

The Effect of Second Language Learning on Test Scores, Intelligence and Achievement
An Annotated Bibliography

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Cooper, T. C. (1987). Foreign Language Study and SAT-Verbal Scores. The Modern Language Journal, 71/4, 381-387.

Data from the College Board's Admission Testing Program revealed that SAT-verbal scores of students who had taken four or five years of any other subject. A large-scale study conducted by Eddy in 1981 concluded that students who study foreign languages for longer periods of time did better on various SAT sub-tests and on the test as a whole than students who studied less foreign language, even when the variable of verbal giftedness was controlled. Cooper's own study of 23 metropolitan high schools in the southeast revealed that students who take a foreign language in high school scored significantly higher on the verbal portion of the SAT than those who do not. Economic background, which was measured by the number of students receiving free and reduced lunches, did not affect students' performance. Even those who came from lower socio-economic backgrounds, but took foreign language, performed "basically just as well as their more fortunate peers."

Saunders, C. M. (1998). The Effect of the Study of a Foreign Language in the Elementary School on Scores on the Iowa Test Of Basic Skills and an Analysis of Student-participant Attitudes and Abilities. Unpublished dissertation, University of Georgia.

Saunders specifically examined the performance of third grade students enrolled in the Georgia Elementary School Foreign Language Model Program. She compared students who had not received any foreign language instruction with students one year younger who had received four years of instruction, five days each week, for thirty minutes per day. She found those students in the ESFL program scored significantly higher on the Math portion of the ITBS than the older students had scored. They also performed better on the Reading portion, but the difference was not statistically significant.

Armstrong, P. W. and J. D. Rogers. (1997). Basic Skills Revisited: The Effects of Foreign Language Instruction on Reading, Math and Language Arts. Learning Languages, Spring, 20-31.

This carefully constructed study demonstrated that third graders who were taught Spanish for thirty minutes, three times per week showed statistically significant gains in their

Metropolitan Achievement Test scores in the areas of math and language after only one semester of study. This study verifies two earlier studies that showed that foreign language instruction either had no detrimental effect on basic skills or a positive effect on students' achievement in basic skill areas.

The results of this study are particularly interesting since one class of students in the experimental group had actually received one-and-one-half fewer hours of math instruction per week, yet still outperformed the students in the control classes in math.

Garfinkel, A. and K. E. Tabor. (1991). Elementary School Foreign Languages and English Reading Achievement: A New View of the Relationship. Foreign Language Annals, 24/5, 375-382.

The authors examined English reading scores of students of varying levels of intelligence who had had one to two years of Spanish instruction in grades five and six. They found an especially significant relationship between high scores in reading and extended foreign language study in the cases of children of average intelligence. The data gathered indicate those students of average intelligence, rather than above-average intelligence, may benefit the most from early instruction in a second language.

Samuels, D. D. and R. J. Griffore (1979). The Plattsburgh French Language Immersion Program: Its Influence on Intelligence and Self-esteem. Language Learning, 29/1, 45-52.

Comparison of a group of students who participated in a French Immersion program for one year to a group of students who were enrolled in a regular classroom revealed that the first graders who learned French showed significant gains in measures of performance I.Q. The students in the immersion program performed better on test items that asked them to interpret and organize a series of seemingly unrelated objects. Study of an unfamiliar language appears to sharpen this skill.

Robinson, D. W. (1992). The Cognitive, Academic and Attitudinal Benefits of Early Language Learning. In Met, M., ed. Critical Issues in Early Language Learning. White Plains, NY: Longman.

Starting in the 1960's and continuing into the 1990's, some 12 dozen studies were conducted on the relationship between learning a second language early in life and cognitive ability. Robinson summarized many of them in this article, concluding, "the picture that emerges is . . . a youngster whose experience with two language systems seems to have left him or her with a mental flexibility, a superiority in concept formation,

and a more diversified set of mental abilities.” The studies also demonstrated that children who have studied a foreign language perform better on standardized tests and tests of basic skills in English, math and social studies. Data from the College Board’s 1992 edition of College Bound Senior revealed that students who had had four or more years of foreign language scored higher on the verbal section of the SAT than those who had had four or more years in any other subject area. This information corroborated Cooper’s conclusion in 1987.

Curtain, H. (1990). Foreign Language Learning: An Early Start. ERIC Clearinghouse on Languages and Linguistics, Center for Applied Linguistics, (Document No. EDO-FL-90-12).

Curtain summarizes the primary advantages of beginning foreign language study at the elementary school level:

- Longer sequences of instruction lead to higher levels of language proficiency
- Beginning FL study before age ten helps in the development of global understanding
- Cognitive development and basic skills are enhanced by foreign language learning
- Communication skills, including memory and listening skills, are sharpened by foreign language study
- Many personal benefits accrue, such as enhanced career potential

Genesee, F. and N. Cloud. (1998). Multilingualism is Basic. Educational Leadership, March, 62-65.

Genesee and Cloud argue that basic education in the new millennium must include second and third languages if the United States is to cope with the unprecedented growth in diversity within its borders and also continue to compete successfully in the global marketplace. Research indicates that foreign language study provides both cognitive and sociocultural benefits. Cloud and Genesee conclude, “Linguistic and cultural competence will be the mark of the well-educated citizen of the 21st century.”

Georgia PTA Board of Managers. (1994). RESOLUTION: Foreign Language Programs.

This resolution advocates foreign language programs in the elementary and middle schools, encourages long sequences of foreign language study beginning as early as possible, and endorses an articulated program of foreign language study from early childhood through the high school, college and university levels. The resolution cites

children's native ability to learn language, gains in flexibility, creativity, divergent thinking skills and higher order thinking skills, as well as gains on standardized test scores as some of the grounds supporting this resolution.

Willis, S. (1998). Foreign Languages: Learning to Communicate in the Real World. Association for Supervision and Curriculum Development, Winter, 1-8.

Willis found that recent developments in foreign language teaching methodology helped students develop the ability to use the language in practical situations. New national standards developed by the American Council of Teachers of Foreign Language emphasized communication skills rather than grammar rules. But learning a second language takes a long time regardless of methodology. To put U.S. students on par with students in other countries, foreign language must become part of the core curriculum from K –12th grade.

Dumas, L. S. (1999). Learning a Second Language: Exposing Your Child to a New World of Words Boosts Her Brainpower, Vocabulary, and Self-Esteem. Child, February, 72, 74, 76-77.

Recent brain research indicates that learning a second language is a powerful experience that helps the brain of young children develop. The young brain will actually grow the connections needed to learn the language. That is no longer possible after age 12. Seven states have instituted a second-language requirement for all children in elementary school: Arizona, Arkansas, Louisiana, North Carolina, Montana, New Jersey and Oklahoma.

A study of 13,200 third and fifth graders in Louisiana public schools revealed that regardless of race, gender or academic level, kids taking foreign language classes did better in the English section of the Louisiana Basic Skills Test than those who did not.

Research Notes: Language Learning and the Developing Brain. (1996) Learning Languages, 1/2, 17. Reprinted by the Center for Applied Linguistics on: <www.cal.org>.

Recent studies suggest that the brain of a child has more synapses and greater plasticity and is therefore much better suited to learning foreign language than the brain of an older child or adult.

Nash, J. M. (1997). Special Report: Fertile Minds. Time, 149/5. Reprinted on: <www.time.com>.

Nash summarizes much of current research on the development of the human brain. She states that there are a series of “windows for developing language. The window for acquiring syntax may close as early as five or six years of age . . . The ability to learn a second language is highest between birth and the age of six, then undergoes a steady and inexorable decline.” She concludes, “it is clear that foreign language should be taught in the elementary school, if not before” (8).

Marcos, K. M. (1998). Learning a Second Language: What Parents Need to Know. National PTA Magazine, August/September, 32-33.

Marcos summarized research on early language learning and concluded that learning a second language in the elementary school usually enhanced a child’s ability in English. In addition, early foreign language study offered students various benefits in terms of their ability to communicate, their cognitive development, cultural awareness and future job opportunities.

Holman, J. R. (1994). Learning A Language. Better Homes and Gardens, January, 41 & 43.

Holman stressed the advantages of learning foreign languages as early as possible. She cited the benefits in other areas of study, as well as recent neurobiological research that strongly suggested that the best time to learn a second or third language is before age 10. Holman also emphasized that adequate time must be devoted to language study in order to achieve the desired results; She quoted Dr. Lightbrown of Concordia University as saying, “Twenty minutes three times a week is not a very effective way to acquire a language, no matter when you start.”

Hart, A. and J. Harris. (1992). An Assistant Superintendent and Curriculum Specialist View the Models. In Met, M., ed. Critical Issues in Early Language Learning. White Plains, NY: Longman.

The Chapel Hill-Carrboro (NC) City Schools decided to provide all students in the district with foreign language instruction. In this article, Hart and Harris contend that the Foreign Language in the Elementary School or FLES model of daily language learning that they have chosen helps to “level the playing field with ESL and other at-risk students.” They also state that the FLES program greatly benefited all students by

reinforcing concepts that have already been taught in the regular classroom. FLES is considered a part of the core curriculum and a component of basic childhood education.

Foreign Languages: The Road to Success in a Global World, Information for School counselors. Public Schools of North Carolina; State Board of Education; Jay Robinson, Chairman; Department of Public Instruction; Michael Ward, Superintendent.

This brochure is intended to be a practical guide for school counselors and asserts that foreign language study is appropriate for all students, whether they plan to attend college or not. It cites many academic reasons for studying a foreign language, including higher ACT and SAT scores, stronger English vocabulary skills, a better understanding of English, improved literacy, greater cognitive skills and enhances listening and memory.

Torres, I. Report on Current Practice. In Met, M., ed. Critical Issues in Early Language Learning. White Plains, NY: Longman.

Ferndale Public Schools established its Elementary school foreign language program in 1981, with the philosophy that each child in the district should have the opportunity to learn a second language, regardless of physical, emotional or learning disabilities. In grade K-3, most children with disabilities had been able to attain an adequate level of proficiency in the foreign language. In the upper elementary grades, students with disabilities often did not do well on written tests, but were able to be successful on informal, oral tests.

Winslow, R. (1997). How Language is Stored in Brain Depends on Age. The Wall Street Journal, July. (Summary of Distinct Cortical Areas Associated with Native and Second Languages, Nature, 388, 1997)

A study of 12 healthy bilingual volunteers at Memorial Sloan-Kettering Cancer Center in New York revealed that the capacity to speak a second language is stored in different areas of the brain depending on when in life a person becomes bilingual. Children who learn a second language store that capacity, together with their native language, in one sector of the brain. Adults language learners store each new language learned in a separate area. This finding helped explain why children who learn two languages develop the ability to speak both with native proficiency and supported the argument that foreign language instruction should be part of the elementary and middle school curriculum.

Met, M. (1991). Foreign Language: On Starting Early. Educational Leadership, September.

Met summarized both the advantages and the shortcomings of three different approaches to early language learning: immersion, FLES and FLEX. In immersion, the content is taught through the foreign language. Since the classroom teacher is also the language teacher, this is a cost-effective model that achieves excellent results, but teachers with the language skills and certification to teach such classes are rare. FLES programs are sequential programs beginning at any grade K-6 that meet for a minimum of 90 minutes two to five times per week. If a FLES program is part of a well-articulated, long sequence of study, students will typically gain useable levels of proficiency in the language and also improve their knowledge of and attitude toward other cultures. FLEX programs are short-term classes that focus primarily on culture. These programs can provide students with strong motivation to continue their language study later, but do not result in any meaningful level of language development.

Speaking in Foreign Tongues. (1998). Kid's Sense, 42. Arkansas Children's Hospital.

This short article emphasizes the importance of early language learning. Mathematical skills, problem solving skills and the ability to synthesize information increase with exposure to foreign language. Other advantages include improved reading and writing skills, a stronger vocabulary and better job opportunities later in life.

Curtain, H. and C. A. B. Pesola. Languages and Children: Making the Match: Foreign Language Instruction for An Early Start Grades K-8. Longman (New York) 1994.

Curtain and Pesola's text is regarded by many as the authoritative work on early language learning. In their introduction, they provide a broad overview of the benefits of early language learning. Immediate benefits include greater academic achievement in other areas of study, including reading, social studies, and mathematics and earning higher SAT and ACT scores, especially in verbal areas. Long-range benefits include enhanced career opportunities, developing more flexibility in thinking processes and exchanging professional ideas and information in commerce, science, law and the arts. They also summarize studies concerned with the relationship of language learning to English language and mathematics. "The evidence was consistent: There was no sacrifice of basic skills when time was given to learning a new language" (7). In fact, some studies indicated that language instruction resulted in dramatic gains in test performance in basic skill areas.

Research that has been conducted specifically on The Georgia Elementary School Foreign Language Model Program:

Adger, C. (1995). Georgia Elementary School Foreign Language Model Program: An Evaluation. Center for Applied Linguistics, Washington, DC.

In the program evaluation conducted in 1995, the Center for Applied Linguistics (CAL) conducted site visits to ESFL Model program schools, observed classes, interviewed school and system administrators, students, parents, teachers and Georgia Department of Education personnel and also surveyed teachers and administrators regarding the program. Adger noted that the Georgia ESFL Model Program was regarded as a state-of-the-art model within the field of foreign language. She concluded that the ESFL program was “excellent by any measure. Moreover, the fact that continuous renewal of the curriculum and professional development are inherent in the program promises that it will continue its high quality (3)”.

Boyson, B. (1997). Listening and Speaking Assessment of Third Grade Students in the Georgia Elementary School Foreign Languages Model Program. Center for Applied Linguistics, Washington, DC.

The 1997 evaluation of the ESFL Model Program focused on student’s ability to speak and understand the language being taught. The Student Oral Proficiency Assessment, a listening and speaking instrument, was administered to third grade students by a team of CAL staff and Georgia teachers. Interviews were conducted at eight sites representing all four languages taught: Spanish, French, German and Japanese. Most students scored at the Junior Novice Mid or Junior Novice-High level, indicating that they were reaching desired levels of language proficiency and making progress toward the goal of becoming fluent users of the language. Boyson concluded, “the evidence that is available here seems to indicate that the students in the Georgia ESFL Model Program are making impressive progress toward mastering foreign languages” (3).

Boyson, B. and L. Thompson. (1998) Student Oral Proficiency Assessment of Fifth Grade Students in the Georgia Elementary School Foreign Languages Model Program. Center for Applied Linguistics, Washington, D. C.

The third program evaluation compared the performance of fifth grade students enrolled in the ESFL Model Program to that of third graders in the program. It also compared the performance of fifth grade students in Model program schools with the performance of students in non-model Foreign Language in the Elementary School (FLES) programs.

A new version of the Student Oral Proficiency Assessment was developed for the fifth grade level to conduct this program evaluation. The results demonstrated that fifth grade

students scored one level higher in both listening proficiency and oral fluency than the third grade students and were reaching “commendable levels of proficiency” (1). The comparison of the ESFL Model program with the non-model FLES programs revealed that all students were making progress, but that a substantial percentage of the students in the Model Program were exceeding expectations in their ability to comprehend and speak the languages they were learning.

Saunders, C. M. (1998). The Effect of the Study of a Foreign Language in the Elementary School on Scores on the Iowa Test of Basic Skills and an Analysis of Student-participant Attitudes and Abilities. Unpublished dissertation, University of Georgia.
(Also cited above)

Saunders specifically examined the performance of third grade students enrolled in the Georgia Elementary School Foreign Language Model Program. She compared students who had not received any foreign language instruction with students one year younger who had received four years of instruction, five days each week, for thirty minutes per day. Students in the ESFL program scored significantly higher on the Math portion of the ITBS than the older students had scored. They also performed better on the Reading portion, but the difference was not large enough to be considered statistically significant.