



Do Early Language Programs Improve High School Proficiency?

Report by

Center for Applied Second Language Studies (CASLS), University of Oregon

June 29, 2010

CASLS is a National Foreign Language Resource Center committed to supporting foreign language educators and improving language education. This report, sponsored by the U.S. Department of Education, is part of the Ten Burning Questions series, in which CASLS investigates educators' questions about language teaching and learning.

Center for Applied Second Language Studies (CASLS) • <http://casls.uoregon.edu>

5290 University of Oregon, Eugene, OR 97403 • 541-346-5699

Do Early Language Programs Improve High School Proficiency?

Question:

Do early language programs such as FLES really help students achieve higher proficiency levels in high school? If so, does it matter whether they started in elementary or middle school?

Answer:

Beginning language study before high school leads to large increases in the number of students who can use the language for basic oral and written communication. Students who begin in elementary school, in non-immersion programs such as FLES, are about 70% more likely to reach levels of basic communication, while students who begin in middle school are about 50% more likely. Beginning in elementary rather than middle school does not seem to matter for literacy skills, but there may be a small benefit for speaking.

Research Summary:

We compared students who began studying a foreign language in non-immersion elementary or middle school program with students who began in high school. All students were currently enrolled in a regular high school language program and did not speak the language at home. Using the Standards-based Measurement of Proficiency (STAMP), we compared the number of students in each group who scored at benchmark level 4 or above in reading, writing, and speaking. Level 4 proficiency is based on the description for ACTFL Intermediate-Low. At this level, speakers “are able to handle successfully a limited number of uncomplicated communicative tasks by creating with the language in straightforward social situations.” We choose this level, because students at this level first show the ability to communicate in meaningful ways.

We found that students who had begun studying language in elementary or middle school were far more likely to reach level 4 proficiency than those who waited until high school. In most cases, the number of level 4 students increased by well over 50%. Nevertheless, the total percent of level 4 students remained lower than desirable. This trend demonstrates that beginning language study early is one critical component of a successful foreign language program. The amount of improvement in the number of students reaching level 4 due to an earlier start than high school is shown in Table 1 and Chart 1.

Table 1. Percent Improvement in Number of Students Reaching Level 4 Compared to High School Start

Skill	n	Elementary Start	Middle School Start
Reading	10,164	68.5	63.0
Writing	9,325	74.8	52.6
Speaking	8,331	62.6	35.5

Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?

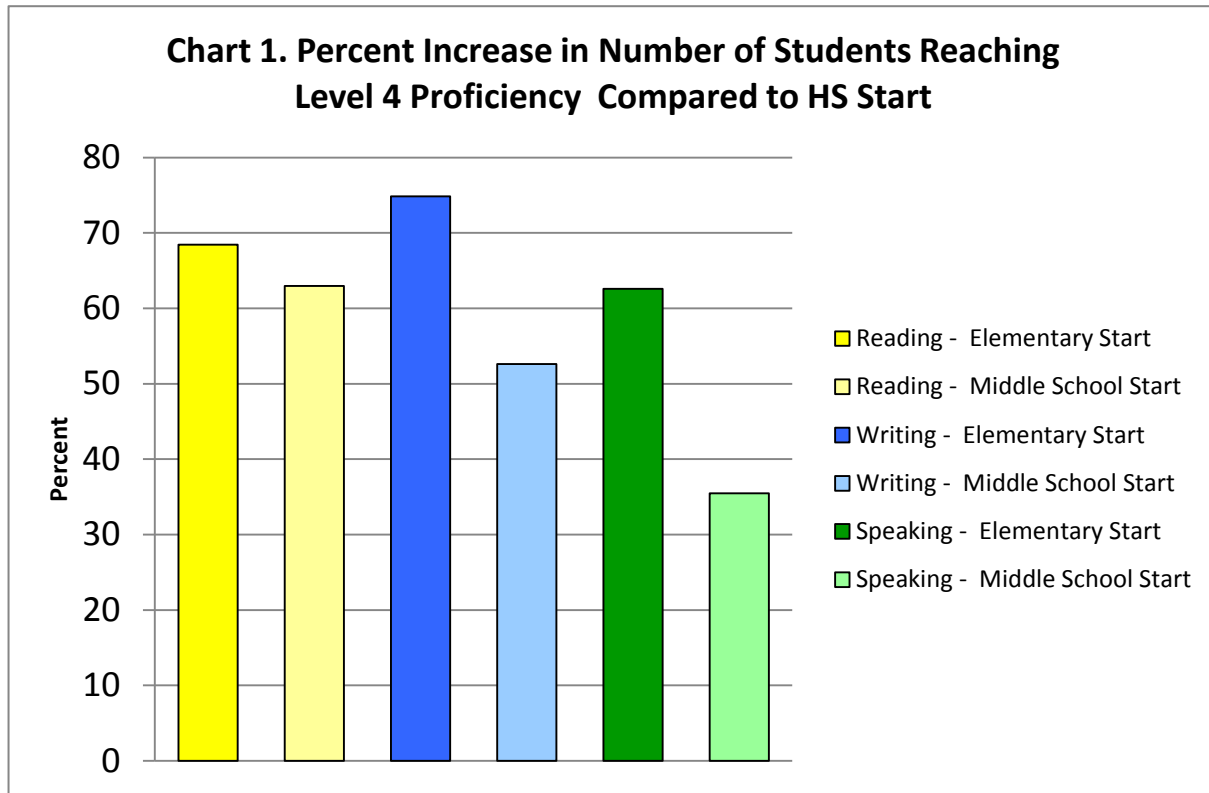
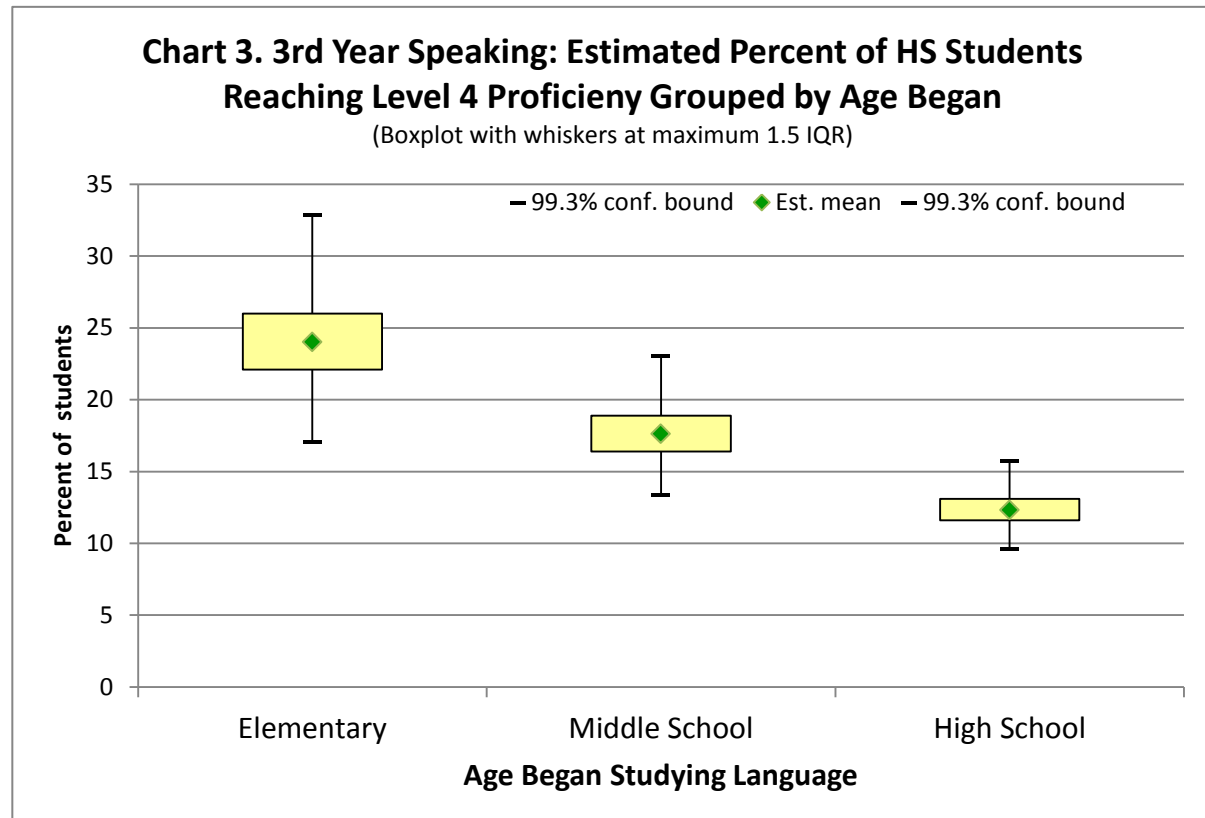
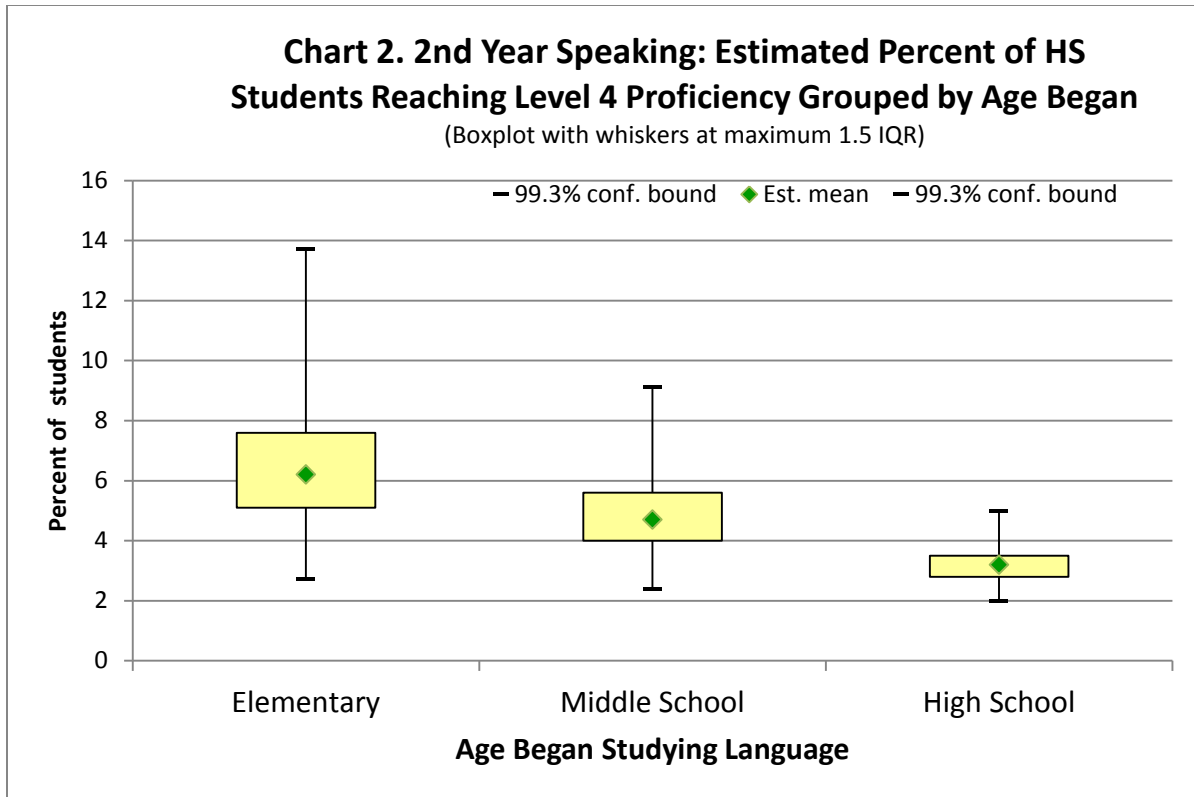


Chart 2 below shows the estimated percent of students in second-year high school programs who reach level 4 proficiency in speaking. The results are grouped by the age students began studying the language. The boxed area shows the two central quartiles of the distribution. The chart demonstrates that the earlier students began studying the language, the higher the mean number of students who reach level 4. Chart 3 provides the same information for third-year students.

Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?



Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?

Our results show that beginning language study in *either* elementary or middle school gives students a much greater chance of reaching basic communicative proficiency levels. However, the advantage of beginning in elementary rather than middle school is small. Keep in mind that STAMP assesses the global ability to communicate, but not specific traits such as pronunciation or cultural awareness, which may be higher in students who started earlier.

Data Analysis:

We selected students from the 2008-09 Standards-based Measurement of Proficiency (STAMP) database who were in the first through fourth year of a language program in a U.S. high school. These students were studying Spanish, French, or German, and their language classes met daily or every other day throughout the school year.

At the beginning of the STAMP test, students answered a few questions about their previous language study and whether the language was spoken in their homes. We eliminated students who did not answer the questionnaire and then selected only students who had *not* been in immersion programs and who did *not* speak the language of study at home.

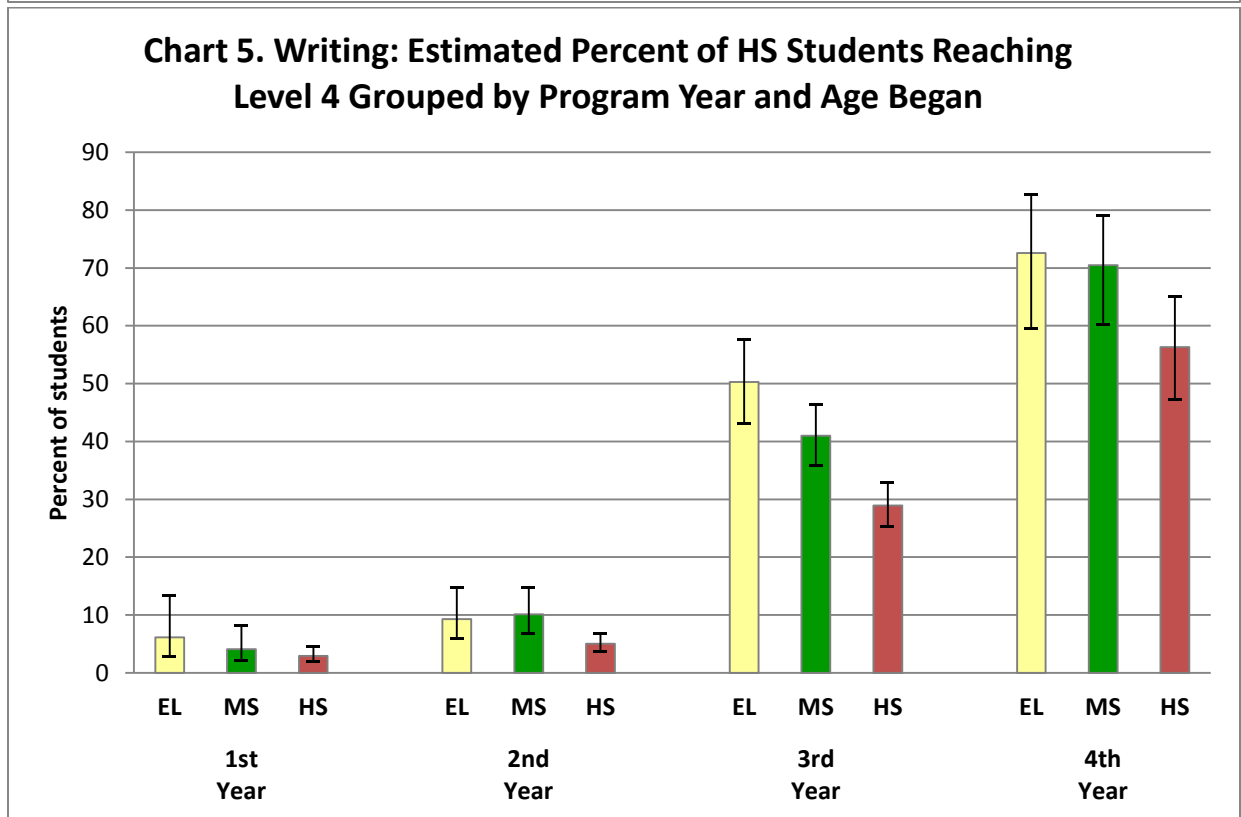
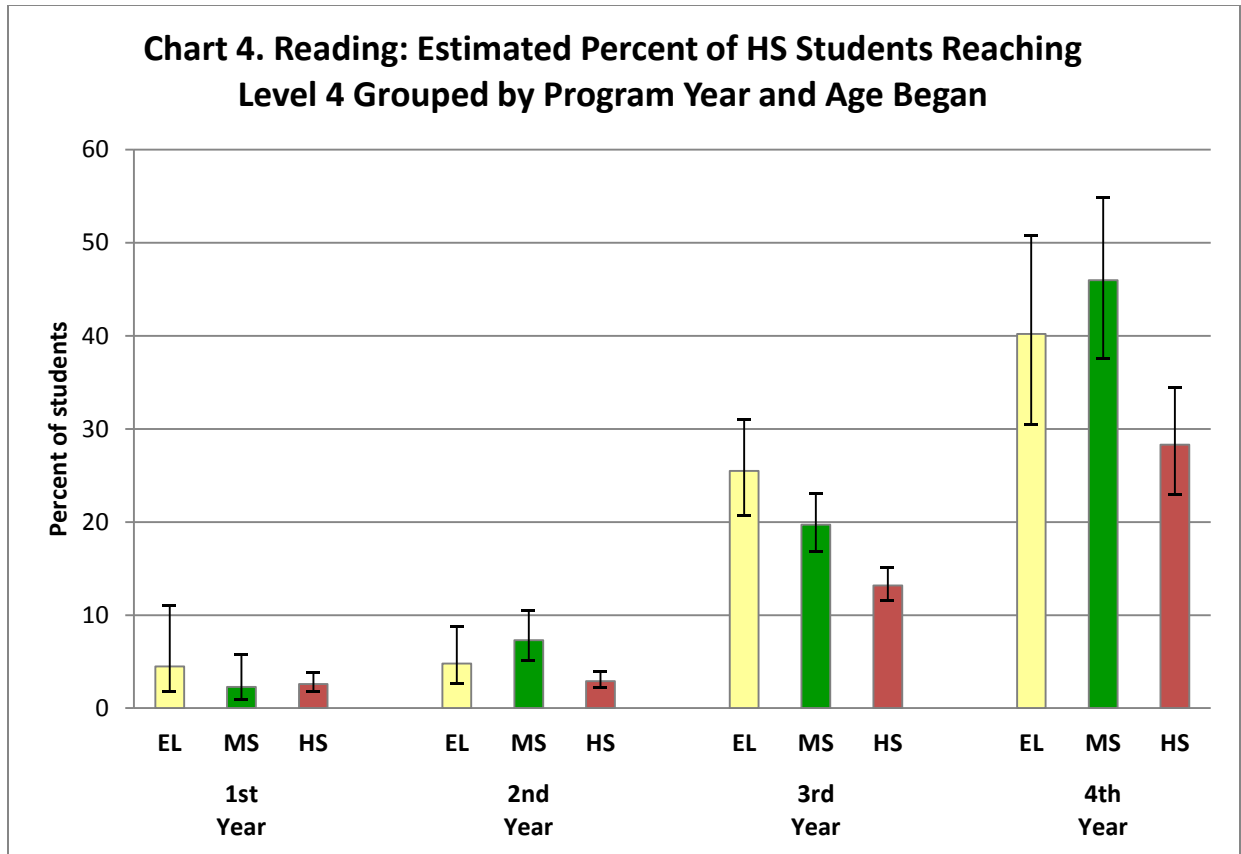
The final dataset contained reading scores for 10,164 students. Of these, 9,325 had also taken the writing portion of STAMP, and 8,339 had taken the speaking portion. The students were enrolled in 536 classes situated in 144 schools in 103 districts and 23 states. Although this study is based on a convenience sample, it represents a regionally diverse cross-section of U.S. high school students.

We grouped students according to the age at which they began studying the language. The ‘age started’ groups were formed as follows: the elementary group began study at age nine or earlier; the middle school group began study at age ten to age twelve; and the high school group began study at age thirteen or later.

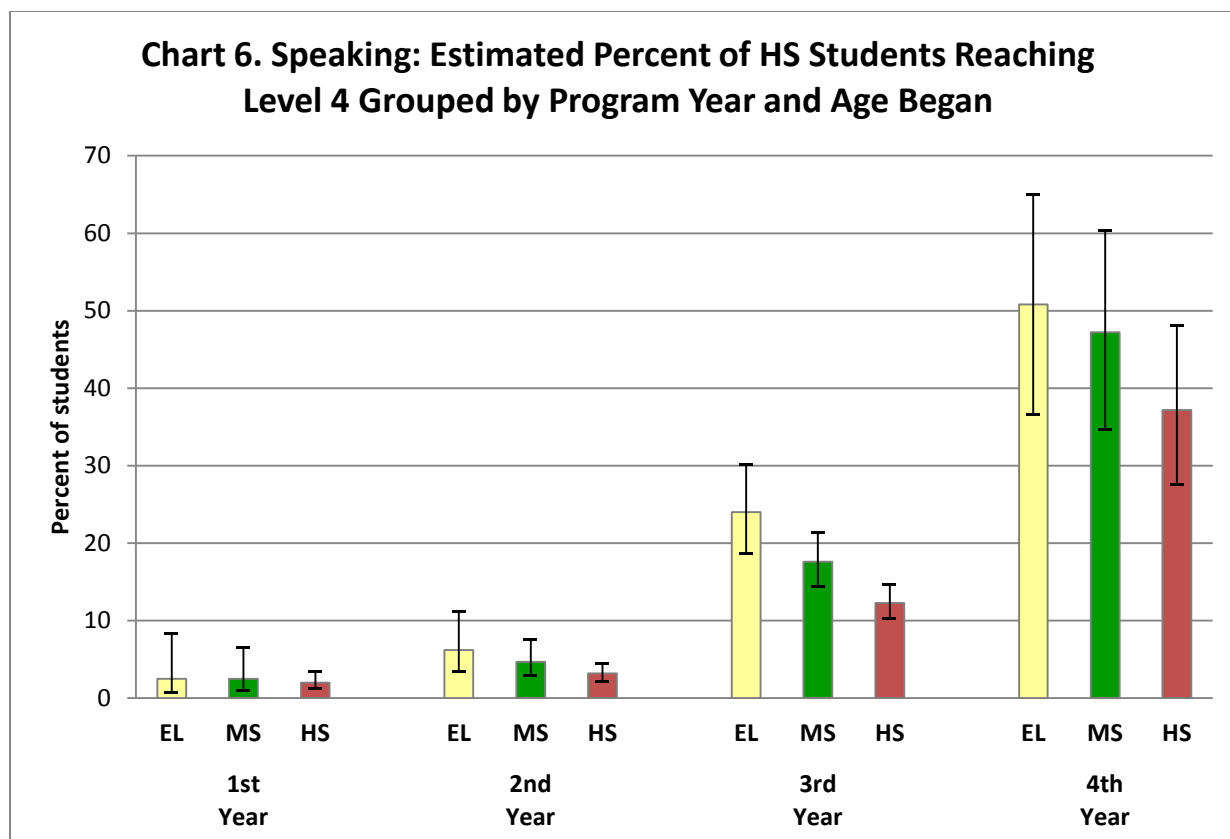
STAMP results are reported on the benchmark scale, where descriptions for levels ranging from 1 to 6 are based on the descriptions of ACTFL levels Novice-Low to Intermediate-High. To make the results easier to understand, we counted the number of students who scored 4 or better for each “age started” group. We compared only students with others at the same high school class level (e.g. second-year Spanish, first-year French).

We used the SAS statistical software to estimate the mean percentages for each age started group (elementary, middle, or high school) and each current high school program year (1, 2, 3, or 4). We conducted separate analyses for each language skill (reading, writing, or speaking). The estimated means are graphed in Charts 4 to 6 and shown in Table 2.

Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?



Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?



We used the GLIMMIX procedure in the SAS statistical software to test whether the differences among the means were statistically significant. Age started and program year were treated as fixed effects, and students and classes were treated as random effects with students nested within classes. Table 3 shows the results of the statistical analysis.

For all three skills, there was a statistically significant main effect for age started ($p < 0.05$ or less). There was also the expected statistically significant effect for program year. However, there were no interactions between these two factors for any skill. This suggests that age started increases the number of students achieving benchmark level 4 independently of the effect of program year.

We did post hoc contrast analyses to compare the three age started groups. For all three skills, beginning language study in *either* elementary school or middle school was significantly better than beginning in high school. There was no significant difference between starting in elementary school or starting in middle school. However, for speaking, the results are less clear. The p -value of the elementary vs. middle school contrast for speaking is 0.0776. This is not significant at $p < .05$, but would be at $p < .10$. Thus, when comparing elementary and middle school start, there is no benefit seen for literacy skills. For speaking, the benefit that can be shown using the STAMP data does not reach statistical significance, although those who began

Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?

in elementary school are about 30% more likely to be at level 4 or higher as compared to students who began in middle school. It is also important to note that STAMP does not assess some aspects of speaking, such as pronunciation, that may be improved by an earlier start for language study.

Table 2. Estimated Percent of Students Scoring 4 or Better by Age Started, HS Program Year, and Skill

Age Started	HS Year	Lower Bound*	Estimated Mean	Upper Bound	Standard Error
Reading (n=10,164)					
Elementary	1	1.8	4.5	11.0	2.1
Middle School	1	0.9	2.3	5.7	1.1
High School	1	1.8	2.6	3.8	0.5
Elementary	2	2.6	4.8	8.8	1.5
Middle School	2	5.1	7.3	10.5	1.4
High School	2	2.2	2.9	3.9	0.4
Elementary	3	20.7	25.5	31.0	2.6
Middle School	3	16.8	19.7	23.0	1.6
High School	3	11.5	13.2	15.1	0.9
Elementary	4	30.5	40.2	50.8	5.2
Middle School	4	37.5	46.0	54.8	4.4
High School	4	22.9	28.3	34.4	2.9
Writing (n=9,325)					
Elementary	1	2.7	6.1	13.4	2.5
Middle School	1	2.0	4.1	8.2	1.5
High School	1	1.9	2.9	4.5	0.6
Elementary	2	5.8	9.3	14.7	2.2
Middle School	2	6.8	10.1	14.8	2.0
High School	2	3.6	5.0	6.8	0.8
Elementary	3	43.1	50.3	57.5	3.7
Middle School	3	35.8	41.0	46.4	2.7
High School	3	25.2	28.9	32.8	1.9
Elementary	4	59.5	72.6	82.7	6.0
Middle School	4	60.2	70.5	79.0	4.8
High School	4	47.2	56.3	65.0	4.6
Speaking (n=8,339)					
Elementary	1	0.7	2.5	8.4	1.6

Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?

Middle School	1	0.9	2.5	6.5	1.2
High School	1	1.2	2.0	3.4	0.5
Elementary	2	3.4	6.2	11.1	1.9
Middle School	2	2.9	4.7	7.6	1.2
High School	2	2.2	3.2	4.4	0.5
Elementary	3	18.7	24.0	30.2	2.9
Middle School	3	14.4	17.6	21.4	1.8
High School	3	10.3	12.3	14.7	1.1
Elementary	4	36.6	50.8	64.9	7.4
Middle School	4	34.6	47.2	60.3	6.7
High School	4	27.6	37.2	48.1	5.3

*Bounds are 95% confidence bounds

Table 3. Mixed Model Tests of Fixed Effects (Age Started and Program Year)

Effect	Num <i>df</i>	Den <i>df</i>	<i>F</i> Value	Pr > <i>F</i>
Reading (n=10,164)				
Age Started Main Effect	2	10152	11.00	<.0001*
Program Year Main Effect	3	864	67.67	<.0001*
Age Started*Program Year Interaction	6	10152	1.80	0.0949
Elementary vs. Middle School contrast	1	10152	0.18	0.6736
Elementary vs. High School contrast	1	10152	13.05	0.0003*
Middle School vs. High School contrast	1	10152	12.75	0.0004*
Writing (n=9,325)				
Age Started Main Effect	2	9313	20.11	<.0001*
Program Year Main Effect	3	690	85.65	<.0001*
Age Started*Program Year Interaction	6	9313	0.51	0.7977
Elementary vs. Middle School contrast	1	9313	1.53	0.2159
Elementary vs. High School contrast	1	9313	27.18	<.0001*
Middle School vs. High School contrast	1	9313	2.22	<.0001*
Speaking (n=8,339)				
Age Started Main Effect	2	8327	5.48	0.0042*
Program Year Main Effect	3	638	47.54	<.0001*
Age Started*Program Year Interaction	6	8327	0.22	0.9689

Ten Burning Questions: Do Early Language Programs Improve High School Proficiency?

Elementary vs. Middle School contrast1	8327	.82	0.3664
Elementary vs. High School contrast 1	8327	8.12	0.0044*
Middle School vs. High School contrast1	8327	5.11	0.0238*

*Significant at $p < .05$.

References:

Fuchsen, M. (Spring 1989). Starting language early: a rationale. *FLES NEWS*, 2(3), 6-7.

Dominguez, R. & Pessoa, S. (Winter 2005). Early versus late start in foreign language education: documenting achievements. *Foreign Language Annals*, (38), 473-83.