cronbach Alpha	Number of Items
Teachers	0.724	50
Leaders	0.910	51
Superintendents	0.818	42

Analysis

Descriptive and inferential analysis using SPSS v.26 were conducted on the data. 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). The box and whisker plots 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 to these five measures, the box and whisker plots we display include the outliers in the data set. These are indicated using small circles. Each circle represents one person. The outliers are participants' responses that are numerically distant from the rest of the data.

Inferential analysis, used to test for difference in the means between multiple groups in the demographic information, consists of calculations of statistical significance showing relationships between multiple variables. A multivariate analysis of variance (MANOVA) is an analysis using several dependent variables. A Pillai Trace was conducted to determine the significance levels on the F-distributions. The analysis of the data was carried out by comparing the 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 used to explore particular differences between groups while controlling for error. Post hoc figures provide the results of competencies that were statistically significant.

This report summarizes the provincial results from a survey of 2300 Alberta teachers, 630 leaders, and 17 superintendents in October 2019 in a representative sample of 59¹ school authorities.

¹ 26 of the participating school authorities were members of the Association of Independent Schools and Colleges of Alberta (AISCA). Due to the small number of participants from each of these school authorities, the data were aggregated under the AISCA organization, and analyzed as an aggregate. The exception to this is Rundle College Society, which was one of the ten case studies, and therefore reported separately from AISCA group. Their data were removed from AISCA aggregate and was reported to that school authority. For the purposes of this report, all participating school authorities are represented in the analysis and findings.

Organization of the Results

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

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

Teacher Survey Results and Discussion

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

- 1. Implementation advancement related to each TQS competency;
- 2. Professional learning needs;
- 3. Participation in various types of professional learning activities;
- 4. Impact of professional learning on teaching practice;
- 5. Comparison of results with demographic data; and
- 6. Summary of teacher survey results.

Implementation Advancement Related to Each TQS Competency

Results displayed in Table 4 and Figure 1 below indicate that the competency where many teachers appear still in the early initiating stage of implementation is Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit. For all other competencies, the majority of teachers are beginning to enact or embed the competency, which means that many teachers are beginning to address this competency in their practice. Results indicate teachers are well into the enacting phase for Competency 1: Fostering Effective Relationships. Results indicate teachers are right at the cusp of moving from enacting to embedding phase in Competency 2: Engaging in Career-Long Learning and Competency 3: Demonstrating a Professional Body of Knowledge. Additionally, results indicate that teachers are in the embedding phase for Competency 4: Establishing Inclusive Environments and Competency 6: Adhering to Legal Frameworks and Policies.

Table 4

Descriptive Statistics of Competencies for Implementation Advancement Related to Each Competency in the Teaching Quality Standard

Construct	n	Mean	Standard Deviation
Competency 1: Fostering Effective Relationships	1783	3.57	0.67
I collaborate with community service professionals.			
I build trusting relationships with parents/guardians.			
The teachers in my school trust each other.			
Competency 2: Engaging in Career-Long Learning	1782	3.96	0.62
I engage with other teachers to build personal capacity.			
I use evidence of student learning to engage in critical			
reflection on my practice.			
I seek feedback to enhance my teaching practice.			
I apply educational research to improve my teaching practice.			
Competency 3: Demonstrating a Professional Body of	1780	3.96	0.69

Construct	n	Mean	Standard Deviation	
Knowledge				
I use a range of evidence to report on student progress and achievement.				
I provide a learning environment that responds to the learning needs of every student.				
Competency 4: Establishing Inclusive Environments	1780	4.21	0.59	
I communicate high expectations for all students.				
I draw upon a wide range of instructional strategies to engage students in meaningful learning activities.				
Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit	1777	2.99	1.00	
I plan learning opportunities for all students that accurately demonstrate the strength and diversity of First Nations, Métis, and Inuit peoples of Canada.				
I use the 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, Métis, and Inuit.				
I use the 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, Métis, and Inuit.				
I use the programs of study to provide opportunities for all students to develop a respect for the histories, cultures, languages, contributions, perspectives, experiences and contemporary contexts of First Nations, Métis, and Inuit.				
Competency 6: Adhering to Legal Frameworks and Policies	1776	4.34	0.67	
I design activities that address the provincial learning outcomes.				

Table 5

Overview of Six Competencies Related to Implementation for TQS Competencies

Scale	Mean	Competency
Initiating - Individuals/systems are starting to	2.99	Competency 5: Applying Foundational
address the competencies in their practice.		Knowledge About First Nations, Métis,
		and Inuit
Enacting – Individuals are using evidence from	3.57	Competency 1: Fostering Effective
their practice to further refine their practices		Relationships
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.		
Embedding - Individuals are	3.96	Competency 2: Engaging in Career-Long
improving/strengthening competency levels.		Learning
Individuals/systems are using evidence to		
confirm that the competencies in this	3.96	Competency 3: Demonstrating a
standard are now part of common everyday		Profession Body of Knowledge
practice		
	4.21	Competency 4: Establishing Inclusive
		Environments
	4.34	Competency 6: Adhering to Legal
		Frameworks and Policies

Overall, teachers recognize that Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit and Competency 1: Fostering Effective Relationships are not as advanced in their implementation as in the other competencies.

The following bar graph provides a visual overview of implementation advancement related to each of the six competencies within the *Teaching Quality Standard*.



Comparison of Means on Implementation Advancement Related to TQS Competencies

Figure 1

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

The following box and whisker plot (Figure 2) shows both the distribution and variation within the data set. The results in Figure 2 indicate there is some skewing in the data in many of the competencies. Perhaps worthy of note is the contrast between Competency 4: Establishing Inclusive Environments and Competency 5: Applying Foundational Knowledge about Indigenous peoples. Teachers are much more in agreement about where they stand with implementation of Inclusivity than applying Indigeneity. While there are a few outliers, teachers are consistent for the other competencies as revealed by the related symmetry of the whiskers and the length of the interquartile ranges.





Professional Learning Level of Need Related to Four 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. The literature suggests use of time, collaborative inquiry, and the ability to change multiple areas of practice are necessary for the 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).

Whereas TQS Competency 2 – Engaging in Career-Long Learning— is addressed in part three of the teacher of survey, this subsection examined teacher perspectives on their need for professional learning on the following four TQS competencies:

- Competency 1: Fostering Effective Relationships,
- Competency 3: Demonstrating a Professional Body of Knowledge
- Competency 4: Establishing Inclusive Environments,
- Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit

Results in this subsection are displayed in Table 5 and Figure 3 below. Table 5 provides a descriptive statistical summary of teacher perspectives on their need for professional learning on the four competences and selected *indicators* based on a 4-point Likert scale. Figure 3 displays these data as a bar graph.

Perhaps most striking is the apparent low level of teacher reported need for professional learning related to the implementation of the competencies. However, some specific individual indicators suggest further professional learning is warranted: Competency 1: Fostering Effective Relationships, has an overall mean of 1.95 which corresponds to the "no need at present" level on the scale; however, as it is close to 2, it could also be considered as approaching a low level of need.

- Competency 3: Demonstrating a Profession Body of Knowledge, has an overall mean of 2.11 which corresponds to the "low level of need" level on the scale.
- Competency 4: Establishing Inclusive Environments, has an overall mean of 2.36 which corresponds to the "low level of need" level on the scale.
- Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit, has an overall mean of 2.67 which corresponds to the "low level of need" level on the scale.

Table 6

Descriptive Statistics of Professional Learning Needs Related to Four TQS Competencies

Competency 1: Fostering Effective Relationships16901.950.611. School management and administration.	rd on
1. School management and administration.	
2. Teacher-parent/guardian co-operation.	
3. Communicating with people from different	
cultures or countries.	
Competency 3: Demonstrating a Professional Body of	
Knowledge 2.11 0.50	
1. Knowledge and understanding of my subject	
field(s).	
2. Pedagogical competencies in teaching my	
subject(s) field(s).	
3. Student assessment practices	
4. ICT skills for teaching.	
5. Student behavior and classroom management.	
6. Teaching cross-curricular skills (e.g. creativity,	
critical thinking, problem-solving).	

Construct	n	Moon	Standard
Construct	11	Weall	Deviation
7. Analysis and use of student assessments.			
Competency 4: Establishing Inclusive Environments	1690	2.36	0.69
1. Approaches to individualized learning.			
2. Teaching students with special needs.			
3. Teaching in a multicultural or multilingual setting.			
Competency 5: Applying Foundational Knowledge About	1600	2 67	0.90
First Nations, Métis, and Inuit	1090	2.07	0.90
1. Teaching First Nations, Métis, and Inuit historical,			
social, economic, and political content.			

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

Figure 3





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.

The following box and whisker plot(Figure 4) shows both the distribution and variation within the data set based on the four competencies. Consistent with a four-number 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 four

competencies. The following box and whisker plot also includes the outliers in the data set. The outliers represent those participant responses' that are numerically distant from the bulk of the data.

As can be observed in the box and whisker plot (Figure 4), there is skewing in the data for competencies 4 and 5. Perhaps the competency worth noting is Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit. Although the median score was nearly 3, the bulk of teacher respondents (interquartile range) fell lower on the scale. Both this interquartile range and the length of the whiskers suggest a wide range of professional learning needs in the province.

Likewise, but skewed in the opposite direction, Competency 4: Establishing Inclusive Environments, also calls for addressing a wider range of teacher professional learning activity. Nevertheless, when ignoring outliers, there is strong consistency and symmetry in responses about professional learning needs for Competencies 1 and 3, which remain low to moderate. In other words, Alberta teachers express the need for more professional learning in inclusive education and applying foundational knowledge in Indigenous perspectives. There are wider and stronger perceptions of need about these two competencies than for fostering effective relationships or demonstrating a professional body of knowledge.

Figure 4





Participation in and Impact of Various Types of Professional Learning Opportunities

The research literature shows a strong association between teaching quality and student learning outcomes (Darling-Hammond, 2000; Hattie, 2009; Jensen et al., 2016; Rowe, 2003; Wenglinsky, 2002). The types of learning teachers in which teachers engage to pursue career-long professional learning is of paramount importance to student learning and the successful implementation of the competencies.

The results indicate that the majority of teachers read professional literature (88%), attend courses or seminars (88%), are involved in a professional learning community within their school (79%), attend education conferences (79%), and participate in a network of teachers at the school authority level that has been formed specifically for professional learning of teachers (74%).

When compared with the positive impact the professional learning has on teaching practice, the results suggest that the majority of teachers experience high quality, high impact professional learning that was relevant to their practice. One area that stands out and bears further investigation involves professional learning that took place over an extended period of time (51%). The research literature suggests use of time, collaborative inquiry, and the ability to change multiple areas of influence are necessary for the professional learning to change 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 interval (Garet et al., 2001; Guskey, 2000; Timperley et al., 2007).

Table 7

Frequencies of Forms of Professional Learning Accessed

	Frequency (%)	
	Yes	No
In the last 12 months, did you participate in any of the following		
professional learning activities?		
Courses/seminars attended in person.	1562 (88%)	201 (11%)
Courses/seminars online.	852 (48%)	905 (52%)
Education conferences.	1386 (79%)	377 (21%)
Formal qualification program (degree program).	240 (14%)	1521 (86%)
Observation visits to other schools.	520 (30%)	1239 (70%)
Peer and/or self-observation and coaching as part of a formal school arrangement.	827 (47%)	937 (53%)
Participation in a network of teachers at the school authority level formed specifically for the professional learning of teachers.	1301 (74%)	462 (26%)
Professional learning community within the school formed specifically for the professional learning of teachers.	1392 (79%)	372 (21%)
Reading professional literature.	1547 (88%)	217 (12%)

Table 8Impact of Professional Learning on Teaching Practice

	Freque	ncy (%)
	Yes	No
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?		
It built on my prior knowledge.	1703 (98%)	36 (2%)
It adapted to my professional learning needs.	1570 (90%)	168 (10%)
It had a coherent structure.	1540 (89%)	197 (11%)
It appropriately focused on content needed to teach my subjects.	1437 (83%)	302 (17%)
It provided opportunities for active learning.	1537 (88%)	201 (12%)
It provided opportunities for collaborative learning.	1543 (89%)	196 (11%)
It provided opportunities to practice/apply new ideas and knowledge in my classroom.	1590 (92%)	148 (8%)
It took place in my school.	810 (47%)	927 (53%)
It involved most colleagues from my school.	784 (45%)	955 (55%)
It took place over an extended period of time (e.g. several weeks or longer)	888 (51%)	850 (49%)
It focused on innovation in my teaching.	1254 (72%)	481 (28%)

The following two figures (Figures 5 and 6), provide a visual representation of the data in Table 7 and 8.





Figure 6 Impact of Professional Learning on Teaching Practice



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 on particular subgroups of teachers. Part 1- Implementation Advancement Related to Each Competency and Part 2- Professional Learning Level of Need Related to Each Competency are involved in these cross tabulations.

Means of Teacher Survey Results Analysed by Grade Level Taught

Teachers were asked to indicate the grade level they are teaching. 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[50, 8330]=3.370, p<0.05, Pillai's Trace=0.099. Specifically, competencies 1, 3, and 5. had statistically significant differences.

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. 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 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit, some individualization of professional learning might be considered between K-9, and high school teachers.

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.



Figure 7 *Results from Teacher Survey Analyzed by Grade Level Taught Displayed on an Interval Plot*

Differences Between 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, 1671]=8.138, *p*<0.05). Specifically, the post-hoc tests indicate elementary and middle/junior high teachers are significantly different (mean difference=0.2187; p<0.05); elementary and high school teachers are significantly different (mean difference=0.2172; p<0.05); middle/junior high and K-12 teachers are statistically significantly different (mean difference=0.2439; p<0.05); and high school and K-12 teachers are significantly different (mean difference=0.2424; p<0.05).

Although statistically significant differences arise, the magnitude or effect size of those differences between groups is small. The 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.





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 that are taught be a teacher.

Differences Between Groups – Competency 3: Demonstrating a Professional Body of Knowledge

Results indicate statistically significant differences among the groups of teachers in how they responded to Competency 3: Fostering Effective Relationships (F[5, 1671]=3.831, p<0.05). Specifically, the post-hoc tests indicate high school and K-9 teachers are statistically significantly different (mean difference=0.1820; p<0.05).

Although statistically significant differences arise, the magnitude or effect size of those differences is small. This means that while differences between teachers from various grade levels is statistically significant, the magnitude or effect size of the difference between the groups is small. The small effect sizes and the largely consistent averages suggest that professional needs for Competency 3: Demonstrating a Professional Body of Knowledge are relatively uniform. One implication arising from this result is professional learning addressing Competency 3: Demonstrating a Professional Body of Knowledge would not need to be customized for teachers working at different grade levels.

Figure 9

Differences Between Groups - Competency 3: Demonstrating a Professional Body of Knowledge



Note. Error bars 95% CI

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

Although statistically significant differences arise, there is little practical significance in the grade levels where teacher assignments fall. Very small effect sizes and the largely consistent averages suggest that professional needs for Competency 5 are relatively uniform. Competency based professional learning professional learning for Competency 5 might distinguish between a K-9 teacher, and a high school teacher for applying foundational knowledge for First Nations, Métis and Inuit education.

Results do indicate there is a statistically significant difference among the groups of teachers in how they responded to TQS Competency 5 (F[5, 1671]=5.304, p<0.05, partial eta squared=0.016 [small effect size]). Specifically, the post-hoc tests indicate elementary and high school teachers are significantly different (mean difference=0.2512, p<0.05); high school and K-9 teachers are significantly different (mean difference=0.3667, p<0.05).

Figure 10

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



Note. Error bars 95% Cl

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[90, 14454]=5.164, p<0.05, Pillai's Trace=0.280). Specifically, Competency 1: Fostering Effective Relationships, Competency 3: Demonstrating a Professional Body of Knowledge, and Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit had statistically significant differences.

In practical terms, there are modest differences between two groups, social studies and arts education teachers, and mathematics and science teachers across the various competencies. By implication, those planning professional learning opportunities might differentiate the professional learning for Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit according to this subject area difference.





Differences Between 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 showed interesting differences among the Social Studies specialization teachers. Specifically, the social studies teachers indicated *Implementation Advancement* for Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit were statistically significantly (*p*<0.05) different from all other specialization teachers: generalist (mean difference=0.5256), language arts (mean difference=0.4418), mathematics (mean difference=1.4338), science (mean difference=1.2005), physical education (mean difference=0.9961), fine arts (mean difference=0.6952), music (mean difference=0.8202), French (mean difference=0.6369), and other (mean difference=0.7083).

In other words, mathematics and science teachers report in ways that were significantly lower than generalist 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. The result suggests a substantial break in disciplinary knowledge between nonIndigenous and Indigenous perceptions of maths and sciences. This difference might be attributed to differences in Programs of Study for the various subject areas. By implication, mathematics and sciences Programs of Study should be reviewed. The results in this section 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; however, these forms of professional learning typically extend over a period of time 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 8, teachers report that 50% of the professional learning they had access to this form of professional learning. 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. Teachers reported relatively higher levels of Implementation Advancement in Competency 4 (4.21) and Competency 3 (3.96). Working together through professional learning, over time, would 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 the current situation, 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)

Results are clear: further attention in professional learning for appropriate Implementation Advancement should be considered (Sterenberg, 2013).

Figure 12

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





Additionally, the social studies teachers also indicated a significantly lower need for professional learning related to Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit. Specifically, the social studies teachers indicated they needed Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit professional learning significantly less (*p*<0.05) than all other specialization teachers except fine arts teachers: generalist (mean difference=-0.4616), language arts (mean difference=-0.4603), mathematics (mean difference=-0.5864), science (mean difference=-0.6286), physical education (mean difference=-0.4504), music (mean difference=-0.5195), French (mean difference=-0.6166), and other (mean difference=-0.3953).

Figure 13

Differences Between Groups on Professional Learning Needs – Subject Specializations: Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit



Note. Error bars 95% CI

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

Teachers were asked to indicate their years of teaching experience in Alberta. Figure 14 show 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).

Results indicate teachers with different subject specializations responded in ways that are statistically significantly different (F[90, 14454]=5.164, p<0.05, Pillai's Trace=0.280. Specifically, competencies 1, 3, and 5. had statistically significant differences.

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 enactment and professional learning items in ways that were statistically different. (F[60, 9984]=4.803, p<0.05, Pillai's Trace=0.168). Generally, the trend of teachers' responses indicated the more years of experience they had teaching in Alberta the more they enacted each competency and the less they need professional learning for each competency. However, the results for three of the measures are worth noting: Competency 5; Applying

Foundational Knowledge About First Nations, Métis, and Inuit– Implementation Advancement, Competency 4: Establishing Inclusive Environments– Professional Learning Needs, and Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit – Professional Learning Needs. As indicated previously, it would be advisable to find ways to integrate competencies 3, 4, and 5 to meet teachers' professional learning needs to assist teachers in creating and enacting designs for learning that meet the needs of all students.

Figure 14



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

Differences Between Groups on Implementation Advancement – Years of Teaching Experience in Alberta

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

Additionally, the social studies teachers also indicated a significantly lower need for professional learning related to Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit. Specifically, the social studies teachers indicated they needed Competency 5 professional learning significantly less (p<0.05) than all other specialization teachers except fine arts teachers: generalist (mean difference=-0.4616), language arts (mean difference=-0.4603), mathematics (mean difference=-

0.5864), science (mean difference=-0.6286), physical education (mean difference=-0.4504), music (mean difference=-0.5195), French (mean difference=-0.6166), and other (mean difference=-0.3953).

Figure 15





Note. Error bars 95% CI

Differences Between Groups on Professional Learning Needs Competency 4: Establishing Inclusive Learning Environments and Competency 5: Applying Foundational Knowledge for First Nations, Métis and Inuit – Years of Teaching Experience in Alberta

Teachers' responses to their professional learning needs for Competency 4: Establishing Inclusive Environments (Figure 16) and Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit (Figure 17) generally follow the same trend as the other competencies. The more years a teacher has taught in Alberta, the less they indicate needing professional learning. However, the difference can be found in the first-year teacher group. First year teachers reported lower levels of need for professional development in Competency 4: Establishing Inclusive Environments than in Competency 5: Applying Foundational Knowledge About First Nations, Métis, and Inuit, but the difference was not significantly lower.

Figure 16

Differences Between Groups on Professional Learning Needs - Years of Teaching Experience in Alberta Competency 4



Note. Error bars 95% CI

Figure 17

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



Note. Error bars 95% CI

Summary of Teacher Survey Results

This section of the report summarizes the results of the teacher survey related to implementation advancement, professional learning needs, participation in various types of professional learning activities, impact of professional learning on teaching practice, and a comparison of results with demographic data.

- 1. In terms of implementation advancement, Alberta teachers responded to surveys in similar ways, indicating that that they typically fall somewhere in the Initiating or Enacting levels, or at the mid points in the five-point scale.
- 2. 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.
- 3. 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 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.

- 4. Although teachers indicated little to moderate need of professional learning related to four of the competencies, Competency 5: Applying Foundational Knowledge about First Nations, Métis and Inuit requires attention. Although generic or similarly structured professional learning may be designed to further implementation in most cases, customization 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 be attended to 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. As noted, 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. In addition, social studies teachers could be well positioned to take leadership roles for advance implementation of Competency 5, although no particular subject specialization differences were evident for the other competencies.
- 5. Math-science teachers in particular, but any teacher of mathematics and science subjects, require sensitive and sensible knowledge about introducing traditional, foundational knowledge from a non-Indigenous perspective in the classroom. 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.
- 6. To advance implementation, professional learning should attend to adapting existing routines to the six (6) competencies. Further work in using evidence from their practice to further refine their practices 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.

Leader Survey Results and Discussion

In this section, we present and discuss the leader survey results from October of the first year of implementation of the *Leadership Quality Standard* (Alberta Education, 2018c) in four sub-sections:

- 1. Implementation advancement related to each LQS competency;
- 2. Professional learning needs
- 3. Participation in various types of professional learning activities; and
- 4. Summary of leader survey results.

Implementation Advancement Related to Each Competency

The overall mean of the competencies for leaders (n=630) is 3.57 which falls in the "enacting" phase on the scale (5-point Likert scale: 1= Not Yet; 2= Initiating; 3= Enacting; 4= Embedding; 5= Extending). This indicates that leaders are using evidence to inform their practice and to further refine their practices related to the competencies. They are adapting to new ways of working. Practices are evolving that allow leaders to flexibly navigate the ill-structured, novel problem-solving nature of practice related to leading in response to the integrated nature of the competencies articulated in the standard.

Table 9

Descriptive Statistics of Implementation Advancement Related to Each Competency in the Leadership Quality Standard

Construct	n	Mean	Standard Deviation
Competency 1: Fostering Effective Relationships	456	3.84	0.60
 I build trusting relationships with parents/guardians of the students in my school or community of schools. The teachers in my school or community of schools trust each other. I plan collective collaborative complex problem solving with members of the school community. 			
 I engage in collective collaborative complex problem solving with members of the local community. 			
 Competency 2: Modeling Commitment to Professional Learning 1. I engage with other leaders to improve my leadership 2. I actively seek out feedback from a variety of sources to enhance my leadership practice. 	456	4.20	0.71
Competency 3: Embodying Visionary Leadership	456	4.05	0.62
 I collaborate with the school community to create a shared vision for student learning. I promote innovation that results in positive change 			

Construct		n	Mean	Standard Deviation
3.	I promote innovation that fosters a commitment to			
	continuous improvement			
Competen	cy 4: Leading a Learning Community	456	4.31	0.58
1.	I communicate high expectations for all students.			
2.	I develop a shared responsibility for the success of all			
	students.			
3.	I create collaborative learning opportunities for other			
	leaders, teachers, and support staff.			
Competen	cy 5: Supporting the Application of Foundational	455	3 37	0.83
Knowledge	e About First Nations, Métis, and Inuit	455	5.57	0.05
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			
2.	I align resources and build the capacity of the school			
	and/or school authority to support First Nations,			
	Métis, and Inuit student achievement.			
3.	I enable all school and/or school authority staff to			
	gain a knowledge of the histories, cultures,			
	languages, contributions, perspectives, experiences,			
	and contemporary contexts of First Nations, Métis,			
	and Inuit.			
4.	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.			
5.	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.			
6.	I pursue opportunities to facilitate reconciliation			
	efforts within the school and/or school authority.			
7.	I engage in practices to facilitate reconciliation			
	efforts within the school and/or school authority.			
Competen	cy 6: Providing Instructional Leadership	455	4.23	0.53

1. I use a range of data and evidence to determine

Constr	uct		2	Moon	Standard
Constr	uci		11	IVIEdIT	Deviation
		progress towards achieving school goals.			
	2.	I ensure that student instruction addresses learning			
		outcomes			
	3.	I demonstrate a strong understanding of effective			
		pedagogy.			
	4.	I demonstrate a strong understanding of assessment.			
	5.	I demonstrate a strong understanding of curriculum			
	6.	I ensure that student assessment and evaluation			
		practices are accurate and evidence-based			
	7.	I build the capacity of all teachers to respond to the			
		learning needs of every student.			
	8.	I interpret a wide range of data to inform school			
		practices.			
Compe	eten	cy 7: Developing Leadership Capacity	455	4.15	0.71
1.	l e	mpower other educators in educational leadership			
	rol	es.			
2.	l ci	reate opportunities for others to exercise their voice in			
	sch	nool leadership and decision making.			
Compe	eten	cy 8: Managing School Operations and Resources	454	4.18	0.81
1.	l e	ffectively manage school resources			
Compe	eten	cy 9: Understanding and Responding to the Larger	455	3 66	0.80
Societa	al Co	ontext	433	3.00	0.80
1.	l a	m able to effectively facilitate conversations with a			
	nu	mber of stakeholders regarding matters impacting			
	sch	nools and school authorities.			
2.	l sı	upport members of the school community to			
	un	derstand the legal frameworks and policies of the			
	Alt	perta Education system			
3.	l e	ngage local community members to gain an			
	un	derstanding of the local context.			
4.	l fa	cilitate the school community members'			
	un	derstanding of local, provincial, national, and			
	int	ernational issues and trends related to education.			

The following table (Table 10), provides an overview of the nine competencies in the Leadership Quality Standard to Implementation Advancement.

Table 10

Overview of Nine Competencies Related to Implementation Advancement for LQS Competencies

Scale	Mean	Competency
Enacting – Individuals are using	3.84	Competency 1: Fostering Effective
evidence from their practice to further		Relationships
refine their practices related to the		
competencies. They are adapting to	3.37	Competency 5: Supporting the Application of
new ways of working. Practices are		Foundational Knowledge About First Nations,
evolving that allow individuals/systems		Métis, and Inuit
to flexibly navigate the ill-structured,		
novel problem-solving nature of	3.66	Competency 9: Understanding and
practice in response to the integrated		Responding to the Larger Societal Context
nature of the competencies articulated		
in the standard.		
Embedding - Individuals are	4.20	Competency 2: Modeling Commitment to
improving/strengthening competency		Professional Learning
levels. Individuals/systems are using		
evidence to confirm that the	4.05	Competency 3: Embodying Visionary
competencies in this standard are now		Leadership
part of common everyday practice		
		Competency 4: Leading a Learning Community
	4.31	
		Competency 6: Providing Instructional
		Leadership
	4.23	
		Competency 7: Developing Leadership
		Capacity
	4.15	
		Competency 8: Managing School Operations
		and Resources
	4.18	

The table above (Table 10) reveals that school leaders report those competencies which rely on a high degree of interaction with those outside the school system are less advanced in implementation than those which rely on leadership with those inside a school system. Because implementation is a public act, and not just a professional act, leadership means that followers must be engaged in the community, with surrounding stakeholders, and those in the wider social context, not just those within schools. The following (Figure 18) provides a visual overview of the means of each of the nine competencies within the *Leadership Quality Standard*.



Figure 18

Comparison of Means on the Implementation Advancement Related to LQS Competencies

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

The following box and whisker plot (Figure 19) 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 19 includes the outliers in the data set (indicated by small circles). Outliers are participants' responses that are numerically distant from the rest of the data.

As can be observed in the box and whisker plot(Figure 19), there is skewing in the data in many of the competencies. The maximum score, shown with by the whiskers beyond the third interquartile range, indicates that all participant responses fell within the range; however, outliers exist below the minimum, or the first quartile.



Distribution and Variance in Implementation Advancement Related to LQS Competencies

Competency CompetencyCompetencyCompetencyCompetencyCompetencyCompetencyCompetencyCompetencyCompetencyCompetency

Professional Learning Needs

Figure 19

The survey asked school leaders to indicate their need for professional learning related to several competencies. Questions addressing competencies 1, 5, 8, and 9 will be added in year 2 of the survey. Table 11 and Figure 20 provide the aggregated results. Perhaps most striking is the apparent low level of need expressed with an overall mean around 2 on a 4-point scale.

It is important to cross reference these results with the results from *Implementation Advancement* and *Forms of Professional Learning and Development Accessed*. As the overall mean for implementation advances indicate individual leaders are using evidence to inform and further refine their leadership practices, it might be the case that leaders require formal opportunities to network with each other to develop collaborative, collective expertise.

Table 11

Descriptive Statistics for Professional Learning Needs Related to Six LQS Competencies

Constr	uct	n	Mean	Standard Deviation
Compe	etency 2: Modeling	439	2.40	0.70
Comm	Knowledge and understanding			
	of new developments in			
	leadership research and			
	theory.			
Compe	etency 3: Embodying Visionary	439	2.29	0.78
Leader	ship			
1.	Developing collaboration			
Comme	among leaders.			
Compe	etency 4: Leading a Learning	439	2.36	0.74
1	Designing professional			
1.	learning for/with school and			
	school authority leaders			
Compe	tency 6: Providing	420	2.42	0.65
Instruc	tional Leadership	439	2.42	0.65
1.	Using data for improving the			
	quality of the school and/or			
	school authority.			
2.	Providing effective feedback.			
Compe	etency 7: Developing	439	2.41	0.79
Leader	ship Capacity			
1.	Observing leadership			
Compo	practices.			
Onerat	ions and Resources	439	2.36	0.62
1.	Knowledge and understanding			
	of current provincial/local			
	policies on education.			
2.	Human resource			
	management.			
3.	Financial management.			



Figure 20 *Means of Professional Learning Needs Related to Six 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).

The following box and whisker plot (Figure 21) shows the distribution and variation within the data set for the four competencies. As can be observed in the box and whisker plot (Figure 21), the interquartile ranges and the whiskers are skewed toward the top levels of the scale. The only outlier(s) can be observed in Competency 8.





Participation in of Various Types of Professional Learning Opportunities

"Successful leadership can play a highly significant role in improving student learning" (Leithwood et al., 2004, p. 5). The work of system and school leaders can be conceptualized as complex practical problem solving, leaders require a type of thinking embedded in activity (Leithwood et al, 2004; Robinson, 2011; Hallinger, 2011, 2018). As calls increase for leaders to focus their attention on teaching and learning, there is a need for leaders to embed preferred changes into their 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).

While it is important for leaders to engage in informal professional learning opportunities, it is equally important to engage in a variety of formal professional learning opportunities as well. One of the formal opportunities includes system -wide professional learning that networks leaders across a school authority to build collaborative, collective capacity to lead in complex and demanding times.

Table 12Frequencies of 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	408 (91%)	39 (9%)
methods, or pedagogical topics.	400 (31/0)	33 (370)
Courses/seminars about leadership.	426 (95%)	21 (5%)
Courses/seminars attended in person.	437 (98%)	10 (2%)
Courses/seminars online.	209 (47%)	236 (53%)
Education conferences where teachers, principals,		
and/or researchers present their research or discuss	341 (76%)	106 (24%)
educational issues.		
Formal qualification program (degree program,	200 (45%)	247 (550/)
certificate program).	200 (43%)	247 (3376)
Peer and/or self-observation and coaching as part of a	257 (59%)	190 (42%)
formal school arrangement.	237 (38%)	109 (4270)
Participation in a network of school or school		
authority leaders formed specifically for the	201 (050/)	66 (150/)
professional learning of school and school authority	301 (03%)	00 (15%)
leaders.		

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 (98%, 95%, 91%), participating in a professional learning network formed at the school authority level (85%), and attending conferences (76%). 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 principal professional learning, as in person professional learning, in person courses and seminars, or network participation.

The following graph (Figure 22), provides a visual representation of the data in Table 12.





Summary of Leader Survey Results

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

- 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. That is, leaders feel stronger with followers in the school system, than with those followers outside it.
- 2. School and system leaders are more optimistic about levels of implementation for the *Leadership Quality Standard* than teachers are for levels of implementation of the *Teaching Quality Standard*. Whether this is a response bias, stemming from social desirability and acquiescent attitudes, or a genuine implementation effect, stemming from greater understanding of the standards and their purposes, deserves further investigation.
- 3. School and system leaders' expressions of need for professional learning are at lower levels than teacher expressions of need for professional learning.
- 4. School leaders and system leaders have a greater proclivity to indicate participation in direct, interpersonal and professional activity than they have for online courses, formal qualifications programs, or formal school arrangements for peer coaching or observation.

Superintendent Survey Results and Discussion

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

- 1. Implementation advancement related to each SLQS competency;
- 2. Professional learning needs;
- 3. Participation in various types of professional learning activities; and
- 4. Summary of Superintendent Leadership Survey Results.

Implementation Advancement Related to Each Competency

The overall mean of the competencies for superintendents (n=32) is 3.69 which falls in the "enacting" phase on the scale (5-point Likert scale: 1= Not Yet; 2= Initiating; 3= Enacting; 4= Embedding; 5= Extending). This indicates that leaders are using evidence to inform their practice, to further refine their practices related to the competencies. They are adapting to new ways of working. Practices are evolving that allow leaders to flexibly navigate the ill-structured, novel problem-solving nature of practice related to leading in response to the integrated nature of the competencies articulated in the standard.

Table 13

Descriptive Statistics of Competencies for Implementation Advancement Related to Each Competency in the Superintendent Leadership Quality Standard

Construct		n	Mean	Standard Deviation
Competen	cy 1: Building Effective Relationships	32	3.69	0.54
1.	I collaborate with leaders in the school authority to			
	create culturally appropriate opportunities for			
	parents/guardians to participate in their child's			
	education.			
2.	I collaborate with leaders in the school authority to			
	build trusting relationships with parents/guardians of			
	the students.			
3.	The leaders in my school authority trust each other			
4.	I engage in collective collaborative complex problem			
	solving with members of the school authority			
	community.			
5.	I engage in collective collaborative complex problem			
	solving with members of the local community.			
Competen	cy 2: Modeling Commitment to Professional Learning	32	4.11	0.62
1.	I engage with other leaders such to build personal			

Construct		n	Mean	Standard
				Deviation
2	capacity for improving my leadership.			
2.	I actively seek out feedback from a variety of sources			
-	to enhance my leadership practice			
3.	I apply educational research to improve my			
	leadership practice.			
Competency	/ 3: Visionary Leadership	32	3.86	0.82
1.	I promote innovation that results in a commitment			
	to continuous improvement.			
2.	I collaborate with the school community to			
	implement a research-informed shared vision.			
Competency	v 4: Leading Learning	32	3.87	0.42
1.	I communicate high expectations for all students.			
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.	I ensure that all instruction in the school authority			
	addresses learning outcomes outlined in the			
	programs of study.			
4.	I ensure that all staff have access to the resources to			
	support them in meeting their professional			
	responsibilities in addressing the learning needs of			
	all students.			
5.	I hold leaders accountable for providing instructional			
	leadership.			
6.	I ensure that student assessment and evaluation			
	practices are evidence-based and accurate			
Competency	5: Ensuring First Nations, Métis, and Inuit Education	22	2 40	1.07
for All Stude	nts	52	5.40	1.07
1.	I align school authority resources to support First			
	Nations, Métis, and Inuit student achievement.			
2.	I engage in practices to facilitate reconciliation within			
	the school community.			
Competency	6: School Authority Operations and Resources	32	3.97	0.77
1.	I establish data-informed strategic planning that are			
	responsive to changing contexts.			
2.	I provide direction on resource management in			
	accordance with all statutory, regulatory, and school			
	authority requirements.			

Construct		n	Mean	Standard Deviation
Competen	cy 7: Supporting Effective Governance	32	3.80	0.47
1.	I sustain a productive working relationship with the			
	board, based on mutual trust, respect, and integrity.			
2.	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.	I support the regular review and evaluation of the			
	impact of board policies			
4.	I facilitate the collaboration among stakeholders in			
	support of First Nations, Métis, and Inuit student			
	learning.			

We note that Cronbach's alpha coefficients (0.818) for the superintendent survey are strong. Cronbach's alpha is a measure of the internal reliability of a survey. At the same time, standard deviations are overall smaller for superintendents' survey results. Moreover, the proportion of participating superintendents is much higher than the proportion of teachers and school leaders' participating in the study., Therefore, we should have high trust in results for their reliability on the superintendents' survey, even though the number of participants is much smaller. That is, the generalizability is better, and external threats to validity are diminished.

Table 14

Overview of Seven Competencies Related to Implementation for SLQS Competencies

Scale	Mean	Competency
Enacting – Individuals are using	3.69	Competency 1: Building Effective
evidence from their practice to further		Relationships
refine their practices related to the		
competencies. They are adapting to	3.86	Competency 3: Visionary Leadership
new ways of working. Practices are		
evolving that allow individuals/systems	3.87	Competency 4: Leading a Learning Community
to flexibly navigate the ill-structured,		
novel problem-solving nature of		Competency 5: Supporting the Application of
practice in response to the integrated	3.48	Foundational Knowledge About First Nations,
nature of the competencies articulated		Métis, and Inuit
in the standard.		
		Competency 7: Supporting Effective
	3.80	Governance
Embedding - Individuals are	4.11	Competency 2: Modeling Commitment to
improving/strengthening competency		Professional Learning

levels. Individuals/systems are using		
evidence to confirm that the	3.97	Competency 6: School Authority Operations
competencies in this standard are now		and Resources
part of common everyday practice		

In general, school superintendents report their practices are more advanced in their implementation for those competencies which relate to their customary roles as educator leaders as prescribed in statute—for commitment to model professional learning and for competence in efficient allocation of resources in school operations. If the former competencies are embedded or sustained in executive practices, they report the other competencies as being enacted, signaling they are still experimenting and adjusting to the standard.

The following figure (Figure 23) provides a visual overview of the means for Implementation Advancement related to each of the six competencies within the *Superintendent Leadership Quality Standard*.



Figure 23

Comparison of Means on the Implementation Advancement Related to SLQS Competencies

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

Similar to teachers and school leaders, superintendents report that Competency 5, which relates to integrating First Nations, Métis and Inuit knowledge is less well advanced in their leadership practices. The indicators for this competency are aligning school authority resources to support First Nations,

Métis, and Inuit student achievement; and engaging in practices to facilitate reconciliation within the school community.

The following box and whisker plot (Figure 24) 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 in Figure 24 includes the outliers in the data set (indicated by small circles). Outliers are participants' responses that are numerically distant from the rest of the data.

As can be observed in the box and whisker plot below (Figure 24), there is little skewing in the data in many of the competencies. Perhaps the competency worth noting is Competency 5: Ensuring First Nations, Métis and Inuit Education for All Students which relates to the incorporation of Indigenous perspectives in resource decisions or fostering reconciliation. Wide standard deviations, lengthy whiskers and a broader interquartile range suggest wider disagreement/less consensus among superintendents about this competency than for others, such as Competency 4: Leading Learning.







Competency1 Competency2 Competency3 Competency4 Competency5 Competency6 Competency7

Professional Learning Needs

Superintendents were asked to indicate their need for professional learning related to several competencies. Questions addressing competencies 1, 3,5, and 7 will be added to year 2 of the survey. Table 15 provides the aggregated results. Perhaps most striking is the apparent low level of need with an overall mean around 2.

It is important to cross reference these results with the results from *Implementation Advancement* and *Forms of Professional Learning and Development Accessed*. Implementation advances indicate individual leaders are using evidence to inform and further refine their leadership practices.

Table 15

Descriptive Statistics for Professional Learning Needs Related to Three SLQS Competencies

Construct		n	Mean	Standard Deviation
Competen	cy 2: Modeling Commitment to Professional Learning	32	2.16	0.71
1.	Knowledge and understanding of new developments			
	in leadership research and theory.			
2.	Developing collaboration among leaders.			
Competen	cy 4: Leading Learning	32	2.21	0.71
1.	Designing professional learning for/with school and			
	school authority leaders.			
2.	Observing leadership practices.			
3.	Providing effective feedback.			
Competen	cy 6: School Authority Operations and Resources	32	2.41	0.76
1.	Knowledge and understanding of current			
	provincial/local policies on education.			
2.	Using data for improving the quality of the school			
	and/or school authority.			
3.	Human resource management.			
4.	Financial management.			

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.





Means of Professional Learning Needs Related to Three SLQS Competencies

The following box and whisker plot (Figure 29) shows both the distribution and variation within the data set for the four competencies. As can be observed in the box and whisker plot (Figure 29), the interquartile ranges and the whiskers are fairly symmetrical indicating minimal skewing. There were no observed outliers.

Figure 26

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



Participation in and Impact of Various Types of Professional Learning Opportunities

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

The results in Table 16 and Figure 27 indicate that superintendents access a variety of professional learning opportunities including reading professional literature (97%), participating in seminars or courses about leadership (97%), attending educational conferences (94%), attending courses and seminars about subject matter, teaching methods or pedagogical topics (91%), participating in a network of school division leaders formed specifically for professional learning for leaders (88%), and attending formal qualification programs (66%). Approximately half of the superintendents (53%) reported participating in a peer and/or self-observation and coaching as part of a formal arrangement.

Table 16

Frequencies of Forms of Professional Learning Accessed

	Frequency (%)	
	Yes	Νο
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.	29 (91%)	3 (9%)
Courses/seminars about leadership.	31 (97%)	1 (3%)
Courses/seminars attended in person.	30 (94%)	2 (6%)
Courses/seminars online.	20 (63 %)	12 (37%)
Education conferences where teachers, principals, and/or researchers present their research or discuss educational issues.	30 (94%)	2 (6%)
Formal qualification program (degree program, certificate program).	21 (66%)	11 (34%)
Peer and/or self-observation and coaching as part of a formal school arrangement.	17 (53%)	15 (47%)
Participation in a network of school or school authority leaders formed specifically for the professional learning of school and school authority leaders.	28 (88%)	4 (12%)
Reading professional literature.	31 (97%)	1 (3%)

Overall, the Superintendents' professional learning profile mirrors that of school and system leaders. Online courses, formal qualifications programs, and peer or self-observation and coaching as part of formal school arrangement are less frequently sought means of professional learning than more direct, interpersonal, in person conferences, courses and seminars.



Figure 27



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

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 are strongly embedding the customary competencies relating to modelling professional practices and overseeing the allocation of resources in line with provincial statutes and regulations. The former involves engaging with other leaders such to build personal capacity for improving my leadership; actively seeking out feedback from a variety of sources to enhance leadership practice; and applying educational research to improve their leadership practice. The latter involves establishing data-informed strategic planning that is responsive to changing contexts and providing direction on resource management in accordance with all statutory, regulatory, and school authority requirements. All other competencies are still at the embedding stage, which suggests that superintendents are still adapting their practice to the new standard.

- Like teachers and leaders, the least agreement among Superintendents is with Competency 5 which requires alignment of school resources and fostering reconciliation with First Nations, Métis and Inuit peoples.
- Superintendents' expressions about professional learning needs mirror those for school and system level leaders. Professional learning in relation to the competencies might be similar to that for leaders, but recognizing the different positions of these superintendent leaders within the system.

Conclusions From the 2019-20 Provincial Survey

Online surveys undertaken in 32 Alberta school jurisdictions, and in a large number of independent schools in the fall of 2019, 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, preliminary picture of implementation levels in relation to the three quality standards, as of fall 2019. Overall, the three standards are well on the way to enactment in educator's practice, with a few strongly embedded and sustainable in school and system leaders' practices. Because 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 will be greeted with similar flexibility. The quality standards will support such flexibility and work for educators' supple adaptability. 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. Notwithstanding the social distancing measures now in place, and the province-wide closure of schools in spring 2020 because of the public health crisis, leaders must engage with the public to continue constructing public confidence. Professional learning about successfully interacting with neo-immigrant parents, Indigenous leaders, and other community stakeholders may be warranted.

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 early to 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. Leadership in professional learning may be offered by peer social studies teachers to colleagues in the school to enable some customization by grade configuration and subject matter discipline (Derrington & Anderson, 2020).

If there is one competency which educators at all levels of the Alberta system report as difficult to implement, it is Competency 5. Surveys of educators in Alberta clearly reveal that pedagogy as it relates to First Nations, Métis and Inuit foundational knowledge, alongside traditional Western ideas in mathematics and the sciences, are a challenge. That is much more than a curriculum issue. It involves a range of questions relating to 'evidence', world view, and standards implementation that must engage school leaders and superintendents, as well as teachers. Progress in this critical competency is needed before we can conclude that the standards are leading to optimum learning for all students.

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Mixed Methods Case Studies	Туре		
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		
School Divisions	Туре		
1. Battle River School Division	Rural		
2. Black Gold School Division	Rurban		
3. Calgary Board of Education	Metro		
4. Christ the Redeemer Catholic Schools	Rurban		
5. Clearview School Division	Rural		
6. Foothills School Division	Rurban		
7. Fort McMurray Catholic Schools	Urban		
8. Fort McMurray School Division	Urban		
9. Grande Prairie Catholic Schools	Urban		
10. Grande Yellowhead Public School Division	Rural		
11. Holy Spirit School Division	Urban		
12. Horizon School Division	Rural		
13. Lethbridge School District	Urban		
14. Livingstone Range School Division	Rural		
15. Northern Gateway Public Schools	Rural		
16. Parkland School Division	Rurban		
17. Peace River School Division	Rural		
18. Peace Wapiti School Division	Rural		
19. Prairie Land School Division	Rural		
20. Prairie Rose School Division	Rural		
21. Rocky View School Division	Urban		
22. St. Albert Public Schools	Urban		
23. St. Thomas Aquinas Catholic Schools	Rural		
24. Wetaskiwin School Division	Rural		
Association of Independent Schools and Colleges of Alberta (AISCA)	25 School Authorities		

Appendix A: 2019-20 Provincial Survey: Participating School Authorities

Participating School Authorities Within the AISCA Organization
1. Airdrie Christian Academy
2. Edmonton Academy
3. Edmonton Islamic Academy
4. Calvin Christian School
5. Lycee Louis Pasteur
6. Progressive Academy
7. Gobind Sarvar School
8. Phoenix Foundation
9. Koinonia Christian School
10. Renert School
11. Delta West Academy
12. Bearspaw Christian School
13. E2 Academy
14. Strathcona Tweedsmuir School
15. Glenmore Christian Academy
16. Get Ready for Inclusion Today
17. Canadian Covenant Reformed Schools
18. Foothills Creative Beginnings
19. Calgary Jewish Academy
20. Janus Academy
21. One School Global
22. Khalsa School
23. Mountain View Academy
24. Children Autism Services
25. Summit West Independent School

Appendix B: 2019-20 Provincial Survey: Participating School Authorities Within the AISCA Organization