Contextual Effects of Bilingual Programs on Beginning Reading

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Bilingual Program Effects in Context

We're interested in reading achievement for English language learners, but studies point in opposite directions:

- Intensive English (Baker, 1998; Rossell & Baker, 1996)
- Primary language instruction (August & Shanahan, 2006; Greene, 1998; Willig, 1985)

Programs exist in <u>contexts</u> which differ:

- schools and districts have different resources, policies, and attitudes
- communities have different expectations, attitudes, and opportunities

How do we examine program effects in context?

Important Issues:

1. Bilingual = more than one language as input & output
2. Classrooms differ (multilevel)
3. Instruction differs, even within programs of the same name
4. Context effects may be more complex than simply mean differences.

Research questions:

1. What is the average performance of classrooms in these different programs & contexts?
2. What do the relations across outcomes suggest about stability & possible cross-language effects?
3. What is the impact of English-Spanish instructional language for these questions?

Participants & Measures

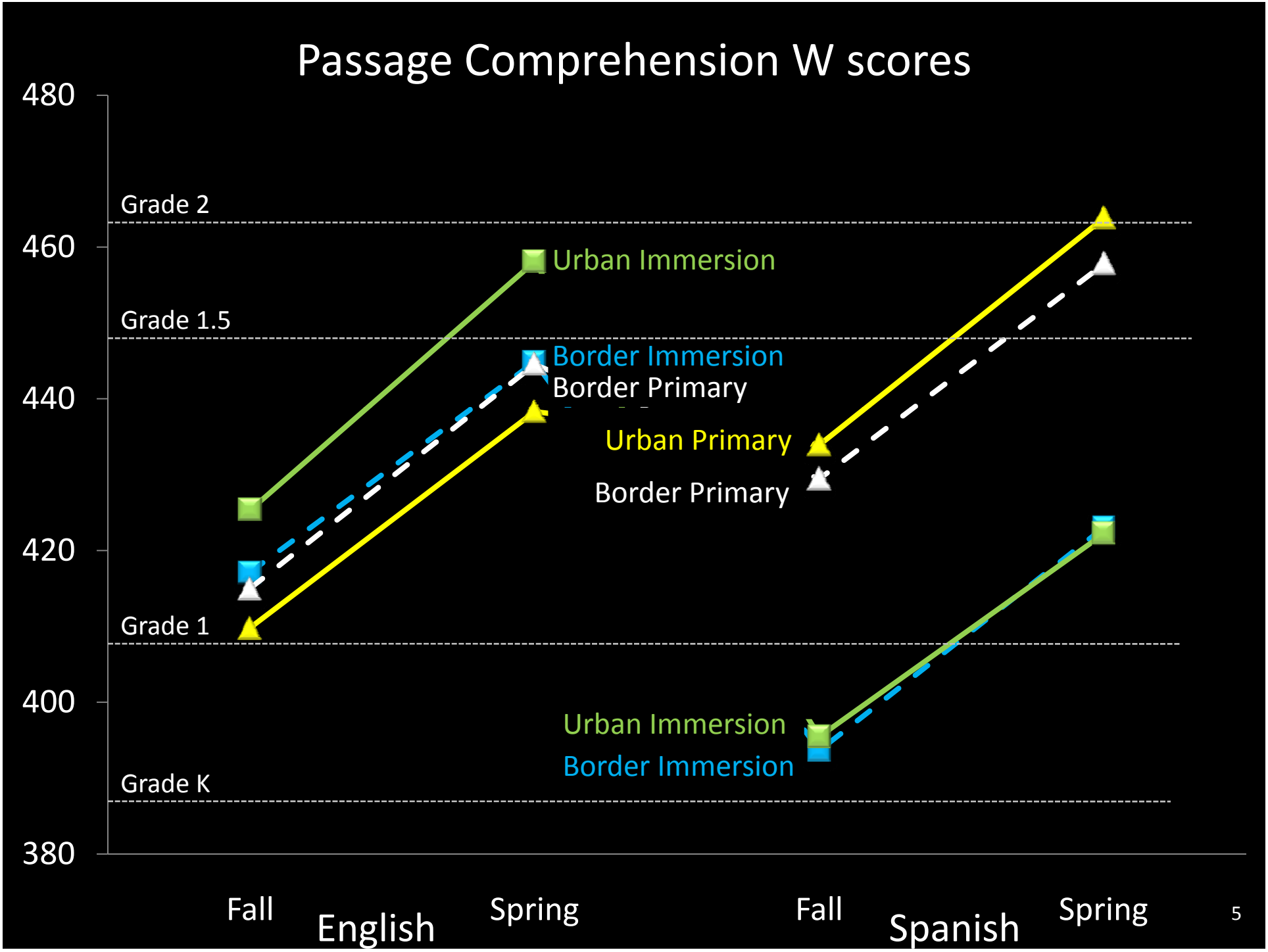
34 academically acceptable schools in border Texas & urban California/Texas.

First grade Spanish-speaking students (50% female) in English immersion & Spanish primary language programs.

Woodcock Language Proficiency Battery Passage Comprehension in fall & spring.

Locale & Program	Students	Classrooms
Border Immersion	145	15
Border Primary	376	38
Urban Immersion	347	38
Urban Primary	564	47
Total	1,432	138

Classrooms were randomly observed 2-3 times per year for amount of Spanish-English instructional language used.


Passage Comprehension W scores
480
460
440
420
400
380
Grade 2
Grade 1.5
Grade 1
Grade K
Urban Immersion
Border Immersion
Border Primary
Urban Primary
Border Primary
Urban Immersion
Border Immersion
Fall
Spring
English
Fall
Spring
Spanish

Unilevel Correlations (wrong)

			Fall		Spring		
Locale & Program	Time		English	Spanish	English	Spanish	ICC
Border Immersion	Fall	English	1.00				46%
		Spanish	.35	1.00			49%
	Spring	English	.79	.23	1.00		56%
		Spanish	.10	.66	.11	1.00	28%
Border Primary	Fall	English	1.00				5%
		Spanish	.66	1.00			12%
	Spring	English	.74	.56	1.00		10%
		Spanish	.41	.66	.45	1.00	26%
Urban Immersion	Fall	English	1.00				13%
		Spanish	.32	1.00			23%
	Spring	English	.64	.17	1.00		16%
		Spanish	.37	.60	.27	1.00	20%
Urban Primary	Fall	English	1.00				19%
		Spanish	.53	1.00			23%
	Spring	English	.62	.46	1.00		21%
		Spanish	.32	.56	.39	1.00	23%

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Moderate stability

Low to moderate cross-language relations

Multilevel Correlations

			Fall		Spring	
Locale & Program	Time		English	Spanish	English	Spanish
Border Immersion	Fall	English		.34	.90	-.17
		Spanish	.54		.28	.85
	Spring	English	.68	.44		-.26
		Spanish	.34	.49	.51	
Border Primary	Fall	English		.12	.47	-.31
		Spanish	.69		-.01	.65
	Spring	English	.76	.61		-.02
		Spanish	.49	.68	.52	
Urban Immersion	Fall	English		-.06	.71	.21
		Spanish	.44		-.42	.94
	Spring	English	.63	.37		-.25
		Spanish	.44	.46	.44	
Urban Primary	Fall	English		.42	.83	-.07
		Spanish	.55		.22	.75
	Spring	English	.58	.52		-.07
		Spanish	.36	.49	.45	

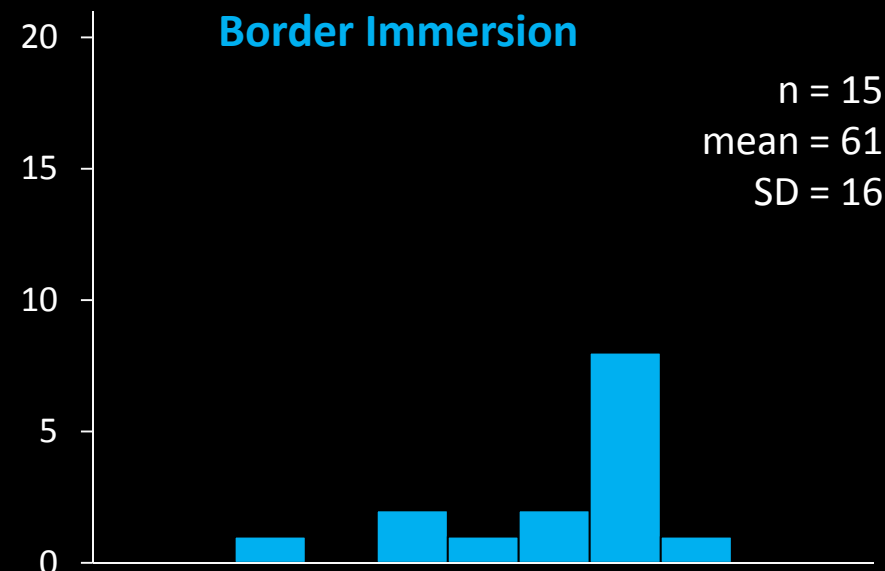
Student level: moderate stability, positive cross-language relations

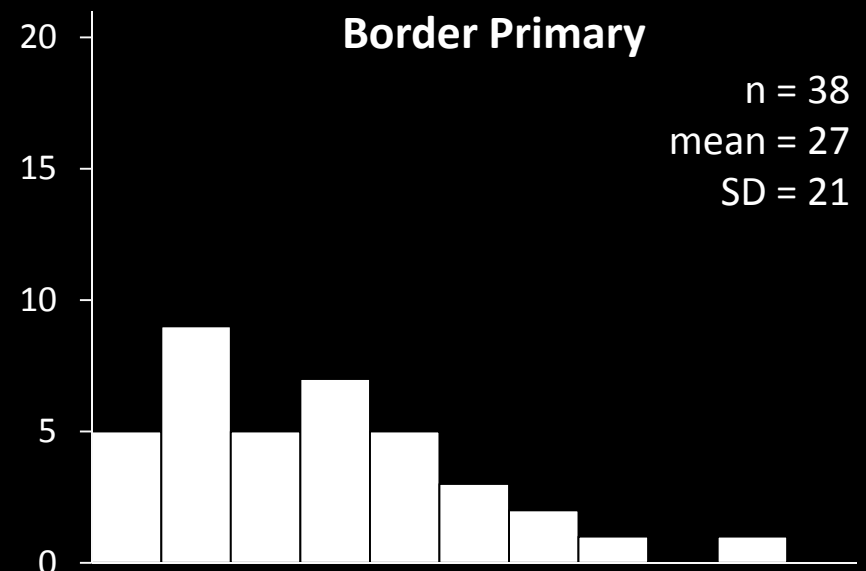
Classroom level: high stability, heterogeneous relations

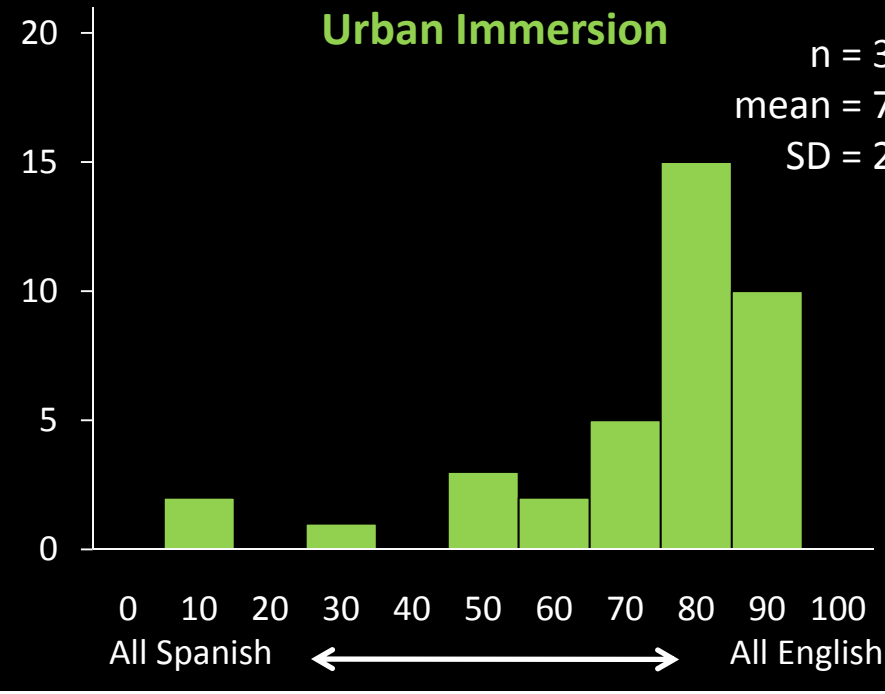
Immersion classrooms tend to reverse order by spring

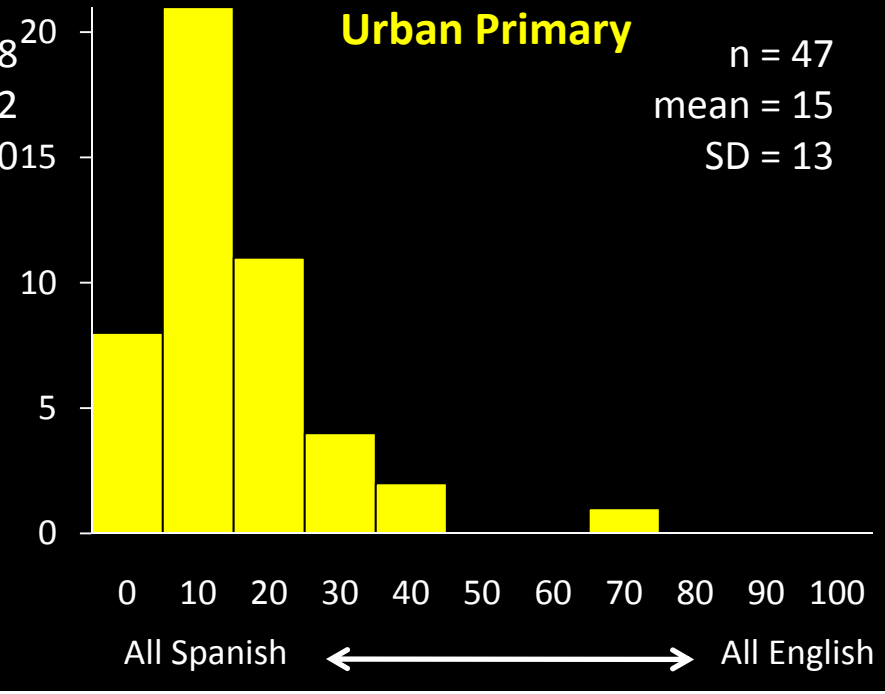
Primary classrooms have no cross-language relation by spring

Classroom Instruction: Percent of English vs. Spanish









Conditional Multilevel Correlations

			Fall		Spring	
Locale & Program	Time		English	Spanish	English	Spanish
Border Immersion	Fall	English	*.28*	.70	.87	.32
		Spanish	.54	*.15*	.80	.86
	Spring	English	.68	.44	*.45*	.40
		Spanish	.34	.49	.51	*.47*
Border Primary	Fall	English	*.00*	.27	.47	-.38
		Spanish	.69	*.69*	.11	.26
	Spring	English	.76	.61	*.01*	.04
		Spanish	.49	.68	.52	*.43*
Urban Immersion	Fall	English	*.07*	.32	.70	.56
		Spanish	.44	*.70*	.14	.89
	Spring	English	.63	.37	*.33*	.26
		Spanish	.44	.46	.44	*.48*
Urban Primary	Fall	English	*.14*	.62	.80	.26
		Spanish	.55	*.11*	.49	.75
	Spring	English	.58	.52	*.27*	.45
		Spanish	.36	.49	.45	*.45*

Classroom R^2: instructional language sometimes predicts

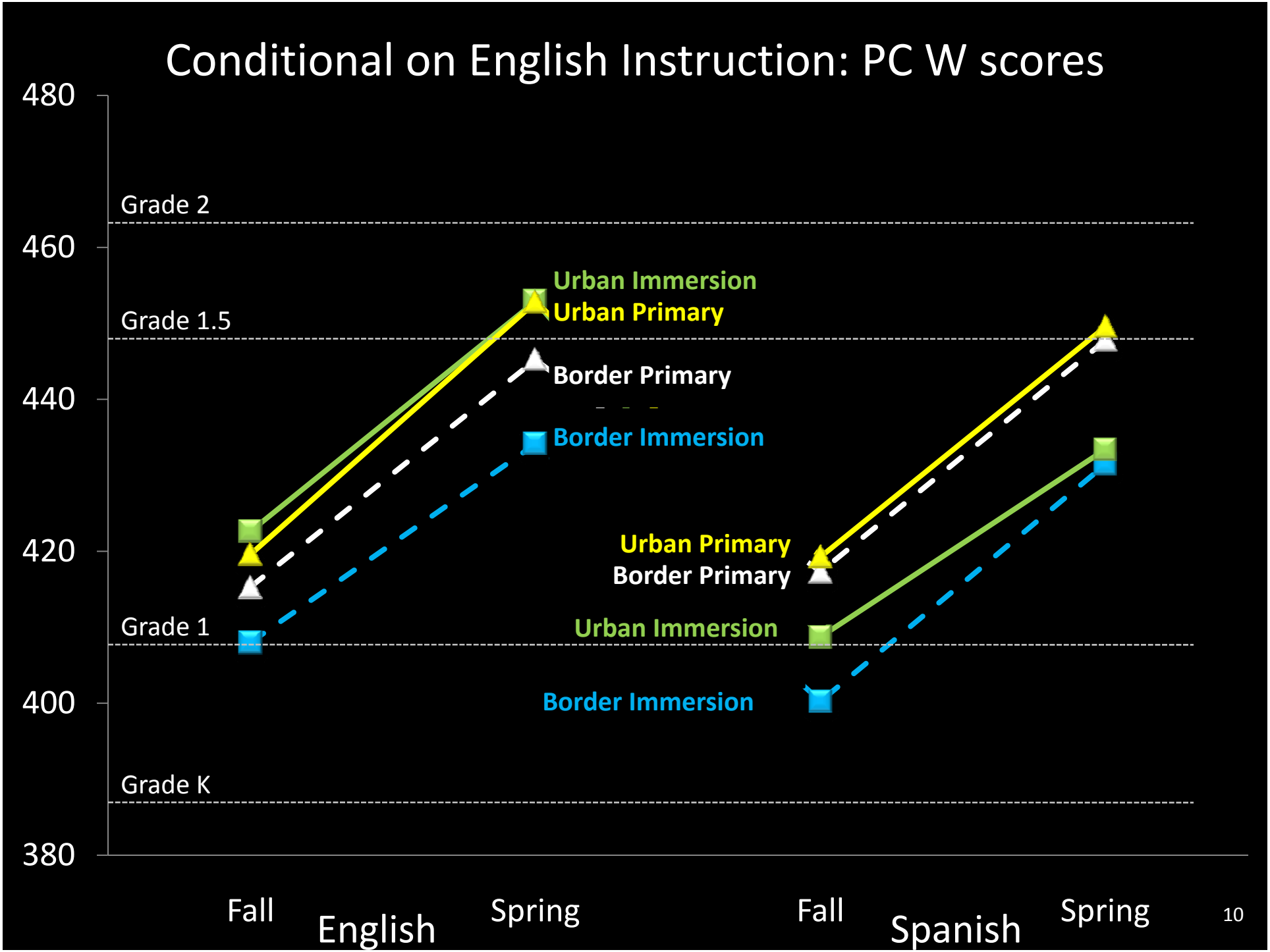
High stability, except in Border Primary

Positive Spring relations, except in Border Primary

L1-L2 effect high in Border immersion

Interference in Border Primary?

Conditional on English Instruction: PC W scores



Results (Correlations)

Correlations are only part of the story. A more complete picture is in the variances & covariances.

Stability: border primary language instruction is lower.

Spring Spanish-English relations: Positive, except in border primary (zero), suggesting factors other than instruction contribute strongly to relative standing of classrooms.

Spanish to English effect strongest in border immersion, suggesting that prior status in native language counts for more.

Fall English to Spring Spanish is negative in border Primary, suggesting some sort of interference, such as schools or parents transitioning/switching their students to English instruction.

Results (Means)

No evidence that instruction functions differently, but programs function differently in the different locales.

English Means:
•split by locale
•a mean advantage for urban locales. Border immersion does not appear to perform as high.

Spanish Means:
•split by program
•there is little difference between the locales, urban immersion may grow slower due to a lack of environmental Spanish. Instruction seems to explain more mean differences in Spanish

Implications

Why not just a regression or MANOVA?

- Variances aren't homogeneous. Students are not independent.

Program effectiveness & student ability effects:

for what outcome, at what level, & where?

- Two languages, two outcomes
- Classrooms differ
- Instruction matters & differs even within program
- Contexts (locales) differ in complex ways.
  - expectations of parents, teachers, community
  - resources & opportunities favor/hinder learning

Overall, student level correlations are highly consistent.

Classroom level is fairly homogenous, controlling for instruction.

- building language skills works, regardless of language
- observed differences are partially due to instruction, program, & locale.