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Multi-Graded, Rural Alberta Schools: Quality Education or Not?

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Small rural schools utilize multi-graded classes to maintain their viability. When the majority of classes are combined, the result is a multi-graded school. In Alberta alone, there are approximately 90 schools that would be defined as a multi-graded school, and every rural school board has at least one on its roster. In Alberta, students and their caregivers are promised that their children will receive a quality education from their public school, regardless of size or location. This quantitative, descriptive research study found that according to parent, teacher, and student surveys, multi-graded, rural Alberta schools provide quality education but do poorer on provincial standardized tests. By acknowledging an academic issue for multi-graded rural schools, the focus can move to how to utilize the unique education provided at these schools to improve results and maintain cultural importance in the community.

Les petites écoles rurales utilisent des classes à plusieurs niveaux pour maintenir leur viabilité. Lorsque la majorité des classes sont combinées, il s'agit d'une école à niveaux multiples. Rien qu'en Alberta, il existe environ 90 écoles que l'on pourrait définir comme des écoles à niveaux multiples, et chaque conseil scolaire rural en compte au moins une sur sa liste. En Alberta, on promet aux enfants et aux personnes qui s'occupent d'eux que les élèves recevront une éducation de qualité dans leur école publique, quelle que soit sa taille ou sa situation géographique. Cette étude quantitative descriptive a révélé que, selon les enquêtes menées auprès des parents, des enseignants et des élèves, les écoles rurales albertaines à classes multiples dispensent un enseignement de qualité, mais obtiennent de moins bons résultats aux tests standardisés provinciaux. En reconnaissant l'existence d'un problème académique dans les écoles rurales à classes multiples, on peut se concentrer sur la manière d'utiliser l'enseignement unique dispensé dans ces écoles pour améliorer les résultats et maintenir l'importance culturelle de la communauté.

According to Alberta's Commission on Learning (2003), maximum class sizes are recommended to be 17 for kindergarten to grade 3, 23 for grades 4 to 6, and 25 for grades 7 to 9. There is no question that there should be a maximum number of students in one classroom, but what if a school has the opposite problem? Such is the case for small, rural, multi-graded schools. Instead of asking for smaller class sizes, they request fewer grades in each class. Whether rural or urban, most people have heard of a multi-grade, split, or combination class within a regular school, but fewer have heard of or attended a school where the majority or all classes are multi-graded.

Background

Grades are combined to reduce the number of teachers required to keep schools open in some rural settings. If the enrollment is low enough, all classes may be split or triple-graded for administrative reasons, resulting in what I will define as *multi-graded schools*. In slightly larger rural centers, grade class sizes remain small but too large to combine. For this study, these are termed *mono-graded schools* because there is one class of each grade offered. In either of these scenarios, students and their parents/guardians are promised the same quality of education regardless of location, school size, or number of grades in the room (Alberta Education, 2018).

Corbett and Gereluk (2020) noted that "rural education is viewed from a 'metrocentric' perspective as a deficit educational space that needs to be somehow 'fixed'" (p. 30). This belief can extend to parents/guardians of students in small, multi-graded schools, causing them to wonder if their children would receive a higher quality education at a larger, less multi-graded school. In my own experience, I have had parents/guardians move their children to a larger centre because of programs, such as athletic teams or options. They believed that by moving their children to more significant centres, they could enjoy the "educational advantages and opportunities only available in larger schools" (Mulcahy, 2009, p. 25). In addition, there is the belief that mono-graded classrooms provide a higher quality of education due to a lack of resources or teacher training for multi-grade classes (Cornish, 2009). Being the principal of, a teacher in, and a parent of children attending a multi-graded school, I wanted to learn more about multi-graded schools and determine whether there is a difference in the quality of education they provide. Through this research, I learned much about the benefits and difficulties of multi-grade classes, but I had further questions. For example, do students receive a higher quality of education in mono-graded schools than in multi-graded schools? How do parents/guardians perceive the quality of education their children receive at multi-graded schools?

To better understand education quality provided at multi-graded schools, this paper examined the question: In what ways do the results from the Alberta Grade 6 Mathematics Provincial Achievement Test (PAT) and the Education Quality Measure from Alberta Education's *Accountability Pillar Survey* differ for students taught in multi-graded rural schools, mono-graded rural schools, and the Alberta average? What follows is an exploration to understand better the quality of education provided at multi-graded, rural schools; a discussion of what these results could mean; and potential questions to investigate in the future.

Multi-Graded, Rural Alberta Schools

What Does It Mean to Be Rural?

This study focuses on multi-graded schools, but because the data analyzed are from rural schools, the definition of rural must be understood. According to Statistics Canada (2019), an area may be defined as rural based on current census data on population density, such as a population of less than 1000. Looker and Bollman (2020) further explained rurality in terms of the influence of a metropolitan area (a region with 100 000 or more) or towns (with a population between 10 000 and 999 999). These *Metropolitan Influenced Zones* (MIZ) can be strong, moderate, weak, or no influence. In 2016, over 80% of Alberta's population resided in metropolitan areas or towns, and over 15% of the population lived in MIZ.

Beyond a technical definition, what does it mean to be rural? Hargreaves et al. (2009) went

beyond definitions used by policymakers to look at the cultural dimensions of being rural. In their review of research on rural schools, they found that the cultural dimension is often ignored. As an alternative, they recommended examining the "rural school as a community arena" (p. 83). As Fowler (2012) expressed it, "the schools are the element that ties and binds the community together socially and economically" (p. 76). Karlberg-Granlund (2019) referred to the relationship between the rural school and its community as symbiotic, with both benefiting from the relationship. Unfortunately, there is a perception that rural schools provide low-quality education, measured using urban values (Hargreaves et al., 2009).

Beyond location and population density, other characteristics of rural areas may affect the education quality or achievement of rural students. Fowler (2012) noted that employment in rural areas is no longer focused on agriculture as most people are employed in the service industry. Looker and Bollman (2020) noticed a positive correlation between MIZ and socioeconomic status (SES); the lower the influence of a metropolitan area, the lower the SES. According to the Organization for Economic Co-operation and Development (OECD, 2010), student family background, socio-economic status, and student performance are closely associated; low SES backgrounds tend to do poorer academically. Interestingly, Nadel and Sagawa (2002) indicated that poverty's effect on achievement is reduced when students attend small schools. As this study focused on rural, multi-graded schools, it is essential to recognize the significance rural culture has on stakeholders' views of quality education and the demographics of the students attending these schools.

Multi-Grade Teaching

The label "Multi-Grade" generally has a negative connotation, indicating a lack of resources, such as teaching staff and physical materials, when discussing rural situations or extra students that do not fit into the specified size limit of urban schools. "Labels are a starting point, but what goes on inside the classroom is more important than the label given" (Cornish, 2009, p. 121). It is important to note that despite the label of rural multi-graded classes being used, there are also benefits. In my personal experience, I know my students more closely because I often teach them in small classes for two or more years. As a result, teaching becomes more individualized for students. This is not to say that mono-grade teachers do not individualize their instruction to their students. However, that multi-grade teachers have more time to develop individualized programming because they are more likely to teach their students over a more extended period.

Multi-graded class research was a more prominent topic in the 1980s and 1990s, resulting in two points of view, both concentrated on the cognitive and non-cognitive effect for students in multi-graded classes. Cognitive effect refers to students' academic success, whereas non-cognitive effect focuses on the social and emotional aspects of schooling. On the affirming side was Veenman (1995), who found no discernable cognitive effect and some positive non-cognitive effect for students in multi-graded classes. On the less positive side were Mason and Burns (1996), who found a negative cognitive effect due to the selection bias used to place strong teachers and students in multi-graded classes.

Mason and Burns (1997) also indicated that multi-graded teachers borrow time from science and social studies to cover mathematics and language arts outcomes. Kalaoja and Pietarinen (2009) included further issues such as "inappropriate suitability of the curriculum for multiple grades, incoherence of the subject matter taught to various age groups, the time factor, differentiation, inadequate availability of teaching material and the lack of assistance" (p. 111).

Compounding these struggles is the lack of teacher preparation to teach multiple grades in one classroom (Naparan & Castañeda, 2021) and that governments of many developed countries require students to write common assessments based on grade level (Cornish, 2009).

On the positive side, advantages include small class sizes, individualized instruction, a family-type of atmosphere, and fewer disciplinary problems (Kalaoja & Pietarinen, 2009). In response to the difficulties, teachers of multi-graded classrooms use a variety of coping strategies to benefit their students, including flexible grouping, self-directed learning, peer tutoring, collaborative learning, connecting lessons to real life, and integrating technology (Naparan & Castañeda, 2021; Naparan & Alinsug, 2021). It is important to note both the positives and negatives of multi-grade classes on learning in both cognitive and non-cognitive ways. These factors help define whether stakeholders view their children's education as quality.

Education Quality

Defining education quality is a multi-faceted and, therefore, subjective process. Educational quality can be divided into three perspectives: economic, humanistic, and constructivist (Laurie et al., 2016). The economic perspective (or government) focuses on inputs and outputs. The humanist perspective places the focus on the child and social goals. Finally, the constructivist perspective considers quality education when learners connect what they learn and what is happening around them. Nikel and Lowe (2010) added to the definition of quality education by identifying seven dimensions: effectiveness, efficiency, equity, responsiveness, relevance, reflexivity, and sustainability. These dimensions create a quality education fabric. The authors noted that the seven dimensions must remain balanced to maintain this fabric, but balance does not mean they will be equally distributed. Depending on the educational context, some dimensions are emphasized over others.

Governments must define quality education to account for how they spend taxpayers' dollars. In addition, school boards and individual schools must prove that they provide quality education to their students. As part of this accountability, Alberta Education surveyed students, teachers, and parents/guardians of students yearly on the quality of education their child receives at their school using the *Accountability Pillar Survey* (Alberta Education, 2019). One measure on this report is Grade 6 PAT results for each core subject (mathematics, language arts, social studies, and science). This suggests that PAT achievement is an indicator of education quality. Although the entire survey is used to measure educational quality, one section is specifically called Education Quality. Using a series of questions, stakeholders are asked whether they are satisfied with the education quality provided at their school. From the previous discussion, it is essential to recognize that education quality is far more complex than achievement on standardized tests (PATs) or generalized survey questions about satisfaction (*Accountability Pillar Survey*). However, to provide a cursory idea of whether multi-graded, rural schools offer quality education to their students, this study focused on those two pieces because they are accessible and quantitative.

Methodology

Descriptive Research

The methodology for this study is objective-orientated with a post-positivist worldview. Statistical

analysis of the data was used to make conclusions, but there is an understanding that "data are not perfect" and, therefore, an acknowledgement of biases that may construe findings (Haardörfer, 2019, p. 538). For example, website data was used to determine multi-grade or mono-grade status, yet websites are not static. There are also missing data because schools have too small of class sizes (under six students), so their results are suppressed. There were also pieces of data removed that were considered outliers.

The method used for this study is descriptive research, intending to understand better if there is a difference in the quality of education provided at multi-graded schools and promote further research based on findings.

Data Collection

Alberta Education (2015-2019a, 2015-2019b) publicly provided PAT results for every school and the province for five years using Excel spreadsheets. The school listing provides data on the number of students writing and the mean percentage for each school on the PAT from 2015 to 2019. Note that if fewer than six students write the PAT, their results are suppressed. Because small multi-graded schools have such sparse numbers, it is difficult to statistically analyze the PAT results of small schools on their own. By pooling all the available data from multi-graded schools together, the plan was to see if multi-graded results compare to mono-graded and to the provincial average.

Grade 6 Mathematics PAT Data

Precisely for this study, the grade 6 mathematics PAT results were analyzed. In 2015 and 2016, the grade 6 mathematics PAT was 50 multiple choice and numeric response questions, and since 2017 the test has been broken into two parts. Part A has 15 questions, and students are not permitted to use a calculator (Alberta Education, 2022a). All questions are focused on number sense and are recorded as numeric responses. Part B has 40 multiple-choice and numeric response questions and allows students to use a four-function calculator. In calculating the final grade, Part A is worth 10%, and Part B is worth 90%. The grade 6 mathematics PAT questions cover the *Alberta Grade 6 Mathematics Program of Studies*, specifically the topics of Number, Patterns, Shape and Space, as well as Statistics and Probability. Questions are defined as having a low, moderate, or high level of complexity, where low relies on recall or quick methods, moderate requires more flexible thinking and possibly more than one step, and high requires more "abstract reasoning, planning, analysis, judgment, and creative thought" (p. 8). Most questions on the PAT were low to moderate levels of complexity.

Alberta Education's Accountability Survey, Education Quality Measure

The second data analyzed for this study were school *Accountability Pillar Survey* results for the Education Quality Measure. Alberta Education (2019) calculated this measure from survey results gathered from grade 7–9 students, parents of grade 4–9 students, and teachers of grade 4–9 students. Parents were asked questions regarding their satisfaction with the quality of education and teaching at their child's school as well as to what extent they agree that their child is learning what they need to know, that their work is challenging and interesting, and that their child clearly understands their learning expectations. Grade 7–9 students were asked how good the teaching

is at their school and the degree they agree with statements such as their core subjects being useful, that their work is challenging and interesting and whether learning expectations are clear. Teachers were asked to measure their satisfaction concerning the quality of education and teaching students receive at their school, as well as whether they agree that students are learning what they need to know at their school, whether students find their schoolwork interesting and challenging, and if learner expectations are clearly explained. To calculate the score for the Education Quality Measure, Alberta Education determined a satisfaction rate by dividing the number of responses into the top two categories (for example, *strongly agree* and *agree*) by the total number of responses for each group of respondents (students, parents, and teachers). An overall satisfaction rate is determined by "equally averaging the satisfaction rate of teachers, parents, and students," which is recorded as the Education Quality Measure (p. 7).

Inclusion and Exclusion Criteria

Alberta schools from rural public and separate school authorities were potential candidates. Urban, private, charter, or specialty schools were not explored, even if they were multi-graded, because of bias for choosing to be multi-graded for pedagogical instead of administrative reasons or due to selection bias of the school by parents/guardians. Evidence of multi-grading or mono-grading and the latest *Accountability Pillar* results, if available, were searched for on each potential school's website. Criteria used to determine multi-grading and mono-grading involved finding the class distribution for the school, usually by viewing the staff directory page. If proof of multi-grading or mono-grading could not be found or was questionable, the school was removed from the list. In total, 96 multi-graded and 67 mono-graded schools met the criteria according to their website information available in the 2021–2022 school year.

Data Analysis

PAT Results

After collecting PAT data, I used exploratory data analysis, as Tukey (1980) described. Using Excel, histograms and boxplots were used to visualize the distribution and outliers of the data. Once a normal distribution was confirmed, the data were analyzed statistically by calculating the *t*-score and *p*-value to determine significance. The hypothesis tested was that the PAT results were the same for multi-graded schools and mono-graded schools as well as for multi-graded schools and the provincial average. If the *p*-value was less than .05, it indicated the hypothesis was false, and there was a difference in achievement.

Education Quality Measure

The Education Quality Measure on the *Accountability Pillar Survey* is calculated as a value based upon satisfaction for the current year, the previous year, and the previous three-year average, as well as a description of achievement determined using percentiles (*Very Low*, *Low*, *Intermediate*, *High*, and *Very High*) (Alberta Education, 2010). These data were analyzed using Excel in a graphical format, comparing the distribution of achievement levels as a bar graph. Because achievement levels are based upon percentiles and not equal intervals, the chi-square test, a nonparametric test, was used to determine statistical significance. The hypothesis was that the

distribution of schools' achievement levels would follow the percentile expectations. A *p*-value less than .05 would indicate that the hypothesis was incorrect and that the distribution did not match the expected percentile values.

Results

Comparison of Multi-graded and Mono-graded Schools

Grade 6 Mathematics PAT Results

Figure 1 visualizes the distribution of mean scores of multi-graded and mono-graded schools on the Grade 6 Mathematics PAT from 2015 to 2019 and the combined distribution for all five years. In looking at these graphs, both multi-graded and mono-graded schools followed a normal distribution. Interestingly, these graphs also show that mono-graded school results were higher than in multi-graded, as their distribution is moved slightly to the right. This aligned with manual calculations of the average of the mean scores where multi-graded schools have a lower average than mono-graded schools, as seen in Table 1. In addition, when comparing the variance for both types of schools, mono-graded were lower than multi-graded, indicating the mono-graded results tended to be closer to the mean than the multi-graded, which were more spread out.

Although there was a difference in mean results, the next question was whether this difference was significant. Table 1 provides the *t*-score and *p*-value when comparing the two types of schools. Interestingly, only 2018 results showed an apparent statistically significant variation ($p < .05$). It should also be noted that 2018 had the lowest mean scores across Alberta of the five years studied. If one were to increase the p-value cut-off to .10, both 2015 and 2019 would also show significance ($p < .10$). Considering 2018 and 2019 showed the most significance, it will be interesting to return to these results in the future to see if this is a trend or just a couple exceptional years.

Education Quality Measure

In comparing achievement levels on the measure of Education Quality for multi-graded and mono-graded schools, both followed a similar right-skewed distribution, as seen in Figure 2. However, despite the distribution being similar, the multi-graded schools showed a higher percentage of schools achieving the *Very High* level (about 10% more). The only other variance was at *Intermediate*, where mono-graded schools were over 10% higher.

Significance was tested using the chi-square test, as seen in Table 2. Knowing that the achievement level ranges were determined using percentiles, expected values were calculated and compared to actual values. *Very Low* is less than the 5th percentile, or 5%; *Low* is between the 5th and 25th percentile, or 20%; *Intermediate* is between the 25th and 75th percentile, or 50%; *High* is between 75th and 95th percentile, or 20% and *Very High* is above the 95th percentile or 5%. Both multi-graded and mono-graded school achievement significantly differed ($p < .00001$) from the expected results based on their right skew, as seen in Figure 2.

Figure 1

Distribution of Mean PAT Scores for Multi-graded and Mono-graded Schools from 2015 to 2019

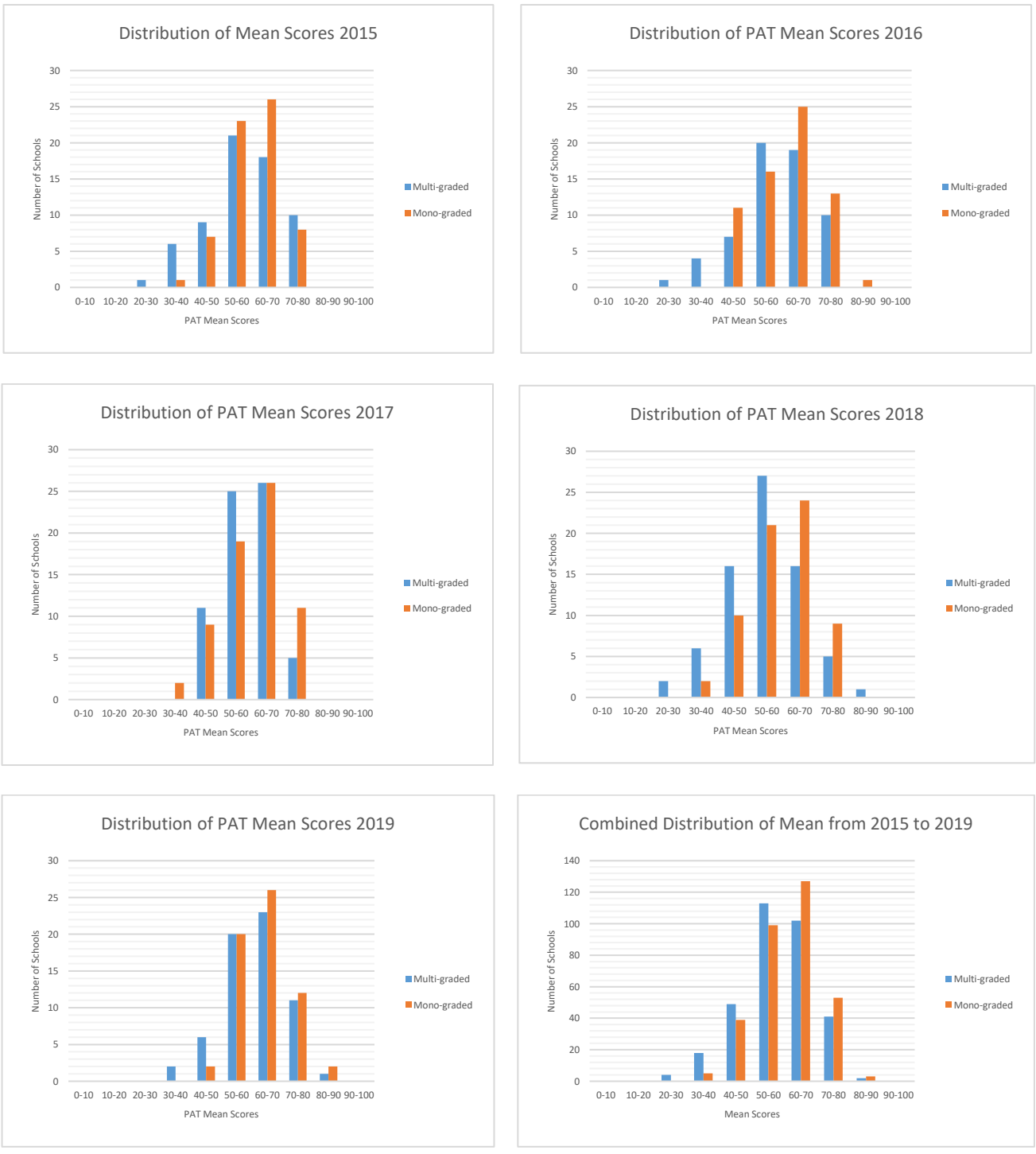


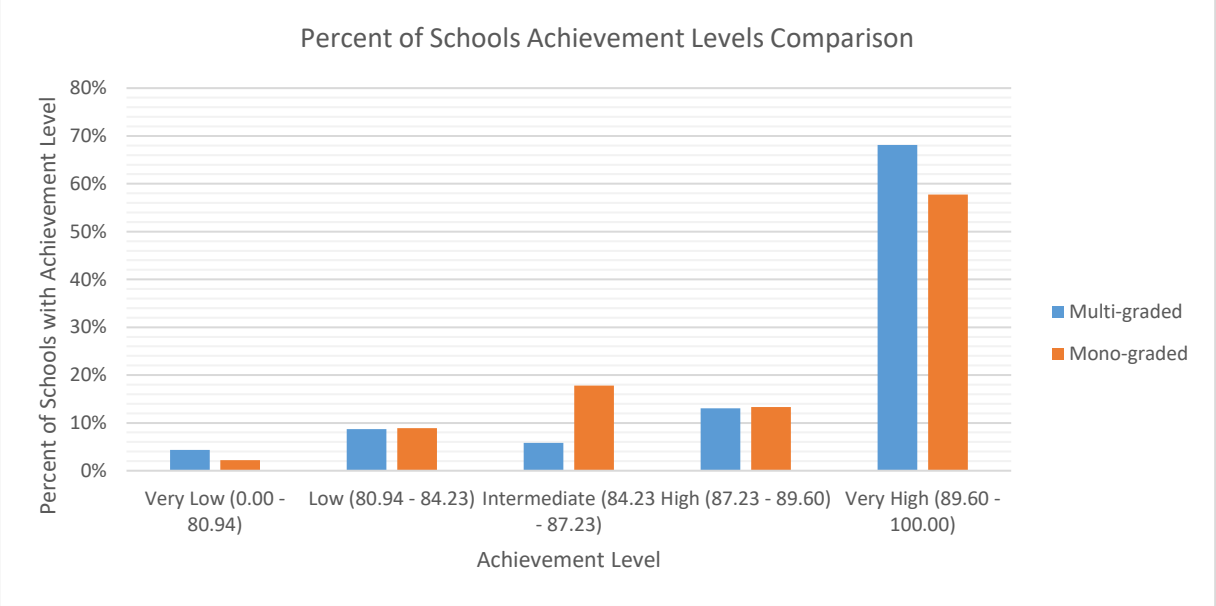
Table 1

Comparison of Multi-graded and Mono-graded School Means

Year	School Type	Mean	Variance	*t* Stat	*p* value
2015	Multi-graded	56.86	134.03	*t*(123) = -1.81	*p* = .072
	Mono-graded	60.23	90.90		
2016	Multi-graded	59.11	140.64	*t*(115) = -1.16	*p* = .246
	Mono-graded	61.35	90.15		
2017	Multi-graded	58.28	70.07	*t*(129) = -1.52	*p* = .130
	Mono-graded	60.65	93.01		
2018	Multi-graded	54.42	134.16	*t*(136) = -2.57	*p* = .011
	Mono-graded	59.02	89.49		
2019	Multi-graded	60.67	97.59	*t*(119) = -1.90	*p* = .059
	Mono-graded	63.74	64.50		

Figure 2

Distribution of Achievement Levels for Multi-graded and Mono-graded Schools



Comparison of Multi-graded Schools and Provincial Results

Grade 6 Mathematics PAT Results

Although there was variation, but not a significant difference, between multi-graded and mono-graded average mean scores on the Grade 6 Mathematics PAT, there was a significant difference between multi-graded schools and the provincial mean score, as can be seen in Table 3. Each year studied showed a 3 to 5 percent lower average for multi-graded schools than the provincial average. When calculating significance, this difference was significant for every year, with *p* values less than .001, all indicating $p < .05$.

Table 2

Comparison of Expected and Actual Occurrences of Achievement Levels

	Multi-graded Schools		Mono-graded Schools	
Achievement Level (percentile range)	Expected Number of Occurrences	Actual Number of Occurrences	Expected Number of Occurrences	Actual Number of Occurrences
Very Low (0–5)	3	3	2	1
Low (5–25)	14	6	9	4
Intermediate (25–75)	35	4	23	8
High (75–95)	14	9	9	6
Very High (95–100)	3	47	2	26
χ^2	χ^2 (4, N = 69) = 67.65, p < .001		χ^2 (4, N = 45) = 30.69, p < .001	

Note. Expected values were found by multiplying the expected percent of schools attaining that level by the number of schools in the sample (multi-graded = 69, mono-graded = 45).

Table 3

Comparison of Multi-graded Schools and the Provincial Mean on the PAT

Year	Multi-graded School PAT Mean Score	Provincial PAT Mean Score	*t* Score	*p* Value
2015	56.86	60.7	$t(64) = -2.69$	$p = .009$
2016	59.11	64	$t(60) = -3.24$	$p = .002$
2017	58.28	61.4	$t(66) = -3.08$	$p = .003$
2018	54.42	59.5	$t(72) = -3.77$	$p < .001$
2019	60.67	63.6	$t(62) = -2.37$	$p = .021$

Table 4

Comparison of Mean Satisfaction for the Education Quality Measure

	Multi-graded School Mean	Mono-graded School Mean	Provincial Mean
Most recent year posted (2016–2020)	91.44	90.04	90.2*
3 Year Average	90.72	89.96	90.1
Most recent year posted (only 2020)	90.8	89.9	90.3
3 Year Average	90.5	90.1	90.1

Note. Satisfaction is calculated as a percentage of the parents, students, and teachers that give a rating of satisfied or very satisfied on the Education Quality Measure.
* 2019

Education Quality Measure

As seen in Table 4, when comparing results on the Education Quality Measure from the *Accountability Pillar Survey*, multi-graded schools did better than the mono-graded schools and the provincial mean when comparing individual years and the three-year average. However, this table must be read with caution as not all schools posted their most recent results, so a secondary calculation was made using the available 2020 values and three-year average. As can be seen from

these results, the multi-graded schools still showed a higher satisfaction value than the provincial mean and mono-graded schools.

Discussion

Before researching multi-graded schools and the quality of education they provide, I believed that the achievement of small schools was the same as larger schools. This belief was partially due to my experience growing up in an urban centre, teaching in a larger town school, and teaching at a small, multi-graded rural school for the past eight years. Reflecting on my current location, I have noticed that when comparing our results statistically on the provincial grade 6 mathematics PAT, our percentage of students achieving the acceptable standard is usually lower than the provincial average, but we often have a higher percentage than the provincial average in achieving the standard of excellence. Students achieve the acceptable standard and standard of excellence based on cut scores determined after the PATs are written (Alberta Education, 2022b). The acceptable standard is a lower grade than the standard of excellence. Depending on the year, approximately 80% of Alberta students will achieve the acceptable standard, and 15% will achieve the standard of excellence (these students are also included in the acceptable standard percentage). Due to low enrollments, it only requires one or two students to achieve the standard of excellence to cause our school's results in this category to be above the Alberta average, even if our acceptable standard results are lower than the province. Due to this offset, I predicted that overall, our small school achieved close to the provincial mean. Looking beyond statistics, I also believed there would be little difference due to other factors, such as small class sizes. Therefore, I was surprised by the results of this research, especially surrounding the Grade 6 Mathematics PAT results. This could be disheartening, but I am reminded that the goal of this study was to inquire into the quality of education provided at multi-graded, rural Alberta schools, and the findings of this research provide much information and a foundation for further questions to ponder.

Quality Education Re-examined

When defining the concept of quality education, it is crucial to recognize the many stakeholders involved, for example, students, parents/guardians, community members, staff, and government. These stakeholders can interpret quality using different measures (Wittek & Kvernbekk, 2011). Although the concept is difficult to define, there is an understanding that the quality of education can increase or decrease, having both quantitative and continuous properties. Wittek and Kvernbekk (2011) also noted that although there is not a clear definition of quality education, "we all (think we) recognize quality when we see it" (p. 675). Alberta Education (2019) calculated schools' and school divisions' quality of education through the *Accountability Pillar Survey* (recently modified to the *Assurance Survey* in 2021). Specifically, Alberta Education gathered information on measures such as safe and caring, program of studies, education quality, work preparation, citizenship, parental involvement, and school improvement. Recognizing the complexity of defining quality education, there needs to be an exploration of other factors that could explain the results found in this study.

The Rural Factor: Socioeconomic Status (SES)

As noted in the literature, there is a connection between achievement and socioeconomic status

(OECD, 2010). As Sullivan et al. (2018) found in Canada, there is a noticeable gap between rural and urban students concerning PISA 2009 results. In addition, SES status and performance on the PISA are positively related, as the lower a community's SES, the lower the reading literacy PISA scores. They also noted that the size of the community was positively associated with a community's SES, as the smaller the community, the lower the SES. In addition to community size, more schools of choice can influence school performance. Perry and McConney (2013) compared the effect SES has on Canadian and Australian PISA scores in literature and numeracy. They noted that Australia has far more school choice or education privatization than Canada. As a result, Australia's schools tend to be more segregated concerning socioeconomic status, whereas Canada's schools tend to be more socially mixed. In their findings, Perry and McConney found that the difference in performance on the PISA between schools with high and low SES was less pronounced in Canada than in Australia, but there was still a notable negative difference in results; the high SES schools consistently outperformed the low SES schools.

Furthermore, Chiu and Khoo (2005) found that if students with higher SES are surrounded by peers from higher SES families, they will benefit from learning opportunities and utilize them. Therefore, the SES effect on academic performance has a much stronger connection than expected and should be researched further. For example, instead of focusing on location (rural), comparing schools with similar mixed SES ratios may be more appropriate. This would result in comparing different types of schools (multi-graded and other) and whether the size of classes or the length of relationship with the teacher can moderate the adverse effects of SES on academic success.

The Rural Factor: Teacher Preparedness

There is also the question of teacher preparedness for working in rural areas. In general, teacher education programs tend to focus on teaching urban, not rural (Barley, 2009). Unfortunately, not only are teachers in rural settings potentially teaching multiple grades in their classrooms, but they are also often teaching subjects outside of their specialty and are limited in their ability to access professional development due to the location or availability of substitute teachers (Barley, 2009; Jenkins et al., 2011). Although most teachers teach in urban centres, it would be worthwhile to investigate statistics comparing the ratio of new teachers working in rural compared to urban schools. Supposing there is a reasonable probability for a beginning teacher to start their profession in a rural school, it follows that increased training and professional development should be provided to help them succeed in their first position.

The Rural Factor: Staff Turnover

Related to teacher preparedness is staff turnover in remote areas. Looker and Bollman (2020) noted that there is more teacher turnover in rural areas compared to urban areas, especially when rural areas are remote. In addition, younger teachers under 35 are most often moving. There is less movement among teachers between 35 and 50 and even less for those older than 50. Beginning teachers may succeed more in being hired in rural compared to urban schools due to reduced competition. Unfortunately, these new teachers will spend some time in the rural setting but will often focus on preferred (urban) areas as they gain experience and employment (Jenkins et al., 2011). Looking at the rural cultural dimension described by Hargreaves et al. (2009), examining whether staff turnover in small schools harms student achievement would be worthwhile. For example, when there are constant changes in staffing, does the development of

programs stall at the beginning stages rather than improving year after year? Because of the family atmosphere of small schools, is there a feeling of rejection when staff leave?

The Rural Factor: Accessibility

In Alberta, funding of schools is based on the number of pupils attending that school. As a result, are there variations in accessibility to technology or other educational materials in rural regions? Generally, the funding does not pay for the teaching staff or maintenance of the school building, which is why the school is multi-graded. Despite being multi-graded, larger schools in their division must supplement small school budgets. Depending on how the school is viewed, this may result in fewer extras being done at smaller schools. For example, if the maintenance department believes the school will be closed in a few years, they may not keep up on general maintenance or be given "hand-me-downs" from other schools getting upgrades.

Conclusion

Researching education quality provided in Alberta's multi-graded, rural schools has been eye-opening. When first thinking about the project, I expected that multi-graded students would achieve comparably to mono-graded schools and the provincial average on the Grade 6 Mathematics PAT. However, this belief was quickly challenged as I started the data analysis process. At the same time, this unexpected result caused me to change my perspective and rethink the issue. The key to this discussion is understanding that although multi-graded students may not perform as well as students across Alberta, stakeholders (parents/guardians, students, and teachers) see their rural, multi-graded school as providing quality education according to Alberta Education's *Accountability Pillar Survey*.

This idea that rural stakeholders are satisfied with the education quality their children receive at multi-graded schools has caused me to ponder some potential reasons: Perhaps the difference is the cultural dimension, as Hargreaves et al. (2009) suggested. However, there may be more to the perception of education quality in rural Alberta than achievement. Education quality may be measured more by non-cognitive effects for rural stakeholders.

At the same time, I must recognize a significant difference in PAT results for multi-graded schools compared to the provincial average. Therefore, I plan to investigate why and what I can do in my small school to close the divide. In this process, one of the goals will be to change our school's perspective. Rather than viewing our multi-graded situation as a deficit, we must focus on the positives that small schools provide students and their communities.

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