



Texas as a Window into National Trends in Early Childhood Education

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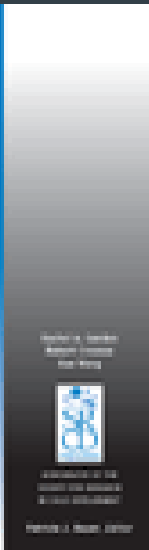
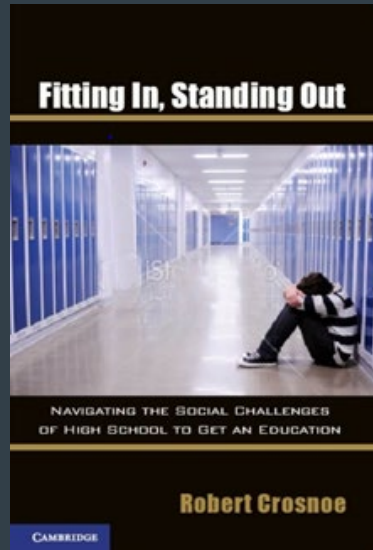
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Three Strands of Research on Children and Adolescents



#3



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A national experiment reveals where a growth mindset improves achievement

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A global priority for the behavioural sciences is to develop cost-effective, scalable interventions that could improve the academic outcomes of adolescents as a population level, but no such interventions have yet been evaluated in a population-generalizable design. Here we show that such an intervention exists: a growth mindset intervention—which teaches that intellectual abilities can be developed—improved grades among lower-achieving students and increased overall coursework for advanced students that equated a nationally representative sample of students in secondary education in the United States. Notably, the study identified school contexts that amplified the effects of the growth mindset intervention: the lowest-performing grades from seven states assigned to the message of the intervention. Confidence in the conclusions of this study comes from independent data collection and processing, pre-registration of analyses, and corroborations of results by a blinded Bayesian analysis.

About 20% of students in the United States will not finish high school on time¹. These students are at a high risk of poverty, poor health and early mortality in the current global economy^{2,3}. Indeed, a later consensus concludes that improving secondary education outcomes for adolescents “presents the single best investment for health and well-being”⁴.

The transition to secondary school represents an important period of flexibility in the educational trajectories of adolescents⁵. In the United States, the grades of students tend to decrease during the transition to the tenth grade (age 14–15 years, US year 10), and often do not recover⁶. When such students underperform or opt out of rigorous coursework, they are far less likely to leave secondary school prepared for college or university or for advanced courses in college or university^{7,8}. It is this early problem in the transition to secondary school that compounds over time into large differences in human capital in adulthood.

We set to improve academic success across the transition to secondary school through social-psychological interventions, which have been shown to help first- and second-generation students and low-achieving students to take advantage of learning opportunities in school^{9,10}. The specific intervention evaluated here is a growth mindset of cognitive intervention—addressing the belief of adolescents about the malleability of intelligence, leading students to see intellectual abilities not as fixed but as capable of growth in response to dedicated effort, and new strategies to develop study when appropriate^{11,12}. This can be especially important in a society that conveys a fixed mindset to view that intelligence is fixed, which can imply that being challenging and having to go on in difficult times that are not necessarily related need to be tackled to succeed¹³.

The growth mindset intervention communicates a malleable mindset, but the brain is like a muscle that grows stronger and more resilient through regular training opportunities¹⁴. Adolescents bear the metaphor in the context of the neuroscience of learning; they

reflect on ways to strengthen their brains through schoolwork, and they internalize the message by thinking it is a habit that they can practice and students who are struggling at the start of the year. The intervention did not randomize students’ responses through self-regulation cycles of motivation and learning-oriented behaviour. For example, a growth mindset can motivate students to do so more rigorous learning preparation and to persist when encountering difficulties. Their behaviour may then be understood by the fixed context, such as repetitive and learning-oriented responses from peers or instructors^{15,16}.

Initial intervention studies with adolescents taught a growth mindset in small sessions (for example, eight classroom sessions¹⁷), interactive workshops addressed by high-achieving adults; however, these were not readily scalable. Subsequent growth mindset interventions were broader and self-administered online, although lower effect sizes of course reported. Nevertheless, previous randomized evaluations, including a pre-registered replication, found that online growth mindset interventions improved grades for the largest group of students in secondary education who previously showed low achievement in secondary education^{18,19} and these findings are consistent with theory because a growth mindset should be most beneficial for students with lower achievement²⁰.

Here we report the results of the National Study of Learning Mindsets, which examined the effects of a short, twice growth mindset intervention in a nationally representative sample of high schools in the United States (Fig. 1). With this unique dataset we tested the hypothesis that the intervention would improve grades among lower-achieving students and overall grades of advanced courses in their student sample.

A focus on heterogeneity
 The study was designed with the purpose of understanding the when and under what conditions the growth mindset intervention

PROBABLY THE MOST IMPORTANT FINDING
 The growth mindset intervention improved grades among lower-achieving students and overall grades of advanced courses in their student sample.

MAKING TRACKS
 The growth mindset intervention improved grades among lower-achieving students and overall grades of advanced courses in their student sample.

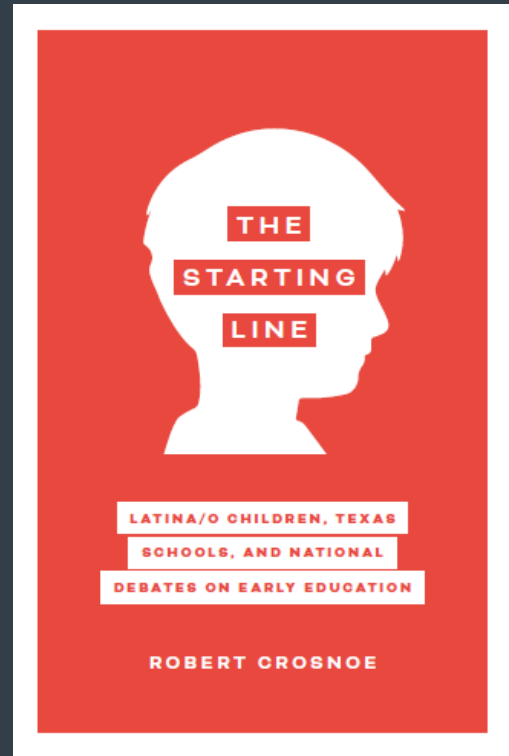
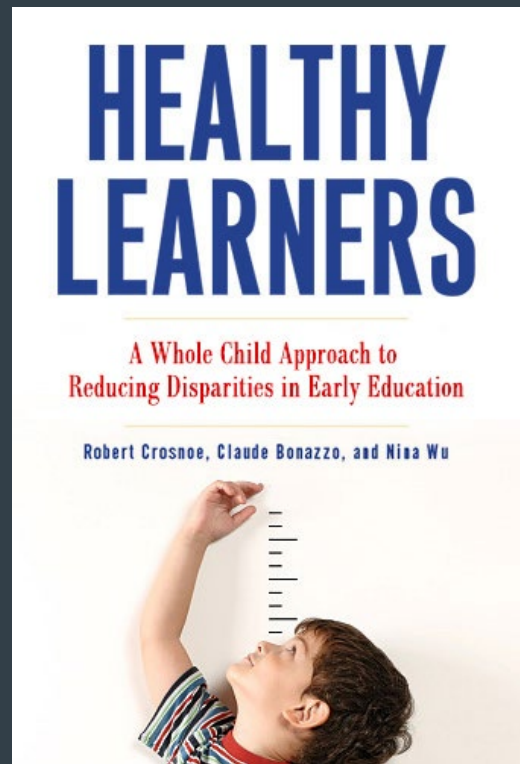
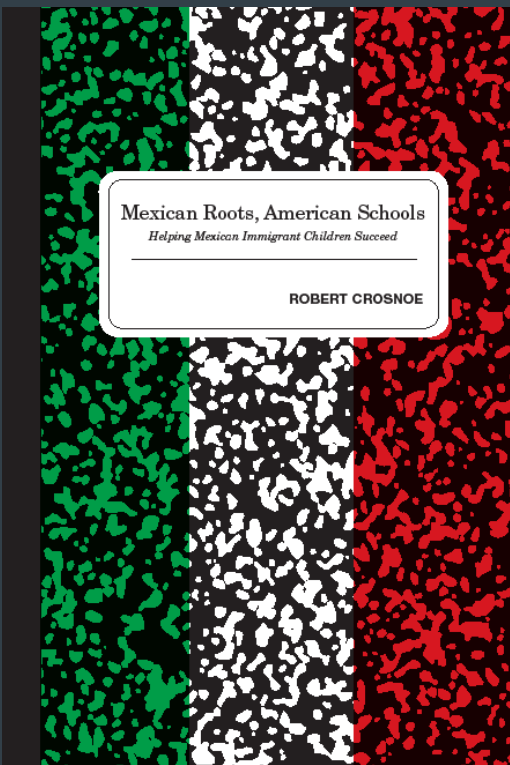
A PICTURE OF PRECISION
 The growth mindset intervention improved grades among lower-achieving students and overall grades of advanced courses in their student sample.

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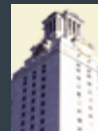




Evolution of the Third Strand



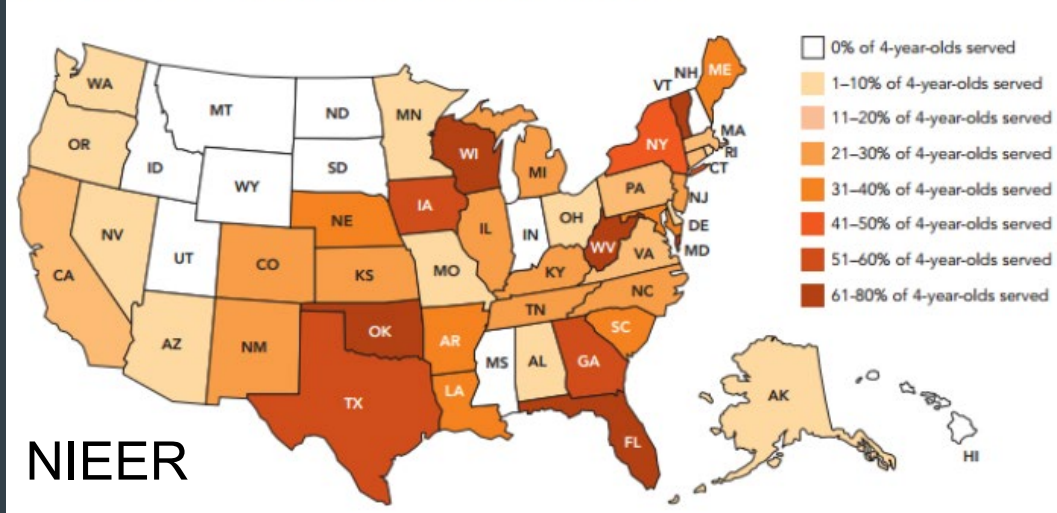
* With Aida Ramos and Claude Bonazzo, who may be with us today. [Population Research Center](#)





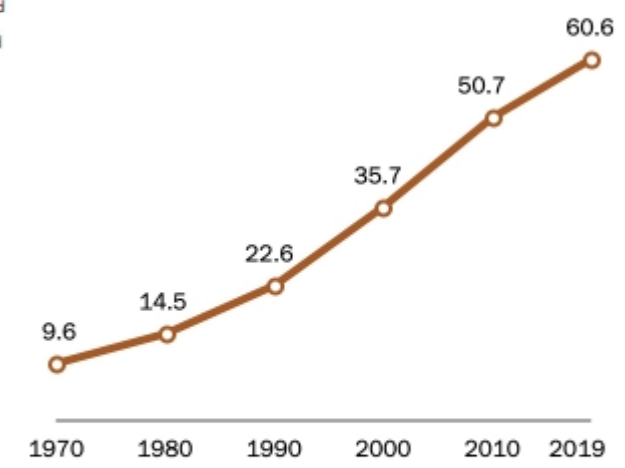
From National to Local...

FIGURE 1: PERCENT OF 4-YEAR-OLDS SERVED IN STATE PRE-K



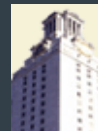
U.S. Hispanic population reached nearly 61 million in 2019

In millions



Note: Population estimates for 1990-2019 are as of July 1 for each year. Hispanics are of any race.
 Source: Pew Research Center analysis of 1970-1980 estimates based on decennial censuses (see 2008 report "U.S. Population Projections: 2005-2050"), U.S. intercensal population estimates for 1990-1999 and 2000-2009, and U.S. Census Bureau Vintage 2019 estimates for 2010-2019.

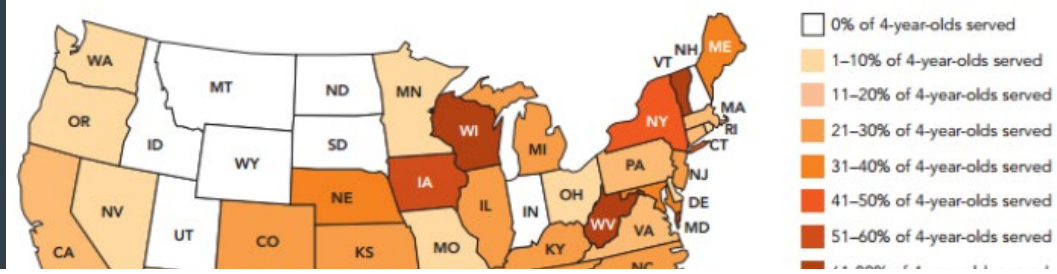
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From National to Local...

FIGURE 1: PERCENT OF 4-YEAR-OLDS SERVED IN STATE PRE-K



U.S. Hispanic population reached nearly 61 million in 2019

In millions

60.6

"The Texas of Today is the U.S. of Tomorrow"

That's what former state demographer Steve Murdock says about the dramatic population shifts happening throughout the state and the country — and why they matter.

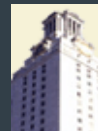
BY REEVE HAMILTON MARCH 11, 2010 5 AM



1970 1980 1990 2000 2010 2019

Note: Population estimates for 1990-2019 are as of July 1 for each year. Hispanics are of any race.
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An Argument with Three Points

- Increasing the number of young children from historically disadvantaged segments of society in high-quality early childhood education is a potentially effective strategy for combatting persistent inequalities in educational attainment, including those related to the large, growing, and often threatened Latina/o population.
- This goal can be supported by a holistic approach recognizing the different ways that early childhood education classrooms are connected to the larger contexts in which they are situated and encompass a complex exchange of academic and social processes.
- Such an approach requires careful attention to the daily experiences of children, their teachers, and their parents in and around early childhood education classrooms, and the Texas public pre-k program is an ideal place to do just that for Latina/o children.





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What about early childhood education for Latina/o children is working, and what needs to be improved?

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Spotlight on a Texas District

- Southwest Independent School District
 - Over 90,000 students in K-12
 - Majority Latina/o, quarter Dual Language Learner
- Long-standing pre-k program
 - Over 6,000 students in school-based pre-k (on-site vs. pre-k campus)
 - Majority Latina/o and low-income, third DLL
- Sample
 - 9 schools, 58 classrooms
 - All 36 pre-k classrooms across schools, plus one classroom per school for K, 1st, and 2nd grades
 - Majority of classrooms categorized as “predominantly Spanish-language”

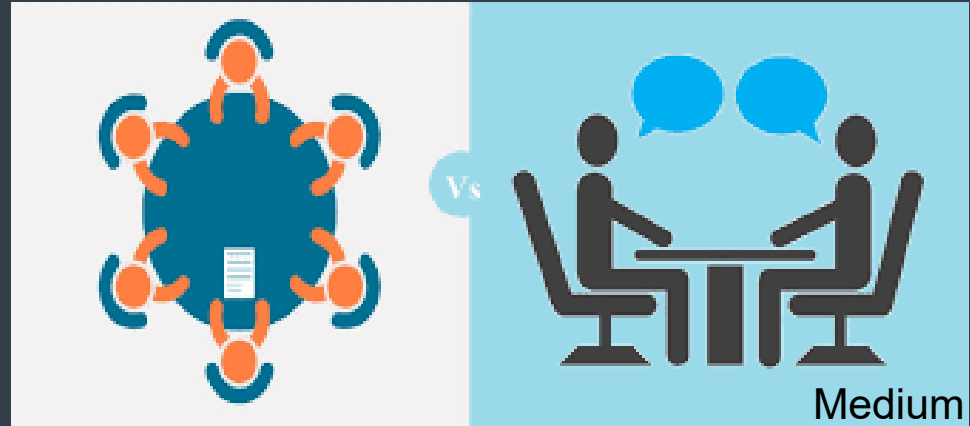




Two Ways of Doing

Watching

	CLASSROOM ASSESSMENT SCORING SYSTEM
PRE-K	
	MANUAL PRE-K
	Robert C. Pianta Karen M. LaParo Bridget K. Hamre



Talking





A Contextual Perspective

CONTEXTUAL CONNECTIONS

In-School:
How are Classrooms Connected to Each Other?

Out-of-School:
How are Classrooms Connected to Families & Communities?



EARLY CHILDHOOD EDUCATION CLASSROOM



Cross-Philosophy:
Is there Integration among Approaches to Teaching & Learning?

Cross-Activity:
Is there Integration among Different Kinds of Skill-Building?

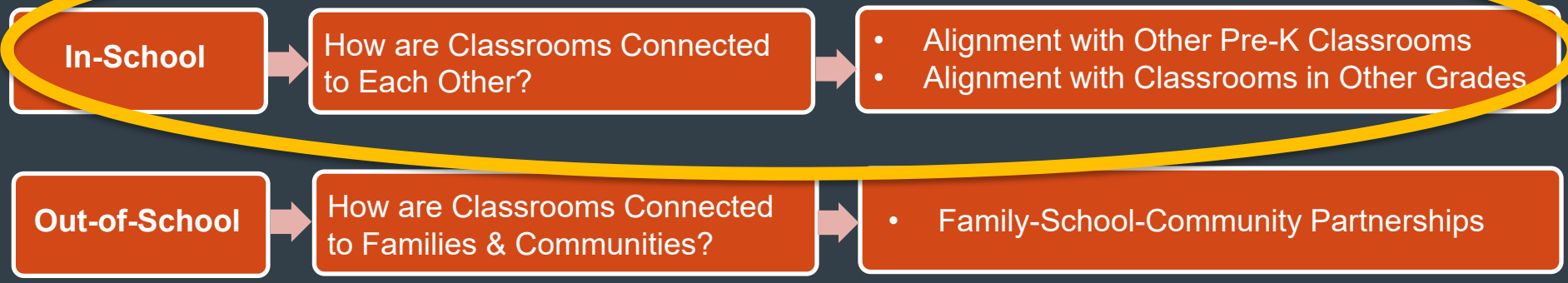
CONTEXTUAL PROCESSES



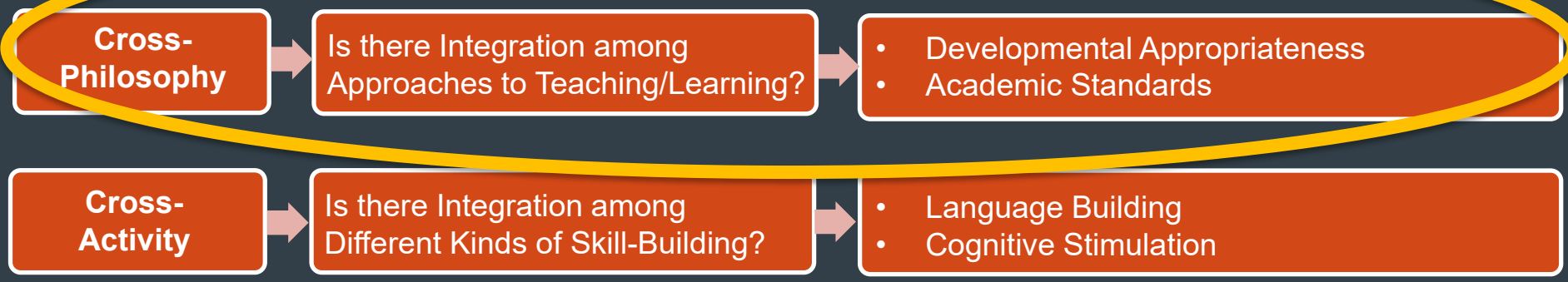


A Contextual Perspective

CONTEXTUAL CONNECTIONS

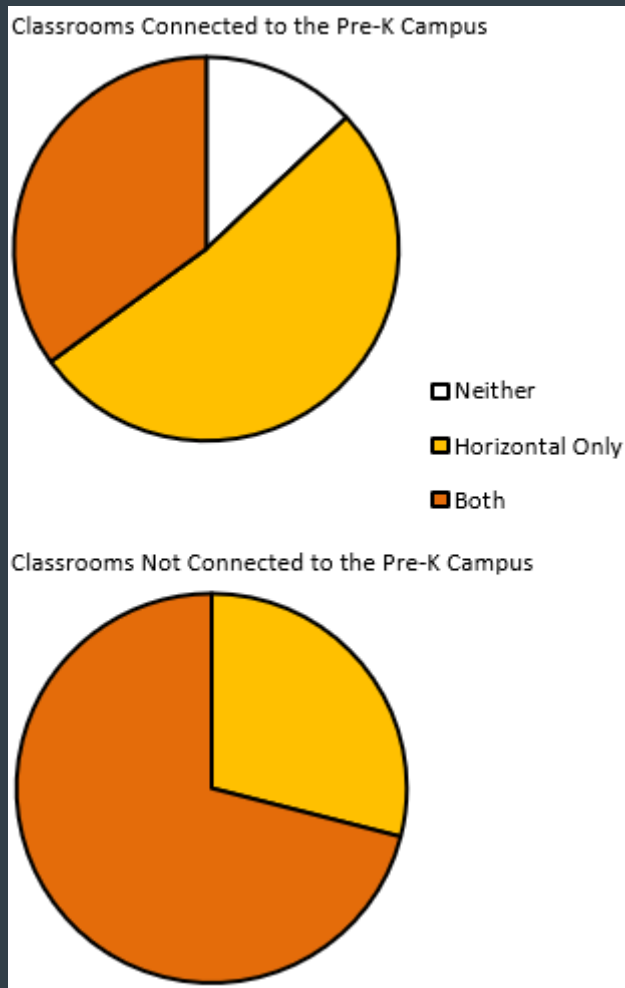


CONTEXTUAL PROCESSES





Connected Classroom Contexts



- Horizontal
 - The “natural” way of things
 - Pre-k campus has “low walls”

- Vertical
 - The necessity of “nudges”
 - Self-alignment



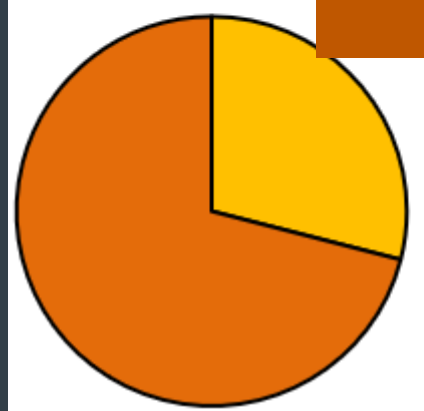


Connected Classroom Contexts

Classrooms Connected to the Pre-K Campus



Classrooms Not Connected to the Pre-K Campus



Horizontal

“Because I’ve taught the other grades, I know what’s coming up for them so I can push them a little further along which is one of the reasons why I went to the other grades.”

- The necessity of budgets
- Self-alignment





Connected Classroom Contexts

- Barriers to Alignment
 - Zero sum games of time
 - Big school problem
 - Isolation of pre-k teachers
 - *“[In] pre-K...we walk, walk alone, and sometimes we’re like the step child that’s not...we’re not even at the table, but if they’ll throw us the food we’re pretty happy.”*





Connected Classroom Processes

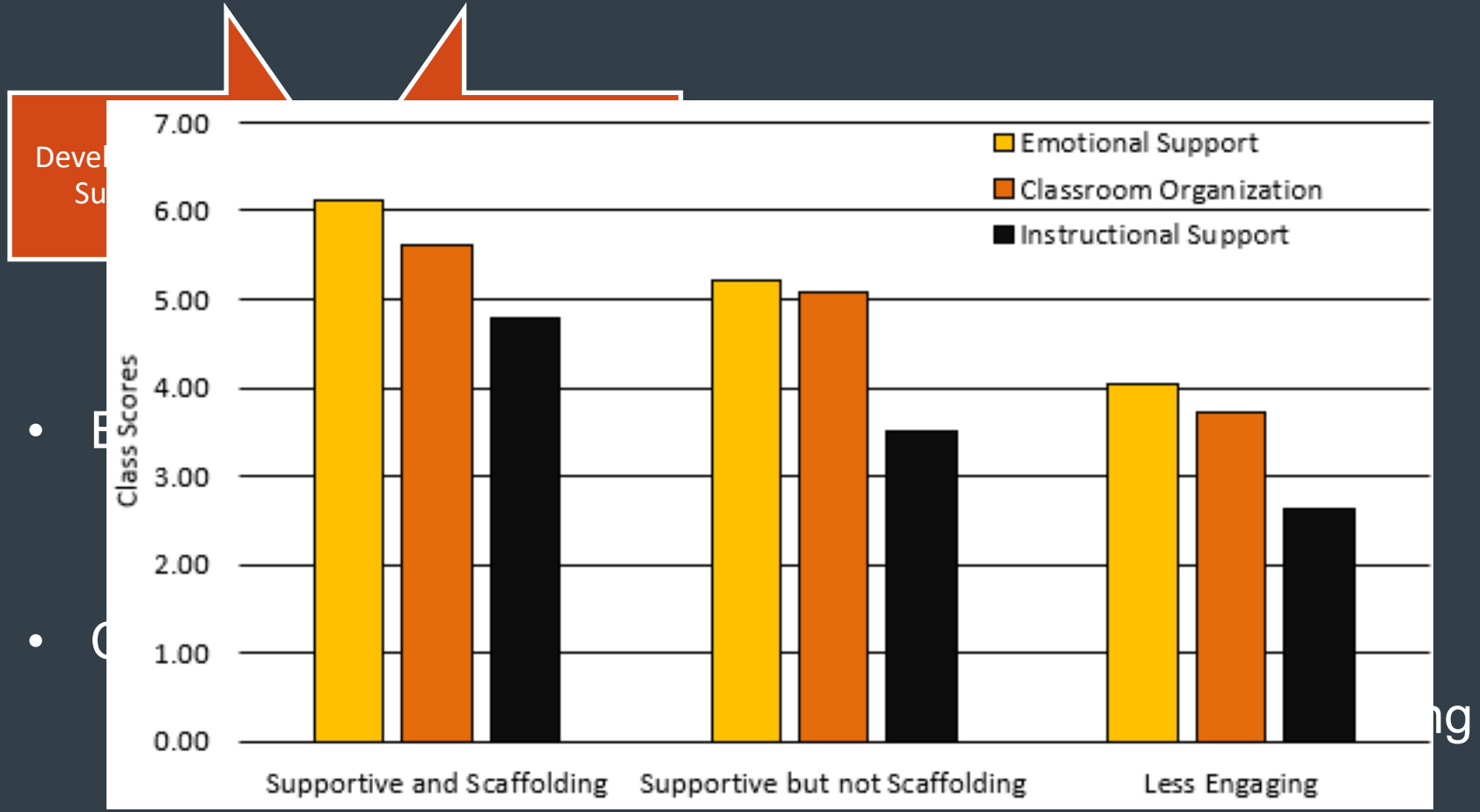


- Emotional Support
 - Positive climate, lack of negative climate, respect for students' perspectives, teacher sensitivity
- Classroom Organization
 - Behavior management, productivity, instructional learning formats
- Instructional Support
 - Concept development, quality of feedback, language modeling





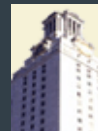
Connected Classroom Processes



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- Instructional Support
 - Concept development, quality of feedback, language modeling





Connected Classroom Processes

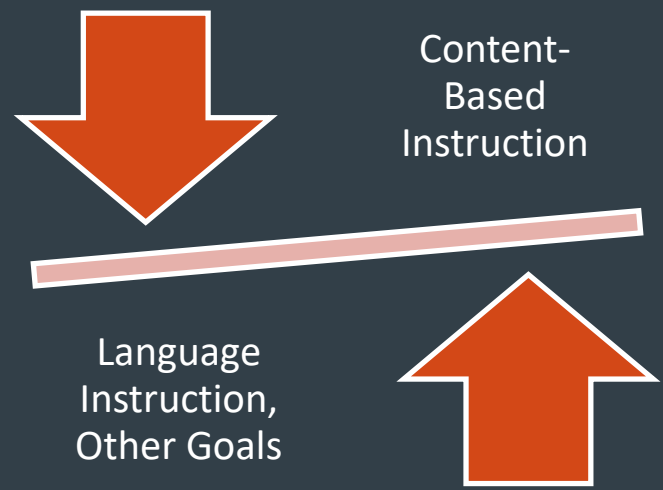
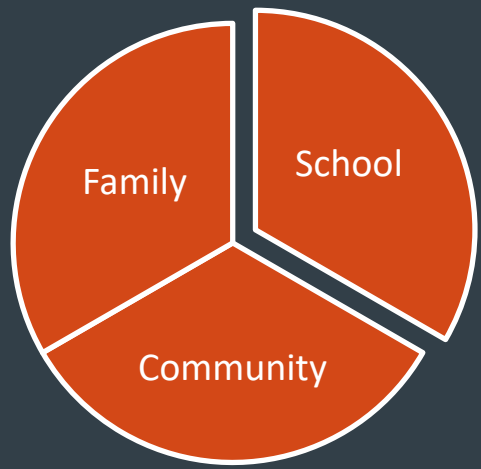
- Socioemotional foundational to academic/cognitive
 - “Success is when they show me understanding of what I’m teaching them, when they solve problems. When I assesses them and they’re able to explain me things with more than just one word, when they elaborate, that’s what makes me really feel good about myself and about teaching the students and that’s what makes me smile.”
- High expectations with support; low skills are not biasing
 - “What I like is when I can say, ‘Wow, he’s come so far,’ you know, and sometimes I forget that and somebody has to remind me that at the beginning of the year that you look at him and you go ‘Oh, my god,’ you know. At the very end of the year when you say, ‘Wow, he did not know a single letter when he came in.’ He couldn’t write his name and you know he’s writing his first and his last name. He can tell you maybe not every letter, but I mean that is what success is.”
- Prioritizing one over the other; focusing on behavior as paramount
 - “A not good classroom is when they don’t have that, the discipline...or when I don’t have that structure. I would say classroom management—where they’re not paying attention, or everybody is doing their own thing.”





Other Highlights

- Partnership Talk Masking One Direction



- Crowding Out of Academic Activities





Observed

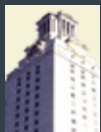
- Horizontal alignment across classrooms was more common—and easier—than vertical alignment among classrooms.
- The talk about family-school-community partnerships did not always match the reality.
-
- Different kinds of positive learning and teaching processes tend to go together within classrooms, leading to stark differences across classrooms.
- Cognitively stimulating instruction is difficult in the face of other instructional challenges.





Learned

- Communication is a key element of contextual connections that has to be purposefully cultivated.
- Activities that underlie the development of cognitive and academic skills are the most vulnerable elements of connected processes.
- Common ground is essential to contextual connections and connected processes and requires attention to potential fissures.
- Organizational structures can promote or undermine contextual connections and connected processes in concrete ways.

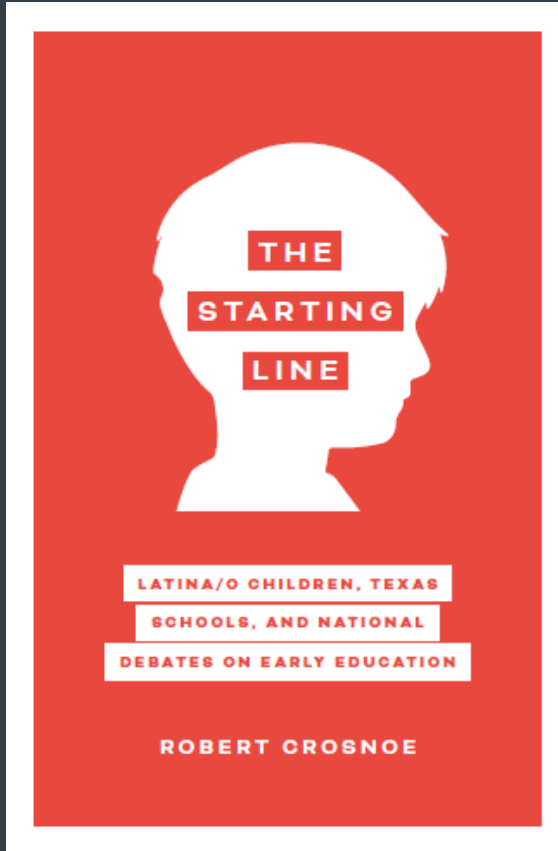




Applied

- Use mediators to deepen school-based discussions and conversations.
- Emphasize the value of interactional supports for critical thinking in professional development.
- Put extra weight into diversifying teaching staffs.
- Encourage fluidity among grade levels and positions.





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