

Do Grade 6 students who attend schools with different grade-level configurations perform differently on the reading, writing and mathematics components of the junior-division EQAO assessment?

The Impact of School Structure on the Achievement of Grade 6 Students on EQAO Assessments

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EQAO Research

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- to promote the use of EQAO data for improved student achievement through the investigation of means to inform policy directions and decisions made by educators, parents and the government.

EQAO research projects delve into the factors that influence student achievement and education quality, and examine the statistical and psychometric processes that result in high-quality assessment data.

Research conducted by
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Acknowledgement

This research project was a collaborative effort among EQAO staff on the Assessment, Data Management and Analysis and Psychometric teams.

PURPOSE

This bulletin summarizes the results of a research project conducted by Ebby Madera on the achievement results of students on the EQAO Assessment of Reading, Writing and Mathematics, Junior Division (Grades 4–6) relative to school structure or grade-level configuration as defined by the grades in the school. The following specific research question was addressed:

- Do Grade 6 students who attend schools with different grade-level configurations perform differently on the reading, writing and mathematics components of the junior-division EQAO assessment?

This study is part of EQAO's research program, which promotes the use of EQAO data for improved student achievement through an examination of factors that influence student achievement and education quality, and which informs policy directions and decisions made by educators, parents and the government.

BACKGROUND

Grade configuration in schools could affect student achievement in a number of ways. It affects school and cohort size, and it determines the number and timing of structural transitions a student goes through during his or her educational career. It can also affect peer composition and age distribution in schools and have an impact on student behaviour and attitudes. All of these factors can influence student achievement.

Relatively few studies have examined the impact of grade configuration on student achievement. Dhuey (2011) found that attending a middle or junior high school in British Columbia had statistically significant negative effects. Results similar to Dhuey's were obtained in a study by Rockoff and Lockwood (2010) using data from New York City. Offenberger (2001) found that eighth grade students attending K–8 schools outperformed eighth graders attending other types of schools. Watson (2009) found no consistent differences in students' achievement in reading and mathematics according to school configuration or size.

PURPOSE

The current study examined the effect of different grade-level configurations on the reading, writing and mathematics achievement of Grade 6 students on the junior-division EQAO assessment. The main focus of the study was to examine the possible impact of students' attending middle schools. That is, it asked whether students who change schools at Grade 6 to enter a middle school have different achievement results from those who remain in the same school from Grade 5 to Grade 6.

DATA ANALYSIS

An analysis of covariance was used to determine whether there were significant differences among the mean reading, writing and mathematics scores of Grade 6 students in English-language schools with the following grade configurations:* 4/5–8, 6–8, JK/K–6 and JK/K–8. Grade 3 assessment scores were used as the covariate, so that the Grade 6 scores could be adjusted to account for differences in the prior achievement of students enrolled in the four categories of schools. The Grade 6 scores were from the 2011 assessment and the Grade 3 scores were from the 2008 assessment; only students who had scores in both years were included in the analysis. There were approximately 112 000 students in the sample of whom just over 70% were enrolled in a JK/K–8 school in Grade 6 (17% in a JK/K–6 school, 10% in a 6–8 school and 1% in a 4/5–8 school). There was a slight variation in the number of students for reading, writing and mathematics.

RESULTS

The results of the analysis of covariance showed that there were statistically significant differences in the mean adjusted Grade 6 scores across school types for all subjects. The mean score for students in JK–6 schools was slightly higher than those for the other three configurations, but the differences were small. It is particularly important to consider effect size in analyses where the sample size is very large, such as the current study. School grade-level configuration accounted for less than 1% of the total variance in students' scores on the junior-division EQAO assessment of reading, writing and mathematics, controlling for the effect of their Grade 3 scores. Although the differences in mean scores were significant in a statistical sense, they were too small to be educationally meaningful.

CONCLUSIONS

The analysis did not reveal a meaningful relationship between school grade-level configuration and Grade 6 student achievement scores in reading, writing and mathematics. Although the statistical tests indicated significant differences in mean scores, the effect sizes were too small to warrant considering the results important for educational decisions.

References

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* Since nearly all French-language schools are JK/K–6 or JK/K–8, a similar analysis was not possible.