

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

Jane Hacking & Fernando Rubio
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)



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

Grade	Listening	Speaking	Reading	Writing
1	Novice Mid	Novice Mid	Novice Mid	Novice Mid
2	Novice High	Novice High	Novice Mid	Novice Mid
3	Intermediate Low	Novice High	Novice High	Novice High
4	Intermediate Low	Intermediate Low	Novice High	Novice High
5	Intermediate Mid	Intermediate Low	Intermediate Low	Intermediate Low
6	Intermediate Mid	Intermediate Mid	Intermediate Low	Intermediate Low
7	Intermediate High	Intermediate Mid	Intermediate Mid	Intermediate Mid
8	Intermediate High	Intermediate High	Intermediate Mid	Intermediate Mid
9	Advanced Low	Intermediate High	Intermediate High	Intermediate High
10	Advanced Low	Advanced Low	Intermediate High	Intermediate High
11	Advanced Mid	Advanced Low	Advanced Low	Advanced Low
12	Advanced Mid	Advanced Mid	Advanced Low	Advanced Low

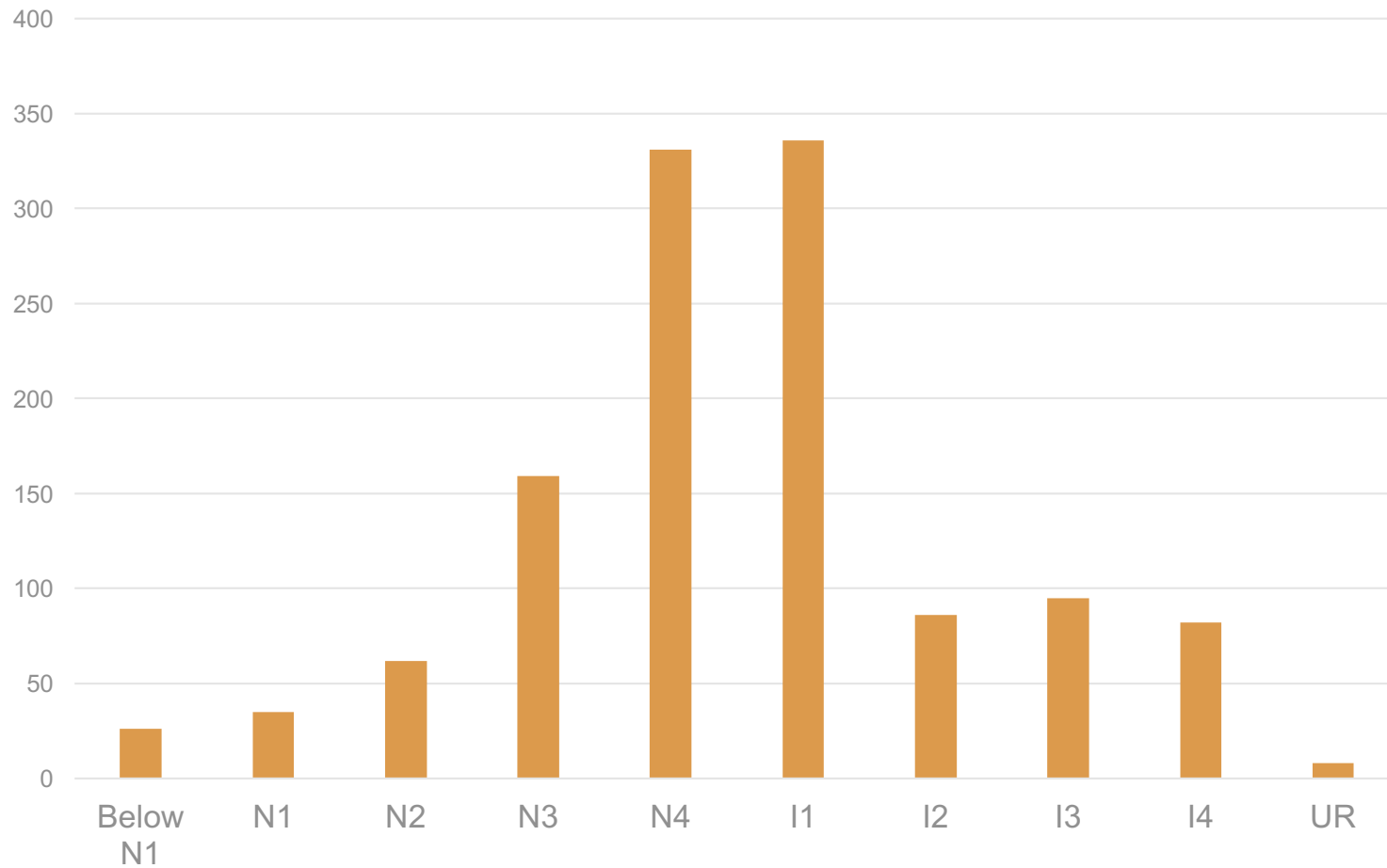
Targets: Chinese

Grade	Listening	Speaking	Reading	Writing
1	Novice Mid	Novice Low	Novice Low	Novice Low
2	Novice High	Novice Mid	Novice Mid	Novice Mid
3	Novice High	Novice Mid	Novice Mid	Novice Mid
4	Intermediate Low	Novice High	Novice High	Novice High
5	Intermediate Low	Novice High	Novice High	Novice High
6	Intermediate Mid	Intermediate Low	Intermediate Low	Intermediate Low
7	Intermediate Mid	Intermediate Low	Intermediate Low	Intermediate Low
8	Intermediate High	Intermediate Mid	Intermediate Mid	Intermediate Mid
9	Intermediate High	Intermediate Mid	Intermediate Mid	Intermediate Mid
10	Advanced Low	Intermediate High	Intermediate High	Intermediate Mid
11	Advanced Low	Intermediate High	Intermediate High	Intermediate High
12	Advanced Mid	Advanced Low	Advance Low	Intermediate High

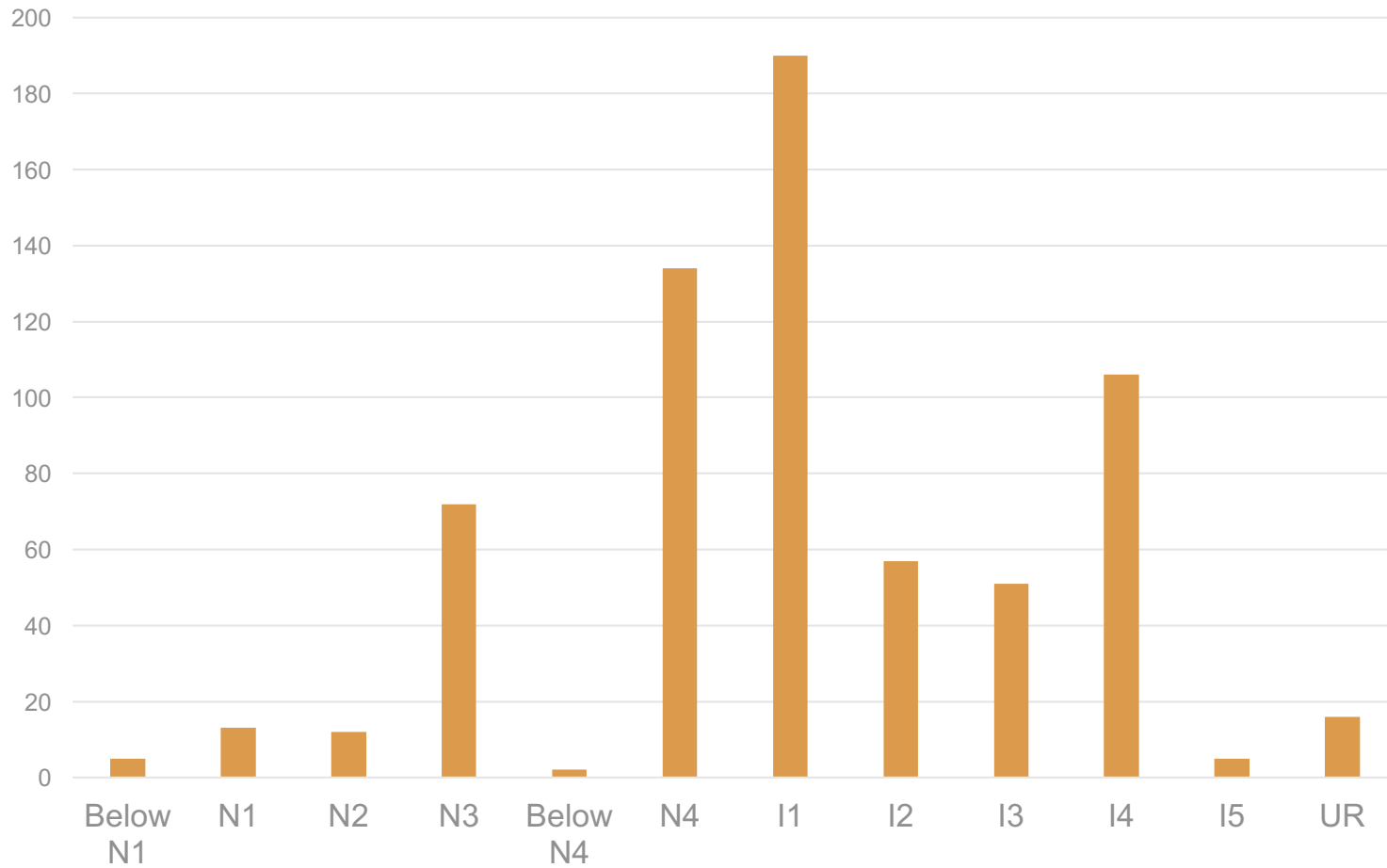
Speaking

2013 THIRD-GRADE TESTING

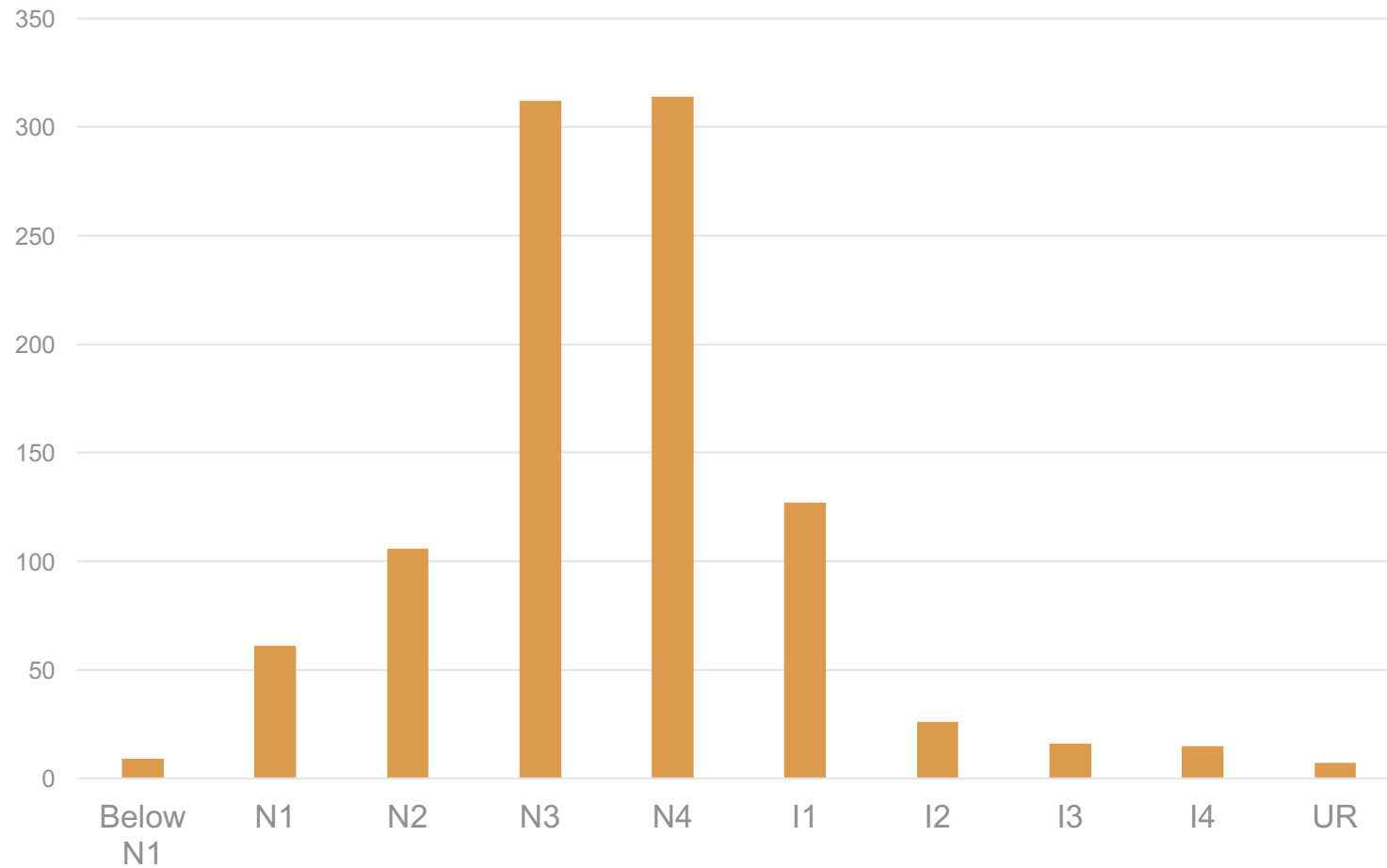
SPANISH (N=1221)

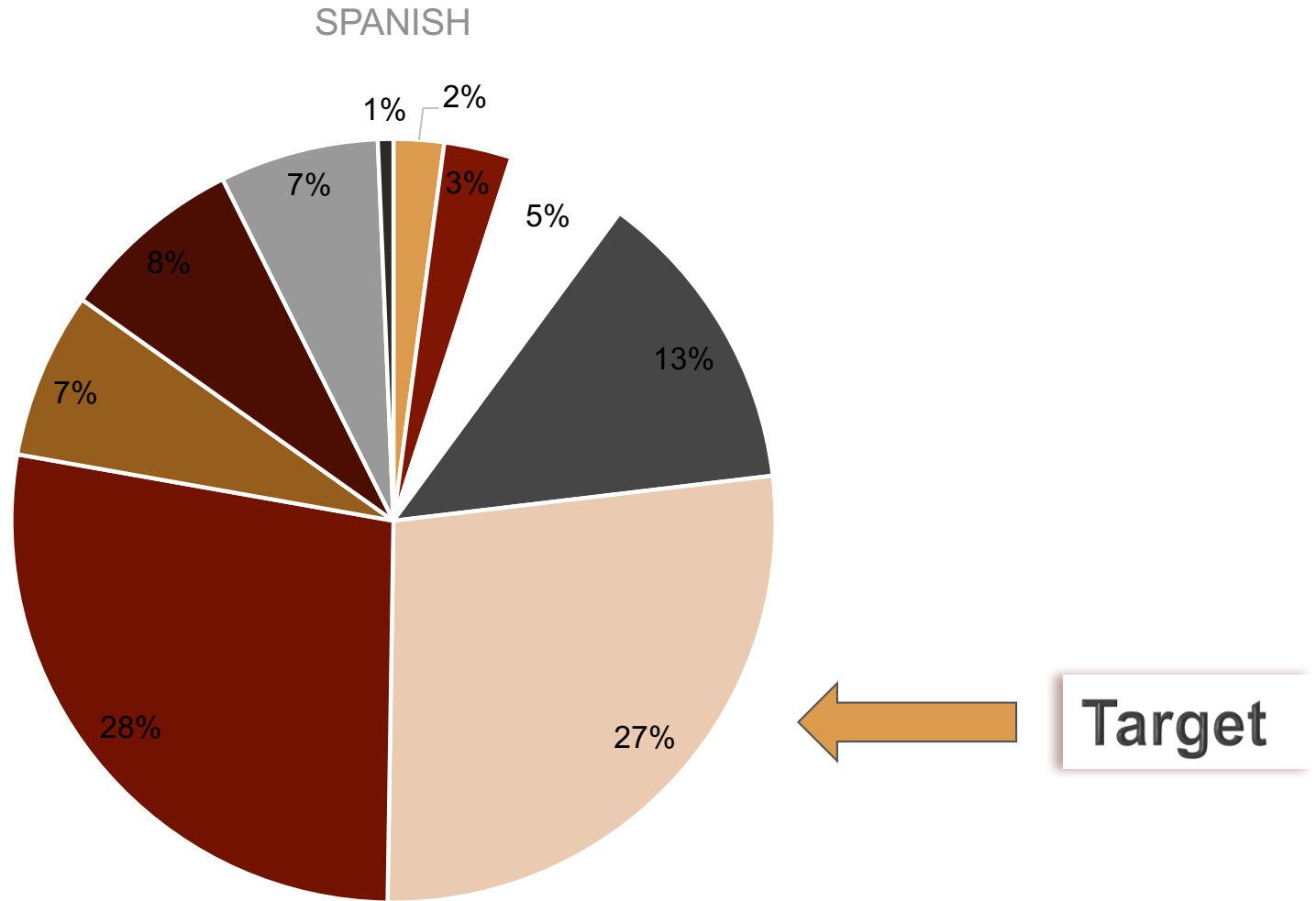


FRENCH (N=663)

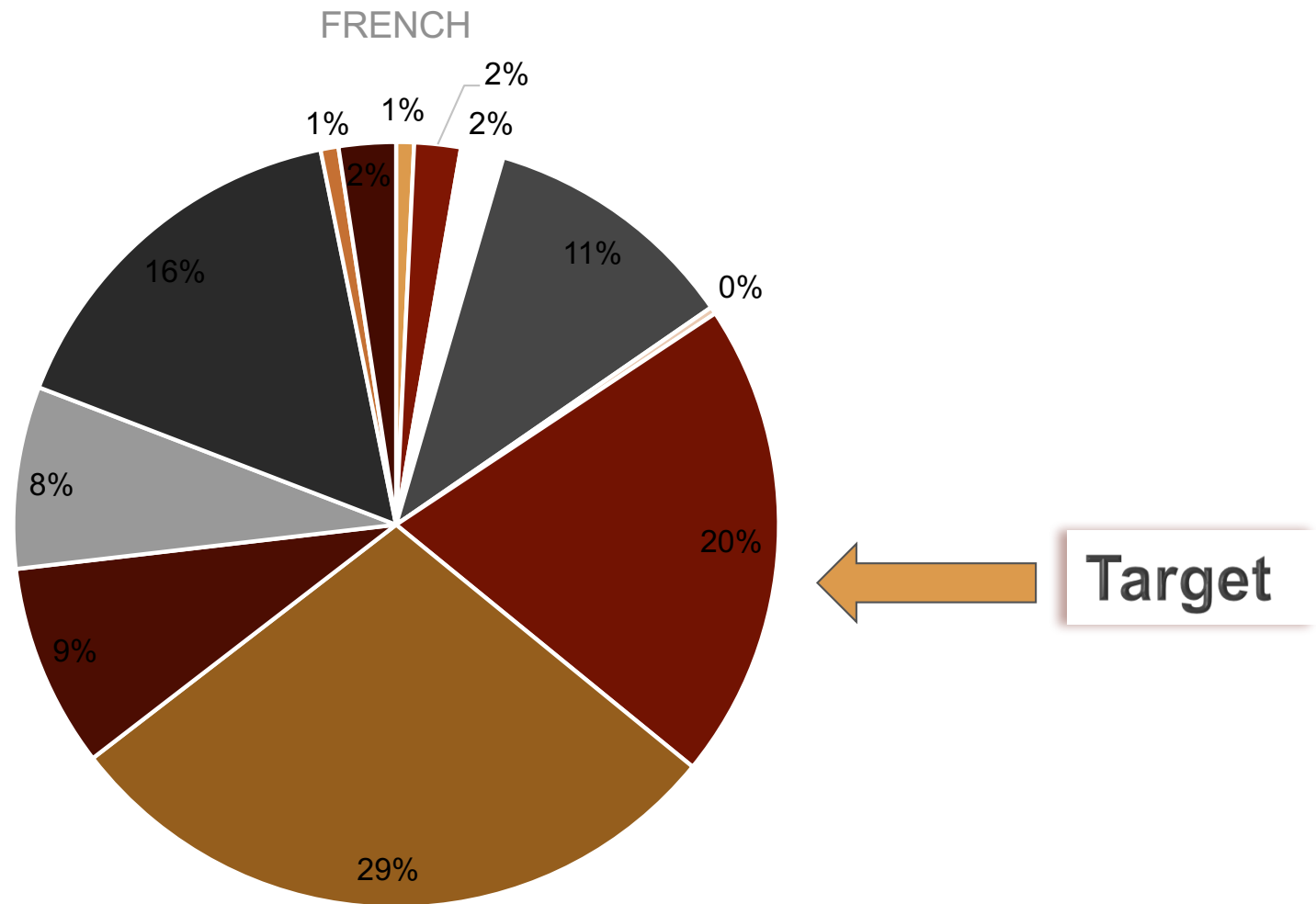


CHINESE (N=993)

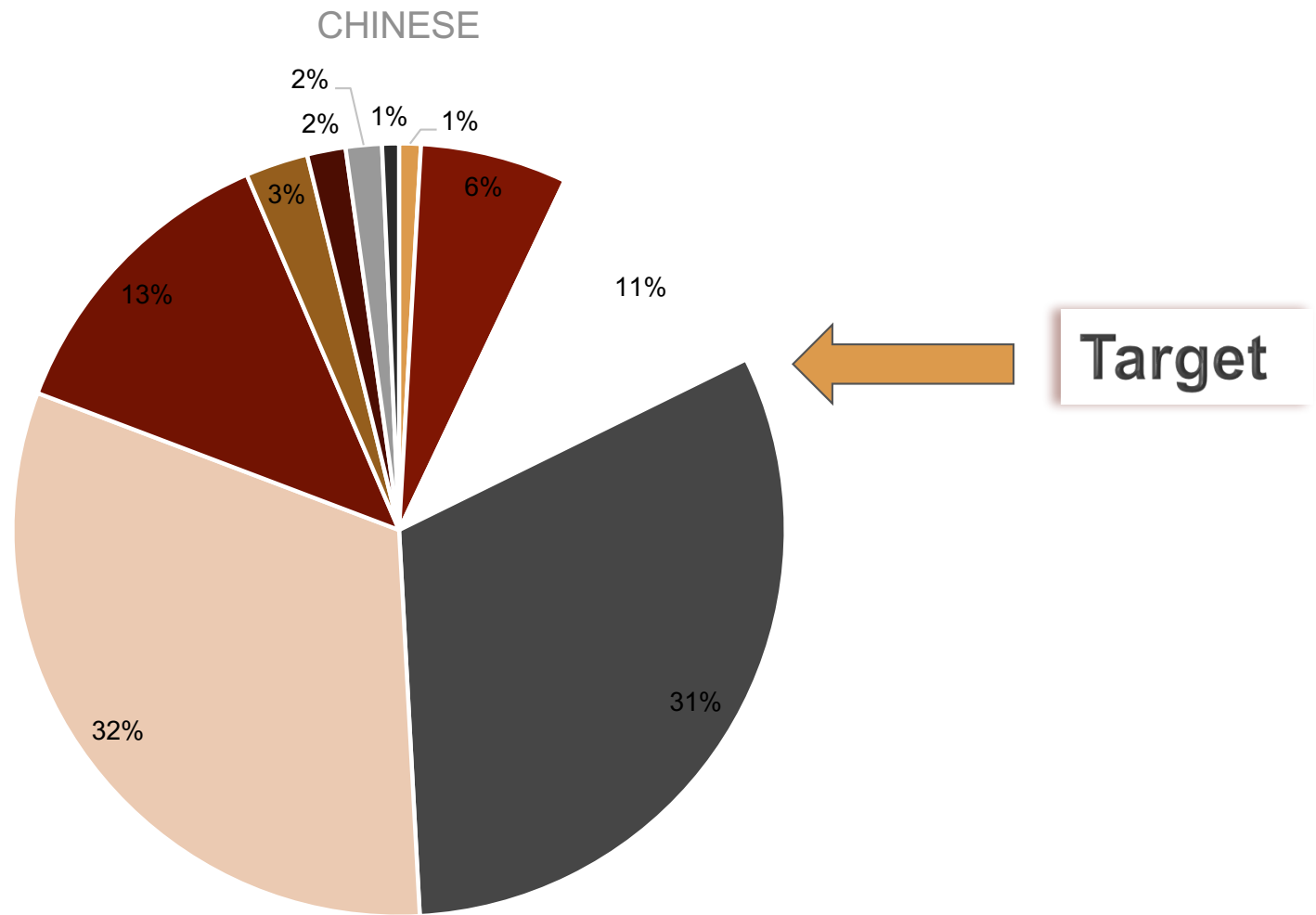




Below N1 N1 N2 N3 N4 I1 I2 I3 I4 UR



■ Below N1
 ■ N1
 ■ N2
 ■ N3
 ■ Below N4
 ■ N4
 ■ I1
 ■ I2
 ■ I3
 ■ I4
 ■ I5
 ■ UR



Below N1 N1 N2 N3 N4 I1 I2 I3 I4 UR

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

<http://faculty.gvsu.edu/FISHERJ/6.Language%20Sample%20Handout.pdf>

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

Audio and transcripts (Span)

@Begin

@Languages: spa

@Participants: 25546 ID25546 Student

@ID: spa|corpus|25546|0;00.00|male|||Student|||

@Transcriber: Paola Prieto Lopez

***25546: 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.**

@Comment: end of question 1, prompt 2.

@End

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

Audio and transcripts (FRN)

@Begin

@Languages: fra

@Participants: 20566 ID20566 Student

@ID: fra|corpus|20566|0;00.00|female|||Student|||

@Transcriber: Ellen D'Astous

***20566: je um dois regarde le bibliothèquer
pour euh un livre.**

@Comment: end of question 1, prompt 3.

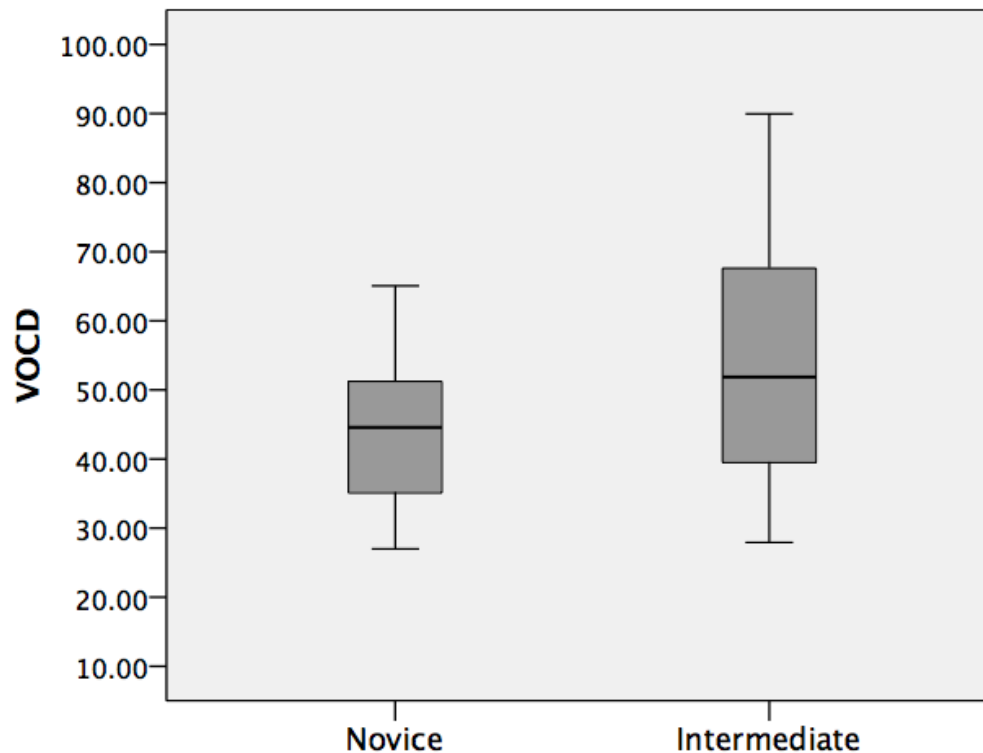
@End

Working with CLAN

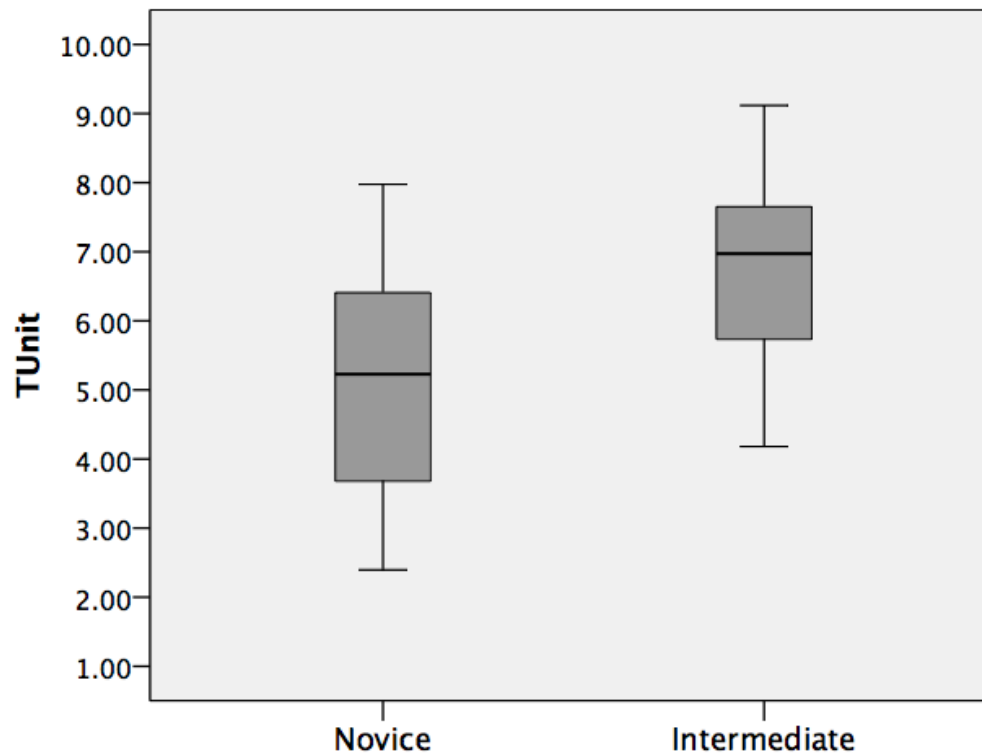
Analysis

- Comparison of lexical diversity and syntactic complexity within languages (Int. vs. Nov.)
- And between languages (e.g., French Int. vs. Spanish Int.)

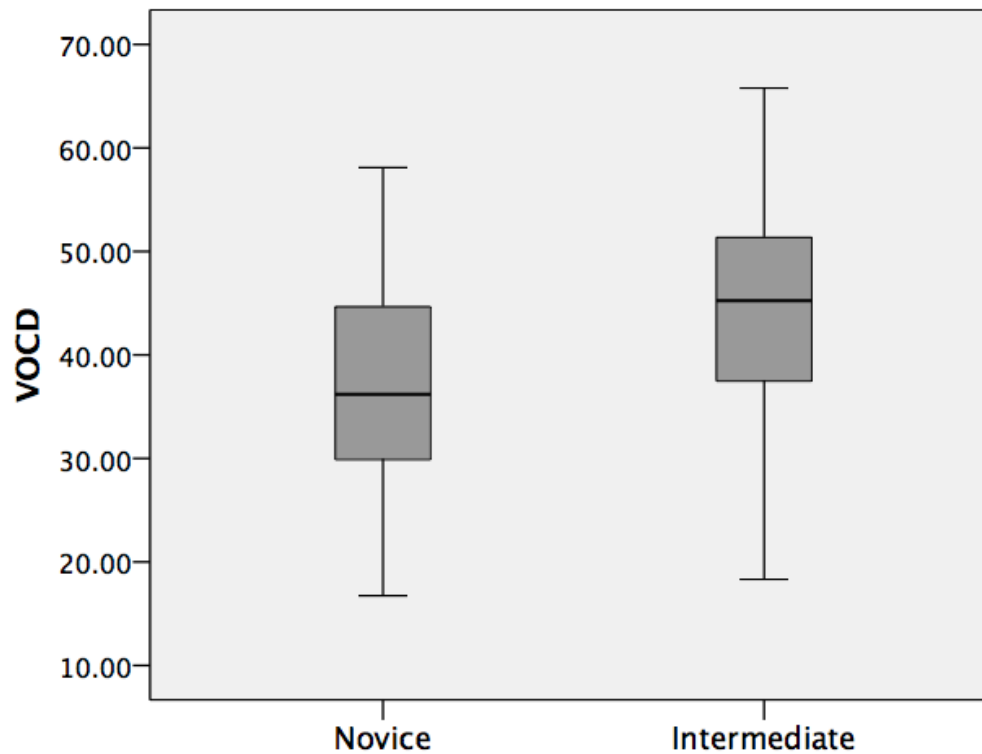
Spanish N vs. I (lexical div)



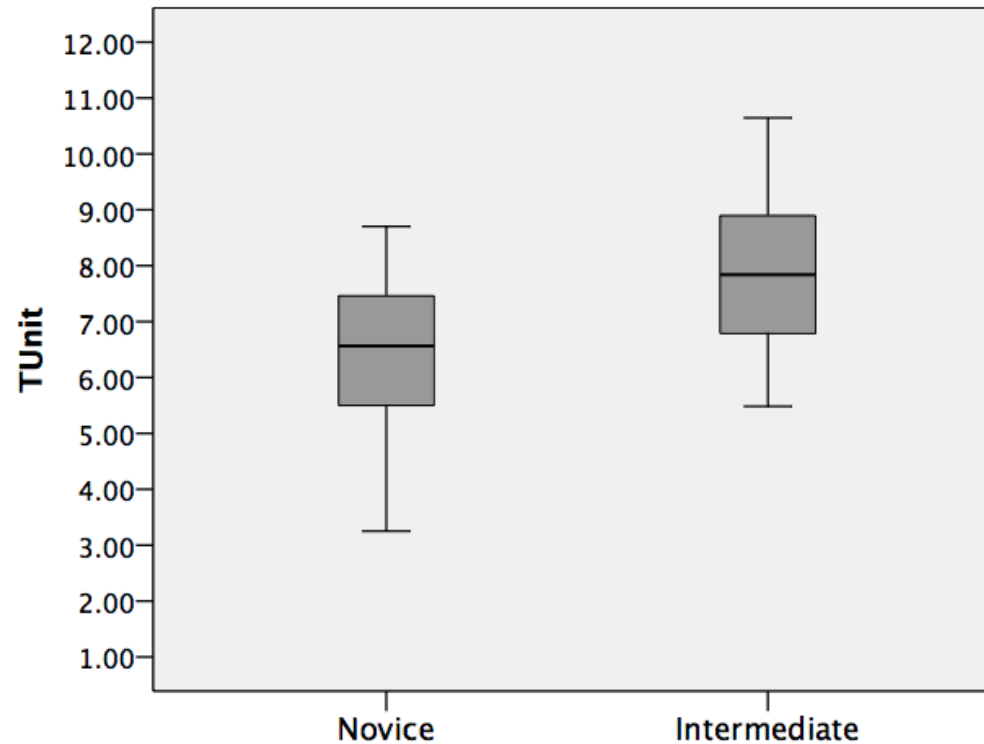
Spanish N vs I (T-unit length)



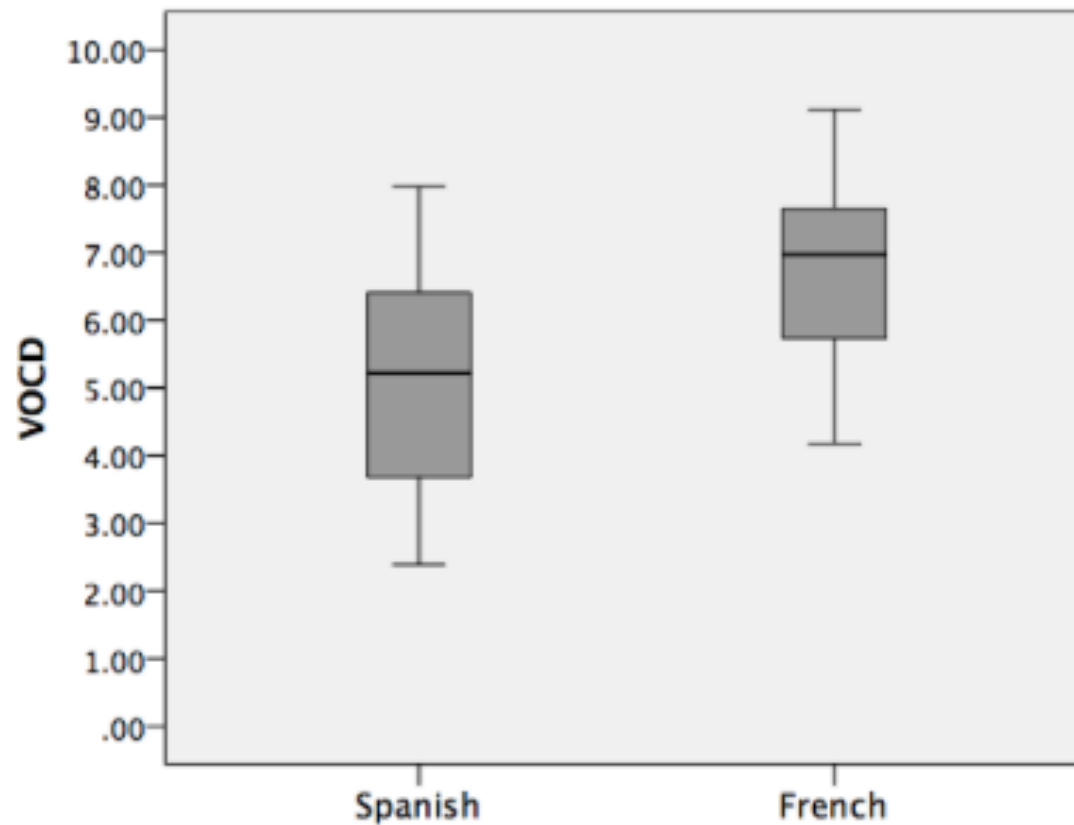
French N vs. I (Lexical div.)



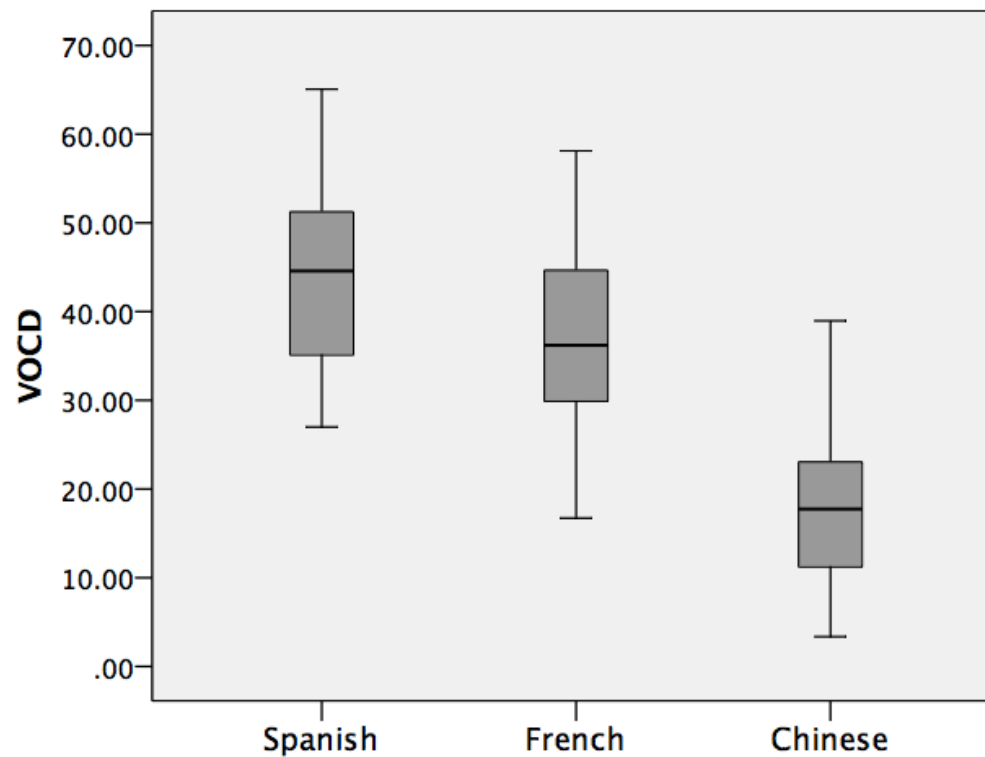
French N vs. I (T-unit length)



Spanish vs. French (Interm.)

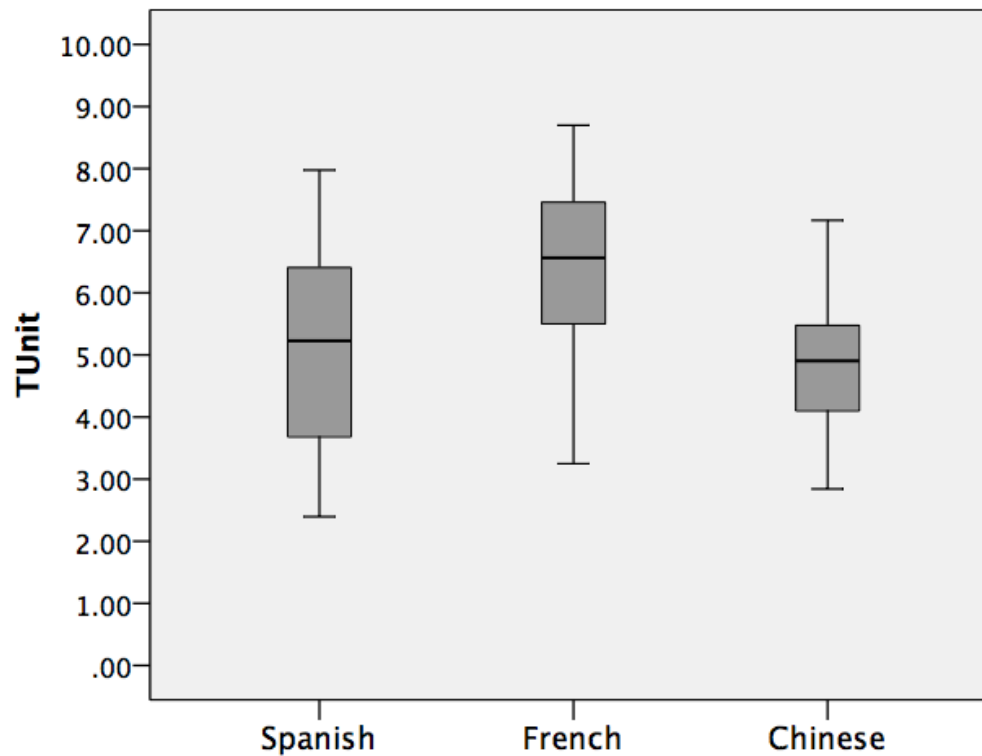


Span-Fren-Chin (Novice)



Spanish > French > Chinese

Span-Fren-Chin (Novice)



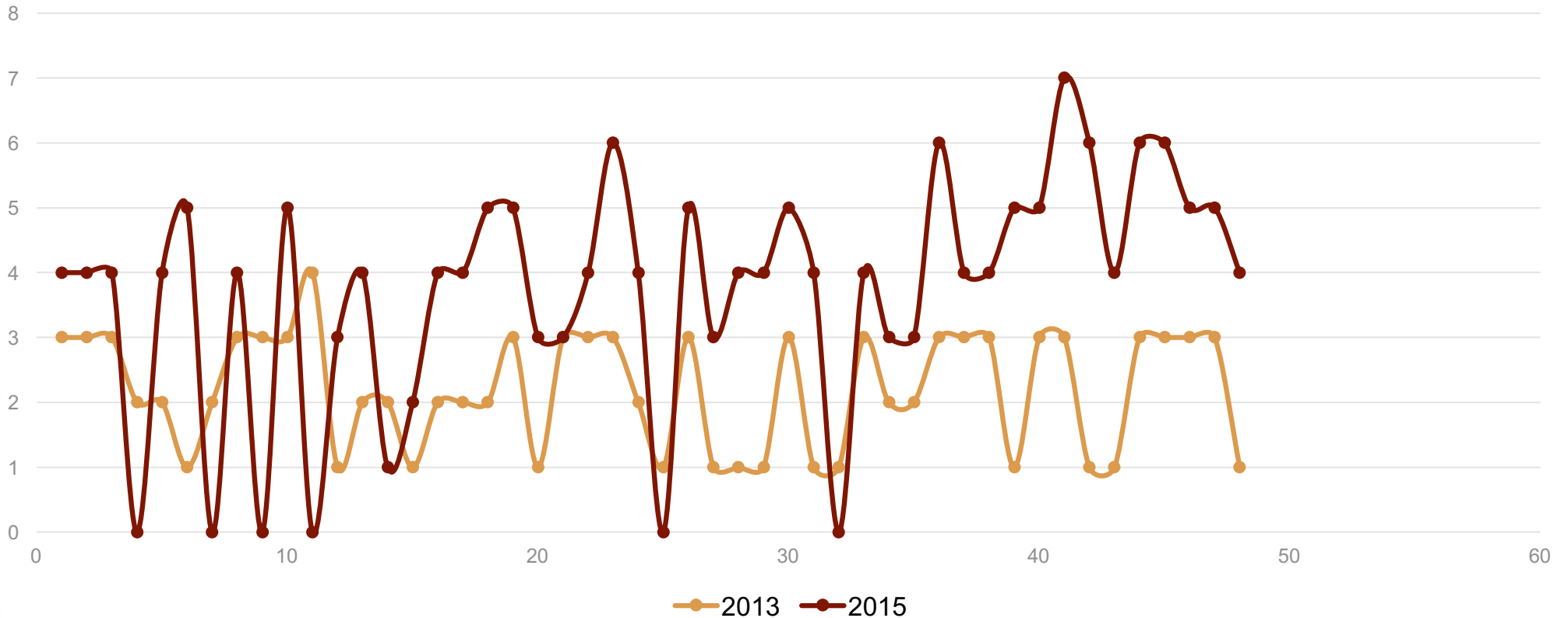
French > Spanish; French > Chinese

Median scores 2013-2015

Language	Performance score 2013	Performance score 2015
Chinese	N2	N4
French	I1	I3
Spanish	I1	I2

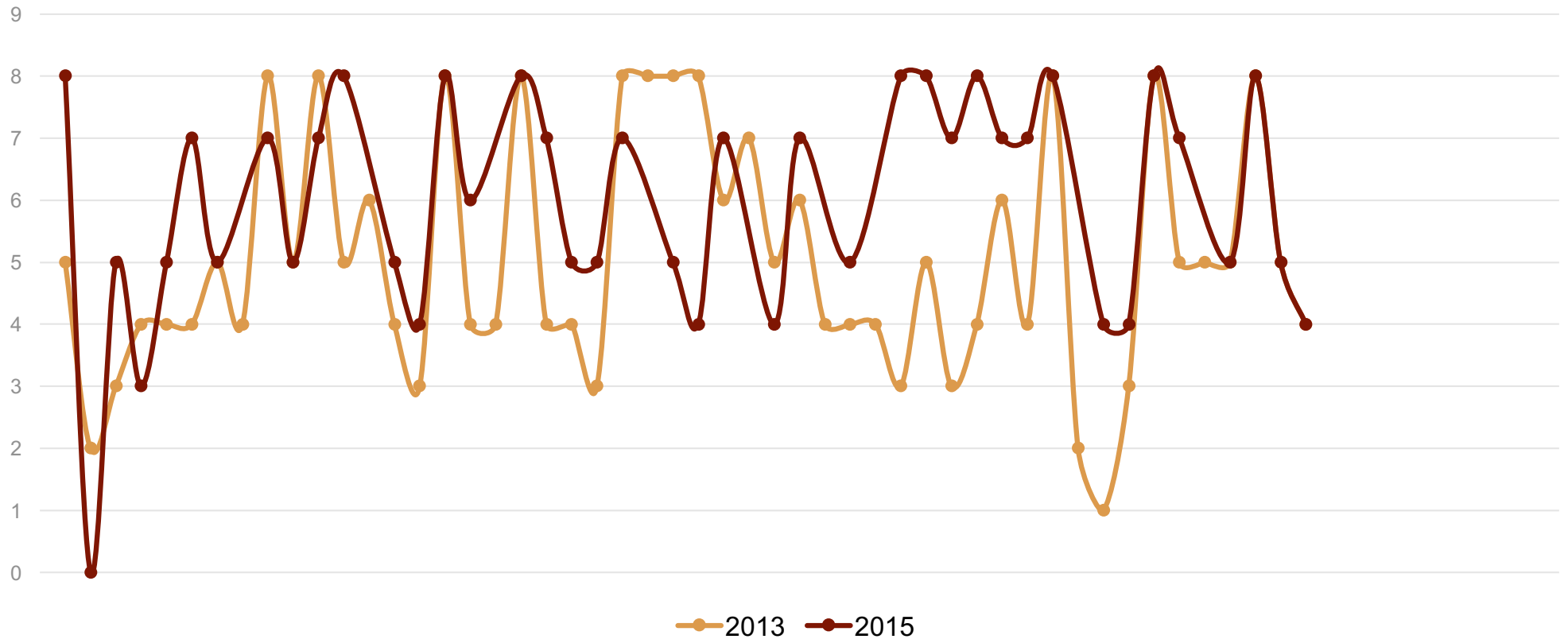
Proficiency growth Chinese

Chinese proficiency growth 2013-2015



Proficiency growth French

French proficiency growth 2013-2015



Proficiency growth Spanish

Spanish proficiency growth 2013-2015

