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The Impact of Demographic Factors on Student Attendance in Queensland State Secondary Schools

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Abstract

This article analyses the impact of three demographic factors on student attendance over a three-year population level statistical analysis of student attendance rates in Queensland (Australia) state secondary schools. Whole school attendance rates were mapped against the demographic factors of schools' Index of Community Socio-Educational Advantage (ICSEA) values, proportion of Indigenous students within the school, and school population size as independent variables to identify which schools recorded the highest student attendance as measured by proportion of students with more than 95 per cent average attendance across the years 2014-2016. The geographic and demographic profile of these schools were then assessed to guide direction for future research.

The data from this sample of schools indicates no significant relationship between high levels of student attendance and the three independent variables. Subsequent analysis of school location resulted in identification of a significant number of schools in rural locations attaining excellent attendance rates against both study sample schools and state benchmarks. It is evident that several schools have successfully navigated what might be considered challenging school demography to attain higher than average attendance rates. Despite the age of this data, no significant system-wide attendance improvement is presently evident, and the same conditions of challenge remain for schools. The findings suggest a need for a more forensic approach to analysis of school climate and culture to determine factors contributing to student attendance.

Keywords: Student attendance, Queensland, ICSEA, Indigenous, school population size, rural schooling

Introduction

This paper focuses on an analysis of three demographic factors and their contribution to student attendance rates to support school leaders' and policy makers' understanding of the complex problem of improving student attendance. The Index of Community Socio-Educational Advantage (ICSEA) value (ACARA, 2016), proportion of Indigenous students in the school, and school population size have been applied as independent variables mapped against the calculated three-year average for percentage of students with attendance above 95 per cent. Two questions were posed in the population level statistical analysis:

1. Which Queensland state secondary schools recorded the highest proportion of students with more than 95 per cent average attendance over the years 2014-2016?
2. What is the geographic and demographic profile of the schools with the highest proportion of students with more than 95 per cent average attendance?

Student attendance and absence is a challenge that has been studied extensively in Australia (Hancock, Gottfried & Zubrick, 2018; Justman & Peyton, 2018; Ladwig & Luke, 2014; Mellor & Corrigan, 2004; Queensland Department of Education and Training, 2016a; Rothman, 2002; The University of Queensland, 2017), in the United States (Balfanz & Byrnes, 2012, 2013; Gottfried, 2013; Hamlin, 2020; Harris, 2013; New York State, 2016; Sheldon, 2007), in the United Kingdom (Reid, 2008, 2012, 2015a, 2015b; C. Taylor, 2012), and across Europe (Garcia-Gracia, 2008; Gubbel, van der Put & Assink, 2019; Havik, Bru & Ertesvåg, 2015; Ramberg, Brolin Laftman, Fransson & Modin, 2019). The depth of study and research across the world indicates that the challenge of improving student attendance is a shared international problem.

Improving school attendance is an extremely difficult challenge to address. The partnership between home, school and community is important (Epstein & Sheldon, 2002), as is government and school policy and procedure implementation (Perry & McConney, 2010). Students who do not attend school regularly can be prone to a higher risk of dropping out of school early (Schoeneberger, 2012) and the negative effects of school absence on society can be measured in higher future related incarceration rates and significant economic cost to communities (Harris, 2013). Balfanz and Byrnes (2013) describe chronic absenteeism as being like a tax on a community's ability to provide a pathway from school to successful adulthood. Robinson, Lee, Dearing and Rogers (2018) detail how the problem is highlighted early in a student's educational journey. In similar fashion, Rothman (2002) outlined that student school absence begins to increase in Year six and, once patterns are established, they are difficult to break.

Reid (2005) described the cycle of adult economic failure that stems from unsuccessfully school completion as being almost impossible to break. This cycle can be extremely damaging for communities because even as people proceed through the various stages of their life and engage with many and varied influences, if early development is inadequate, socially unacceptable behaviours and patterns of disengagement can remain. Schoeneberger's (2012) and Zubrick's (2014) findings concurred with Reid (2005), explaining how patterns of low attendance heighten chances of not only dropping out of school but being linked to low paying jobs. The relationship between frequent absenteeism and serious sociological issues in adulthood is further explored by Gottfried (2010; 2013) who elaborated on the higher possibility of experiencing abject hardship when adults who did not regularly attend school attempt to secure meaningful employment.

For society to avoid having generations of mal-adjusted adults (with social issues as described above), Havik, Bru and Ertesvåg (2015) claim that attention to student attendance patterns must be a priority. The critical nature of early intervention is again reinforced by The Smith Family (2018) who stress the difficulty in breaking well-established truancy patterns. School is detailed as playing such a pivotal role in children's and adolescents' personal and educational development (Havik, Bru & Ertesvåg, 2015), and any absence must be analysed and acted upon at the earliest opportunity.

The study reported in this article considers secondary schools to focus on the critical time in students' lives where decline in attendance or drop-out of schooling usually occurs. The paper provides educators and policy makers with findings to use to consider current and future actions to address an ongoing problem.

Student Attendance in Queensland Schools

Attendance rates are declining, not improving

Across all Australian states and territories, student attendance declines as students progress through secondary schooling (Australian Curriculum, Assessment and Reporting Authority, 2020). In Queensland, for all state schools the 2019 average rate of attendance (see Table 1) was 90.5 per cent (Queensland Department of Education, 2019; Queensland Parliament, Parliamentary Committees, 2014) and in state secondary schools it was 88.5 per cent. Despite a strong focus on

attendance improvement policy within the last decade (central to this period is the three years of focus for this study) including through the *Everyday counts* (Queensland Department of Education and Training, 2016a) initiative, attendance rates have not increased (Queensland Department of Education, 2019; Queensland Parliament, Parliamentary Committees, 2014).

Table 1. Average Rate of Attendance in all Queensland State Schools and State Secondary Schools (%)

Year	*Average rate of attendance in Queensland state schools (%)*	*Average rate of attendance in Queensland state secondary schools (%)*
2019	90.5	88.5
2018	90.9	88.8
2017	91.5	89.7
2016	91.5	89.7
2015	91.4	89.5
2014	91.1	89.1
Six-year average	91.2	89.2

Source: (Queensland Department of Education, 2019; Queensland Parliament, Parliamentary Committees, 2014)

The concern has grown to the extent that during the last decade several actions have been implemented in Queensland by the Department of Education to understand the issue and seek solutions. A Queensland Audit Office report (2012) was followed by the *Performance Insights: School Attendance, 2013* report (Queensland Department of Education, Training and Employment, 2013) that sought to act as a *…comprehensive background paper for departmental staff regarding trends and issues in student attendance in Queensland state schools* (p. 2). A Queensland Parliament, Parliamentary Committees (2014) published review of state school attendance rates made several recommendations that supported further investigation of state schooling attendance rates. Recommendation #9 (Queensland Parliament, Parliamentary Committees, 2014) led to a University of Queensland study of attendance rates and strategies in Queensland state schools. Findings from this study included the need for schools to develop common attendance related terminology and definitions, to enact a comprehensive approach to attendance improvement, and to implement strategies to make every day at school count (The University of Queensland, 2017).

In 2015, the Department of Education and Training conducted a large-scale survey (300 targeted principals) of school practice that was released as *Performance insights. School attendance strategies: A result of a survey of Queensland state school leaders* (Queensland Department of Education and Training, 2016b). This report highlighted some of the most effective strategies implemented to improve student attendance yet continued to share that limited progress had been made to address this problem.

Indigenous student attendance

Over recent decades researchers have sought to understand the reasons why large numbers of Indigenous students do not attend school regularly (Baxter & Meyers, 2019; Beresford & Gray, 2002; Prout Quicke & Biddle, 2017; Taylor, 2010; Taylor, 2012). A consistent theme emerging from the literature is that whilst there has been deep analysis of the reasons for, and of the impact of school non-attendance, little progress in the way of consistent and widespread improvement in Indigenous student school attendance rates has been documented. Indigenous students' attendance rates continue to fall behind non-Indigenous students (0.4 increase in the gap between Indigenous and non-Indigenous students in 2018, and 10.2 percentage points lower)

(Australian Curriculum, Assessment and Reporting Authority, 2020). These reasons suggest that it was important to include Indigenous student population as a demographic measurement when determining the independent variables applied during this study.

Research Methodology and Design

Sample schools

Eighty per cent (n=208) of state schools, comprising state secondary (Year 7-12) and Preparatory Year to Year 12 (P-12) schools in Queensland provided the sample set for this study. Seventy per cent of schools in Queensland are state schools administered by the state government, with 14 per cent of these being Year 7-12 secondary schools, and 15 per cent being combined primary/secondary schools. The remaining 30 per cent of Queensland schools are administered as non-government schools (The State of Queensland (Queensland Treasury), 2020). State secondary schools in Queensland may be stand-alone Year 7-12 secondary schools, or part of an all-through model of schooling commencing in the preparatory year through to either year ten or 12 dependent on community population and thus resourcing. These schools colloquially known in Queensland as "P-10 or P-12 schools" are mostly located in rural areas and generally have small student populations, but since 2000 several such schools have also been established in large growth corridors of urban areas and have evolved to be "super-schools" with populations in the thousands. Some exceptions exist but most schools that provide secondary education to students in Queensland fit these two models. In 2015 all secondary schools in Queensland changed to enrol students from Years 7 to 12. In previous years secondary schools catered for Years 8 to 12 with a small number of the sample schools in 2014 hosting Year 7 in the pilot phase of this system change.

The selected sample schools retain the consistent characteristic of educating students between Years 7 to 12 and they also report student attendance using the same standard (proportion of students within attendance ranges). The P-12 schools were analysed using their whole school data from all year levels to provide a consistent result of school attendance rates from a whole of school community perspective. Schools of distance education, special education, Preparatory Year to Year ten, and hospital schools were excluded from this study as they either do not consistently apply comparable attendance expectations, are not required to record official attendance figures, or do not have student enrolment populations to Year 12.

Statistical analysis of student attendance rates and analysis of multiple factors

The study comprised of analysis of each school's student attendance data (the dependent variable of the proportion of students within the attendance range of 95 per cent to 100 per cent averaged across three years) as provided in the Student Attendance Distribution graph (see an example in Figure 1). The data graphs were sourced from each school's compulsorily published School Annual Report published on school websites. Student attendance is pre-populated in the reports from central data sources and is reported as a percentage rate, based on comparing the number of school days attended to the total possible days attended (Queensland Department of Education, 2019). All schools were de-identified and the study range for the analysis of this data was the years 2014-2016.

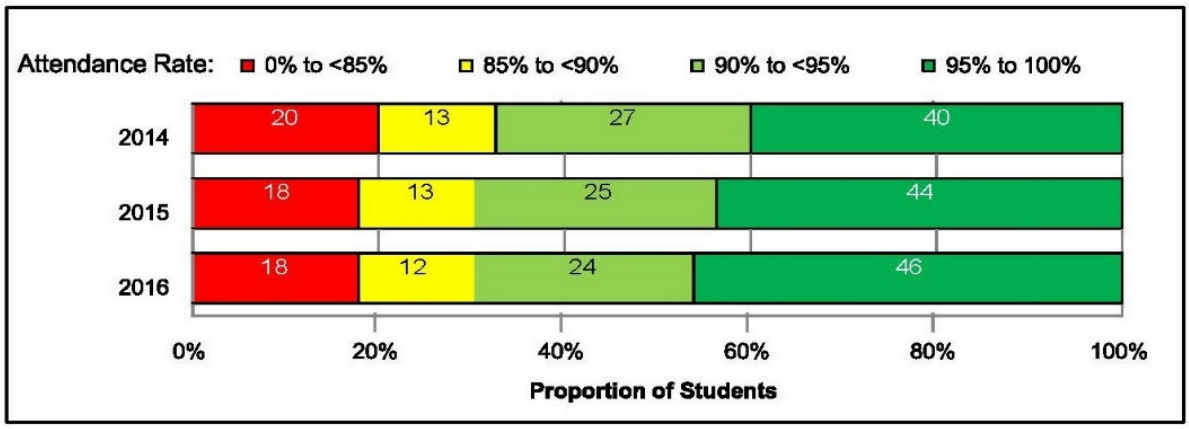

Figure 1. Student Attendance Distribution Graph Example (Queensland Department of Education and Training, 2016c)

The level of community socio-educational advantage (ICSEA value as recorded in 2016), the population size of the school, and the diversity of the student population have all been reported (see references in Table 2) to be determinants in effecting student attendance patterns. ICSEA value and school population were thus chosen to act as independent variables with the proportion of population identifying as Indigenous providing the data for school population diversity.

Table 2. Independent Variables

Independent variables	*Supporting reference*
School ICSEA value	ACARA (2016); Buckingham, Wheldall & Beaman-Wheldall (2013); Ladwig & Luke (2014); Perry & McConney (2010); The University of Queensland (2017)
School population size	Balfanz & Byrnes (2012); Queensland Parliament, Parliamentary Committees (2014)
Diversity of student population	Attwood & Croll (2015); Harris (2013); McConnell & Kubina (2014); The University of Queensland (2017)

Within this study the attendance rate, that is the proportion of students with more than 95 per cent attendance over the study period, was the dependent variable. Therefore, regression analysis, calculating r^2 values to determine the strength of the correlation coefficient, was chosen as the method in order to achieve the aim of accounting for variable factors that could influence the data. Schroeder, Sjoquist and Stephan (2017) describe regression analysis as a method to analyse relationships to account for variables. For this purpose, calculation of r^2 value served as an appropriate vehicle for the first stage of analysis within this study. As calculating r^2 value does not rule out other factors causing influence on the independent variable (Arkes, 2019), future research is suggested to delve deeper into the causes for respective schools' attendance rates.

Findings and Discussion

Calculation of r^2 values for each of the key variables provided a score by which to determine the strength of the correlation between the factors and provided clustering of schools along the line of regression. These clusters identified trends in attendance that challenged the correlation coefficient, in that some schools' rates were clearly higher against the variables. The average

percentage rate of students in population study schools with an attendance average above 95 per cent was 37 per cent. This average was also used to determine the clustering of schools for analysis.

Discussion of the geographic and demographic profile of the schools with the highest proportion of students with more than 95 per cent average attendance further differentiated the data. Identifying the schools as belonging to location (metropolitan, provincial city, rural, or remote) provided insights into the overall challenge of improving student attendance rates. Of note is that only 14 schools presented with attendance averages of above 95 per cent at a rate of more than 50 per cent.

Findings and Discussion on the relationship between attendance and ICSEA value 2014-2016

ICSEA is a numerical value that indicates the level of socio-educational advantage experienced by students in the school (ACARA, 2016). Within this study it was hypothesised that schools with higher-than-average ICSEA value (1000 and above) would have higher proportions of students with an average rate of attendance above 95 per cent, and schools with lower-than-average ICSEA value (below 1000) would have lower proportions of students with an average rate of attendance above 95 per cent. This would result in a predictable scatterplot with schools of lower ICSEA value populating the lower thresholds of the linear progression, and schools with higher ICSEA value populating the higher end. Realisation of such a hypothesis would also have resulted in a strong correlation coefficient supporting the premise that higher levels of socio-educational advantage greatly influence a school's average rate of students with attendance averages of 95 per cent or higher.

Figure 2 displays the scatterplot and calculated r^2 value for the relationship between attendance rates (three-year average) and ICSEA value for the schools in the study. The r^2 value of 0.3598 is a weak correlation coefficient (Schober, Boer, & Schwarte, 2018), thus for this set of data there is no significant statistical relationship between school attendance rates and ICSEA value. Schools were clustered within the groups detailed in Table 3.

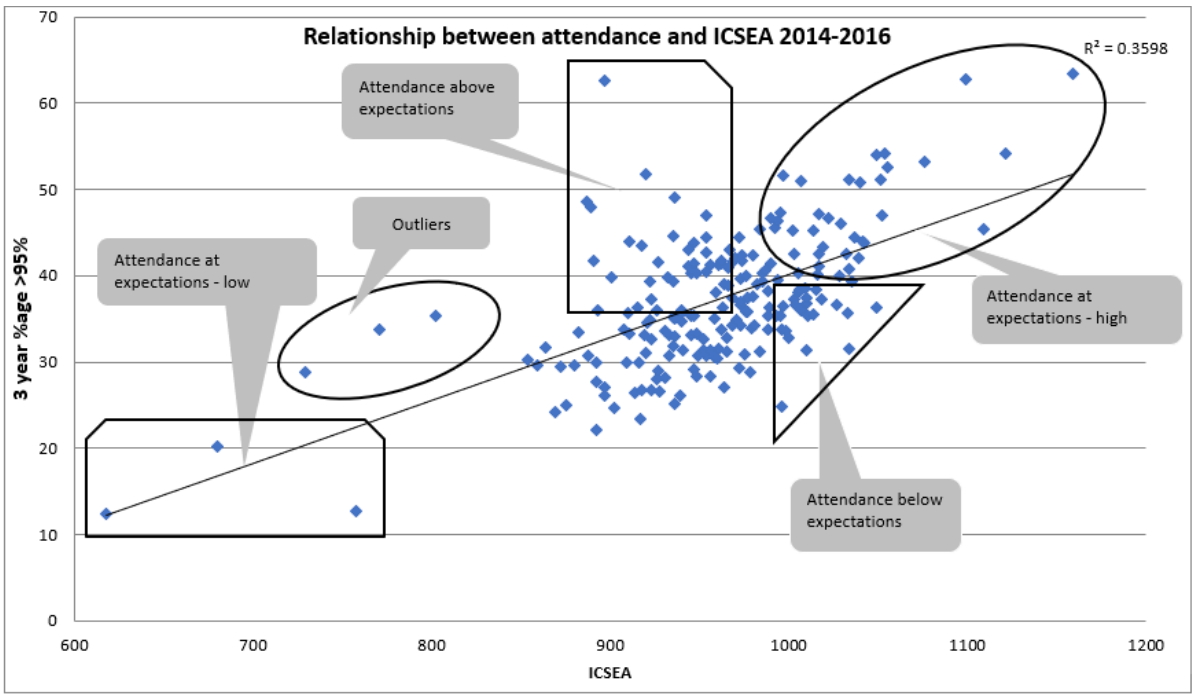

Figure 2. ***Relationship between Attendance and ICSEA value 2014-2016***

Table 3. Clustered schools for relationship between attendance and ICSEA value 2014-2016

Cluster group	*Description*
Attendance at expectations – low	Schools with an ICSEA value below 1000 and attaining attendance average of students above 95 per cent below the sample schools average of 37 per cent
Attendance at expectations – high	Schools with an ICSEA value above 1000 and attaining attendance average of students above 95 per cent above the sample schools average of 37 per cent
Attendance below expectations	Schools with an ICSEA value above 1000 and attaining attendance average of students above 95 per cent below the sample schools average of 37 per cent
Attendance above expectations	Schools with an ICSEA value below 1000 and attaining attendance average of students above 95 per cent above the sample schools average of 37 per cent
Outliers	Schools that do not fit the above criteria, displaying an unexpected attendance attainment average of students above 95 per cent

The "attendance above expectations" cluster of schools is of most interest for this study. This is the group lying mostly above the regression line, with average student attendance above 95 per cent exceeding 37 per cent and with ICSEA values well below 1000. The correlation coefficient for the relationship between student attendance average and ICSEA value was found to be weak, thus resulting in the outcomes of this cluster of schools as presenting as not statistically significant.

At the core of this cluster is a group of schools that emerged as being of interest for further investigation. A number of these schools presented with ICSEA values much closer to 900 than 1000 yet attained attendance rates that exceed not only many in the "attendance below expectations" cluster, but also the "attendance at expectations - high" clusters. These schools overcame the challenge of attaining high rates of average student attendance despite an ICSEA value deficit of close to and, in some cases, more than 100 points. Their higher results merit further investigation.

The schools grouped within this cluster furthest from the regression line, having attendance average rates for students above 95 per cent (significantly above the sample schools average of 37 per cent) formed the basis of continued interest. These schools are detailed in Table 4. Of consideration for future discussion is that none of the schools within this cluster of schools (low ICSEA value with high attendance) were from remote locations, whilst all three schools from the "attendance at expectations - low" (low ICSEA value with low attendance) cluster were from remote locations. Conversely, the three schools with the highest attendance rates within the "attendance at expectations - high" cluster (high ICSEA value with high attendance) were metropolitan locations. This provided a bookended scenario detailing that the three most socio-educationally advantaged schools in cities recorded the highest average attendance rates, and the three least socio-educationally advantaged schools in rural areas recorded the lowest average attendance rates. For a group of schools with low educational advantage bucking the trend and excellent student attendance rates in the middle of this scenario, the argument to investigate how this occurred in future case studies is evident. Within this cluster, four of the schools were in metropolitan areas and eight of the schools were located in rural areas. These locations are of significance as often schools in rural areas face challenges, such as transport and

other family commitments, relative to geography which have proven to be barriers for student attendance at school (The University of Queensland, 2017).

Three "outlier schools" fall in no other cluster and would provide interesting case studies to ascertain their context and relative attendance rates story.

Table 4. Attendance Above Expectations cluster of schools – Relationship between Attendance and ICSEA value 2014-2016

Percentage points above sample schools' average attendance rate above 95 per cent (37 per cent)	*School ICSEA value*	*Points below average ICSEA value of 1000*	*Average attendance rate above 95 per cent*	*Location – Metropolitan, Provincial city, Rural or Remote*
26	897*	103	63	Metropolitan
15	920	80	52	Rural
12	936	64	49	Rural
12	887	113	49	Metropolitan
11	889	111	48	Rural
10	954	46	47	Metropolitan
8	984	16	45	Rural
8	911	89	44	Rural
7	935	65	44	Metropolitan
7	954	46	44	Rural
6	918	82	43	Rural
5	927	73	42	Rural

***** School ICSEA value 897 whilst meeting the criteria of a 7-12 state secondary school was found to deliver a unique flexible schooling program not requiring comparable attendance expectations and was thus discounted from further investigation

Findings and Discussion on the Relationship between Attendance and Indigenous Population 2014-2016

The relationship between school outcomes in any measurement benchmark and the proportion of enrolled Indigenous students is recognised as one to consider when researching student attendance and engagement with schooling in Australia (Baxter & Meyers, 2019; Ehrich et. al. 2010; Jorgensen, 2012; Ladwig & Luke, 2014). Schools with a high proportion of Indigenous students are over-represented in underperformance categories on systemic data (Baxter & Meyers, 2019; Prout Quicke & Biddle, 2017; Zubrick, 2014). It was therefore hypothesised that schools with high proportions of Indigenous enrolments would be under-represented in upper tiers of attendance attainment, and schools with low Indigenous enrolment would be expected to be attaining higher rates of average student attendance. With the majority of higher proportionate Indigenous populations located in remote and rural areas, it could also be hypothesised that schools located in such areas would attain lower average attendance rates, whereas schools in metropolitan areas would attain higher average attendance rates. The relationship between Indigenous population and student attendance average across the sample schools could also be expected to yield a strong correlation coefficient.

Figure 3 displays the scatterplot and calculated r^2 value for the relationship between attendance and Indigenous population for 2014-2016 for the schools in the study. The r^2 value of 0.2479 is a weak correlation coefficient (Schober, Boer & Schwarte, 2018). Therefore, for this set of data there is no significant statistical relationship between school attendance rates and Indigenous population. The National Report on Schooling in Australia (Australian Curriculum, Assessment

and Reporting Authority, 2018; 2019) states that the total proportion of Indigenous enrolments in Queensland schools in 2016 and 2017 was respectively 7.8 per cent, and 8.0 per cent. Schools were therefore clustered within the groups detailed in Table 5.

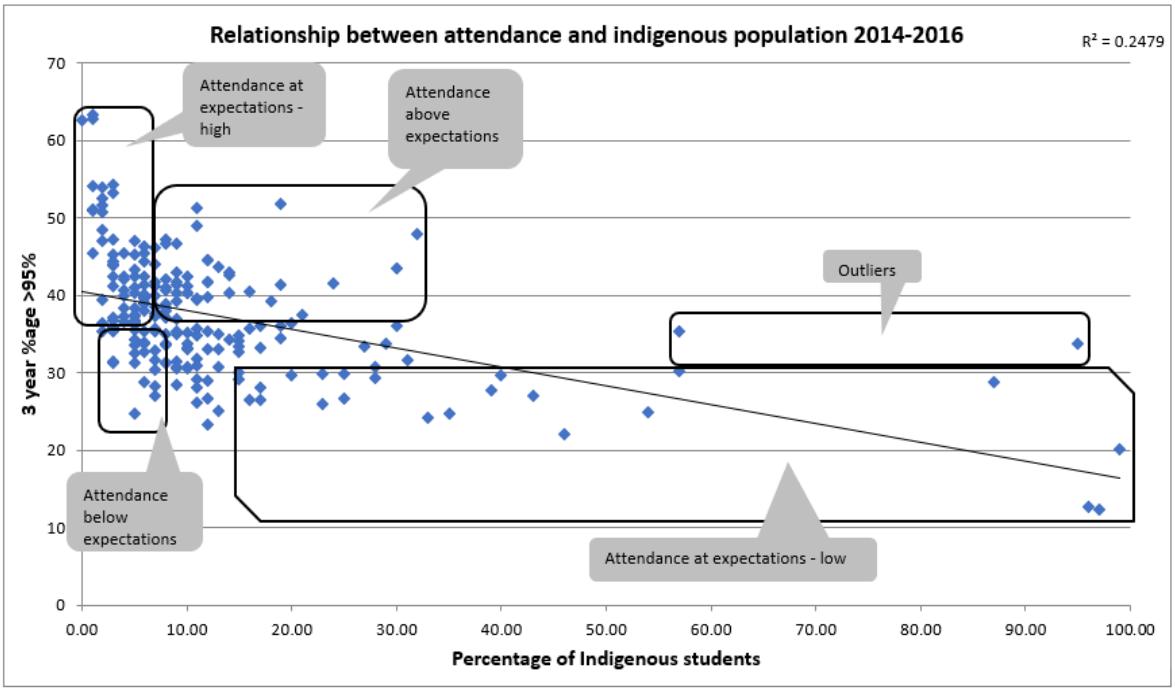

Figure 3. Relationship between Attendance and Indigenous Population 2014-2016

Table 5. Cluster group for relationship between attendance and Indigenous population 2014-2016

Cluster group	*Description*
Attendance at expectations – low	Schools with an Indigenous population above nine per cent and attaining attendance average of students above 95 per cent below the sample schools average of 37 per cent
Attendance at expectations – high	Schools with an Indigenous population below eight per cent and attaining attendance average of students above 95 per cent above the sample schools average of 37 per cent
Attendance below expectations	Schools with an Indigenous population below eight per cent and attaining attendance average of students above 95 per cent below the sample schools average of 37 per cent
Attendance above expectations	Schools with an Indigenous population above nine per cent and attaining attendance average of students above 95 per cent above the sample schools average of 37 per cent
Outliers	Schools that do not fit the above criteria displaying an unexpected attendance attainment average of students above 95 per cent

The cluster of schools that provokes most interest to analyse lies above the regression line in the "attendance above expectations" cluster. These schools present with Indigenous populations ranging from nine per cent to 32 per cent. These schools recorded average attendance rates of

above 95 per cent ranging from 37 per cent to 52 per cent. Two "outlier schools" attaining average attendance above 95 per cent of more than 30 per cent are achieving better than counterparts with significant Indigenous populations and could be included for investigation in future studies.

With a weak correlation coefficient for this variable, it is of statistical interest that the schools in the "attendance above expectations" cluster have attained these attendance rates because so many other schools with similar demographics have not. Schools within this cluster presenting with results of significance include the rural school with an Indigenous population of 32 per cent attaining average attendance above 95 per cent of 48 per cent. When compared against a metropolitan school with a three per cent Indigenous population (from the "attendance at expectations – high" cluster) attaining average attendance of 47 per cent (one percentage point lower), this school's attendance rates stand out as important. Furthermore, one school with an Indigenous student population of 19 per cent attained average attendance above 95 per cent of 52 per cent. This school is in a rural area, and when comparing its attendance rate against a metropolitan counterpart with the same average attendance rate of 52 per cent, yet an Indigenous population of two per cent, the significance of this data is clear.

Schools from this cluster presenting with the highest attendance rates, that is further removed from the regression line (Figure 3), have been included in Table 6. Two of the eleven schools are in metropolitan areas, with nine in rural locations. Of note is that within this group of schools the percentage points above sample schools' average attendance rate in the lowest end of this table is only two to four percentage points.

Table 6. Attendance Above Expectations cluster of schools – Relationship between Attendance and Indigenous population 2014-2016

Percentage points above sample schools' average attendance rate above 95 per cent (37 per cent)	*Proportion of population identifying as Indigenous – per cent*	*Average attendance rate above 95 per cent*	*Location – Metropolitan, Provincial city, Rural or Remote*
15	19	52	Rural
14	11	51	Provincial city
12	11	49	Rural
11	32	48	Rural
10	9	47	Rural
7	12	44	Rural
7	12	44	Rural
6	30	43	Rural
5	24	42	Rural
4	19	41	Provincial city
2	18	39	Rural

Findings and Discussion on the relationship between attendance and school population size 2014-2016

Schools within the sample study group range in size from over 3000 students to just under 100 students. The largest school in the study consisted of 3149 students and the smallest had 85 students. The structure of these schools varies dependent on their location and community need. P to 12 schools are predominantly located in rural or high growth urban areas and many have

been newly built in the last two decades or are older schools repurposed to fit this model. Secondary schools traditionally serve students in Years 7 to 12 and the largest of these are in metropolitan areas to serve either established suburban populations or growing corridors of urban residential areas. The smallest schools are in rural or remote parts of Queensland, often requiring attending students to travel significant distance to school.

Limited literature is available to support any understanding of the effect of school population size on attendance rates in Queensland schools. The University of Queensland (2017) found no discernible link between school size and the probability of higher student attendance rates. Figure 4 contains the scatterplot and calculated r^2 value that illustrates the relationship between student attendance rates and school population size 2014-2016 for the study sample schools. The r^2 value of 0.1248 is a weak correlation coefficient. The broad spread of the schools across the regression line indicates that no statistical significance can be attributed to the relationship between student attendance rates and school population size for this sample of schools. It is of note that interesting differences in attendance attainment rates appear to be attributable to geography. Further investigation of these trends in future research (outside the scope of this study) could lead to rich understanding for educators.

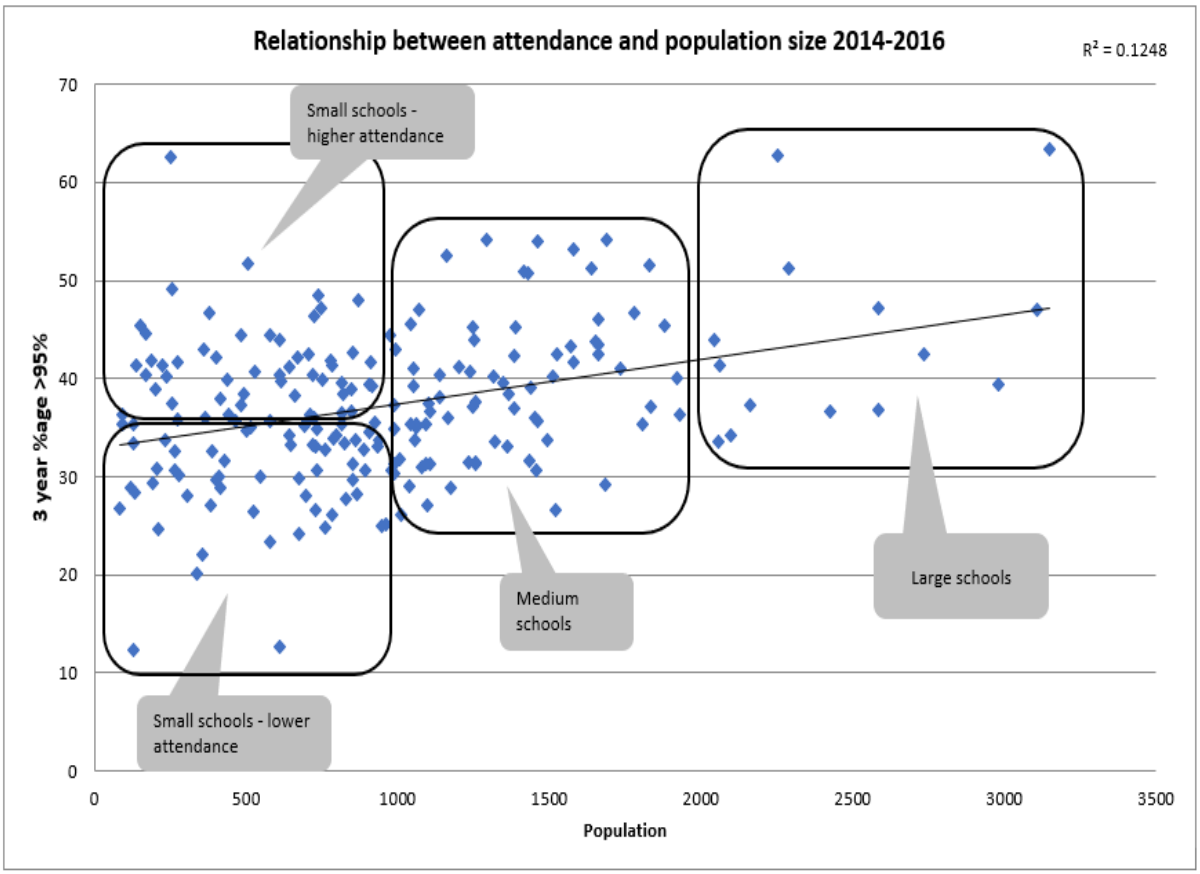

Figure 4. Relationship between Attendance and School Population Size 2014-201F6

Due to the result that little statistical significance can be drawn from the relationship between student attendance rates and school population size for this sample of schools, the analysis of these schools became relatively uncomplicated. Schools were clustered according to size in groups as detailed in Table 7.

Table 7. Cluster groups for relationship between attendance and school population size 2014-2016

Cluster group	*Description*
Large schools	Schools with student populations exceeding 2000
Medium schools	Schools with student populations from 1000-2000
Small schools – higher attendance	Schools with student populations up to 1000 and attaining attendance average of students above 95 per cent above the sample schools average of 37 per cent
Small schools – lower attendance	Schools with student populations up to 1000 attaining attendance average of students above 95 per cent below the sample schools average of 37 per cent

The large and medium sized clusters were evenly spread both across the X axis and on the other side of the regression line. Little analysis of substance was achievable; therefore, attention was paid to the smaller schools' cluster where more variation in attendance rates was evident. Due to this wider distribution, small schools - high attendance and small schools - low attendance, analysis was conducted. Schools within the higher attendance cluster (the highest ranked schools are detailed in Table 8) that were outperforming their like-sized counterparts were of most interest, particularly when matched against the other variable factors of ICSEA value and Indigenous population.

A group of schools numbering approximately 45 populate the small schools – higher attendance cluster above the regression line spread evenly across the X axis. Attendance averages above 95 per cent in these schools range from the sample school average of 37 per cent to 63 per cent. School populations range from 140 to nearly 1000, and their locations record the interesting result that all are from metropolitan and rural settings, with none from provincial cities or remote locations. The majority of schools populate the spread of data between the sample schools' average of 37 per cent and the mid-to-upper 40 per cent range. It is clear from this data set that it is challenging to attain an above 95 per cent attendance average above 50 per cent with only two schools (out of a total of 14 in the study) attaining this result.

The second highest achieving school in this cluster of schools attained an attendance average above 95 per cent of 52 per cent, 15 points higher than the sample schools' average. With a population of 507, this school lies in the middle of the X axis line, is in a rural setting and is also the same school referred to in relation to its Indigenous student population of 19 per cent.

A group of schools situated above the regression line with significantly higher attendance average rates than those discussed in small schools – lower attendance reinforces the conclusion that school population size does not directly influence attendance. The weak correlation coefficient of 0.1248 supports this view and provides further argument for individual school investigation to occur. The sub-set cluster of eight schools in the medium schools' cluster all attaining average student attendance rates above 95 per cent of above 50 per cent could provide an interesting group for further, future qualitative analysis.

Table 8. ***Small schools – higher attendance 2014-2016***

Percentage points above sample schools' average attendance rate above 95 per cent (37 per cent)	*Student Population*	*Average attendance rate above 95 per cent*	*Location – Metropolitan, Provincial city, Rural or Remote*
26	253	63	Metropolitan
15	507	52	Rural
12	739	49	Metropolitan
12	256	49	Rural
11	869	48	Rural
10	749	47	Metropolitan
10	380	47	Rural
9	724	46	Metropolitan
8	169	45	Rural
8	154	45	Rural
7	612	44	Metropolitan
7	578	44	Rural
7	482	44	Rural
5	911	42	Metropolitan
5	275	42	Rural

The research questions

The first research question asked: Which Queensland state secondary schools recorded the highest proportion of students with more than 95 per cent average attendance over the years 2014-2016?

The analysis resulted in a group of schools emerging as having the highest proportion of students with more than 95 per cent average attendance (see Table 9 – sorting table). ICSEA value was used as the identifying code to label the schools (to protect the school's name). The highest ranked schools were placed in order of outcomes in each independent variable for sorting and comparison. Both medium schools and small schools – higher attendance were included in the sorting table alongside ICSEA value and Indigenous population. Large schools were excluded as none of these schools fulfilled either of the ICSEA value or Indigenous population variable criterion.

Ten schools (ICSEA value 920, 936, 889, 935, 911, 918, 947 (1), 927, 954 and 1034) appear multiple times within the independent variables sorting process. These schools are highlighted in Table 9 (with shaded cells) and their demographic characteristics are displayed in Table 10. The schools exceed the sample school average of 37 per cent of students with more than 95 per cent average attendance by between five and 15 percentage points. School ICSEA values 920, 936 and 889 appear three times providing average student attendance outcomes that exceed the sample average by 15, 12 and 11 percentage points, respectively. The remaining seven schools are represented in the sorting table categories twice each.

Table 9. Sorting table (labelled by school ICSEA value) 2014-2016

Rank	*ICSEA value*	*Population – medium schools*	*Population – small schools, higher attendance*	*Indigenous Population*
1	920	1121	920	889
2	936	1049	936	918
3	889	1054	889	920
4	935	1076	995	927
5	911	1055	990	1034
6	918	997	994	936
7	947 (1)	1034	984	935
8	944	1040	911	947 (1)
9	927	1007	972	967
10	954	1022	954	947 (2)

The second research question asked: What is the geographic and demographic profile of the schools with the highest proportion of students with more than 95 per cent attendance?

The ICSEA values of nine identified schools fall below the average of 1000 by a minimum of 46 points to a maximum of 111 points. One school has an ICSEA value of 1034, above the average ICSEA value. The largest Indigenous population within the sample schools is 32 per cent, and the smallest is five per cent. The school populations range from 169 to 1654, with nine of the schools being Year 7 to 12 secondary schools, and one being a P-12 school. Five of the schools are in rural locations, three are in provincial cities, and two are in metropolitan areas.

Schools meriting further investigation due to their above average attendance rates include school A, from a rural location, displaying an high proportion of students with more than 95 per cent average attendance (52 per cent). Only two schools in this sorted group and 14 in the broader sample recorded averages above 50 per cent. Alongside a relatively low ICSEA value (920) and an Indigenous student population of 19 per cent, school A presents with a 3-year average attendance rate of 90.6 per cent.

School C, in a rural location, attained a three-year attendance average of 91.5 per cent whilst presenting with the lowest ICSEA value of 889 and the highest proportion of Indigenous enrolment of 32 per cent. A three-year average attendance rate above 95 per cent of 48 per cent is 11 points above the sample average of 37 per cent.

The smallest student population in the sorted group is school D with 169 students and a 3-year average attendance rate above 95 per cent of 45 per cent. It is located in a rural location, has an ICSEA value of 935 and consists of 12 per cent Indigenous enrolment. Schools G, H, and J (all from provincial cities) present with the largest student populations of 1654, 1649 and 1639, respectively. Recording respective 3-year average attendance rates above 95 per cent of five, six and 13 percentage points these three schools consist of Indigenous student populations of 30, 13 and 11 per cent, respectively.

School J also attained the highest three-year average attendance (92.1 per cent) rate, and its 51 per cent of students averaging 95 per cent attendance, alongside school A, is rare within the

sample group in that it exceeds fifty per cent. School J also experiences the highest ICSEA value in this group of schools with a value of 1034.

Table 10. **Demography of selected schools 2014-2016**

Variable	*School A*	*School B*	*School C*	*School D*	*School E*
3-year attendance average %	90.6	90.8	91.5	90.8	90.4
3-year attendance average >95%	52	49	48	45	44
ICSEA value	920	936	889	935	911
% Indigenous students	19	11	32	12	7
Population	507	256	869	169	612
Location	Rural	Rural	Rural	Rural	Metropolitan
Variable	*School F*	*School G*	*School H*	*School I*	*School J*
3-year attendance average %	90.2	89.7	89.1	91.3	92.1
3-year attendance average >95%	42	43	44	47	51
ICSEA value	927	918	947 (1)	954	1034
% Indigenous students	24	30	13	5	11
Population	275	1654	1649	1085	1639
Location	Rural	Provincial	Provincial	Metropolitan	Provincial

Conclusion

This study illustrated that the three independent variables (ICSEA value, Indigenous population, and School population size) presented correlation coefficients that indicated weak relationships and therefore little consistent effect on student attendance averages across the study sample schools. Despite the age of the sample data, the issue of low attendance rates in schools both within Queensland and further afield remains.

Identified rural and provincially located schools immersed in the traditionally viewed demography challenges of their locations have found solutions and for consecutive years maintained excellent student attendance outcomes. These schools have exceeded the sample school average attendance rate and that of other schools with similar demographic challenges demonstrating that exceptional student attendance outcomes are attainable. Focus for future studies of this data and student attendance as a research focus, is recommended to analyse school geography, schools' tracking and monitoring of student attendance, strategies utilised to engage with families and community, the success or otherwise of extrinsic reward strategies and other local innovations that have proven to be highly effective to improve student attendance.

The analysis of this set of data highlights that schools with similar demography and geography can have markedly variable student attendance rates. Therefore, it is suggested that school leaders and school policy makers look beyond traditional views of school demography and engage in localised, individual study and analysis of school strategy and policy to fully understand the reasons why some schools, even with challenging circumstances, attain high levels of student attendance.

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