Early Second Language Learning Through Language Immersion Preschools

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Second Language Research Forum

BiLD Lab
bilingual language development lab

Bilingualism in the US

- Students who come to school with a LOTE are quickly transitioned to English, few opportunities to maintain HL
- Developing bilingualism is generally not supported by the mainstream educational system (Garcia, 2013)
- Dual immersion programs in the US are among the most successful at developing language proficiency for both HS as well as L2 learners
  - Social, economic, neurological benefits
  - Test scores
- However, despite the benefits, these programs are quite rare:
  - 824 two-way immersion schools in U.S.
  - 20+ Spanish-English TWI schools in Chicago (47% of students in CPS are Latinos
  - 4 schools in early childhood

Language Choice

- Factors that contribute to language choice (Ghimenton, 2015; Lee, 2003; Montanari, 2009):
  - Proficiency in a language
  - the interlocutor's language
  - the social context/power dynamics
- Young children (both L2 and HS) negotiate language ideologies, especially in minority language environment (e.g., Spanish classroom) (Volk & Angelova, 2007)
- Children pick up on language preferences as soon as they are able to communicate (Montanari, 2009)

Goals

- Investigate data from Spanish immersion preschool in the Chicago area

- Examine two groups of students:
  - Heritage speakers (HS) of Spanish
  - Second language (L2) learners of Spanish who speak English as their first language (L1)

- Language choice and use

The Present Study: Context

- Puerta Abierta Preschool
  - Community-run early childhood education center
  - Ages 2-6
  - Spanish-immersion
  - Students' backgrounds: 2 groups
    - Heritage speakers of Spanish
    - L2 learners of Spanish (L1 English)

The Present Study

We have established the following:

- Prominence of English hegemony in US
- Lack of support for developing bilingualism
- Importance and efficacy of immersion programs
- Scarcity of data from immersion programs in early childhood
- Language choice is guided by linguistic and social factors

Research Questions

1. What language choices do children make when the language of the school and dominant language differ?

2. What factors contribute to language choice and use?

Methods:
Participants

43 students (23 female, 20 male)
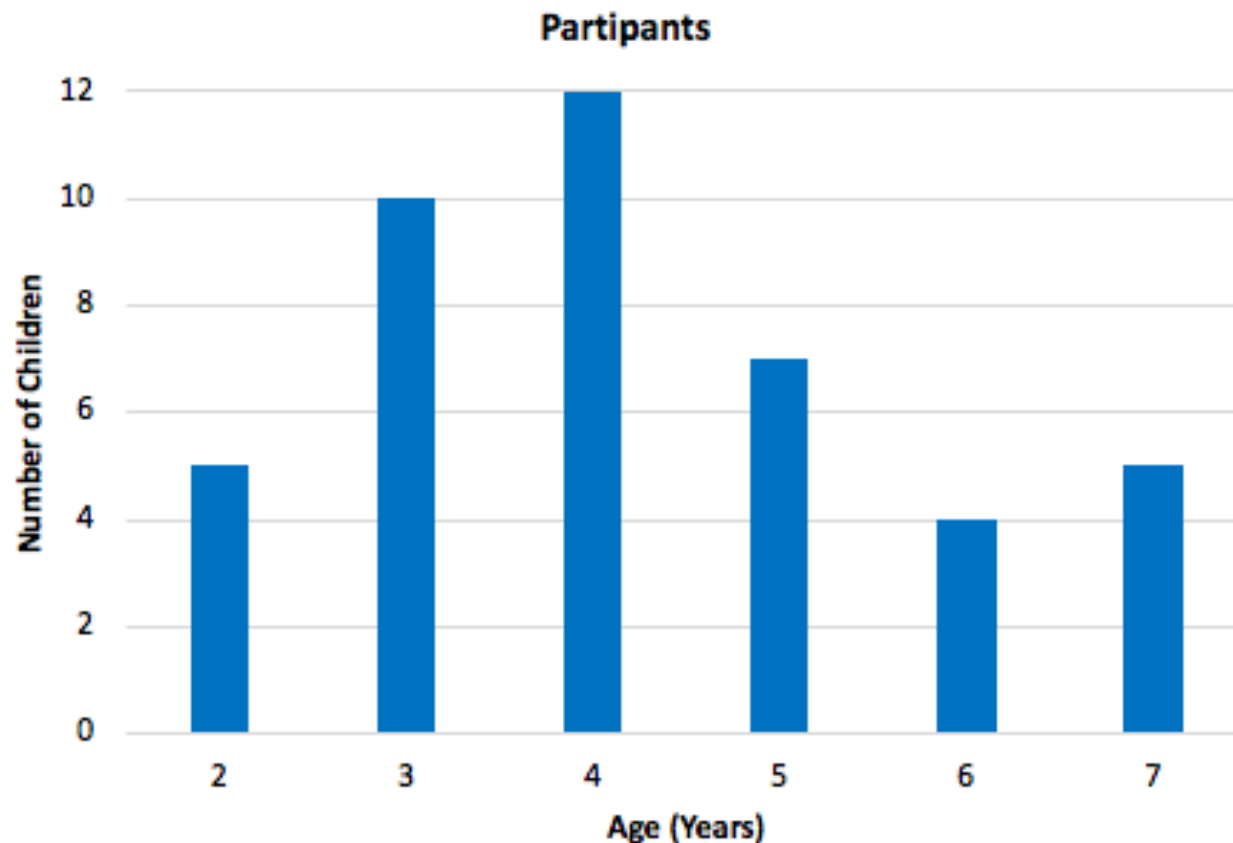
Methods:
Participants

- Language Background
  - L2: Exposed to English from birth, no exposure to Spanish prior to attendance
  - HS: Exposed to Spanish from birth, exposure to English varies

- Language dominance at onset of study (by parent report):
  - 7 children: dominant in both
  - 21 children: dominant in English
 - 15 children: dominant in Spanish

Methods: Procedures

Naturalistic Observation

- Observe during regular classroom time (usually free play periods)

- Children interacting with each other and with teachers in centers around the classroom

- 23 hours of observation

Story Elicitation

- One-on-one task

- Sequence of 3 pictures that tell a simple story

- Child was prompted to describe the pictures in Spanish to tell the story
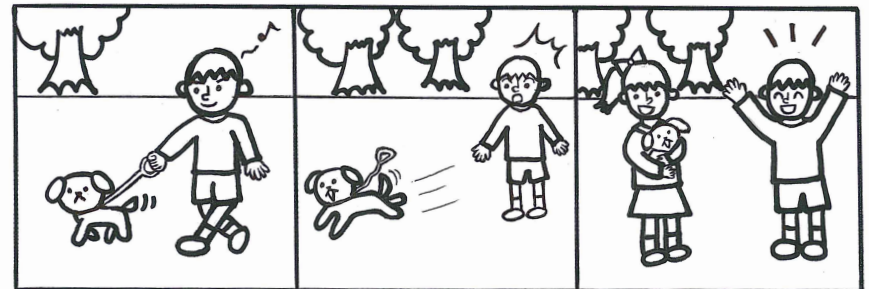
Results

Research Question 1

What **language choices** do children make when the language of the school and dominant language differ?

Findings from Observations

- Children overwhelmingly use English with each other, regardless of language background or dominance **(97% of the time)**
- Children use far less English and tend to attempt to use more Spanish with the teachers and adults in the school **(50% of the time)**

Examples from observations

M12: Do you want this one? <offers book>

M10: Yeah I want that one

M12: I want- I want that one

Blue = English
Red = Spanish

M10: Want that one?

<RAs join students reading on the rug>

M12: <to one of them>: ¿Te enseño?

"Should I show you?"

Examples from observations

Jazmin: ¿Ustedes tienen una muñeca?

F6: I have muchos muñecas

"many dolls"

Blue = English
Red = Spanish

Examples from observations

F30: that's not a fire truck

F34: I didn't (find) my paper

F30: that's not fire truck

F34: you're not looking for_

Morgan: ¿Cómo están? Cuéntame

F30: Bien <holds up four fingers>
       "good"

F34: Yo tengo así <holds up five fingers>
       "I'm this old"

Morgan: ¿Tú tienes cinco?
       "You're five years old?"

F34: <nods>

Morgan: Bueno, adivinen cuántos tengo… ¿cuántos tengo yo?
       "Well, guess how many… how old I am?"

F34: Umm

F30: Yo no sé
       "I don't know"

Findings from Elicitation

- Children who produce 90% or more Spanish
  - N = 20
  - Ages 2;7 to 6;10
  - Tend to produce about 106 words, MLUw = 3.03

- Children who produce 20% or less Spanish
  - N = 12
  - Ages 3;4 – 7;2
  - Tend to produce about 140 words, MLUw = 5.72

Findings from Elicitation

M8 (age 4;7): used Spanish 75% of the time, English 25% of the time

- HS, total words 105, MLUw=3.75

  el niño está llorando (the boy is crying)

  con mi gorro (with my hat)

F6 (age 4;3): used Spanish 22% of the time, English 78% of the time

- HS, total words 159, MLUw=14.5

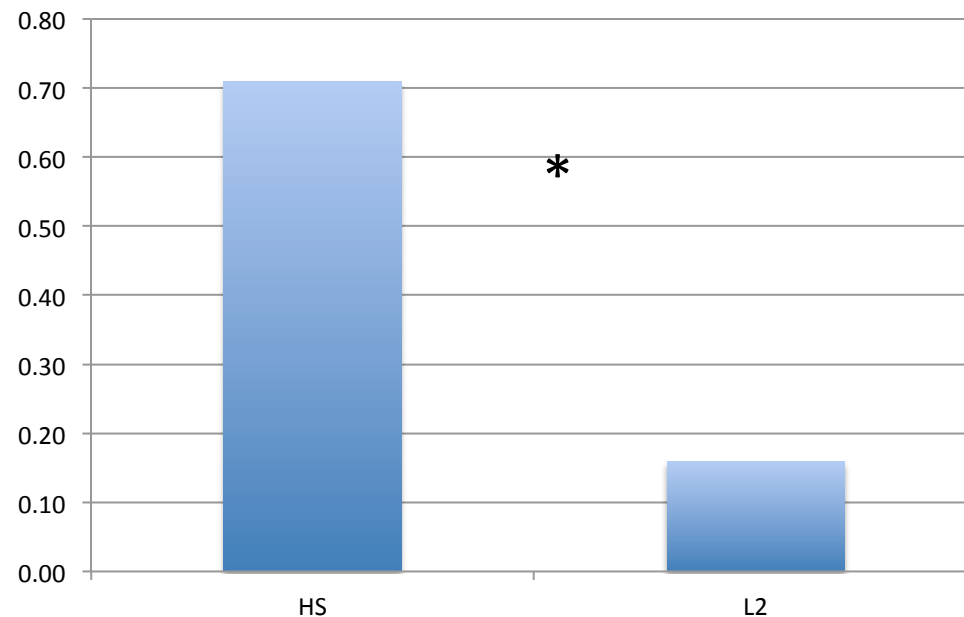 first she was playing with a ball, then she was cold because it was raining

  then a little girl um-helped her get feel better because she was so cold she wanted a umbrella.

Results

Research Question 2

What **factors** contribute to language choice and use?

Elicitation results: overall Spanish production

- The HS used more Spanish during the elicitation task (N = 37, *M* = .71, *SD* = 0.33) than L2 speakers (N = 6, *M* = .16, *SD* = 0.12).
- Independent samples t-test showed significant difference between groups, *t*(14.480) = 5.849, *p*< .001.

Prediction of Spanish Production in Elicitation Task

Variable	B	SE_B	β
Intercept	-.366	.248	
Age	.009	.002	.362*
Language Background	-.026	.123	-.022
MLUw	-.067	.017	-.394*
Dominant Language	.136	.059	.248*
Spanish Exposure	.206	.041	.576*

Note. * $p < .05$; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient

Other factors more important than Language Background?

Similar patterns in Spanish language production

	L2	HS
Agreement error	**no, un niña** 'no, a girl' **la perro se va corriendo** 'the dog is running'	**un niña lo encontró** 'a girl found it' **está caminando la perro** '(he) is walking the dog'
Overuse of *se*	**se empieza a llover** 'it starts to rain'	**se e-se está escalando** '(he) is climbing'
DOM	**uh se eh tiene la tortuga** '(she) has the turtle'	**agarró su tortuga** 'she caught her turtle'
Code-mixing	**and her amigo give her puppy back**	**el boy is crying**

Discussion

- Children differentiate language choice by interlocutor
- They use Spanish at the cost of longer utterances and more descriptive language and complex syntax
- Despite the immersion environment, they use English frequently
- Significant difference in Spanish production between HS and L2 speakers ($p < .001$)
- However, when other factors aside from language background were entered into model, found that dominance ($p = .026$) and exposure (and $p < .0001$) were more important

- Implications: Linguistic hegemony
  - Preschool children at Puerta Abierta are not immune to the hegemonic forces of English, despite institutionalized support for Spanish
    - Early perception of language preference (Montanari, 2009) and power dynamics (Ghimenton, 2015)
  - However, at an early age they learn to navigate language switches to accommodate interlocutor preference (namely, Spanish with teachers/adults) despite proficiency

- Implications: HS vs. L2 learners
  - Strict or blurred line?
  - In early childhood, factors other than language background matter more
    - Language dominance
    - Amount of language exposure

Implications for Education and Future Directions

- Simply using Spanish as the language of instruction may not be enough to counteract the hegemony of English

- However, language immersion programs in early childhood may mimic minority language exposure at home

- Blur the lines between HS and L2 speakers

Thank you!

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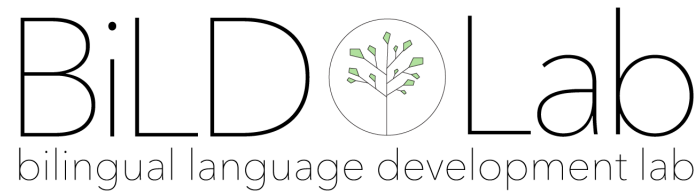
- BiLD Lab RAs Morgan Reyes, Katie Hartman, Melissa Sztuk, Jazmin Brito and UIC Ph.D. Student Megan Marshall
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Multiple Linear Regression: Factors Predicting Spanish Use during Elicitation

- A student's age (in months), their Mean Length of Utterance per Word, their Dominant Language and their exposure to Spanish all appear to be predictors of percent of Spanish words used in the elicitation task.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-.366	.248		-1.473	.149	-.869	.137					
	Age	.009	.002	.362	3.902	.000	.004	.014	.044	.540	.336	.860	1.163
	LangBckgrd	-.026	.123	-.022	-.213	.833	-.275	.223	-.455	-.035	-.018	.670	1.493
	MLUw	-.067	.017	-.394	-4.015	.000	-.100	-.033	-.414	-.551	-.345	.766	1.305
	DomLang	.136	.059	.248	2.313	.026	.017	.255	.601	.355	.199	.646	1.549
	SpnExposure	.206	.041	.576	5.052	.000	.123	.289	.674	.639	.434	.569	1.756

a. Dependent Variable: PerSpnWrds

Elicitation Task: Percent English Words

- An Independent Samples t Test was run to find if there was a significant difference in the percentage of Spanish words produced by HS vs L2 students in the elicitation task.
- There is a significant difference between the percent of Spanish words HS and L2 students produced during the elicitation task (*p* = **.008**)

T-Test

[DataSet0]

Group Statistics

	LanguageBackground	N	Mean	Std. Deviation	Std. Error Mean
PerSpnWrd	HS	36	.7100000	.37485403	.06247567
	L2	6	.2566667	.33856560	.13821883

Independent Samples Test

|		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
PerSpnWrd	Equal variances assumed	.984	.327	2.775	40	.008	.45333333	.16338061	.12312881	.78353786
	Equal variances not assumed			2.989	7.209	.020	.45333333	.15168274	.09675607	.80991060

Elicitation Task: Percent English Words

- An Independent Samples t Test was administered to find whether there was a significant difference in the percentage of English words HS and L2 students produced during the elicitation task.
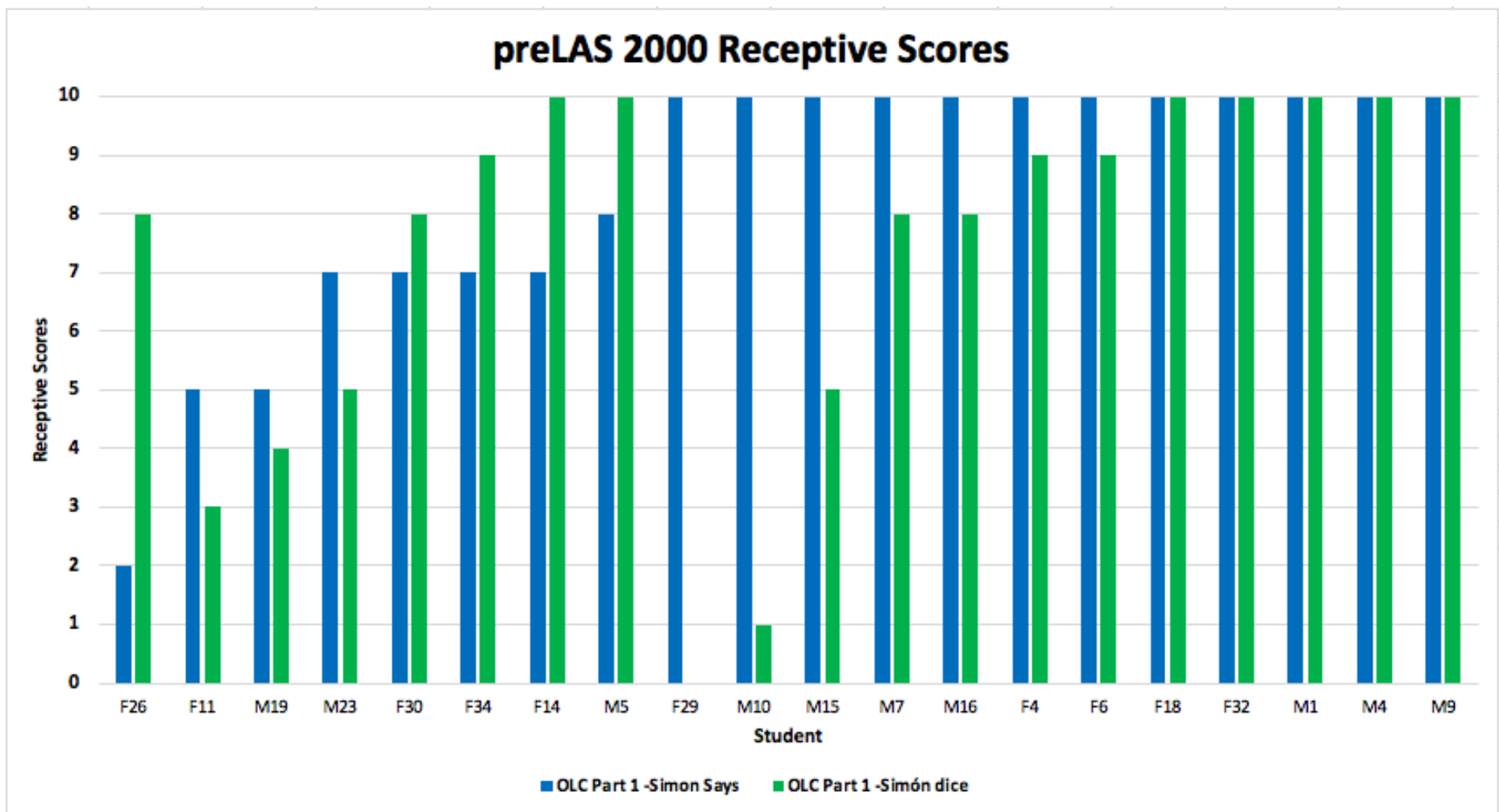- There *is* a significant difference (*p= .001)*

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
PerEngWrds	Equal variances assumed	.693	.410	3.487	40	.001	.55677224	.15964924	.23410908	.87943539
	Equal variances not assumed			3.509	6.811	.010	.55677224	.15866696	.17946021	.93408426

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Oral Language Component Level Scores Across Languages

- Note: In order to be considered proficient in a language, students must receive a score of a 4 or 5
- Despite attending an all-Spanish school, students only achieved a score of 5 in English
- 75% of students scores correlate with their dominant language

Students' preLAS 2000 Oral Language Component Level Scores Across Languages

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preLAS 2000 Receptive Scores
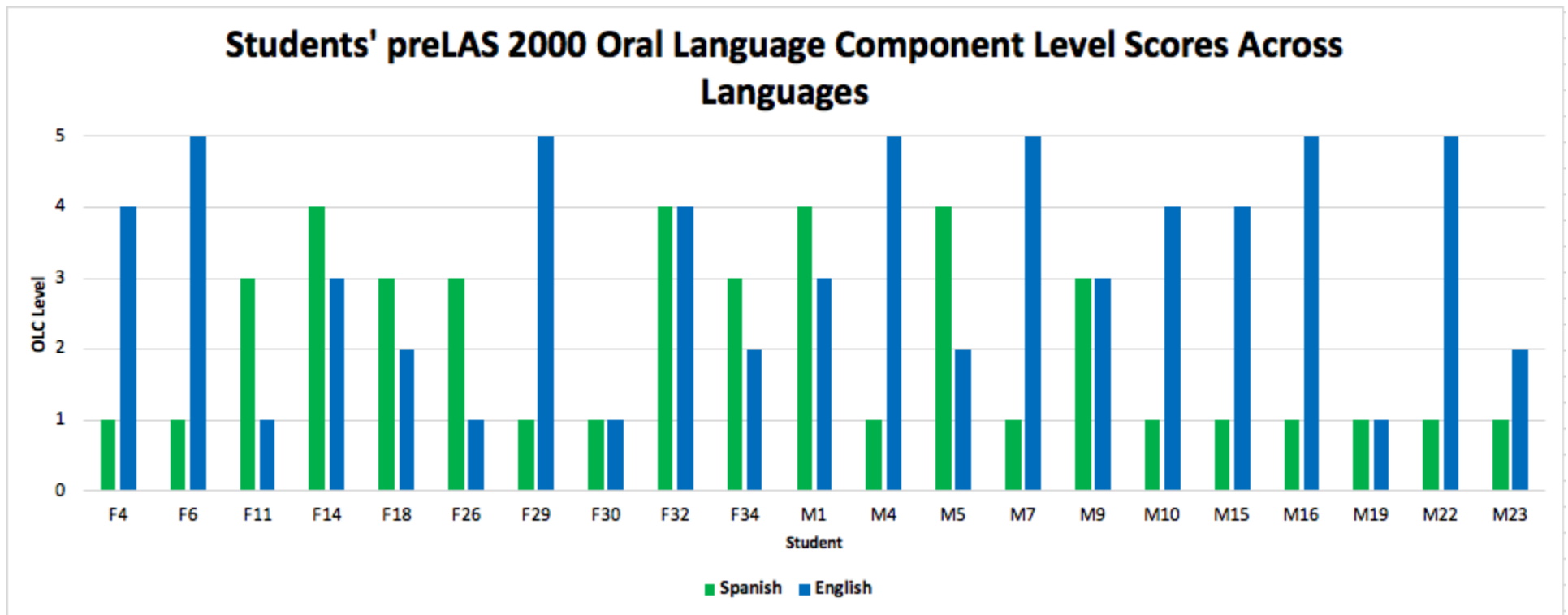
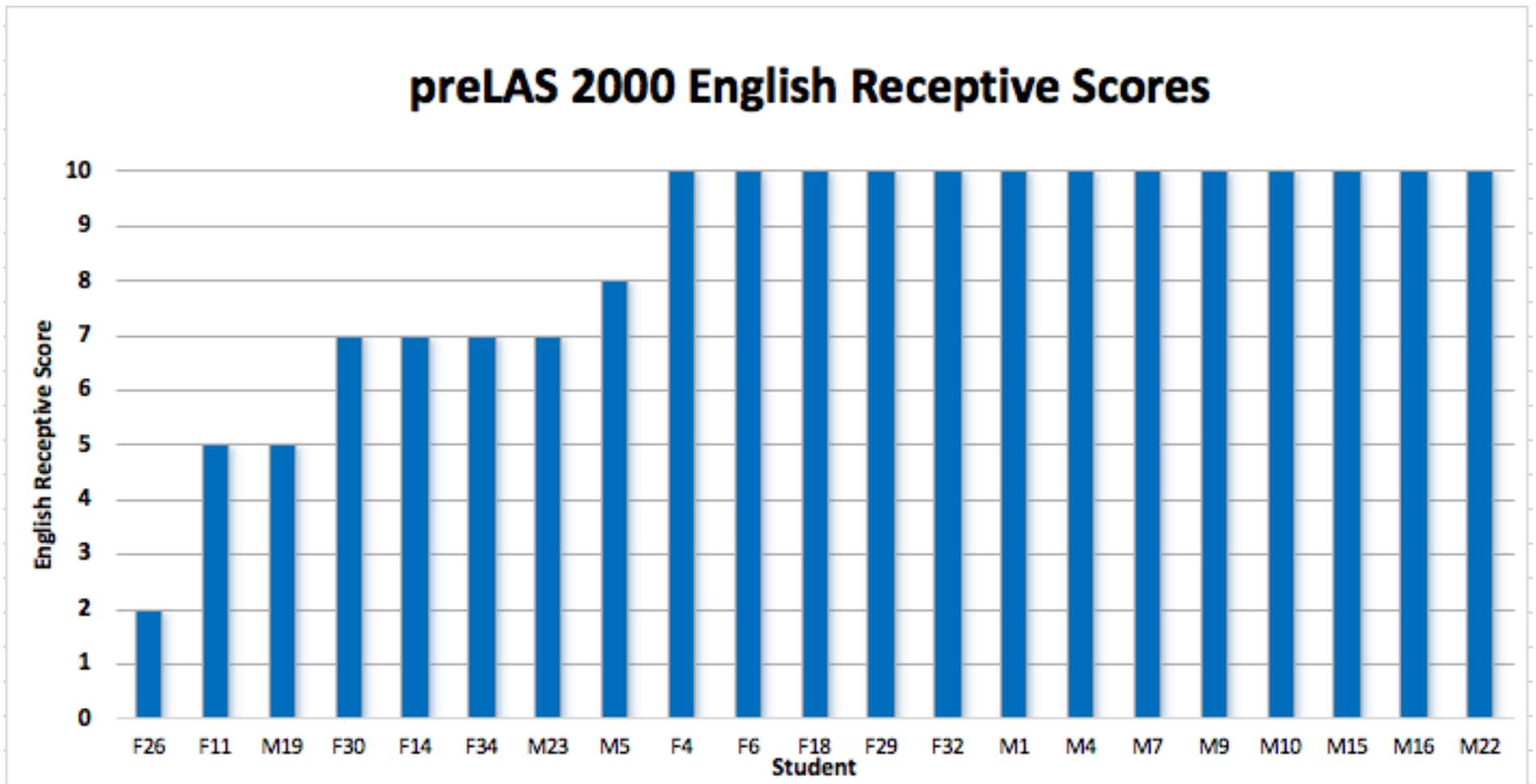preLAS 2000 Receptive Scores

Spanish Receptive Scores

preLAS 2000 Spanish Receptive Scores
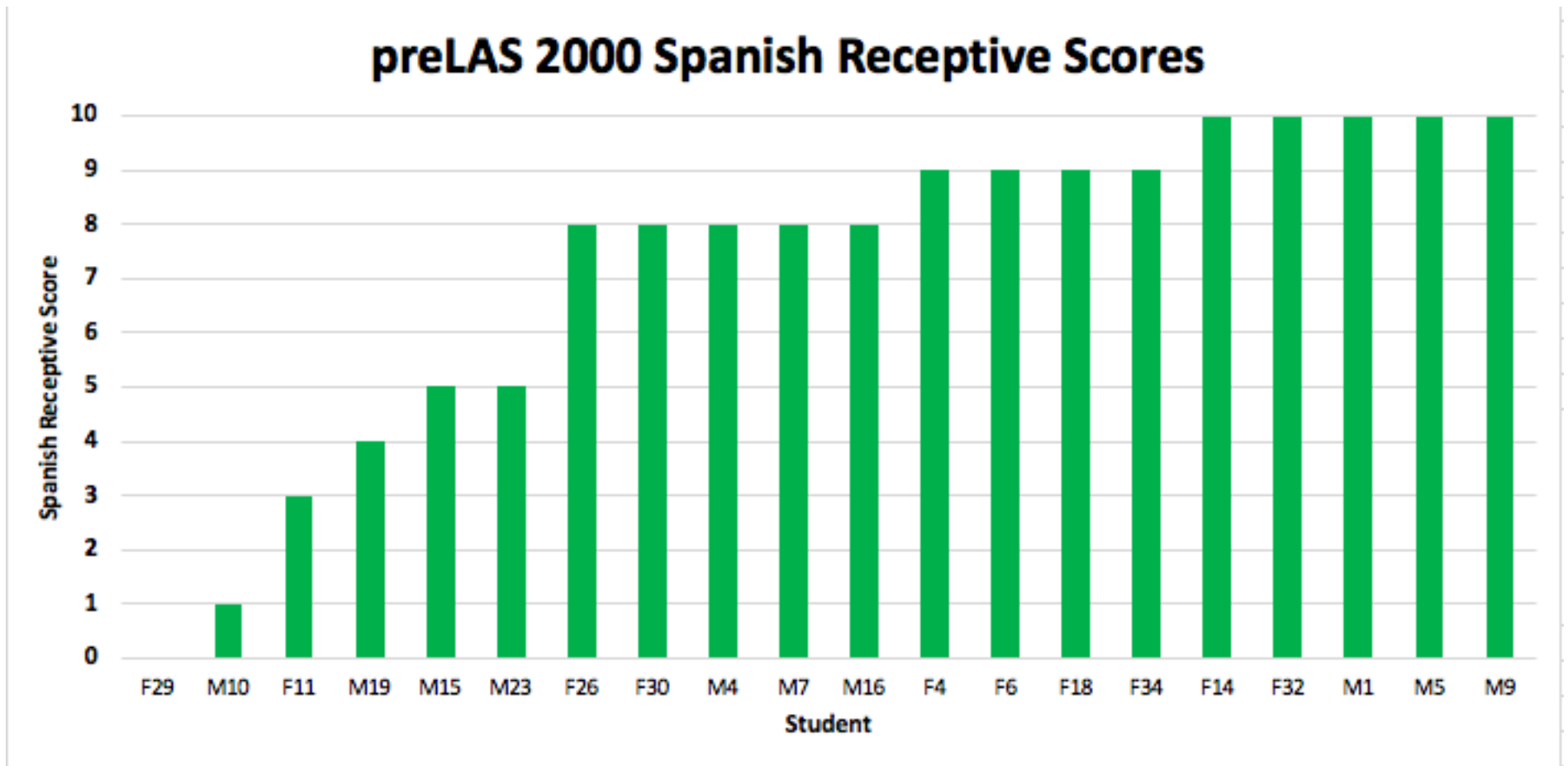
English Receptive Scores

L2 vs HS: preLAS 2000 Spanish *Receptive* Scores

- An Independent Sample t Test was run to see if there is a statistically significant difference between L2 and HS' *receptive* Spanish scores: *there was not (p= .142)*

➜ **T-Test**

Group Statistics

	LanguageBackground	N	Mean	Std. Deviation	Std. Error Mean
SpnReceptive	HS	17	7.47	2.809	.681
	L2	3	5.67	4.933	2.848

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SpnReceptive	Equal variances assumed	2.352	.142	.924	18	.368	1.804	1.952	-2.297	5.905
	Equal variances not assumed			.616	2.235	.595	1.804	2.928	-9.610	13.218

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L2 vs HS: preLAS 2000 Spanish *Receptive* Scores

- An Independent Samples t Test showed that there *is* a statistically significant difference in L2 and HS' English *receptive* scores

➡ **T-Test**

Group Statistics

	LanguageBackground	N	Mean	Std. Deviation	Std. Error Mean
EngReceptive	HS	17	8.1176	2.42080	.58713
	L2	4	10.0000	.00000	.00000

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
EngReceptive	Equal variances assumed	9.316	.007	-1.525	19	.144	-1.88235	1.23452	-4.46623	.70153
	Equal variances not assumed			-3.206	16.000	.006	-1.88235	.58713	-3.12702	-.63769

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preLAS Spanish vs English scores

- A Paired-Samples t Test found that there *is* a significant difference between how students performed on the Spanish and English test.

➡ **T-Test**

[DataSet0]

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	SpanishOLCLevel	2.05	21	1.284	.280
	EnglishOLCLevel	3.19	21	1.537	.335

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	SpanishOLCLevel & EnglishOLCLevel	21	-.410	.065

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	SpanishOLCLevel - EnglishOLCLevel	-1.143	2.372	.518	-2.223	-.063	-2.208	20	.039

preLAS Receptive Spanish vs Receptive English scores

- A Paired-Samples t Test found there is *not* a significant difference between students' *receptive* scores.

- Showing that students are just as proficient in terms of their receptive comprehension in both languages, despite attending a Spanish-only preschool students' English proficiency is *NOT* threatened!

➡ **T-Test**

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	EngReceptiveScore	8.4000	20	2.32605	.52012
	SpnReceptiveScore	7.2000	20	3.10517	.69434

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	EngReceptiveScore & SpnReceptiveScore	20	.112	.638

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper			
Pair 1	EngReceptiveScore - SpnReceptiveScore	1.20000	3.66491	.81950	-.51523	2.91523	1.464	19	.159

Effect of Spanish Exposure on Use of Spanish in Elicitation Task
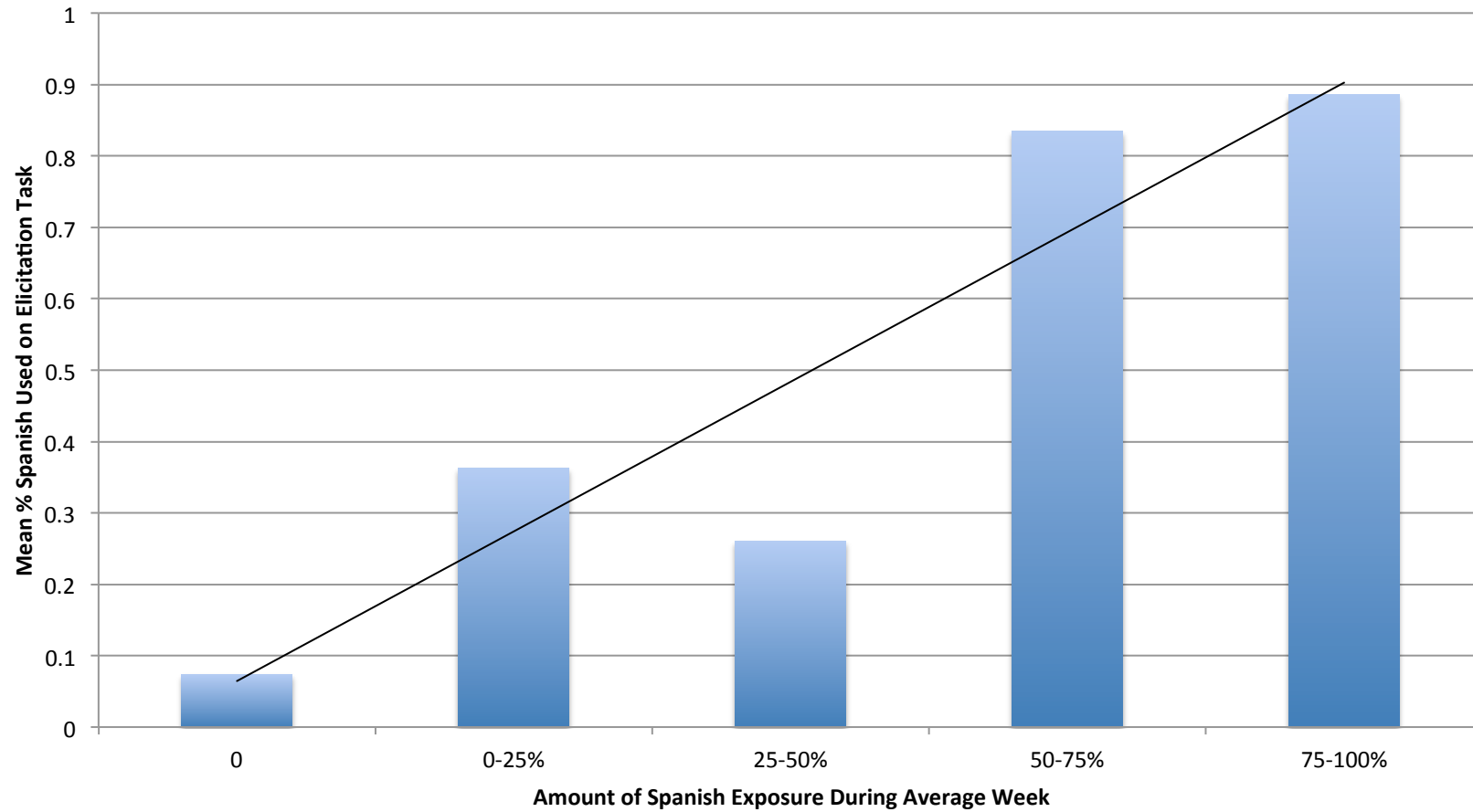
- Effect of age
  - Is there a significant correlation between age and percent use of Spanish?

HS: $r(20) = .095$, p = .689   not significant

L2: $r(4) = -.410$, p = .590   not significant

- Two way ANOVA to determine whether there is an interaction effect between age and language background on percent Spanish used

- No significant interaction found

    $F(1, 16) = 0.012$, $p = .916$, partial $\eta^2 = .001$.

- Main effects:
  - no main effect of **age** on percent use of Spanish, $F(5, 16) = 1.433$, $p = .266$, partial $\eta^2 = .309$.
  - significant main effect of **language background**, $F(1, 16) = 4.502$, $p < .05$, partial $\eta^2 = .220$.
- Pairwise comparison:
  - HS mean percent use of Spanish was .589, 95% CI [.191, .988] higher than L2 speakers, a statistically significant difference, $p = .006$.

Preliminary Conclusions & Future Avenues

- Preschool children at Puerta are not immune to the hegemonic forces of English, despite institutionalized support for the heritage language → Interview parents about their language practices and attitudes

- Parents of children that only attend half days or part-time report slow progress in Spanish → Is there a minimum threshold for input?

Preliminary Conclusions & future avenues

- The importance of beginning institutionalized heritage language education early
  - Heritage languages often undergo attrition throughout early childhood as a result of lack of input (Benmamoun, Montrul, & Polinsky, 2013)
  - Avoiding language attrition
  - Nurturing heteroglossic language ideology
  - Uninterrupted heritage language development

Still to come

- Longitudinal data collection of elicitation task
- Longitudinal classroom observations and spontaneous oral production (funding through 2018)
- Parent interviews
- Teacher interviews
- Recruit more Spanish dominant participants

Examples

D: everybody touch their picture

D: it's all dry! Every single one.

        (G tries to touch D's picture)

D: hey don't touch mine

G: fine I'll touch mine

D: ya acabe maestra (I'm finished, teacher)

TCH: okay

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Examples

J: I'm done

TCH: Sabes escribir tu nombre J? (Do you how to write your name, J?)

J: No

T: No? Sabes escribir una J así? (Do you know how to write a J like this?)

J: Yo no sé. (I don't know)

TCH: No? Seguro? (Are you sure?)

D: Do you know how to make pictures or do you only know how to...my sister doesn't know how to write letters.

J: I know how to put- make my name...I wanna write here.

Examples

A: Okay I'm like about to use brown but I'm not gonna use brown in a long time.

L: I can use brown fast.

TCH: L no agarraste ninguno (L, you didn't grab any?)

L: Estoy esperando por ese (I'm waiting for that)

TCH: Pero no hay otro igual? (But isn't there another same one?)

L: No.

Examples

G1: So basically you're the mafia. I'll tap you on the head if you're the mafia and I'll be like if I tapped you now you're the mafia so when I say mafia wake up you open your eyes and then you're trying-

Teacher: Español

G1: bueno no sé si van a entender si lo explico en español

Teacher: si lo explicas en español y no te entienden entonces a ellos les dices otra vez en en inglés para que te entiendan

Later...

G1: ok entonces si te doy un_ si te toco en la cabeza_

G2: you can say it in English

G1: voy a hacerlo en español porque nos están hablando español

Examples

Teacher: ¿Que vas a pintar?

Student: Corazones

Teacher: ¿Corazones?

Student: Y mi familia

Teacher: ¿Corazones de tu familia?

Student: Sí y mi familia

Teacher: y tu familia. <teacher walks away>

Student: I actually don't know what I'm drawing

Examples

S1: Un corazon

Teacher: Un Corazon nena. Y el tuyo, ¿cual es [S2]?

S2: una calabaza

S1: I like my heart

<Teacher is talking with another student and doesn't respond to S1>

S1: Yo termine mi corazon

Examples

Jazmin: Bueno, vamos a ver cómo Elizabeti cuida a su hermanito

Emilia: Yo no have one

Jazmin: ¿Tú no tienes?

Emilia: <shakes head>

Yaretzi: Yo sí tengo

M4: Yo sí tengo- I have a sister

Jazmin: Sí tú tienes una hermana

Examples

Jazmin: ¿a quién le gusta patinar? ¿quién sabe patinar?

M27: ¡yo no!

Jazmin: ¿tú no sabes? ¿y tú Isabella, sí sabes?

F26: <nods>

M5: yo sí se en hielo no en_

Jazmin: ¿en hielo? O muy bien

M27: yo tambi- yo (puedo) en el hielo

F6: I'm going to practice when there's to do it on hielo

M27: yo estoy en_ en hielo

Jazmin: ¡guau!

Sage: I'm going to practice on doing it on hielo too

Examples

Jazmín: ¡el ratón! El ratón salió mas atrevido

Clara: con_ con un cracker!

Jazmín: ¡ah sí! ¿le gusta con las galletas también?

F6: and um and um y una orange

Jazmín: o sí también está sobre la naranja

Examples

Ms. Gris: y ¿no podemos tomar agua si tenemos calor?

Daniela: sí podemos tomar agua
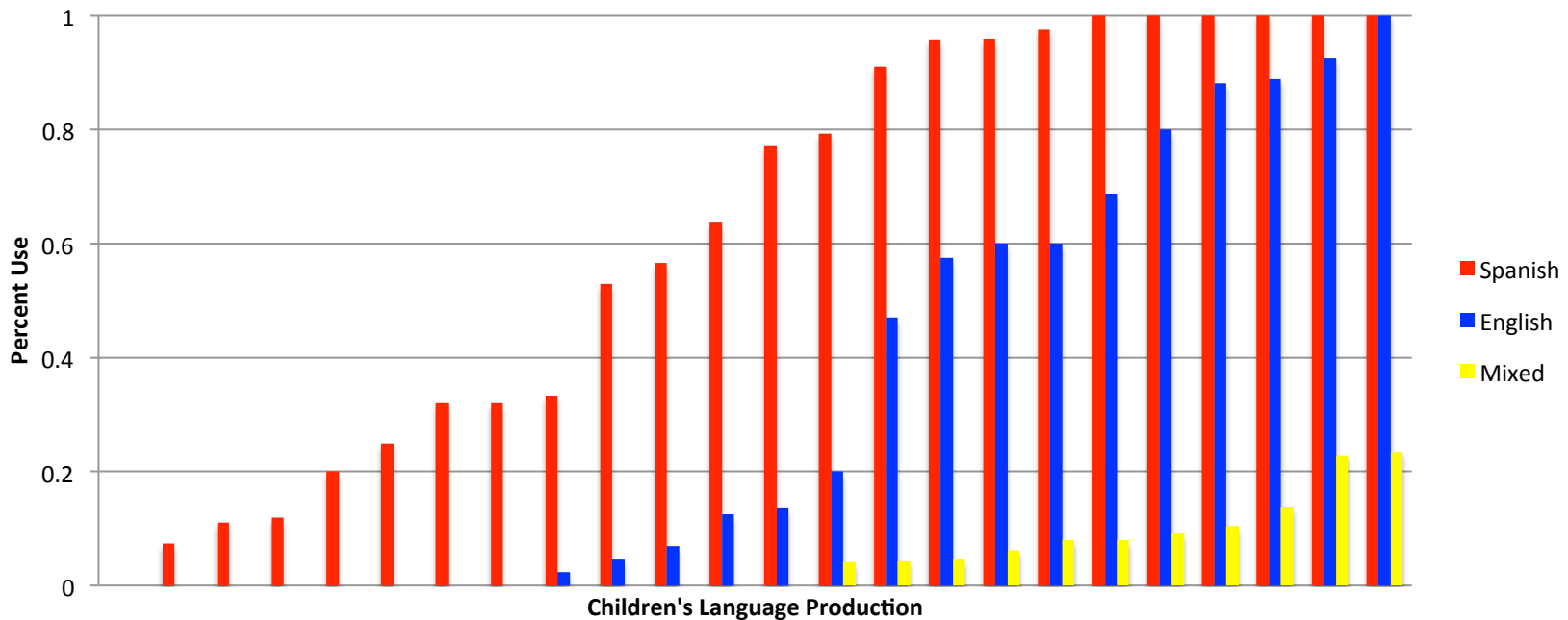
Ms. Gris: podemos tomar agua ¿verdad? podemos_ agua fría o caliente pero podemos <waves hand in her face> tomar un poco de agua para refrescarnos o podemos hacer ¿qué? <waves hand like a fan>

Daniela: hay fría o caliente...

F4: um frío up with a fan

Elicitation task language choice

- Mean use of Spanish across all children: 62% (SD = .37)
- Mean use of English across all children: 37% (SD = .37)

Parental Influence vs Teacher Influence

M8: uh mommy are you going to the park?

Dr. Barrera-Tobon: más tarde yo no sé preguntale a tú maestra

M8: ¿is mi mama going al parque?

Ms. Gris: tú mamá va ir al parque, tú mamá va estar un rato en el salon y después va ir al parque luego pa' su casa ¿okay?

M8: ¿yo también? ¿yo también?

Ms. Gris: nosotros vamos ir al parque

M3: <to M8> I bet she's going to- I bet she's going back to your house

M8: Mommy? Are you gonna stay a little bit in the park?

Dr. Barrera-Tobon: tú me tienes que hablar en español

M8: mommy, why are not- am I gonna go with you?

Dr. Barrera-Tobon: sí yo me voy a estar_ yo voy a estar aquí yo voy a estar aquí

pero voy a estar en el otro salón

M8: I want to go with you later here

Dr. Barrera-Tobón: sí sí sí sí ahorita hablamos ¿okay? ahorita hablamos

- In naturalistic contexts, children utilize English as the language of play, interaction, and negotiation with other children

- Children use Spanish for interacting with teachers

- Language choice is highly dependent on the interlocutor

- Despite the immersive setting, students still frequently use English together

2. Story Elicitation Task

- Each elicitation session was transcribed and reviewed by near-native/native speakers of Spanish

- Each utterance was coded for language and MLUw