Do Bilingual Students Have Superior Academic Performance?

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**Abstract**

This study explores the relationship between bilingualism and academic performance among high school students in a mid-sized Canadian school. Participants completed a self-reported survey addressing language background, academic achievement, and demographics. While existing literature often suggests cognitive and academic benefits of bilingualism, results from this study revealed that monolingual students outperformed bilingual students in core academic subjects. Additionally, female students demonstrated higher academic achievement than male students. Despite a high proportion of bilingual participants reporting proficiency in English and French, no academic advantage was observed. These findings challenge assumptions about the positive impact of bilingualism on academic performance and suggest further research is needed to explore factors such as proficiency level and socioeconomic background.

## Background

There are roughly 5,000 languages spoken in the world today. Some languages families are related through shared words, sounds, and grammatical construction. The origin of language is not fully understood. More than half the world's population uses two or more languages on a daily basis. Being bilingual is beneficial in an increasingly globalized world. Every social animal communicates with others, but only humans have developed a language that is more than a set of prearranged and limited signals. Our speech differs in a physical way from the communication of other animals. It comes from a cortical speech center, which does not respond inherently, yet organizes sounds and meaning on a rational basis. This area of the brain is particular to humans.

Through much of the 20th century, professionals thought of a second language as an interference that would hinder a child's academic and intellectual development. Being bilingual is an interference but a positive one, which forces the brain to resolve internal conflict, giving the mind a workout that strengthens its "cognitive muscles". Collective evidence from a number of studies suggests that bilingual people experience improvements on the brain's multifactorial executive control system (e.g., Costa & Sebastián-Gallés, 2014) - a set of cognitive processes that are necessary for cognitive control of behaviour, that directs the attention processes that is used for problem solving, ignoring distractions, switching attention from one thing to another, and holding information, as well as widespread effects on the functional and structural properties of various cortical and subcortical structures in the brain. The key difference between bilinguals and monolinguals is a heightened ability to monitor the environment. Supposedly being bilingual can shield you against dementia in old age (Mendez, 2019). A downfall of being proficient in multiple languages is having more frequent tip-of-the-tongue moments, as a bilingual individual experiences them twice as often

as someone who speaks only one language fluently. Bilingual individuals also tend to produce fewer words of any given semantic category in contrast to monolinguals.

Bilingual education is the process of teaching students using two languages. Educators generally teach students in their native language in combination with a second language. Around the world, there are several different types of bilingual educational programs, although in some places more often than others. It may be implemented in different ways for majority and or minority language populations, and there might be particular educational and linguistic goals in different countries. In Canada, immersion education programs are designed for native speakers of the majority language (English) to become proficient in a minority language (French), whereas heritage language programs are designed to assist native speakers of immigrant and indigenous languages to become proficient in English. I intend to study the relationship between being bilingual and academic performance through a self-reporting grade survey, among high school students at an English-based high school.

## Review of Literature

Alanis (2010) studied a two-way bilingual program. The purpose of this study was to observe student outcomes in linguistic and academic development. As well as to examine whether students registered in a two-way bilingual program for at least three years are accomplishing academically. Participants in this study consisted of native English-speaking and native Spanish-speaking fifth-grade students of Mexican descent. A two-way bilingual education takes place when relatively equal numbers of language minority students and language majority students are in the same classroom for instruction and learning. These

types of programs are an attempt to throw out a minimalist form of bilingualism and to promote academic achievement from both majority and minority language speaking students. The chance of students becoming bilingual is significantly increased by this two-way bilingual approach. The findings of the study indicated that most of the students who were enrolled in the two-way bilingual program were performing at an academic level equal to or greater than their peers who were not enrolled in the program, when evaluated on the Texas Assessment of Academic Skill. Spanish literacy skills of the English students were not highly developed in contrast to the advanced English literacy skills of the Spanish students. The two-way bilingual approach seemed to be promising for bilingual development in the lower grade levels, although the rate of development appeared to be challenging to maintain in higher grade levels.

Greene (1998) conducted a meta-analysis, which is a statistical analysis that combines the findings of various studies. The basic principle supporting meta-analyses is that there is a common truth behind all conceptually similar studies, but which has been measured with a certain error within individual studies. This particular meta-analysis reviewed the literature on the effectiveness of bilingual education. The research suggests that children with restricted English proficiency who were taught with a varying degree of their native language performed undoubtedly better on standardized tests than students who were only taught in English. This study analyzed 11 studies selectively drawn from a list of 75. Standardized test score results from 2,719 students were collectively used in these studies, 1,562 of whom were enrolled in bilingual programs. The median age of students in the bilingual programs that were tested on the standardized examination was in the third grade after two years of bilingual instruction. When tested, students in bilingual programs had statistically significantly higher scores on standardized testing, except for math. These results are unlikely

to have been produced by chance. The evidence from scholarly research that is available points out that bilingual education has a significant, positive impact on students' learning English.

Prior and MacWhinney (2009) examined the probability that lifelong bilingualism may lead to enhanced capability in the skill to shift between mental sets. During the course of the study, they compared the performance of monolinguals and fluent bilingual college students in a task-switching paradigm. When tested bilinguals acquired lessened switching costs in the task switching paradigm when compared to monolinguals. This may indicate that lifelong experience in switching between languages might be partly responsible for increased efficiency in the ability to shift between mental sets. However, bilinguals did not vary from monolinguals in their ability to multitask. This study had college-aged participants. The findings of several previous studies regarding college-aged students have had mixed results, with some studies indicating bilingual advantage, and others documenting comparable performance to monolinguals. In contrast to studies on bilingual advantages in young children and older adults which indicate clear findings of a bilingual advantage. A possible explanation for the mixed results concerning college-aged participants is that college-aged students are at their peak performance, in terms of their ability to use executive control. The bilingual advantage in executive control is thought to stem from bilinguals' constant need to manage and monitor their languages. Bilinguals' use of their executive control is greater than monolinguals. Bilinguals use their executive control for managing active competition between the languages the person knows. This study displayed a strong bilingual advantage in performance, indicating that lifelong bilingualism may lead to enhanced efficiency in the executive function of shifting from mental sets. Explicitly, the lessened switching costs found for bilinguals can be linked to the process of language switching.

From reviewing this literature, I have learnt that scholarly research suggests bilingual education is helpful for students who are learning English. Students enrolled in bilingual programs are scoring equally well or better than monolingual students on standardized testing. As well as lifelong bilingualism has an advantage in shifting mental sets, suggesting enhanced efficiency in executive control. It is easier for bilinguals to shift mental sets, which can be connected to them constantly switching languages.
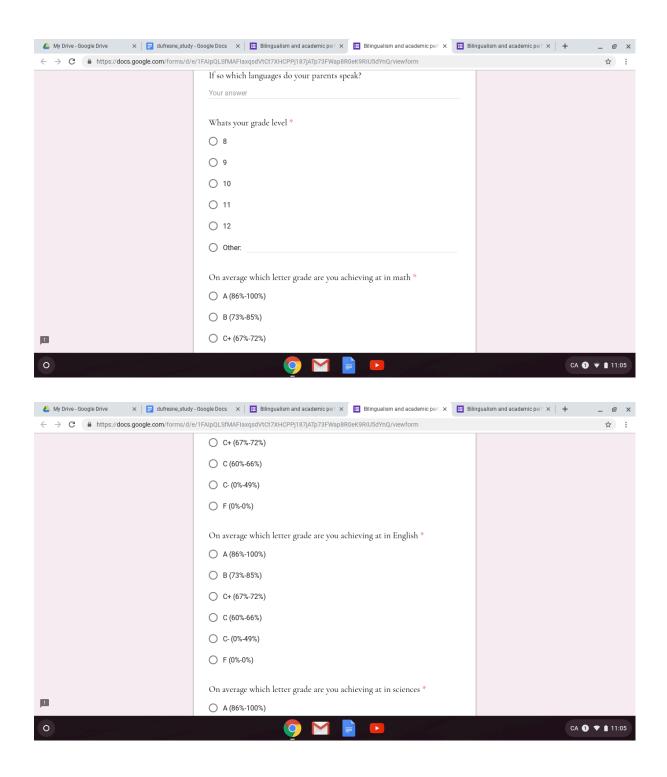
**Methods**

During this study, an anonymous Google form was created. This form included questions regarding language, demographics, and academic performance. Posing questions like these in hopes of finding a relationship between language and academic achievement. This form was distributed online through social media, as well as in person when data was collected in classrooms throughout a mid-sized high school near the Lower Mainland of Vancouver, Canada. The data collected was presented through a spreadsheet that was automatically created as people responded to the form.
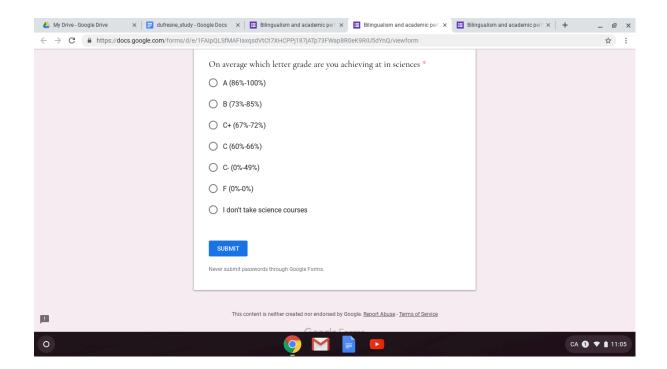
If so which languages do your parents speak?

Your answer

Whats your grade level *

○ 8

○ 9

○ 10

○ 11

○ 12

○ Other:

On average which letter grade are you achieving at in math *

○ A (86%-100%)

○ B (73%-85%)

○ C+ (67%-72%)

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○ C+ (67%-72%)

○ C (60%-66%)

○ C- (0%-49%)

○ F (0%-0%)

On average which letter grade are you achieving at in English *

○ A (86%-100%)

○ B (73%-85%)

○ C+ (67%-72%)

○ C (60%-66%)

○ C- (0%-49%)

○ F (0%-0%)

On average which letter grade are you achieving at in sciences *

○ A (86%-100%)

**Data**

| Do you speak more than one language? | Gender | How many languages do you speak? | Which language(s) do you speak? eg: English, French, Spanish...ect. | Are your parents bilingual? |
|---|---|---|---|---|
| Yes | Female | 2 | English and french | Yes |
| Yes | Female | 2 | English and French | Yes |
| No | Male | 1 | English | No |

| No | Female | 1 | English | Yes |
|---|---|---|---|---|
| No | Female | 1 | English | no |
| Yes | Male | 2 | english french | Yes |
| Yes | Male | 3 | English, Gaelic, French | Yes |
| Yes | Female | 3 | English French Spanish | Yes |
| No | Female | 1 | English | No |
| No | Male | 1 | English | No |
| Yes | Male | 2 | English,French | Yes |
| Yes | Male | 2 | English and French | No |
| No | Male | 1 | English | No |
| Yes | Female | 1 | English | Yes |
| No | Female | 1 | English | No |
| No | Female | 1 | English | No |
| Yes | Female | 2 | English and French | Yes |
| Yes | Female | 2 | English, French | Yes |
| No | Male | 1 | English | Yes |
| No | Prefer not to say | 1 | Italian | No |

| | | | | |
|---|---|---:|---|---|
| Yes | Female | 2 | English french | Yes |
| No | Male | 1 | English | No |
| Yes | Female | 3 | French English Swedish | Yes |
| Yes | Male | 2 | English, Italian | Yes |
| Yes | Prefer not to say | 4 | Mandarin Cantonese English Spanish | Yes |
| Yes | Prefer not to say | 2 | Hindi English | No |
| Yes | Female | 2 | Portuguese English | Yes |
| Yes | Female | 2 | English Russian | No |
| No | Male | 1 | English | No |
| Yes | Prefer not to say | 1 | English | No |
| Yes | Prefer not to say | 2 | Ukrainian English | Yes |
| | | count 31 | | |
| | | avg 2 | | |

| If so which | What's your | On average | On average | On average |
|---|---|---|---|---|
| | | | | |

| languages do your parents speak? | grade level | which letter grade are you achieving in math | which letter grade are you achieving at in English | which letter grade are you achieving at in sciences |
|---|---|---|---|---|
| french and English | 11 | A (86%-100%) | A (86%-100%) | A (86%-100%) |
| English and French | 12 | B (73%-85%) | A (86%-100%) | B (73%-85%) |
| english | 11 | B (73%-85%) | A (86%-100%) | A (86%-100%) |
| French english | 11 | A (86%-100%) | A (86%-100%) | A (86%-100%) |
| english | 10 | A (86%-100%) | A (86%-100%) | A (86%-100%) |
| French, English, Mandarin | Graduated | B (73%-85%) | C+ (67%-72%) | I don't take science courses |
| English, Yoruba | 11 | A (86%-100%) | A (86%-100%) | A (86%-100%) |
| French and English | 11 | B (73%-85%) | A (86%-100%) | A (86%-100%) |
| english | 11 | A (86%-100%) | A (86%-100%) | A (86%-100%) |
| english | 11 | B (73%-85%) | A (86%-100%) | A (86%-100%) |
| english french | 11 | A (86%-100%) | B (73%-85%) | B (73%-85%) |
| english | 12 | B (73%-85%) | A (86%-100%) | A (86%-100%) |
| english | 9 | B (73%-85%) | B (73%-85%) | B (73%-85%) |

| | | | | |
|---|---|---|---|---|
| English Spanish | 10 | A (86%-100%) | A (86%-100%) | B (73%-85%) |
| English | 11 | B (73%-85%) | A (86%-100%) | A (86%-100%) |
| English | 11 | A (86%-100%) | A (86%-100%) | A (86%-100%) |
| French english | 10 | C+ (67%-72%) | A (86%-100%) | A (86%-100%) |
| French english | 10 | B (73%-85%) | A (86%-100%) | A (86%-100%) |
| English french | 11 | B (73%-85%) | A (86%-100%) | A (86%-100%) |
| Italian | 12 | C (60%-66%) | C- (0%-49%) | C+ (67%-72%) |
| French English | 11 | B (73%-85%) | C+ (67%-72%) | B (73%-85%) |
| English | 11 | B (73%-85%) | A (86%-100%) | B (73%-85%) |
| English French | 10 | B (73%-85%) | C+ (67%-72%) | A (86%-100%) |
| Italian French | 11 | B (73%-85%) | B (73%-85%) | I don't take science courses |
| Mandarin English | 12 | B (73%-85%) | B (73%-85%) | A (86%-100%) |
| Hindi | 10 | B (73%-85%) | A (86%-100%) | C+ (67%-72%) |
| Portuguese English | 8 | B (73%-85%) | C+ (67%-72%) | B (73%-85%) |
| English | 11 | C+ (67%-72%) | B (73%-85%) | C- (0%-49%) |
| english | 11 | B (73%-85%) | A (86%-100%) | B (73%-85%) |
| English | 11 | A (86%-100%) | B (73%-85%) | B (73%-85%) |
| Ukrainian | 12 | B (73%-85%) | C (60%-66%) | B (73%-85%) |

| English | | | | |
|---------|--------------|---|---|---|
| | count 31 | | | |
| | avg 11 | | | |

## Discussion

The researcher worked mainly with high school-aged students, both male and female. The majority of the participants were in grade 11, with approximately 60% of the participants identifying themselves as bilingual. However, the participants' definitions of bilingual may vary from one another, therefore, bilingual participants' language skills could range in proficiency. It was most common for bilingual participants to be bilingual in two languages, with the English and French combination being most common, which was the case with approximately 35% of participants. The second most common result was participants being monolingual. There was also a small handful of participants who were fluent in three or more languages. Approximately 45% of the participants identified their parents as bilingual. For the overall group of participants, bilingual and monolingual combined, the most common grade average in math was a B (73%-85%), with approximately 61% of the participants achieving at that grade level. In English, the overall grade average of all participants was an A (86%-100%), with 61% achieving this letter grade. In science, the most common grade average was an A (86%-100%), with 50% achieving at this standard. Female participants were achieving at higher grade levels than male participants. Sixty percent of female participants achieved straight A's or two A's and one B in the three courses, math, science, and english, while 45% of males were achieving at that level. Monolingual students were achieving at a higher grade level than bilingual students, with 64% of monolingual

participants achieving straight A's or two A's and one B, while on the other hand, only 30% of bilingual participants were achieving at that same standard.

The study was limited in several ways. As discussed above, the study did not employ a functional definition of "bilingual", nor did it employ an assessment instrument to determine such. As well, there were a limited number of participants. Another crucial factor here is in cases where participants self-declared as bilingual, almost all of them attended the same elementary school French program, whose quality of overall academics and preparation is unknown. Future studies should address these shortcomings.

## Conclusion

The findings from this study suggest there is no advantage brought by bilingualism in academic performance. Monolingual participants were achieving at higher grade levels than bilingual participants. Also females were achieving at a higher academic standard than males.

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