The Development of Linguistic Complexity in DLI Learners of Chinese, French and Spanish

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University of Utah
Dual Language Immersion Instructional Time: Grades 1-3

- Math in Target Language (20%)
- Content Areas in Target Language (15%)
- Target Language Literacy (15%)
- English L.A. (35%)
- Math and Content Areas Reinforcement in English (15%)

Utah Dual Language Immersion
Providing a world of opportunities for students.
Utah DLI Secondary Sequencing
Option available for the 2015-16 school year
(Spanish Example, also available in Chinese & French)

- 6th
  - 50/50 Elementary School, OR
  - Spanish 2 DLI Honors & Social Studies

- 7th
  - Spanish 3 DLI Honors
  - (Club SCOLA, Sister Schools)

- 8th
  - Spanish 4 DLI Honors
  - (Club SCOLA, Sister Schools)

- 9th
  - Spanish AP Language & Culture
  - (optional start of new world language)

- 10th
  - 3000 Level Spanish University Course
  - (optional start of new world language)

- 11th
  - 3000 Level Spanish University Course
  - (optional start of new world language)

- 12th
  - 3000 Level Spanish University Course
  - (optional start of new world language)
Testing

• At the end of each grade starting in 3rd
• Testing done using ACTFL tests
• AAPPL (ACTFL Assessment of Performance towards Proficiency in Languages)
• Levels: N1-N4 and I1-I5
## Targets: FRN, PRT, SPA

<table>
<thead>
<tr>
<th>Grade</th>
<th>Listening</th>
<th>Speaking</th>
<th>Reading</th>
<th>Writing</th>
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<tr>
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<td>Advanced Mid</td>
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</table>
## Targets: Chinese

<table>
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<th>Writing</th>
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<td>Novice Low</td>
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<tr>
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<td>Intermediate Low</td>
<td>Novice High</td>
<td>Novice High</td>
<td>Novice High</td>
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</tbody>
</table>
Speaking

2013 THIRD-GRADE TESTING
SPANISH (N=1221)
FRENCH (N=663)
CHINESE (N=993)
Below N1  N1  N2  N3  Below N4  N4  I1  I2  I3  I4  I5  UR

Target

FRENCH

29%

20%

11%

8%

9%

16%

2%

1%

2%

1%
CHINESE

- Below N1: 11%
- N1: 6%
- N2: 32%
- N3: 2%
- N4: 3%
- I1: 1%
- I2: 2%
- I3: 3%
- I4: 2%
- UR: 31%

Target
Complexity, accuracy and fluency

- Difficult to measure and distinguish.
- A variety of measures have been used: MLU, clause length, pause phenomena, WPM, % of error-free clauses, etc.
- T-units and lexical diversity
T-Units

• Minimally terminal unit:
  – “one main clause with all subordinate clauses attached to it”

• **Mean T-unit length**, mean error free T-unit length, and percent of error free T-units correlate with trained judges’ evaluations of speakers’ proficiency.
T-unit examples

- Tarzan ate the banana. = 1 T-Unit because it is 1 independent clause
- Tarzan ate the banana and he took a nap. = 2 T-Units because it is 2 independent clauses
- Tarzan ate the banana after he found it. = 1 T-Unit because it is 1 independent clause with a dependent clause

Lexical diversity

• Vocabulary richness plays a crucial role in assessing proficiency and language development.
• Typically measured as the ratio of different words to the total number of words.
• We use the measure $D$, which is independent of sample size
The CLAN program

- Computerized Language Analysis
- Part of the CHILDES (Child Language Data Exchange System) project
- Designed specifically to analyze data transcribed in the CHAT (Codes for the Human Analysis of Transcripts) format
Our data

• 3rd-grade students in Chinese, French and Spanish
• AAPPL test data
• French: 24 novice; 26 intermediate
• Spanish: 24 novice; 26 intermediate
• Chinese: 48 novice
• Transcription and tagging
Our data (Median scores)

• Chinese: N2
• French: I1
• Spanish: I1
pues una vez yo fui <a un> [//] a una tienda mexicano.
*25546: y mi mamá ni sabía nada de español.
*25546: y yo tenía que hablar porque yo fui el único allí que sabía hablar en español con <el la> [//] con la persona que fui allí.
Colleges of Humanities
L2TReC
Audio and transcripts (CHIN)

@Begin
@Languages:  zho
@Participants:  36690 ID36690 Student
@ID:  zho|corpus|36690|0;00.00|male|||Student||
@Transcriber:  Mengqi Wang, Wenting Jiang
*36690:  <zai4 (. ) fang4xue2> [//] (. ) fang4xue2 zai4 (..) &uh (. ) ba1 dian3 wu3 shi2 wu3 fen1 ( . ) .
*36690:  shang4 (. ) xue2 (. ) &uh (. ) ba1 dian3 ( . ) san1 shi2 wu3 fen1 .
@End
20566: je um dois regarde le bibliothèqueur pour euh un livre.

@Comment: end of question 1, prompt 3.
Working with CLAN
Analysis

• Comparison of lexical diversity and syntactic complexity within languages (Int. vs. Nov.)

• And between languages (e.g., French Int. vs. Spanish Int.)
Spanish N vs. I (lexical div)
Spanish N vs I (T-unit length)
French N vs. I (Lexical div.)
French N vs. I (T-unit length)
Spanish vs. French (Interm.)
Span-Fren-Chin (Novice)

Spanish > French > Chinese
Span-Fren-Chin (Novice)

French > Spanish; French > Chinese
## Median scores 2013-2015

<table>
<thead>
<tr>
<th>Language</th>
<th>Performance score 2013</th>
<th>Performance score 2015</th>
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<tbody>
<tr>
<td>Chinese</td>
<td>N2</td>
<td>N4</td>
</tr>
<tr>
<td>French</td>
<td>I1</td>
<td>I3</td>
</tr>
<tr>
<td>Spanish</td>
<td>I1</td>
<td>I2</td>
</tr>
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</table>
Proficiency growth Chinese

Chinese proficiency growth 2013-2015
Proficiency growth French

French proficiency growth 2013-2015
Proficiency growth Spanish

Spanish proficiency growth 2013-2015