

Writing Development in a Dual Language Immersion Program

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Review of existing research

Positive effect of “immersion” programs on overall development of proficiency (Watzinger-Tharp, Rubio & Tharp, 2018; Watzinger-Tharp, Tharp & Rubio, 2021)

Positive effects on writing (Gené-Gil, Salazar-Noguera & Juan-Garau, 2015; Whittaker, Llinares, & McCabe, 2011)

Limited benefits on writing (Llinares & Whittaker, 2006; Ruiz de Zarobe, 2011; Vollmer, Lena, Troschke, Coetzee & Verena, 2006)



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State Programs for 2021 – 2022

142 Spanish (17 two-way, 48 one-way, 77 secondary)

83 Chinese (32 one-way, 51 secondary)

37 French (14 Elementary, 23 secondary)

19 Portuguese (9 one-way, 10 secondary)

3 German (2 one-way, 1 secondary)

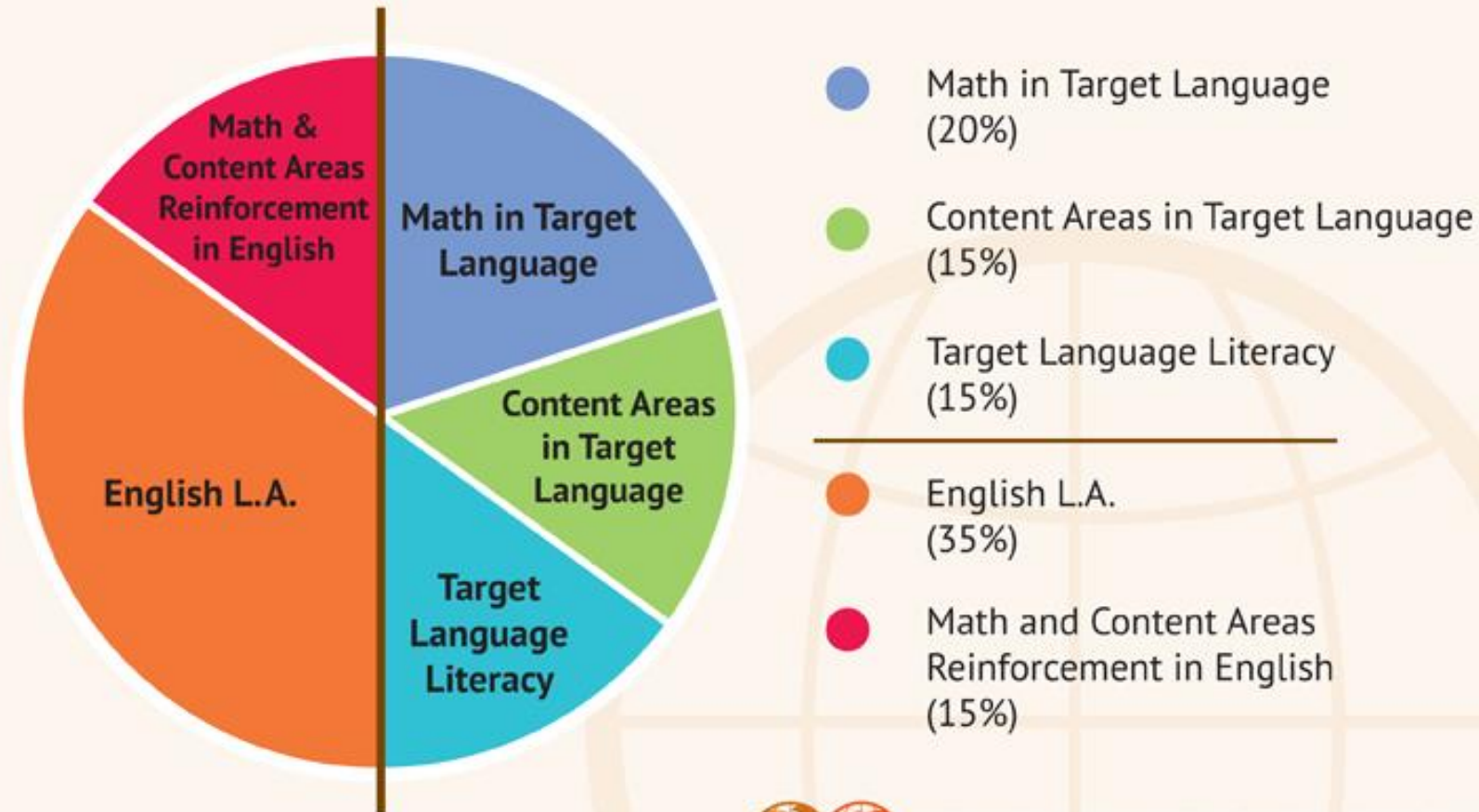
1 Russian (1 one-way)

Over 64,500 Students!

One-way / Two-way Immersion

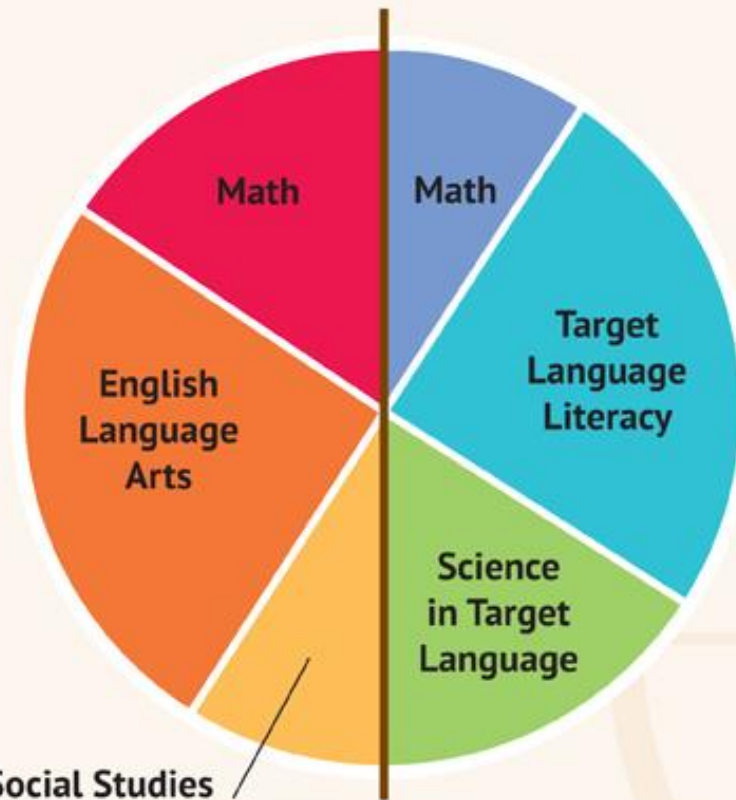
- **One-way Immersion programs serve one group:**
 - ✓ Student population comprised of a predominant majority of native English language speakers with limited to no proficiency in the L2 (e.g., Chinese, French, Portuguese, Spanish, etc.).
- **Two-way Immersion programs serve two groups:**
 - ✓ English speakers and L2 speakers. At least one-third of students are native speakers of the L2.

Dual Language Immersion Instructional Time : Grades 1-3



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Dual Language Immersion Instructional Time : Grades 4-5



- Math Reinforcement in Target Language (8.5%)
- Target Language Literacy (25%)
- Science in Target Language (16.5%)

- Math in English (16.5%)
- English Language Arts (25%)
- Social Studies & Content Areas Reinforcement in English (8.5%)

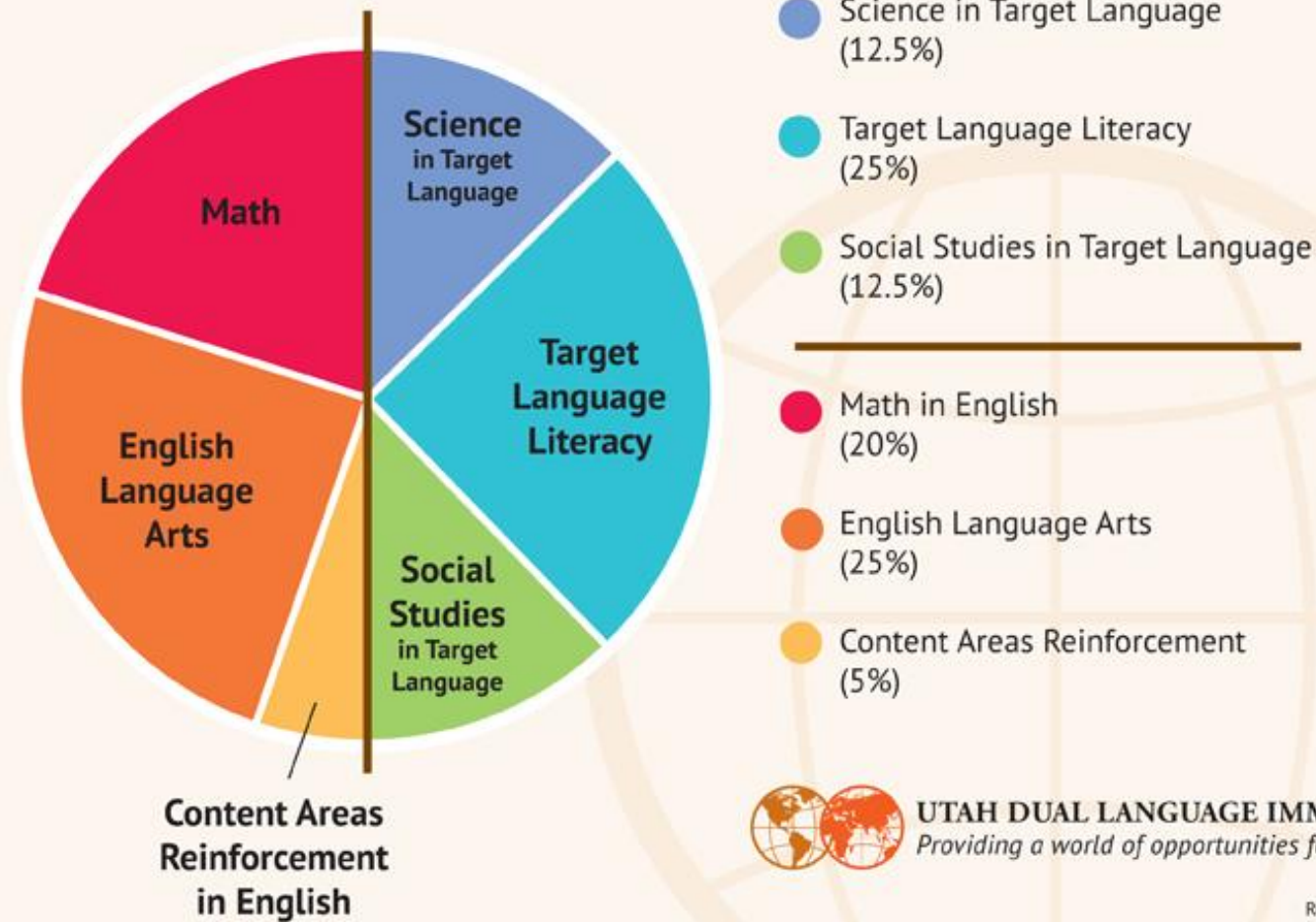
Social Studies
& Content Areas
Reinforcement
in English



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Revised 03/22/17

Dual Language Immersion Instructional Time : Grade 6



Utah DLI Secondary Pathway



- 6th • World Language 2 DLI (required)
- Social Studies (required)

- 7th • World Language 3 DLI (required)

- 8th • World Language 4 DLI (required)

- 9th • World Language 5 DLI (required)
- + option for AP test (1.0 high school credit)

- 7th • DLI Culture, History & Media

- 8th • DLI Culture, History & Media

- 9th • DLI Culture, History & Media

If AP test in 9th

- 10th • 3000 Level Bridge Course #1
(3 university credits & 1.0 high school credit)

- 11th • 3000 Level Bridge Course #2
(3 university credits & 1.0 high school credit)

- 12th • 3000 Level Bridge Course #3
(3 university credits & 1.0 high school credit)

If AP test in 10th

- 10th • AP Language & Culture
(1.0 high school credit)

- 11th • 3000 Level Bridge Course #2
(3 university credits & 1.0 high school credit)

- 12th • 3000 Level Bridge Course #3
(3 university credits & 1.0 high school credit)

Testing
instrument: AAPPL
test

ACTFL (American Council on the Teaching
of Foreign Languages)

Assessment of

Performance toward

Proficiency in

Languages

Testing schedule

- Starting in 3rd grade and until 9th grade, all students are tested in November/early December

Grade	Skill tested
Grade 3	Speaking
Grade 4	Listening/reading; writing
Grade 5	Speaking
Grade 6	Listening/reading; writing
Grade 7	Speaking
Grade 8	Listening/reading; writing
Grade 9	Listening/reading; writing

AAPPL rating scale and conversions

ACTFL Scale	AAPPL Scores	CEFR	SCORES
Advanced	A	B2.1	10
Intermediate	I5	B1.2	9
	I4	B1.1	8
	I3		7
	I2	A2	6
	I1	A1	5
Novice	N4	A1	4
	N3	0	3
	N2		2
	N1		1

Aims of this study

- Study the development of writing among 6th-9th grade students in a Dual Language Immersion (DLI) program.
- Research questions
 - **RQ1:** What level of Spanish writing proficiency, as measured by the AAPPL test, do students achieve after 3, 5, 7 and 8 years of participation in the DLI program?
 - **RQ2:** How does lexical and syntactic complexity develop from 4th to 6th grade?
 - **RQ3:** Does growth in lexical or syntactic complexity continue at the higher levels?

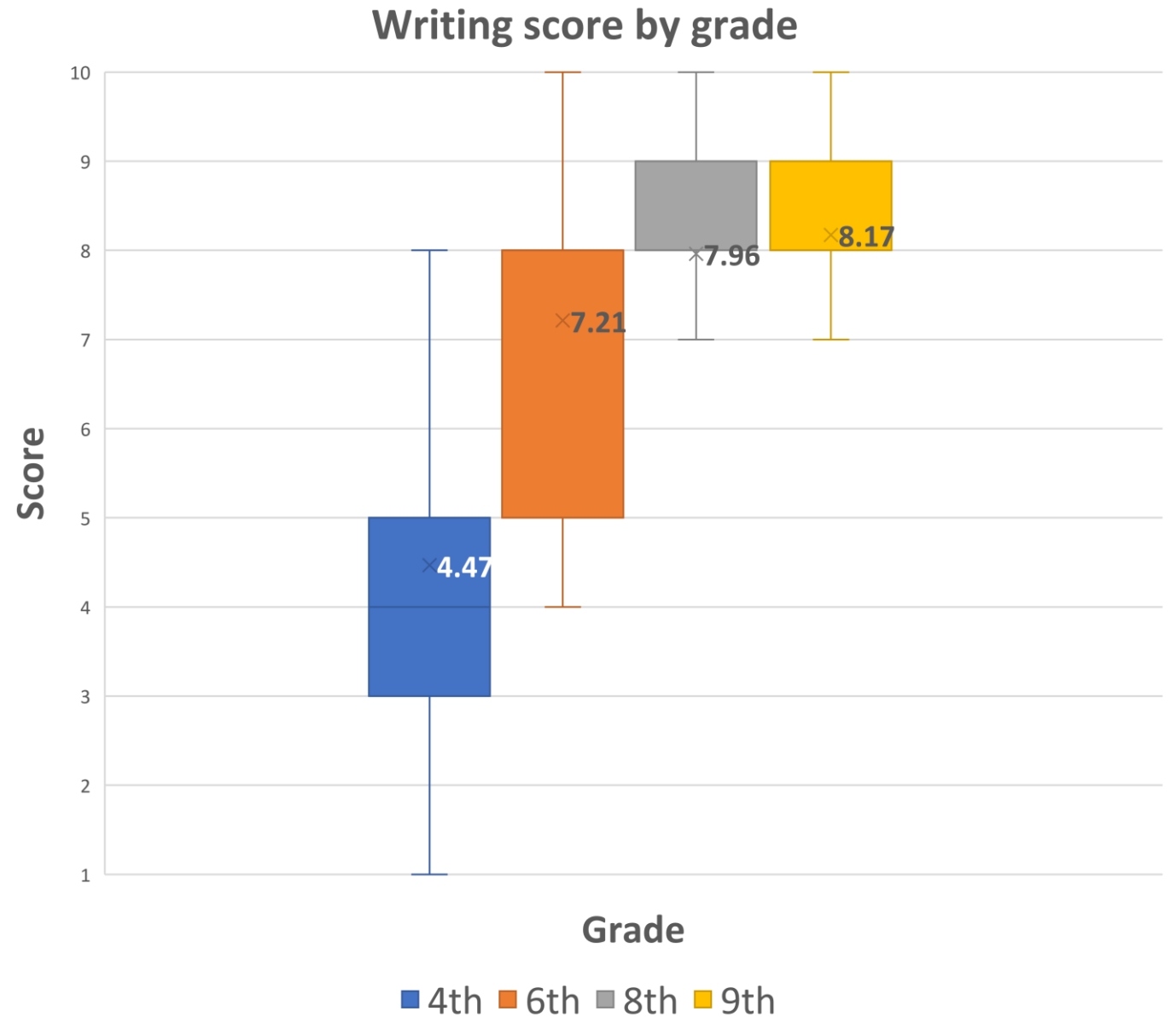


RQ1: What writing levels are attained in grades 4, 6, 8 and 9?

Cross-sectional analysis of the writing scores of all students enrolled in 4th, 6th, 8th and 9th grade during the 2019-2020 academic year ($N = 6668$).

We chose to analyze the 2019-2020 as this was the last time students were tested before the pandemic

RQ1: Score distribution



Results

RQ1

The most common levels of proficiency in writing were as follows:

- **Grade 4:** 4 (CEFR \approx A1)
- **Grade 6:** 7 (CEFR \approx A2/B1.1)
- **Grade 8:** 8 (CEFR \approx B1.1)
- **Grade 9:** 8 (CEFR \approx B1.1)

There was a significant effect of grade level in all four grades at the $p < .05$ level

The effect size ($\eta^2 = .45$) indicates that 45% of the variance in writing proficiency score can be explained by the grade level in which the students are enrolled.

All pairwise comparisons were significant at $p < .05$.

RQ2: How does lexical and syntactic complexity develop from 4th to 6th grade?

Longitudinal analysis

We identified all students who were tested in 4th grade in 2018 and then in 6th grade in 2020 ($n = 1480$).

We selected students who received a writing score of 4 in 4th grade and a score of 7 in 6th grade ($n = 216$).

We selected a random sample of 25 students from this group. 11 were from 2-way programs and 14 from 1-way programs.

Lexical and syntactic complexity

- Lexical complexity calculated using the Measure of Text Lexical Diversity (MTLD) (McCarthy, 2005).
- Syntactic complexity:
 - Large-grained clausal complexity: sentence length, incidence of subordinate clauses/1000 words
 - Fine-grained phrasal complexity: left-embeddedness, modifiers per noun clause
- All measures were automatically calculated using an open-source text analysis tool: **MultiAzterTest**

Bengoetxea, K., & Gonzalez-Dios, I. (2021). MultiAzterTest: a Multilingual Analyzer on Multiple Levels of Language for Readability Assessment. arXiv preprint arXiv:2109.04870.

What we know about lexical and syntactic complexity

Amount of writing produced increases as the grade levels advance (cf. Maamujav et al., 2021)

(Bardovi-Harlig, 1992; Norris & Ortega, 2009; Wolfe-Quintero, Inagaki, & Kim, 1998), syntactic complexity is thought to develop in three stages, in relation to the global increase of L2 proficiency: coordination (beginner) > subordination (intermediate) > phrasal elaboration:

- I have a son. He's 8 years old and he plays tennis.
- I have a son who's 8 years old and plays tennis.
- My 8-year-old son plays tennis.

This implies a “competitive relationship” between clausal subordination and phrasal elaboration.

RQ 2: descriptive statistics

Variable	Groups	M	SD	t	p
Total # of words	Grade4	115.88	56.60	-3.71	<.001**
	Grade6	276.36	218.96		
Sentence length	Grade4	13.23	9.98	-0.79	.21
	Grade6	14.93	5.69		
# of paragraphs	Grade4	29.59	22.86	-2.33	.01*
	Grade6	41.90	20.08		
Word length	Grade4	4.20	.20	-2.25	.01*
	Grade6	4.33	.35		

Results RQ2

Construct	Variable	Groups	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Syntactic complexity: • Phrasal	Left-embed.	Grade4	1.52	0.55	-4.94	<.001**
		Grade6	2.42	0.80		
	Mod/NP	Grade4	0.79	0.22	-3.32	.001**
		Grade6	0.98	0.14		
Syntactic complexity: • Clausal	Sub. clauses	Grade4	73.91	45.06	-0.46	.32
		Grade6	78.34	27.71		
	Sentence length	Grade4	13.23	9.98	-0.79	.21
		Grade6	14.93	5.69		
Lexical diversity	MTLD	Grade4	45.04	19.92	-1.44	.08
		Grade6	52.06	19.21		

Results

RQ2



Although there is an increase in clausal complexity, the difference between grades 4 and 6 is not significant.



The main growth in complexity happens at the phrasal level (left-embeddedness and modifiers/noun phrase).



There is no significant difference in lexical diversity (MTLD).



High degree of variability across different learners

RQ3: Does growth in lexical or syntactic complexity continue at the higher levels?

Initial cross-sectional analysis revealed much more limited growth from 8th to 9th grade.

It may be due to the nature of language proficiency.

It may also be a factor of the test's rating scale.

We identified all students who received a rating of 10 (highest possible) in 8th grade and again in 9th grade ($n = 143$).

We selected a random sample of 25 students from this group.

Longitudinal study 2019-2020

RQ3: Summary of results

Length-based measures generally increase: longer sentences, more paragraphs, longer words.

Lexical diversity increases significantly.

Several measures of syntactic complexity also increase (modifiers/NP; incidence of subordinate clauses), while others decrease (left-embeddedness).

Between these two years, writing development is most visible in the increased use of cohesive devices and of connectives (causal, temporal, conditional)

WRITING PROFICIENCY IN THE SPANISH IMMERSION PROGRAM INCREASES SIGNIFICANTLY BETWEEN TESTING YEARS (4TH-6TH-8TH-9TH) ALTHOUGH GROWTH SLOWS DOWN AT THE HIGHER LEVELS.

ALTHOUGH ALL MEASURES OF LEXICAL AND SYNTACTIC COMPLEXITY IMPROVE BETWEEN GRADES 4 AND 6, THE MAIN DIFFERENCE IS IN THE DEVELOPMENT OF SYNTACTIC COMPLEXITY AT THE PHRASAL LEVEL.

AT THE HIGHER LEVELS (GRADES 8-9), COMPLEXITY CONTINUES TO INCREASE, BUT THE CHANGES ARE MOST SIGNIFICANT IN TERMS OF REFERENTIAL COHESION AND CONNECTIVES.

In conclusion

*thank
you*

*muchas
gracias*

Grazie!

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