Academic language: From adolescence back to the pre-K years

Paola Uccelli

Harvard Graduate School of Education

ProLEER, March 2017

Catherine Snow, 2016

And have we accumulated knowledge at ProLEER?

- 30 million word gap is really a knowledge gap
- EC curriculum together with PD can improve child outcomes (BPS/OWL)
- Children's curiosity is a powerful source of learning
- Children need more chances to talk
- Quality of teacher talk is key

David Dickinson, ProLEER 2015

Language Use Is Hard to Change

- Early childhood programs have had only limited success in significantly boosting children's language abilities (Dickinson, 2011, Dickinson, Freiberg et. al, 2011).

- Several intervention studies that have sought to change language practices and have had little success in changing teachers' language practices. (Cabell & Justice, 2011, Dickinson, Kaiser et. al, 2011; Pence & Justice, 2008; Powell, Diamond et. al, 2010).

Specific PRE-K ACTIVITIES (book reading) & **HIGH-QUALITY CURRICULUM**

lead to richer language

Cerdas, Hidalgo, Herrera, Castillo, & Castro, ProLEER, 2016

Book reading – Costa Rican classroom

Conversación sobre la navidad

La docente les dice a los niños que van a "conversar"sobre el significado de la navidad. Les pregunta: ¿ustedes saben que se celebra en navidad?, pero de una vez da una respuesta: en navidad se celebra el nacimiento del niño Jesús.

Entonces les solicita sentarse bien y estar en silencio para escuchar una historia que les va a contar.

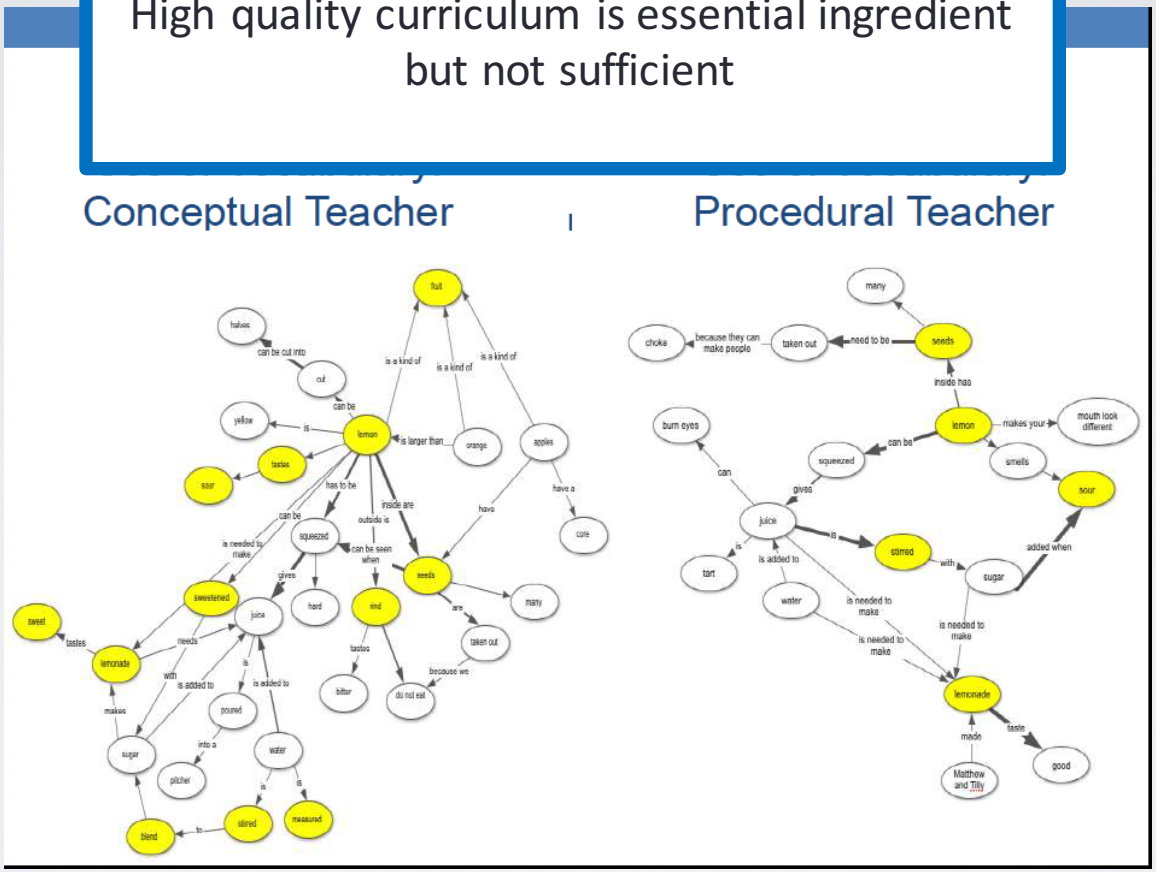
Book reading does not guarantee MORE CHANCES FOR STUDENTS' TALK or QUALITY TEACHER TALK

-¿Dónde nació el niño Jesús?
-¿Quiénes eran sus padres"
-¿Cuántos reyes magos lo vinieron a visitar?
-Un niño comenta que en su casa celebran la navidad haciendo tamales, la docente solo reacciona diciendo: Uy qué rico, a mi me fascinan los tamales, y ahí cortó la comunicación para ponerlos a elaborar un adorno navideño.

David Dickinson, ProLEER 2015

teachers w & training

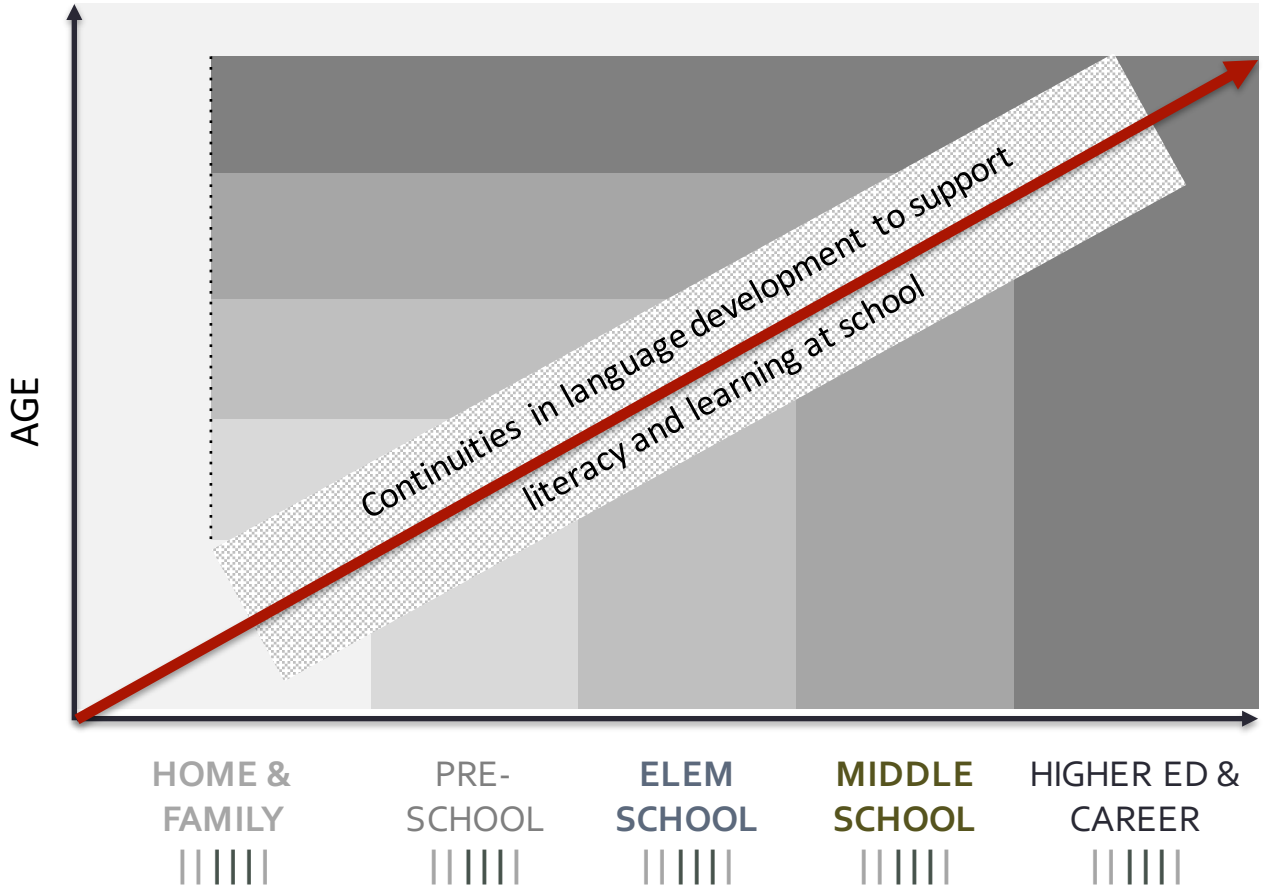
High quality curriculum is essential ingredient but not sufficient



Language development traditionally measured

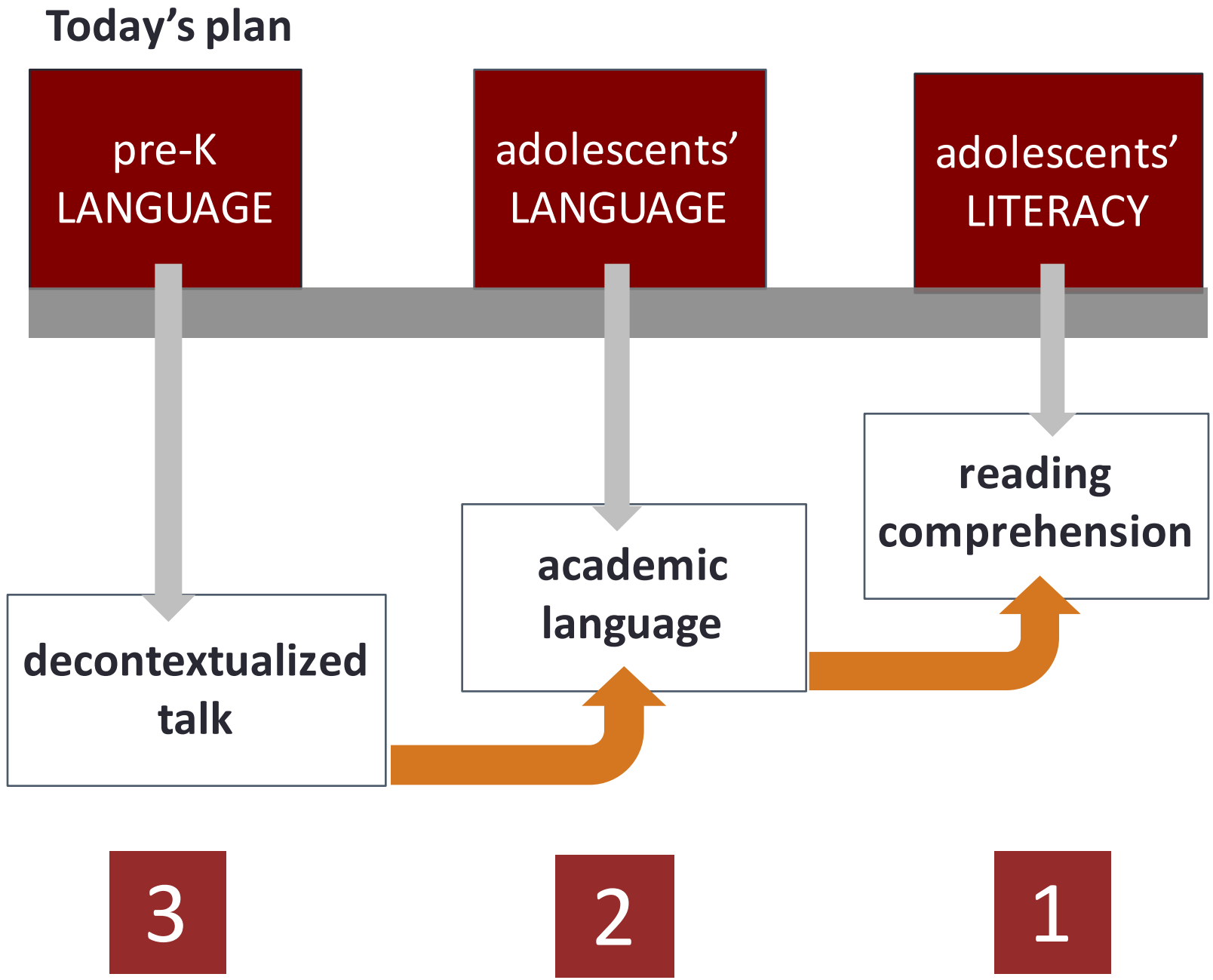
language development
(vocabulary, morphology, syntax)

Children not only learn more language…



CONTEXT-SPECIFIC language development

they learn **different language skills & practices in different contexts**


Today's plan
pre-K LANGUAGE
adolescents' LANGUAGE
adolescents' LITERACY
decontextualized talk
academic language
reading comprehension
3
2
1

In the early years….

from context dependent to decontextualized talk

Context-dependent (pointing, gestures)

Child:	*That!* [pointing to bread]
Mother:	*Do you want this?*
Child:	*Yeah …*

Decontextualized talk (e.g., narratives, explanations**)**

Child:	*Yesterday I went to the zoo and I saw lots of animals*
Mother:	*What animal did you see first?*

Pre-K conversation

Teacher: Hey, **that's** funny, when I do **this one** here, then **it** also happens **here**. (…)

Child: Yes. And if you pull **like this**, **it** goes **like that**!

Teacher: Right.

adapted from Heinrichs & Leseman (2014)

Three main ideas for today

1

understanding **the arc of literacy development** (up to the adolescent years) illuminates what to prioritize in pre-K

- academic language (AL) = a key component

2

striking individual differences in adolescents' academic language skills predict reading comprehension

- in English (U.S.)
- in Spanish (Chile, Colombia, Perú)

3

adolescents' academic language skills **are predicted by young children's decontextualized talk at 30 months**

- attention required to "academic language" in pre-K
- pre-k/K AL intervention research only emerging

1

Adolescents' literacy development

Today's readers

64% of U.S. 4th graders do not reach the Proficient Level

79% of students from low socioeconomic backgrounds (NAEP, 2015)

66% of U.S. 8th graders do not reach the Proficient Level

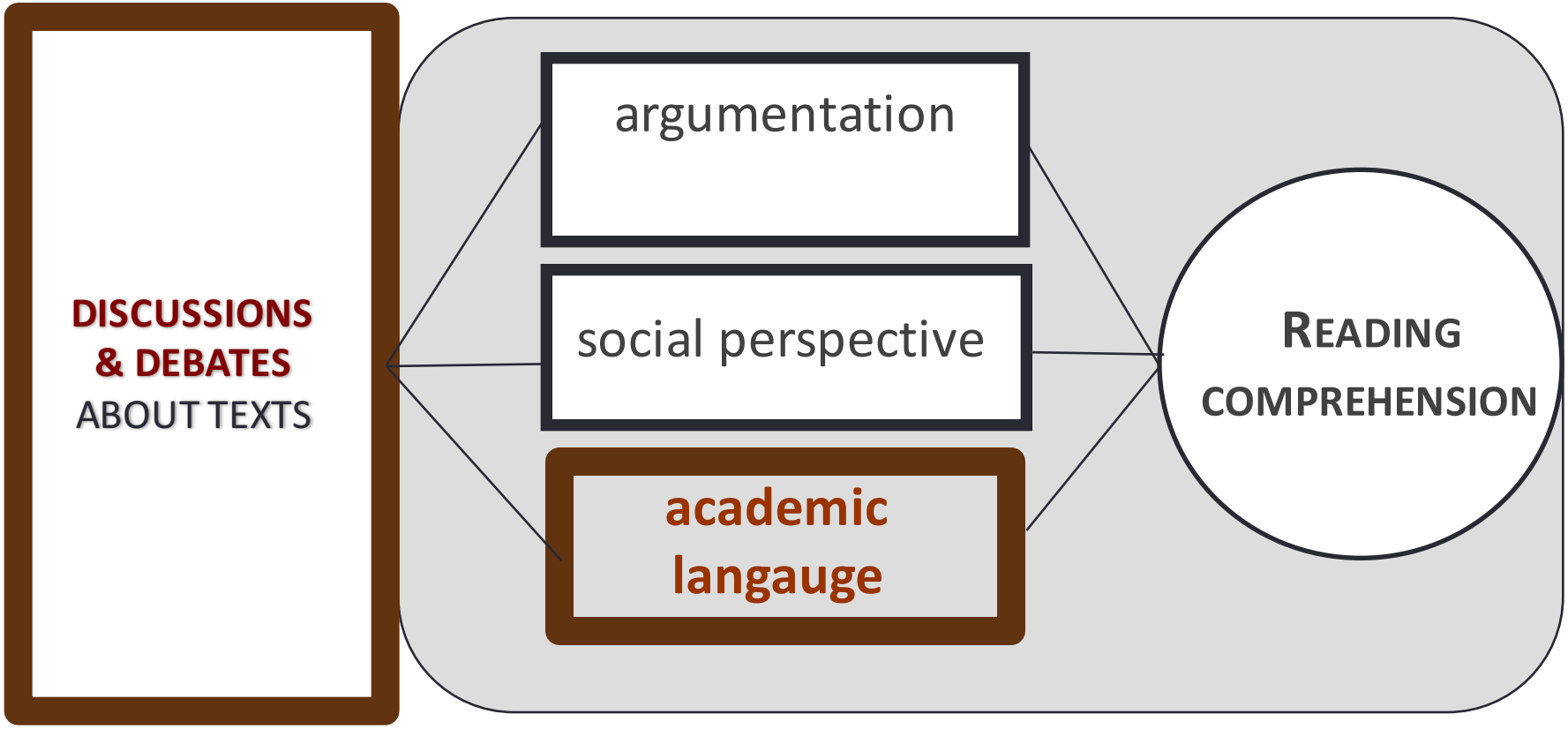
80% of students from low socioeconomic backgrounds (NAEP, 2015)

Large proportions of students **around the world display low levels of literacy**, especially students from low socio-economic backgrounds

(Varguese, 2014; Wagner, 2015)

Catalyzing Comprehension through Discussion and Debate

http://ccdd.serpmedia.org/research-academic-language.php)



Effects of classroom discussion: A metanalysis

- "Results revealed that several discussion approaches produced strong increases in the amount of student talk and concomitant reductions in teacher talk, as well as **substantial improvements in text comprehension**"

  (Murphy, Wilkinson, Soter, Hennessy, & Alexander, 2009)

- Approaches explored:

  Collaborative Reasoning, Paideia Seminar, Philosophy for Children, Instructional Conversations, Junior Great Books Shared Inquiry, Questioning the Author, Book Club, Grand Conversations, Literature Circles

Classroom discussion

(Applebee, Langer, Nystrand, & Gamoran, 2003)

	Low-track classes	Middle-track classes	High-trak classes	Mixed classes
Minutes of discussion per 60 minutes of ELA or SS	.70	1.44	3.30	1.42

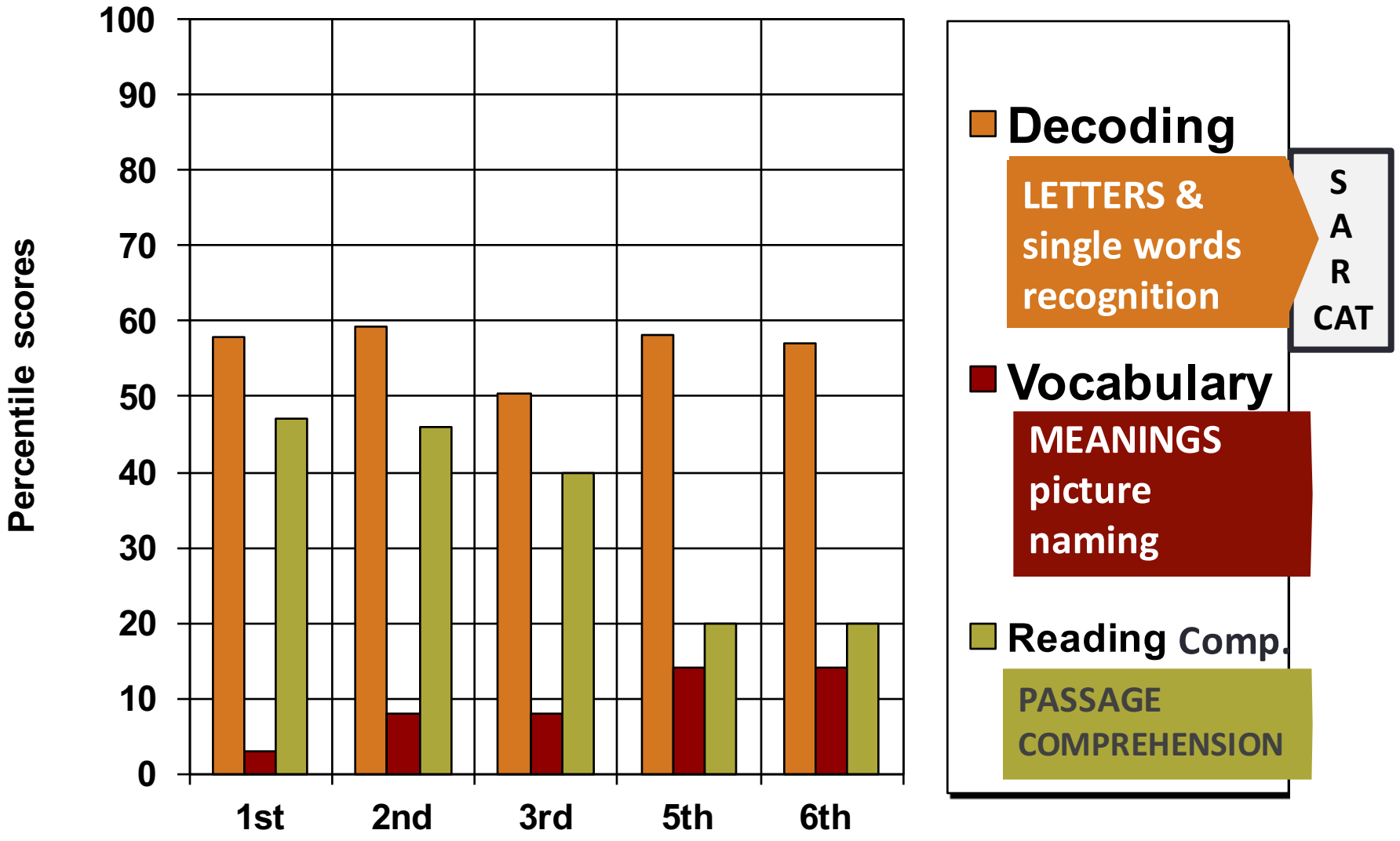
Sample: 20 schools (10 urban/suburban high schools & 10 urban/suburban middle schools in 5 states: CA, FL, TX, NY, WI)

- **Classroom discussion occurs very infrequently**

LANGUAGE COMPREHENSION is more challenging than DECODING

English scores

Spanish/English bilinguals from low-socioeconomic environments (n= 330)



data and analysis by Kim Lindsey, NICHD-funded project

Which skills are challenging in becoming proficient readers during adolescence? What do we know…

Bilingual English learners tend to

- attain age-appropriate decoding/word recognition skills
- but face substantial **challenges in how to comprehend what they can read aloud** (August & Shanahan, 2006; Lesaux & Kieffer, 2010)

- But **monolingual, English proficient students** face similar challenges
  - also tend to display fine decoding/word recognition skills
  - But **cannot comprehend the texts that they can read aloud** (Biancarosa & Snow, 2004)

academic language

- the written language of school texts
- the language of academic assessments
- the oral and written language of natural and social sciences
- the language associated with prestige and power

(Cummins, 1981; Halliday, 2004; Schleppegrell, 2012)

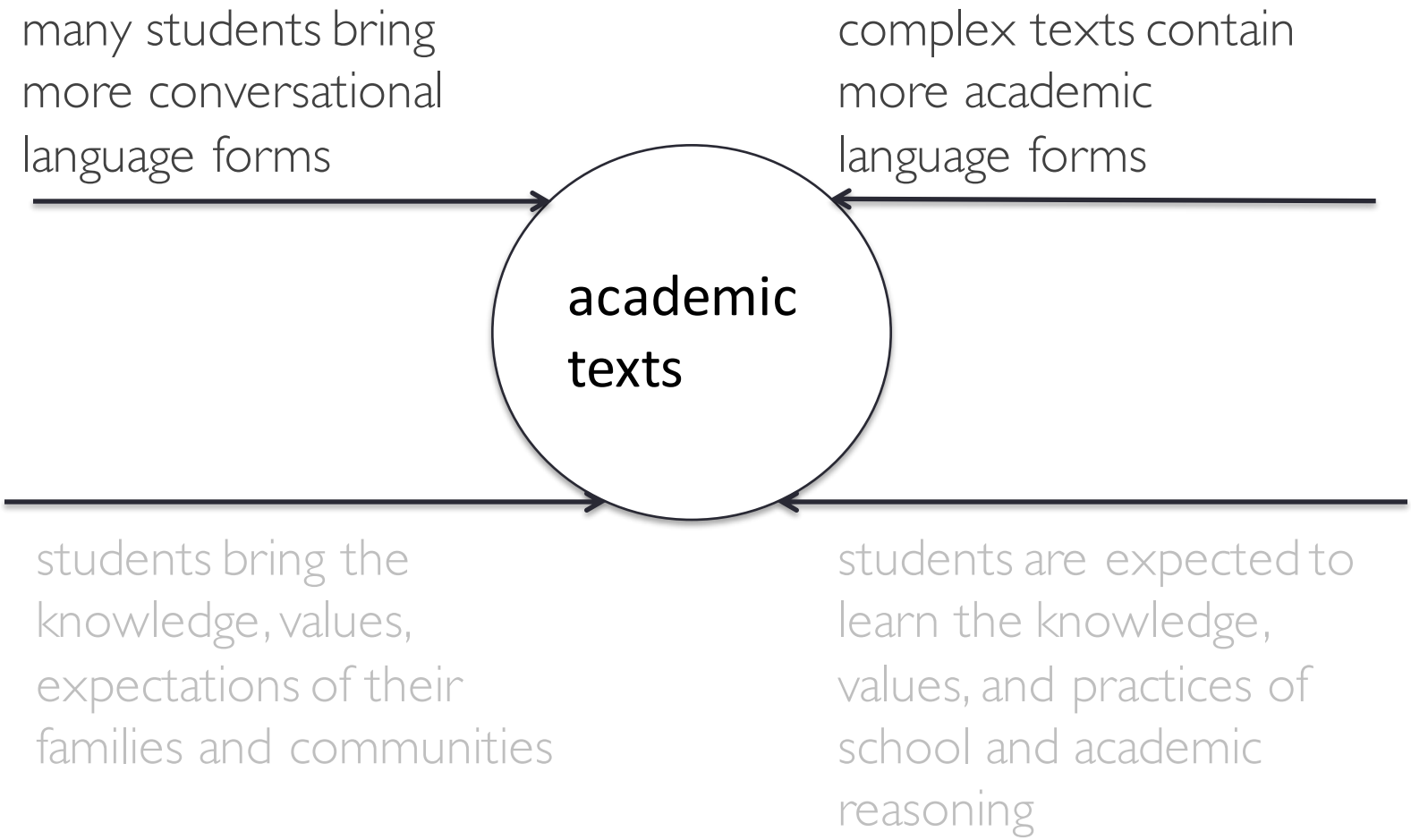
Prior interventions: Schools & research

- **Word recognition skills** (e.g., mechanics of reading) **> INSUFFICIENT**
- **Reading comprehension strategies** (e.g., predicting, summarizing, finding main idea) **> not always EFFECTIVE**
- **Academic language**

  operationalized narrowly as academic vocabulary

  (Nagy & Townsend, 2012; National Research Council, 2010; Schleppegrell, 2004; Valdés, 2004)

the **challenging content and language of academic** texts



Beyond Vocabulary

- Vocabulary is one of the most significant predictors of reading comprehension development (Freebody & Anderson, 1983; Tabors, Páez, & López, 2003; Uccelli & Páez, 2007)

- **YET** numerous **vocabulary interventions find no significant gains in reading comprehension** (Deshler et al., 2007; Elleman, Lindo, , Morphy & Compton 2009; Palincsar, Biancarosa, & Nair, 2007; Vadasy, Sanders, & Logan Herrerra, 2015)

WHY?

Hypothesis

Academic language entails many more skills than just vocabulary

But WHICH SKILLS?

2(a)
ENGLISH

Adolescents' Core Academic Language Skills (CALS) predict reading comprehension

Core Academic Language Skills (CALS) CONSTRUCT

CALS

A departure from prior research

FROM general skills (morphology, syntax) without considering context

- **TO language skills for school reading**

FROM discipline-specific skills

- **TO high utility cross-disciplinary skills**

FROM a focus on English Learners

- **TO understanding English proficient adolescents' language**

Core Academic Language Skills (CALS)

DEFINITION | a constellation of the high-utility language skills that correspond to linguistic features prevalent in **academic discourse** across school content areas and that are infrequent in colloquial conversations (e.g., connectives *nevertheless, therefore;* complex sentences, nominalizations)

HYPOTHESIS | This constellation of skills is hypothesized to support academic reading across school content areas

Uccelli, Barr, Dobbs, Phillips Galloway, Meneses & Sánchez (2015), *Applied Psycholinguistics*

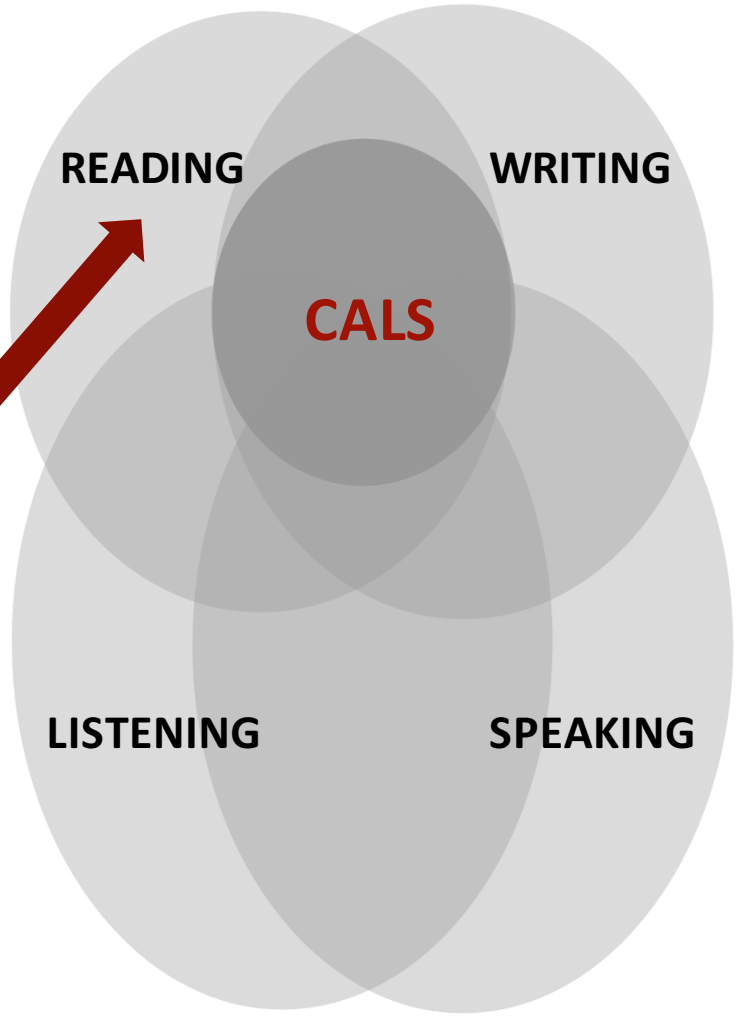
Core Academic Language Skills (CALS)

OR as paraphrased by our teacher/researcher collaborator:

CALS is the name we use for a group of skills that we believe students need in order to understand and produce complex academic text, even though they don't necessarily need them for everyday conversations.
For example:
Using connecting words: "nevertheless" "consequently"

(Melanie Allen, 2016)

HYPOTHESIS | This constellation of skills is hypothesized to support academic reading across school content areas



Uccelli, Barr, Dobbs, Phillips Galloway, Meneses, & Sánchez (2015), *Applied Psycholinguistics*

Text features we identified as challenging for adolescent readers

Evidence shows that [the Earth's **temperatures**] have increased in recent **decades**. **Moreover**, most scientists agree that it is **extremely likely** that humans are causing most of this problem through [**activities** that increase [**concentrations** of **greenhouse gases**]].

- **Academic vocabulary**
- **Connectives/Transition markers**
- **Nominalizations**
- **Markers of viewpoint**
- **Complex syntax**
- **Conceptual anaphora**

language that changes the meaning of text

Are humans causing the increase in the Earth's temperatures?

Text 1

Evidence shows that the Earth's temperatures have increased in recent decades. Some global leaders argue that pollution is causing this problem. **Moreover**, most scientists agree that it is **extremely likely** that humans are causing this through activities that increase concentrations of greenhouse gases.

Text 2

Evidence shows that the Earth's temperatures have increased in recent decades. Some global leaders argue that pollution is causing this problem. **Nevertheless**, most scientists agree that it is **extremely unlikely** that humans are causing this through activities that increase concentrations of greenhouse gases.

Our CALS Instrument – A preview

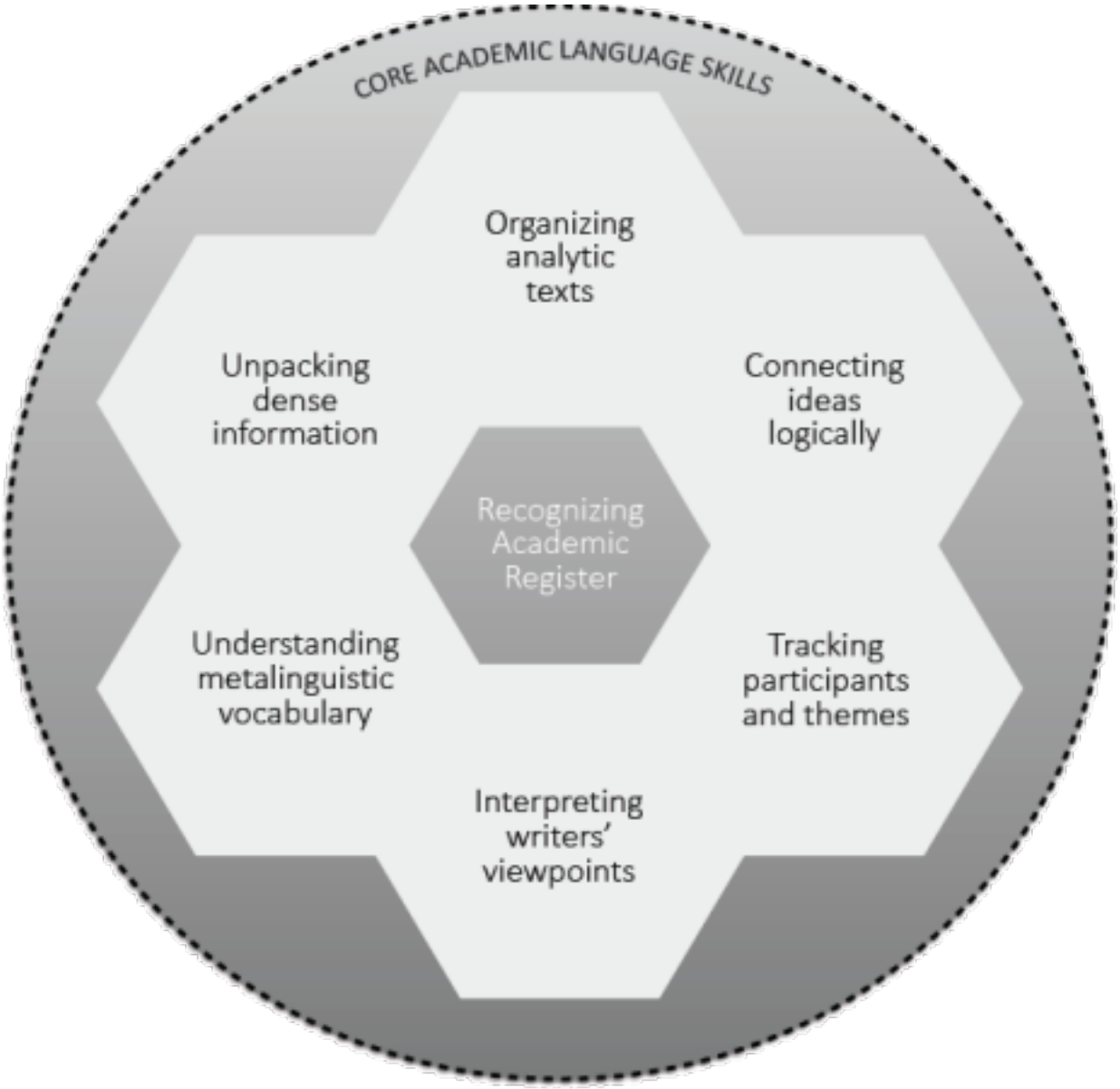
Understanding connectives | ***nevertheless*** students from U.S. public schools (n=5,919)

GRADE	4	5	6	7	8
Percent correct	**36%**	**37%**	**45%**	**45%**	**47%**

7. Sam broke his leg; _____, he continues to play baseball.

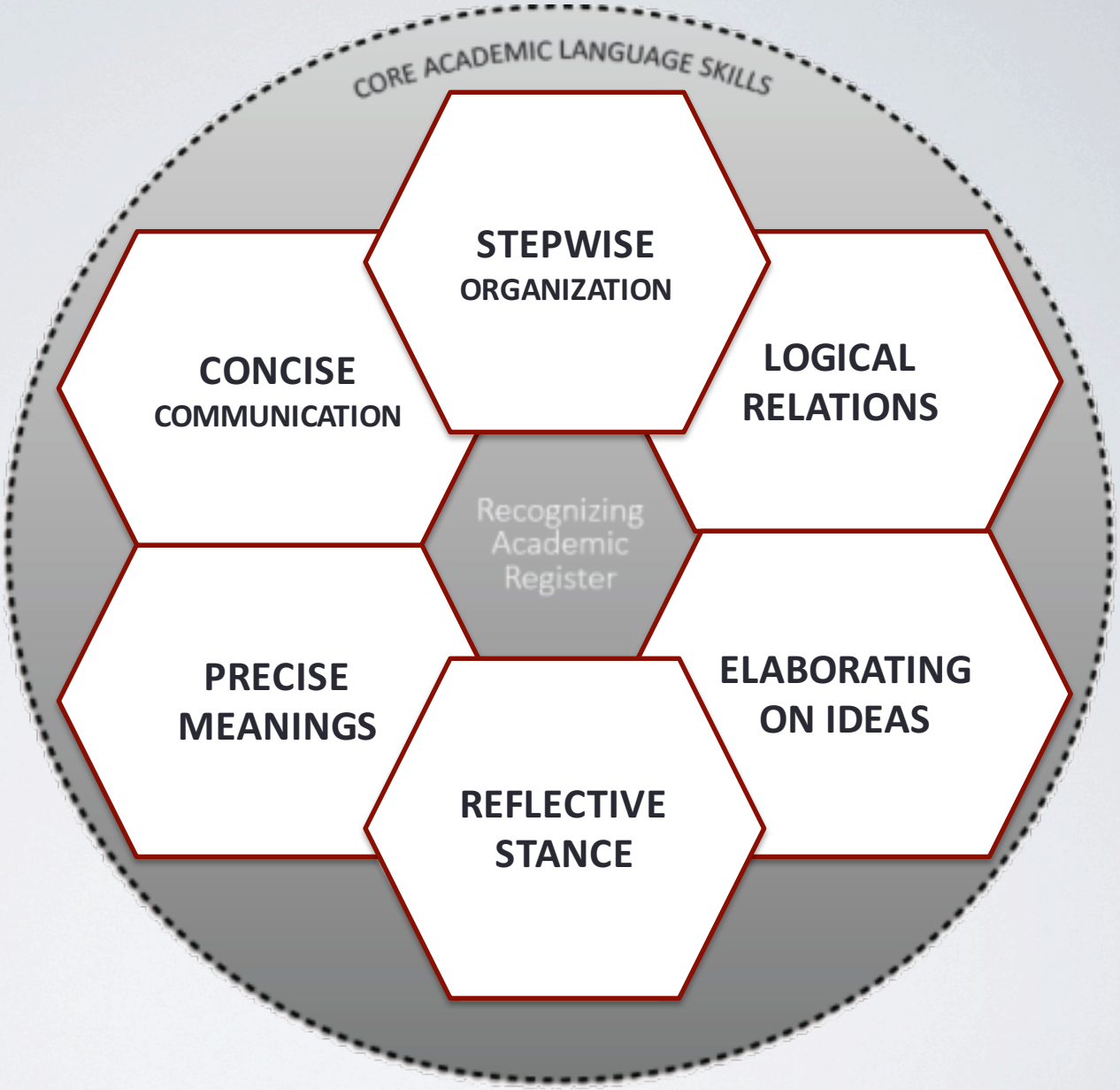
a. consequently **b.** nevertheless **c.** namely **d.** thus

Uccelli, Barr, Dobbs, Phillips Galloway, Meneses, & Sánchez (2015); Uccelli & Phillips Galloway (2016);



Uccelli et al., 2015

CALS as linguistic markers of core expectations of scientific discourse and shared scientific thinking

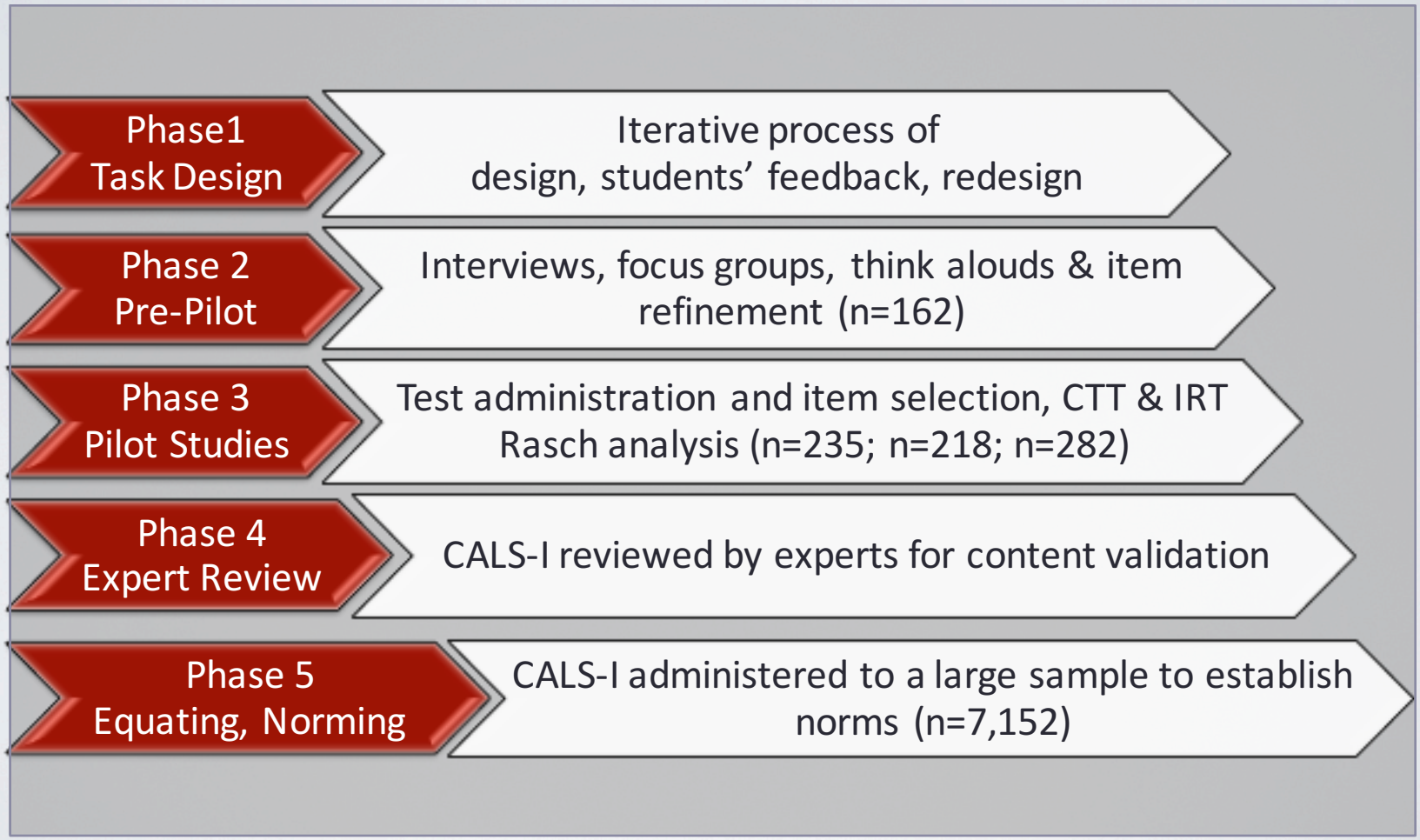


Uccelli et al., 2015

CALS CONSTRUCT: a constellation of seven skillsets

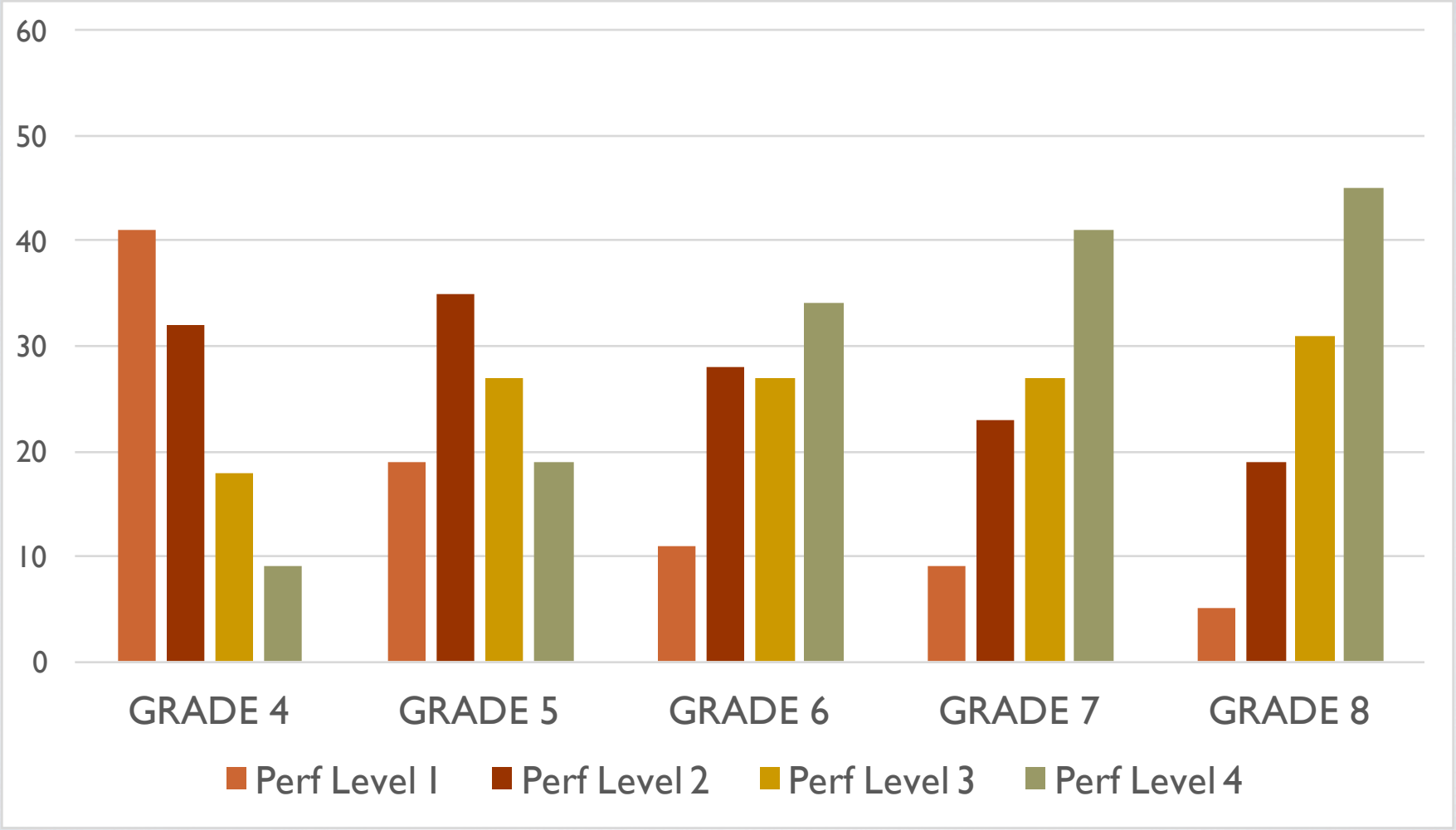
	CALS SKILLSET	Skills measured
1	**Unpacking/Packing dense information**	Skill in comprehending and using complex words and complex sentences that facilitate concise communication (e.g., nominalizations, embedded clauses, expanded noun phrases).
2	**Connecting ideas logically**	Skill in comprehending and using 'connectives' prevalent in academic texts to signal relationships between ideas (e.g., *consequently, on the one hand…on the other hand).*
3	**Tracking participants and ideas**	Skill in identifying or producing the terms or phrases used to refer to the same participants or themes throughout an academic text (e.g., *Water evaporates at 100 degrees Celsius. This process…).*
4	**Organizing analytic texts**	Skill in organizing analytic texts, especially argumentative texts, according to its conventional academic structure (e.g., thesis, argument, counterargument, conclusion) and paragraph-level structures (e.g., compare/contrast; problem/solution)
5	**Recognizing academic language**	Skill in recognizing more academic language when contrasted with more colloquial language in communicative contexts where academic language use is expected (e.g., more *academic vs. more colloquial definitions of nouns)*
6	**Understanding metalinguistic vocabulary**	Skill in understanding precise meanings, in particular, in using language to make thinking and reasoning visible, known as metalinguistic vocabulary (e.g., *hypothesis, generalization, argument)*
7	**Understanding a writer's viewpoint**	Skill in understanding or using markers that signal a writer's viewpoint, especially a 'epistemic stance markers', those that signal a writer's degree of certainty in relationship to a claim (e.g., *Certainly, It is unlikely that)*

Development of the CALS Instrument (CALS-I)

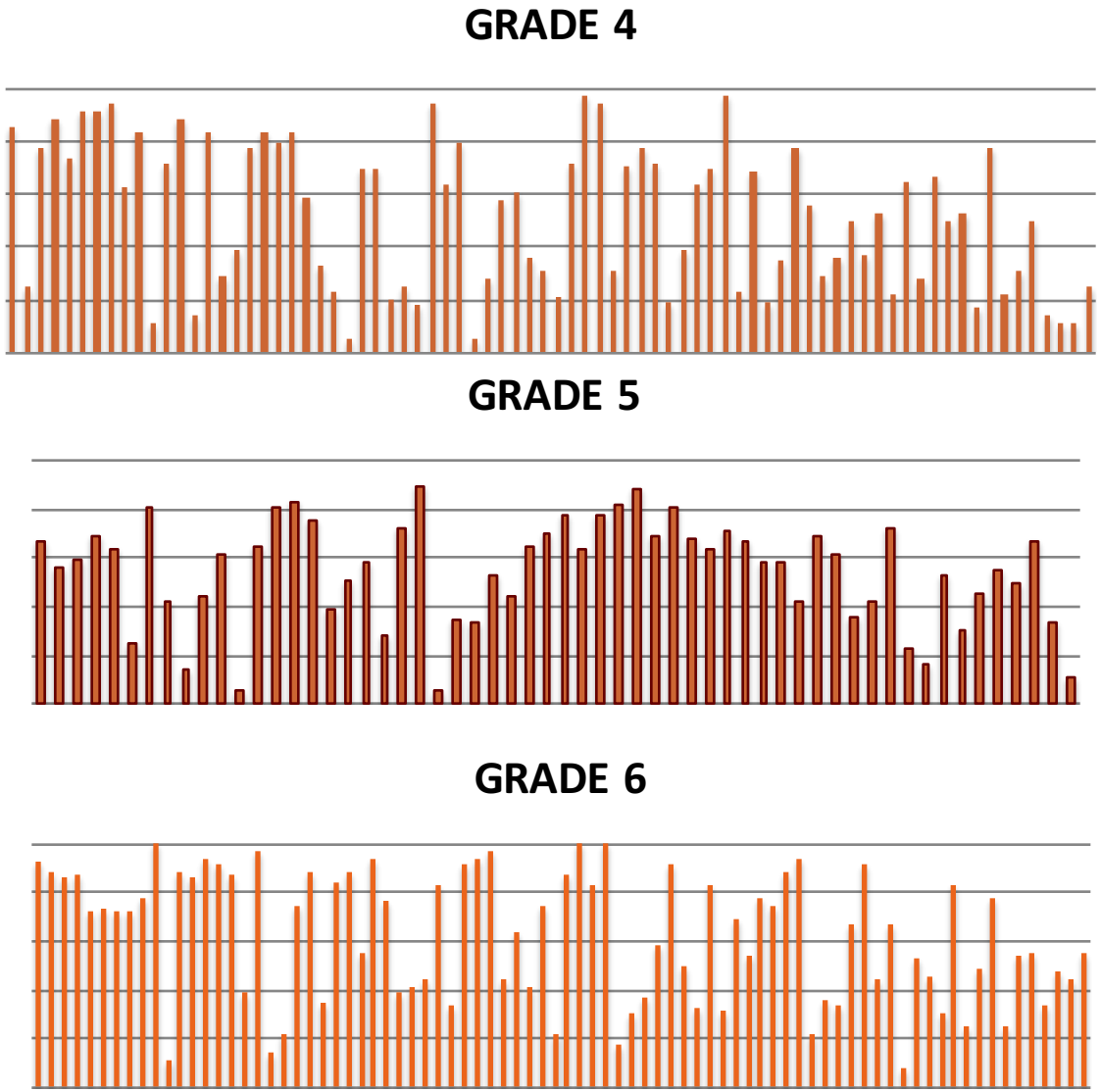


Uccelli, Barr, Dobbs, Phillips Galloway, Meneses & Sánchez (2015). *Applied Psycholinguistics*

Proportion of students by CALS Percentile Levels and by Grade (n=3,563)



Variability of individual CALS-I scores by grade



English CALS predict reading comprehension

	Model 1	Model 2	Model 3	Model 4	Model 5
Grade	0.10	0.11	−0.02	−0.09†	−.08†
English-proficiency designation	−0.26****	−0.21**	−0.16**	−0.10†	−0.09†
SES (eligibility for free or reduced-price lunch)		−0.21**	−0.10†	−0.05	−0.01
Word reading fluency (Test of Silent Word Reading Fluency)			0.54****	0.38****	0.20**
Academic vocabulary (Vocabulary Association Test)				0.40****	0.16**
Core academic-language skills (CALS-I)					0.50****
Observations	218	218	218	218	218
Variance explained (R^2)	0.08	0.12	0.38	0.47	0.59
Change in R^2		0.04**	0.26****	0.09****	0.12****

Note. For each variable, beta coefficients are reported.
†$p < .10$. **$p \leq .01$. ****$p < .0001$.

CALS

Uccelli, Phillips Galloway, Barr, Meneses & Dobbs (2015), *Reading Research Quarterly*

Study 2: different sample, different instruments, consistent results
CALS-I scores predict individual variability in reading comprehension

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Grade	-0.07	-0.08	-0.09	-0.07	-0.19***	-0.12*
English Profic. Designation		-0.16*	-0.10	-0.01	-0.00	0.01
SES *(Free/Red.*			-0.31***	-0.10*	-0.07	-0.05
Word Recog. & Decoding *(RISE)*				0.62***	0.45***	0.36***
Academic Language *(CALS-I)*					0.29***	0.20*
Academic Vocabulary *(WG AV)*						0.22**
Observations	282	282	282	282	282	282
Variance Explained (R^2)	0.01	0.03	0.12	0.44	0.48	0.50
Change in R^2		0.03*	0.09***	0.32***	0.04***	0.02**

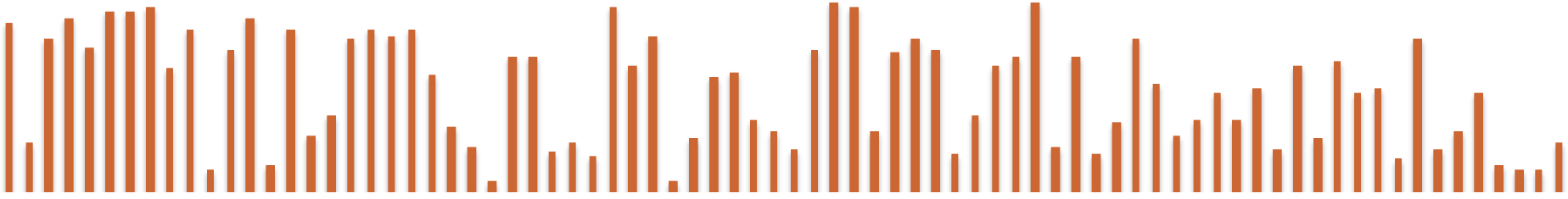
*p<.05, **p<.001, ***p<.0001

consistent results

Uccelli, Phillips Galloway, Kim & Barr (2015), *SREE*
CCDD Project

CALS: Main findings

- CALS can be **captured** via assessment
- Striking **individual differences** in students' CALS
- CALS **predict reading comprehension** over and above basic skills, vocabulary, and socio-demographic characteristics



A Continuum for Academic Language Teaching

- **More precise meanings**
- **More explicit contrastive, causal connections**
- **More reflective perspective**
- More concise
- More hierarchically organized

In **oral language interactions** (classroom discussions), we can support students in producing language that is more like the language of texts.

Language that is close to the **child**

Language that is close to **academic discourse**

2(a)

SPANISH

Adolescents' Core Academic Language Skills (CALS) predict reading comprehension

TEXTO: SEGUNDO DE SECUNDARIA (8TH grade) - PERU

Un conflicto es un **enfrentamiento** que **involucra** a dos o más partes. [Para que surja, las partes deben **percibir** que sus objetivos no son **compatibles**, y, [**si esto** no es manejado adecuadamente, pueden **desencadenarse** actitudes hostiles]]. A pesar de **ello,** los conflictos no son necesariamente negativos, pues [cuando las partes **involucradas** se acercan para buscar soluciones basadas en acuerdos, es posible alcanzar la **integración** y cambios importantes].

Conectores académicos

Nominalizaciones

Anáfora conceptual

Perspectiva

Frases complejas

Resultados con estudiantes en Lima (n= 527)

Felipe Barrera-Osorio, Sarah Dryden-Peterson, & Paola Uccelli &, Co-Investigadores principales del Proyecto *Learning for All* en HGSE

Colaboradores en Lima

- **Armida Lizárraga,** Fundación Luminario
- Francesca Uccelli, Instituto de Estudios Peruanos
- Rosa Vera, Instituto de Estudios Peruanos
- Con el apoyo del proyecto LEER: Carolina de Belaúnde, Mariana Eguren, Natalia González

Financiamiento: HGSE Dean's Venture Fund, Lemann Foundation (Brazil)

"*por lo tanto*" | niños peruanos de Lima (n=527)

GRADO	4	6	8
% respuestas correctas	.41	.63	.66

Learning for All project, Instituto de Estudios Peruanos & HGSE

Estudiantes peruanos de escuelas urbano marginales de Lima (n=527)

por el contrario

Grado	4	6	8
respuestas correctas (%)	.17	.19	.37

no obstante

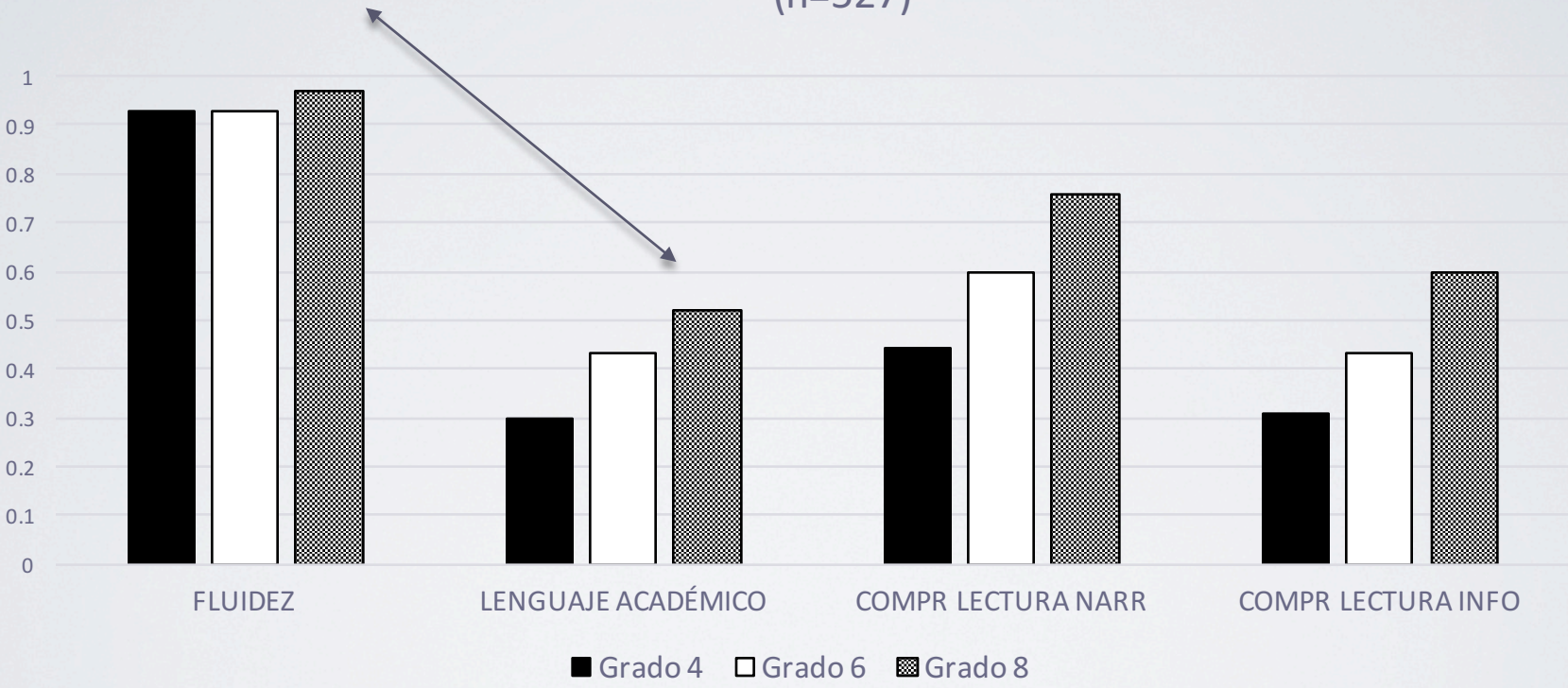
Grado	4	6	8
respuestas correctas (%)	.37	.30	.39

debido a

Grado	4	6	8
respuestas correctas (%)	.32	.55	.56

Comprensión de lectura

La brecha entre las destrezas de fluidez (palabras correctamente leídas por minuto) y el conocimiento del lenguaje (n=527)



Proyecto *Learning for All,* Instituto de Estudios Peruanos & HGSE

PERU: Spanish CALS predicting Reading Comprehension

CALS Scores as predictor of reading comprehension (PIRLS-Informative), controlling for grade, maternal education (years), decoding (EGRA), Vocabulary (WM)

(n=527 | grades 4, 6, 8)

	Model 1	Model 2	Model 3	Model 4
Grade	.51***	.42***	.34***	.23***
Maternal Education	.16***	.13**	.11**	.05
Decoding		.29**	.25***	.16***
Vocabulary			.28***	.15***
Spanish CALS				.42***
Variance explained (R^2)	.30	.38	.45	.56
Change in R^2		.8	.7	.11

Note. For each variable, beta coefficients are reported
*p<.05 **p<.01 ***<.001

CALS

Resultados de Santiago, Chile

Paola Uccelli & Alejandra Meneses, Co-Investigadoras principales , Proyecto *Evaluación de Lenguaje Académico (ELA)*

Colaboradores

- Ma Verónica Santelices, Pontificia Universidad Católica de Chile
- Marcela Ruiz, Universidad Alberto Hurtado
- Daniela Acevedo, Universidad Alberto Hurtado
- Javiera Figueroa, Pontificia Universidad Católica de Chile

Financiamiento: David Rockefeller Center for Latin American Studies, Harvard-Chile Innovation Grant

CHILE: Spanish CALS in urban schools in Santiago (n=810)

Evaluación de Lenguaje Académico **(α=.88)**

High SES School

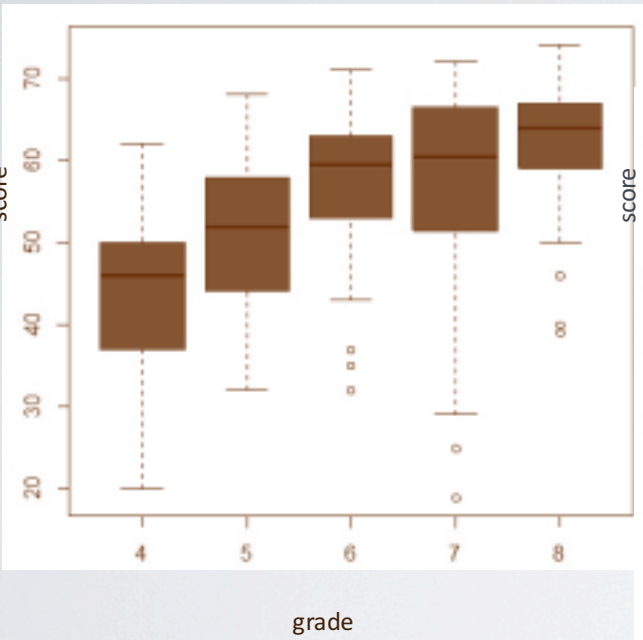


Figure 1: Box Plot of Spanish CALS by Grade in High SES School

Medium SES School

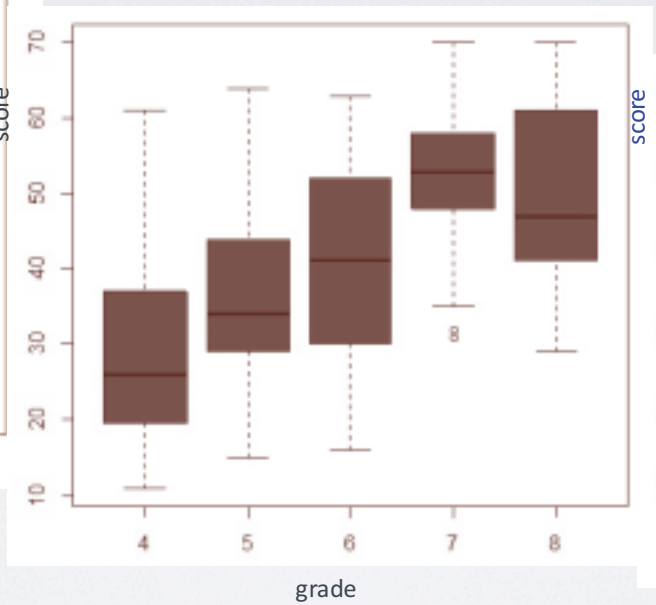


Figure 2: Box Plot of Spanish CALS by Grade in Medium SES School

Low SES School

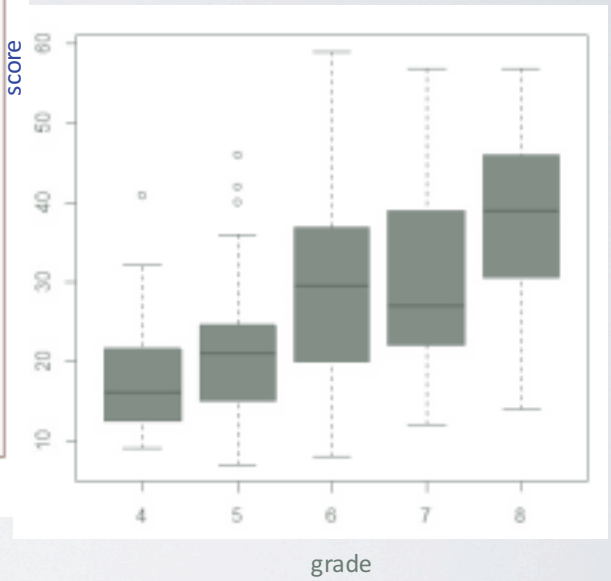


Figure 3: Box Plot of Spanish CALS by Grade in Low SES School

Meneses, Uccelli, et al. (in press), *Reading Research Quarterly*

3

Young children's decontextualized talk predict their academic language skills in adolescence

Precursors of adolescent academic language proficiency

RESEARCH QUESTION

- controlling for SES and parental language input, does child decontextualized language production at age 30 months predict 7th-grade academic language proficiency?

Uccelli, Demir-Lira, Rowe, Levine, & Goldin-Meadow, *Child Development* (under review)

study on precursors of CALS

decontextualized talk at 30 months

extended discourse focused on the there-and-then and is thus removed from the surrounding physical context of the interaction, the here-and-now: **narratives, explanations, pretend play** (Rowe, 2012)

academic language proficiency in 7th grade

Core Academic Language Skills

Uccelli, Demir-Lira, Rowe, Levine, & Goldin-Meadow (under review)

Child @30 months

DECONTEXTUALIZED TALK
pretend play

Child:	Somebody is awake!
Mother:	Somebody woke up? Who woke up?
Child:	Baby wake up. Baby want to go in there. (…) Want to take his dress off.
Mother:	He wants to take his -- the Cubby shirt off?
Child:	Yes. Take a bath, baby. He is taking a bath.
Mother:	Is he taking a bath? Is he all wet?
Child:	Yes. We got to dry him off.
Mother:	Ok.
Child:	He is dry off. Want to put his shirt on.
Mother:	He does?
Child:	Yes. Don't get cold, the baby. Don't get cold.

DECONTEXTUALIZED TALK
narrative

Mother:	We didn't get to see any zebras at the zoo, did we?
Child:	No. **We see -- I see lions and crocodiles.**
Mother:	Mmhm. We saw them, didn't we?
Child:	Yes.

Table 1. *Definition and examples of categories of parent and child decontextualized utterance*

Definition	Examples
Narrative: Talk about past or future events future (Beals & Snow, 1994).	Parent: "Remember when we got those cars at our vacation?" "Mom is going to go to the foot doctor tomorrow." Child: "I will buy some pants for her too."
Pretend: Talk during interactive pretend episodes:, making an object represent another, attributing actions, thoughts or feelings to inanimate objects, assuming a role or persona, enacting scripts or routines (Katz, 2001).	Parent: "Do you think the baby wants to have some juice?" "I will save you from the wicked sister." Child: "Nichols have balloon." (referring to a pretend balloon) "This one there for Elmo."
Explanations: Talk that requests or makes logical connections between objects, events, concepts or conclusions (Beals, 2001).	Parent: "Yes, let's turn the blocks so you can see the patterns on them." "If we don't have all of our ingredients, all the things to put into the cookies, we won't be able to make them." Child: "Because I need it over here." "Because Alana might go there."

SAMPLE

42 typically developing English monolingual children and their caregivers

Part of a larger sample representative of socioeconomic diversity of the greater Chicago area (Goldin-Meadow et al., 2014)

MEASURES

child at 30 months

Receptive Vocabulary (PPVT) (Dunn & Dunn, 1997)
Syntax Comprehension Test (Huttenlocher et al., 2002)
Parent and child naturalistic language measures (90-minute videotaped home visit)

- decontextualized utterances produced by parent (proportion)
- decontextualized utterances produced by child (proportion)

child in 7th grade

- CALS-Instrument Form 2 (Uccelli, Barr, et al., 2015)

Table 4. *A series of multiple regression models predicting child 7th-grade academic language from parent and child proportion of decontextualized utterances, child word tokens, child receptive vocabulary, and child syntax comprehension at age 30 months.*

30-month measures	CALS-I (7th grade) Standardized β					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
SES	.56**	.47**	.40**	.39**	.26~	.38**
Parent decontextualized utterances		.29*	-.06	-.07	-.11	-.07
Child decontextualized utterances			.46*	.45*	.44*	.45*
Child word tokens				0.04	-.10	.03
Child vocabulary					.37*	
Child syntax						.08
R-Square (Adjusted R-square) (%)	. 31 (.29)	.39 (.35)	.46 (.41)	.46 (.40)	.54 (.47)	.46 (.39)

~ $p < .10$, * $p < .05$, ** $p < .01$

Uccelli, Demir-Lira, Rowe, Levine, & Goldin-Meadow, *Child Development* (under review)

What are the implications for practice?

Not only reading helps!
Talk also prepares children for literacy

Decontextualized talk or "talk about the there and then"

- shared **narratives, explanations, pretend play** prepare children for literacy

Meredith Rowe (HGSE) and colleagues are working on promising intervention with parents to encourage them to interact with their young children by:

- Recall past events
- Ask lots of questions
- Tell fictional stories
- Explain words, concepts, phenomena
- Discuss the future

But academic language con also be fostered when talking about the here and now…

- … or talking about **interesting ideas inspired by** the here and now
    - **science tasks** as potentially ideal contexts

Thinking scientifically through language

Science (or math) tasks

Lotte Heinrichs' "Low intensity intervention"

(Heinrichs & Leseman, 2014)

- Improve teachers' and young children's use of scientific reasoning and more academic language when they interact with science-related materials in small-groups

> "help the teachers to recognize opportunities to prompt children to carefully and specifically choose their words instead of opting for the easy option of pointing and using of deictic markers [*that, this*] to communicate their understanding of a topic."

Pre-K conversation

Teacher: Hey, that's funny, when I do this one here, then it also happens here.
Child: Yes. And if you pull like this, it goes like that!
Teacher: Right.

adapted from Heinrichs & Leseman (2014)

Heinrichs' pre-K academic language awareness intervention

Teacher:

Because of the **air**. And **what does the air do?** (…)

Do you think that **maybe the air presses it down?**

Teacher:

when I do this one here, then it also happens here

Heinrichs & Leseman (2014)

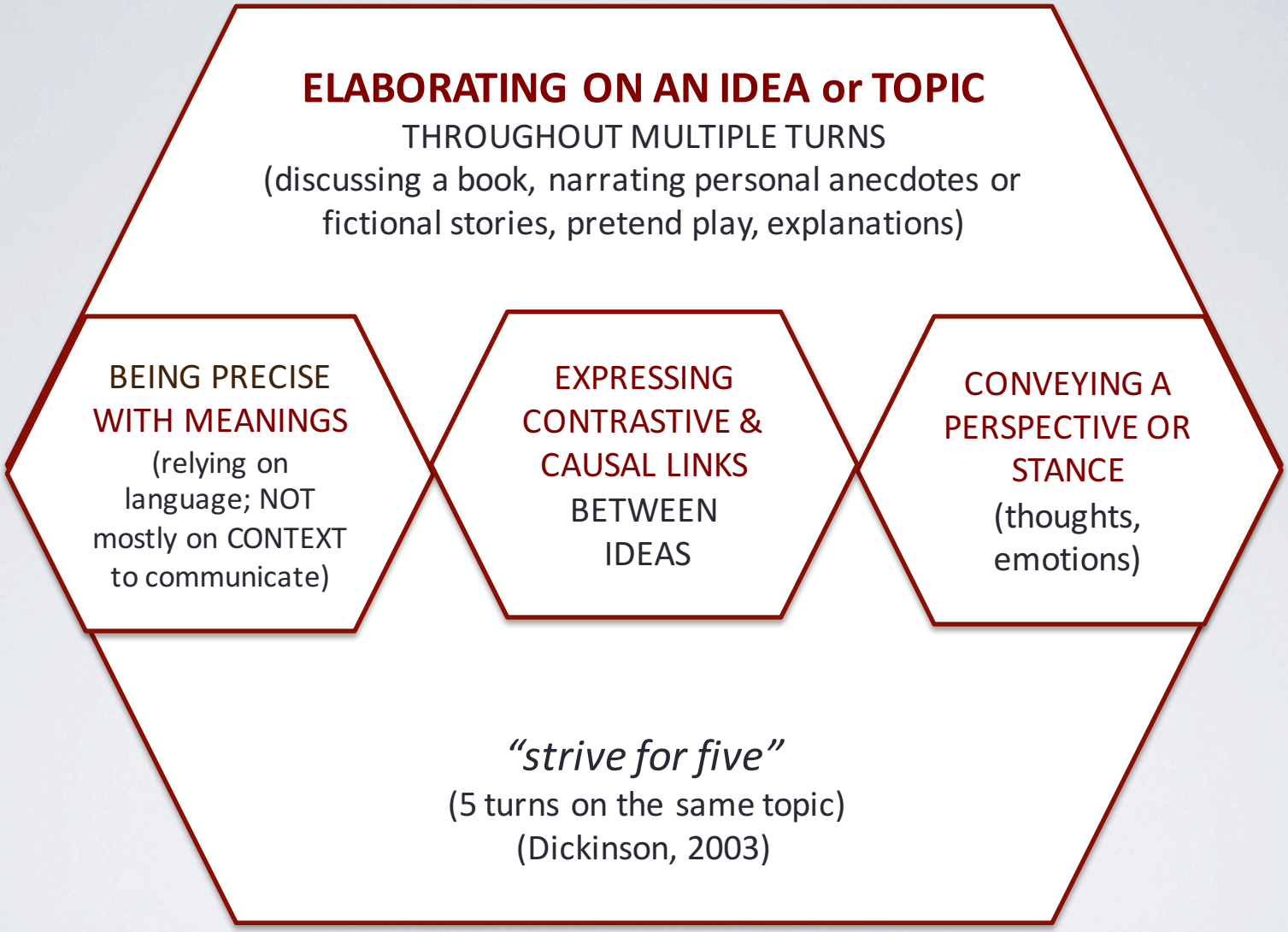
Sample: 53 teachers and 243 pre K children, Netherlands

Science tasks: air pressure task & a mirror/reflection task (pre & post observations and video-recording – 20 minutes each)

task, the research assistants provided the teachers with two syringes connected by a transparent flexible tube; depressing one of the plungers resulted in the other moving upwards. In addition, teachers received a plastic frog with a small pump attached to it, which would jump and move forward when the pump was squeezed. With the second task, teachers and children could explore reflection and sight lines by means of a plastic periscope. In addition, to explore the working of the periscope, they were provided with two mirrors and a figurine. This task will be referred to as the 'mirrors task'.

Intervention:
three-hour workshop on academic language: video of a teacher using the tasks with their students, teachers taking notes on language, presentation on AL & small group discussions

Results: ↑ **vocabulary diversity** ↑ **scientific reasoning**



Building blocks of CALS as linguistic markers of core expectations of academic/scientific communication & shared verbal thinking

A Continuum for Academic Language Teaching

- **More precise meanings**
- **More explicit contrastive, causal connections**
- **More reflective perspective**
- More concise
- More hierarchically organized

In **oral language interactions** (classroom discussions), we can support students in producing language that is more like the language of texts.

Language that is close to the **child**

Language that is close to **academic discourse**

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MY CLOSE COLLABORATORS: **Christopher D. Barr, Emily Phillips Galloway, Alejandra Meneses,** Emilio Sánchez, Christina Dobbs

DOCTORAL STUDENTS AND RESEARCH ASSISTANTS
Wenjuan Qin, Gladys Aguilar, Claire Jo, Jessica Scott, Ha Yeon Kim, Javiera Figueroa, Daniela Acevedo, Diana Valero, Shireen Al-Adeimi, Ziyun Deng, , Andy de Barros, Bethany Mulimbi & many HGSE master's students

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Melanie Allen, Felipe Barrera-Osorio, Beatriz Cardoso, Sarah Dryden Peterson, Marcela Ruiz, Verónica Santelices, Armida Lizárraga, Francesca Uccelli, Rosa Vera,

COLLEAGUES' CONTRIBUTIONS
Alison Bailey, Richard Durán, Michael Kieffer, William Nagy, Robin Scarcella, Dianna Townsend, Si Chen, Yuh-Fang, Meredith Rowe, Catherine Snow, Nonie Lesaux, Elizabeth Henning, Marco MacFarlane, Juliane Stude, Zoila Ricciardi

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References on Core Academic Language Skills (CALS) research

Meneses, A., Uccelli, P., Santelices, M. V., Ruiz, M., Acevedo, D., & Figueroa, J. (in press). Academic language as a predictor of reading comprehension in monolingual Spanish-speaking readers: Evidence from Chilean early adolescents. *Reading Research Quarterly.*

Uccelli, P., Phillips Galloway, E., Barr, C., Meneses, A., & Dobbs, C. (2015). *Beyond vocabulary: Core Academic Language Skills (CALS) that support text comprehension. Reading Research Quarterly, 50*(3), 261-359. doi: 10.1002/rrq.104

Uccelli, P., Barr, C. D., Dobbs, C. L., Phillips Galloway, E., Meneses, A., & Sánchez, E. (2015). Core academic language skills (CALS): An expanded operational construct and a novel instrument to chart school-relevant language proficiency in pre-adolescent and adolescent learners. *Applied Psycholinguistics, 36,* 1077-1109. doi:10.1017/S014271641400006X

Uccelli, P., & Meneses, A. (2015). Lenguaje académico: construcción y validación de un instrumento para medir habilidades de lenguaje académico en estudiantes de primaria. Invited paper in Special Edited Volume, M. Brisk & P. Proctor (Eds.), *Miríada Hispánica, 10,* 177-202.

Uccelli, P., Phillips Galloway, E., Aguilar, G., & Allen, M. (2016). Academic languages and bilingualism. Informes del Observatorio / Observatorio Reports. 022-06/2016EN ISSN: 2373-874X (online) doi: 10.15427/OR022-06/2016EN

Uccelli, P., & Phillips Galloway, E. (2016). Academic language across content areas: Lessons from an innovative assessment and from students' reflections about language. *Journal of Adolescent & Adult Literacy.* DOI: 10.1002/jaal.553