

Impact of Second language Education on Intellectual Development, Student Achievement, Socialization and Economic Potential of Student and Province

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In an effort to more clearly understand the impact of second language instruction on both the student and society, a review of a number of studies was undertaken. The review of well recognized and reliable research literature revealed a large body of data which quantifiably demonstrates the educational, social and economic results of second language training.

The research identified 5 areas where second language education wrought measurable change:

1. Intellectual potential
2. Scholastic Achievement
3. The student's first language
4. Citizenship
5. Economic potential

The review of research, old and new, reveals conclusively that sufficient time spent learning languages additional to the person's first language positively, and in some cases dramatically, impacts the five aforementioned criteria.

Intellectual Potential:

In an early study on the impact of learning a second language (Peal & Lambert, 1962) it was demonstrated that students fluent in two languages performed better on measures of both verbal and non-verbal intelligence than did unilingual children. The researchers presented compelling evidence suggesting that children who become proficient in a second language demonstrate more diversified cognitive abilities. A similar and significant study on language aptitude was completed by (Carroll, 1962) neurophysiological research supports the view that younger students tend to outperform their older counterparts in information acquisition tasks; they proved to be quicker, more accurate and retained information for longer periods of time. The research supported the concept that earlier starts in acquiring second language skills is more effective.

Some time later a project designed to measure performance in thinking tasks, supported Peal & Lambert in finding that students studying a foreign language in elementary school perform significantly better on divergent thinking tasks than students who do not (Lambert, 1974). Related research performed in San Antonio revealed that bilingual children prove to be more effective problem solvers than unilingual peers (Kessler & Quinn, 1980)

A possible explanation of this neuro-cognitive benefit from second language instruction was implied when a research concluded that second language learning enhances listening and memory skills (Ratte, 1968), suggesting a link to improved attention span. The neuro-cognitive benefits of learning a second and third languages strongly imply an enhancement of the actual functioning intelligence of the student. Such findings were more recently underscored when it was found that fluent bilingualism contributes substantially to the cognitive growth of children (Latham, 1998). While the exact processes through which bilingualism and cognition interact remain largely unknown, the positive impact on intellectual development is clear, even for students with mild learning disabilities.

In 1993 a study found that children who learn foreign languages tend to be more creative, and demonstrate more divergent and higher-order thinking skills (Black, 1993). Black also presents evidence that points to the improved development of learning strategies and the increased ability of second language students to transfer skills to other areas. This is emphasized by the relative ease with which second language students are able to learn additional languages.

Scholastic Achievement

Several studies have published evidence that student achievement in a wide range of academic subjects is enhanced for those who have studied a second language.

There is clear evidence that proficient bilingual students outperform monolinguals on school tests (Collier, 1995). Moreover, students who have studied a second language are noted to have higher scores on standardized tests in reading, language arts, and mathematics than students who have not. A recent tabulation of Scholastic Aptitude Test (SAT) scores showed that students of a second language and literature performed better in mathematics. Students who spent four or more years studying non-English languages had significantly higher math scores than students who had studied the second language for only one year (Profile of College Bound Seniors, 1997).

Such findings were preceded by an earlier one which reported that students who had studied a language other than English in their high school year performed significantly better on the verbal portion of SAT than students who had studied any other object for the same period of time (Cooper, 1987). Cooper also reported, in the same study, that the difference was increasingly obvious with each additional year of second language study, with the effect moving into the non-verbal areas as well.

In what is yet an ongoing study in Edmonton Public Schools, which operates six bilingual programs, students' results on district and provincial tests have been tracked for the students in bilingual programs and can be compared to others who have not been exposed to intensive second language instruction. There is a very distinct mark differential on all standardized tests in favor of the bilingual program students. This even follows for programs which have a significant special needs population. The spread between the bilingual students and those in regular programs becomes more pronounced with time.

Effect of Learning a Second Language on the Student's First Language

For years one concern that has been frequently expressed when there is talk of students beginning the study of a second language, particularly at a young age, is that such an exercise may adversely impact the student's acquisition of knowledge and skills in their first language.

The Edmonton Public School study referred to above has discovered that the results on provincial and district wide English Language Arts examinations are higher for students in bilingual programs. The difference is marginal at the grade three level, but by grade nine it is significant, demonstrating the first language skills have been enhanced, not hindered, by the second language program.

Some years ago quantifiable evidence was collected and proved immersion programs were helping students to achieve a high degree of second language proficiency without detrimentally affecting English language skills overall academic achievement. (Genesse, 1987)

A compilation of findings from a number of studies shows a strong correlation between students' achievement and the number of hours spent learning a second language. Furthermore students who begin learning a second language in kindergarten or grade one perform better than those learning at grade four and much better than those who begin at grade seven (Halsall, 1998)

Halsall found that while English skills can lag behind in the early grades (1-3), the lags disappear by grade five. Over time, immersion was found to enhance the student's skill with English, as well as contribute to the development of multilingual capability. Interestingly Halsall also found that once established immersion programs are, in reality, no more expensive to operate than regular programs.

Another very thorough study showed that all second language programming serves to enhance reading skills, English vocabulary and communication skills (Albanese, 1987). The argument therefore that postulates learning a second language inhibits development of the first language is not only false, but research finds the very opposite true.

Citizenship

A number of studies reviewed served to highlight the importance of language training in developing a number of qualities of citizenship.

One of the effects noted in the literature that resulted from training in a second language was a tendency of students to develop cross-cultural skills and awareness (Genesse & Cloud, 1998).

The increased ability, noticed in students in a second language, to adapt to varying cultural contexts, and to exhibit greater cultural sensitivity presents a compelling rationale to encourage second language training in our schools (Curtain & Pesola).

Economic Potential

One frequently hears of the personal economic and career advantages that are held by the bilingual or multi-lingual person. Similar statements often reflect the belief that having many bilingual citizens can enhance the economic potential of the province and nation. There is in fact a large body of research that supports the above beliefs, some of which are noted below.

In the "Report of the National Commission on Excellence in Education" (1983, U.S.), the study of second languages was placed alongside the five "basics" of English, mathematics, computer science, social studies and natural science as a fundamental component of a sound education and necessary for success in commerce, diplomacy and national defense (Gardner, 1983). More recently, Panetta (1996) and Genesse & Cloud (1998) point the importance of languages in the present reality of multicultural societies. These, along with the global marketplace and information technology, are pressing reasons, they conclude, for including second language as a basic component of education.

Panetta (1996) points out that the growing need for qualified speakers of languages other than English is urgent in the areas of science and technology, the service industries and in medicine. Economic competition, the international marketplace and instant communication are making the need for foreign language speakers ever more essential for government as well as the business and the academic world.

Another North American Study notes the pitfalls encountered in the wake of recent international trade arguments due to the lack of professionals with necessary linguistic skills and sufficient cross-cultural competence to conduct business abroad (Brecht & Walton, 1995). These researchers report that the shifting nature of a largely service economy requires professionals who are able to communicate in languages other than English, and who comprehend and respect the cultural assumptions and norms of other societies.

The Conference Board of Canada's "Employability Skills Profile" (1997) identifies generic skills, attitudes and behaviors that employers look for in new employees. In terms of language it explicitly states that Canadian employers need a person who is able to:

- Understand and speak the language in which business is conducted
- Write effectively in the languages in which business is conducted
- Recognize and respect diversity of individuals

The above has strong implications for local, provincial and national economic welfare, given that we are officially a bilingual nation and that we are heavily involved in developing a global economic focus for our economy.

Summary

The review of existing research on the impact of second language education showed a set of consistent findings.

There is a positive effect on the student's intellectual potential. Gains in both verbal and non-verbal intelligence, improvements in divergent thinking as well as enhancement of memory and listening skills are all found to be associated with second language instruction.

Student achievement is improved, as is witnessed by research that studies results on standardized tests in core subject areas. The research also shows that second language education improves the

student's skills in their first language. Second language students were also found to have enhanced qualities of citizenship.

Finally the studies show quantifiable evidence to support the view that second languages contribute significantly to the economic and career potential of the bilingual or multilingual student. This has direct economic implications for the province.

The research indicates that second language education produces a value-added citizen, allowing for an economic return to society that will exceed the investment to acquire it.