Introducing the QUILS: Screening for Early Language Knowledge
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Thank you for having me!

• I have escaped

• I have had wonderful, stimulating

• I got to play with my grandkids!

Purpose: To acquaint you with QUdS --
in the context of language development

• Unusual step: Starting with a video about the finished project

• We’ll work our way back!

My plan: A talk in 2 parts

• Part I: Why care about language development?

• Part II: What matters for language development?

• Part III: The QUdS

• Part IV: The QUdS and its Baby!
The Quick Interactive Language Screener (QUILS)

Part I: Why care about language development?

The National Assessment of Educational Progress reports that …

• More than 80% of 3rd graders from low-income families will not be reading at grade 3 in grade 3

• At least half of the school achievement gap between rich and poor kids starts before kindergarten

The National Governor's Association recognizes that strong language skills are critical if we are to build strong reading skills.

Scarborough shows us the many strands
And they are critical for learning to read.

Most of our curricular attempts to remedy the problem focus on word recognition or "code" skills and on vocabulary drill.

Systematic review: 31 well-cited interventions revealed that children generally learn less than 25% of taught words following interventions lasting 2 or more weeks (Wasik et al., 2016).

Another meta-analysis examining curriculum interventions produced a small and nonsignificant effect size of 0.07 on children's vocabulary (Darrow, 2009).

And, those programs that have targeted specific vocabulary lists generally find that children cannot generalize these words to new contexts (Kaiser et al., 2011).

What can we do?

Maybe we need to spend more time supporting broader language skills.

The scientific data show both direct and indirect relationships between language and reading.

- Consider phonological awareness, "c-a-t" or "base ball".
- Rhyming, e.g., day.
- Asking for definitions – What does this mean?
- Hearing stories to build knowledge of narrative structure.
- Exposure to academic language.

But this is just the tip of the

- **Language helps us capture knowledge, acquire concepts.** (Grissmer, Grillon, Auer, Murrah, & Steele, 2020; Gelman, 1999)
- **Language helps us engage in self-regulation and executive function** (Roben, Cole, & Armstrong, 2013; Matte & Bernier, 2011; Mendelsohn, Cates et al., 2018)
- Matte & Bernier: Children’s language ability mediates between the ability to profit from parental autonomy support and development of executive function

Back to NAPE...

- **NAEP scores — vocab predicts reading comprehension**
  - Lang at ages 3,4 predicts reading ability in grades 3,4, e.g., NICHD 2005
  - Lang: most important factor affecting reading comprehension in middle grades, e.g., Oakhill & Crane 2012
- **Language skill predicts health care outcomes**
  - [cite other research here]

Our new secondary analyses of the NICHD Child Care data set suggests...

- That language at school entry is the single best predictor of school outcomes (reading, math, social skills, later language) in grades 1 and 3
- And of gains in outcomes scores from Grades 1 to 3; 3 to 5

Pace, Alper, Burchinal, Hirsh-Pasek & Golinkoff, (2018)

Mountains of data: children from under-resourced environments have poorer general language skills than their more privileged peers

Could this fact be a key component of the stable achievement gap we have in our country between rich and poor?

[see also Hoff, 2002, 2003, 2013; Reese et al., 2010, 2017; Golinkoff et al., 2017; Heuttenprecht et al., 2020; Panczak & Vernon-Feagans, 2010; but see Squire et al. 2010, Golinkoff et al. (2018)]
Absolutely. And when does the foundation for the achievement gap start?

Hurt & Betancourt (2017):

Not news: Poverty has a deleterious outcome on development.
They tested:
Low SES: < or = to $23,550 for family of four n = 30
High SES: > than poverty line; both parents H.S. n = 30

Tested kids with Bayley Infant IQ, test and Preschool Language Scales

What did they find?

"By age 1 year, low socioeconomic status (SES) infants perform less well on cognitive and language evaluations than higher SES infants. These findings suggest that support for families and children from impoverished circumstances cannot begin too early."

What happens to children whose language is already behind at 12 months?

* Referred to popularly as the "30-million-word gap,"
  between rich and poor, it has far reaching consequences:
At age 3, children's vocabulary size mirrors the language directed to them
  Professional - 1,116
  Working Class - 749
  Welfare - 525

Part II: What matters for language development?

Quantity? Quality? Both?
But is it all about number of words that pass children’s ears? Given the latest interventions, you might think so…

But Hart and Risley (1995) also said that it is not just quantity! Parent talk that is contingent and responsive to child talk is more important than just number of words – quality counts too! (Steele Lotan et al. 2014; Cueman & Cueman, W. Hart & Risley; Mol & Newuman, 2014). Sometimes that message gets lost in popular translation.

We asked two questions:

1. Do low-income children who are successful language learners experience a higher quality of communication than their less able peers?
2. How important is the quantity of language children hear relative to the quality of the communication foundation?

(Hirsh-Pasek, Adamson, Bakeman, Owen, Golinkoff, Pace, Yust, & Summa, 2015. Psychological Science.

Examining the Quality and Quantity of Communication during parent-child interaction

1. Quantity of input (amount) and Quality of Foundation for Communication are both important for language growth but “communication foundation” matters more.
2. In our study, it’s not about poverty.
3. Fluid and connected conversations – “Conversational duets” require serve and return, and return and return and return. It can’t be a solo performance.
4. It’s “filling the gap” + “building the foundation” – a new metaphor for intervention.

Findings and Implications

1. Quality of input (amount) and Quality of Foundation for Communication are both important for language growth but “communication foundation” matters more.
2. In our study, it’s not about poverty.
3. Fluid and connected conversations – “Conversational duets” require serve and return, and return and return and return. It can’t be a solo performance.
4. It’s “filling the gap” + “building the foundation” – a new metaphor for intervention.
Conversational duets – whether during play or reading storybooks – in which what the adult says and does is CONTINGENT on the child’s focus. Are the interactions that fuel language growth and likely fuel attention and the ability to engage at school?

Example 1: The Supermarket Study

- Can the introduction of signs in a supermarket increase caregiver-child language interactions?
- Signs up and signs down in middle and low-income area supermarkets
- Results show a 33% increase in caregiver-child language when the signs were up in low-income neighborhoods.

Example 2: Urban Thinkscapes

Transforming a bus stop into a playful learning space

PLAYFUL LEARNING LANDSCAPES

Trying to reduce the word gap with community projects where people live that encourage talk between caregivers and children.

RESULTS (N=280)

> Parent-child interaction compared to control playground
> Adult and child language use
> Increase in spatial/numerical language from 2 to 30%
We are testing a new kind of dissemination that can be used in public spaces and in “trapped spaces” like waiting rooms, supermarkets, laundromats, etc. Places where people wait and where we might increase the contingent conversations in ways that reduce the achievement gap.

But wait! The existence of the word gap has been challenged!

**Argument:** Based on what counts as input to the child

“When more expansive definitions of the verbal environment [our italics] were employed...the evidence pointed in a different direction. Not only did the Word Gap disappear, but also some poor and working-class communities showed an advantage in the number of words children heard, compared with middle-class communities.”

What is missing in the definition of input?

Overheard speech.
Neurological evidence for effects of the word gap is increasing

Romeo et al. (2018): Conversational turns with a parent, rather than the sheer amount of language, predicted greater activation in Broca’s area and children’s language scores in diverse sample of 4-6 yr olds.

Hutton et al. (2017): Components of “dialogic reading” (Whitehurst et al., 1988), e.g., open-ended questions in back and forth conversations, were related to differences in brain activation in Broca’s area in age 4 low SES females.

And studies on the role of conversation in language learning:

Cartmill et al. (2013): Quality of parental speech
- Measured “referential transparency” in conversations 14-18 mos.
- Predicted child language 3 years later. SES did not predict quality, only quantity of parent language.

Gilkerson et al. (2018): Conversational turns (LENA)
- 18 to 24 months predict 18-27% of variance in IQ, verbal comprehension, and vocabulary at 18 mos.
- Adult word counts also correlated but much more weakly especially after controlling for SES.

Perry et al. (2018): Conversational turns in preschool classroom, low SES 2-3 yr olds.
- Positively related to vocabulary size.
- “It is not enough for adults to simply talk around children (overheard speech); instead adults need to talk with children.”

Part III: The QUILS

Why do we need good language screeners?

We've all heard stories of children sitting in classrooms, not identified until age of 4 or 5 as having language issues!

Professional assessment takes time and money

We needed a better way to screen for potential language issues.
Enter The QUILS: Quick Interactive Language Screener™ (Brookes Publishing)

- For children 3 through 5
- Assesses language comprehension
- 15-20 minutes to give
- Touch-screen tablet or computer gives test and records responses
- Culture and dialect neutral
- 45-item monolingual English version
- Spanish-English bilingual version (in press)

The literature on language development emphasizes that:

- Assessing vocabulary is not enough to assess language; syntax is critical too.
- We need to pay attention to whether the child can learn new words and structures, not just assess what they have already learned.

QUILS™ examines three critical language areas

1. VOCABULARY:
   What words do children already know?

2. SYNTAX:
   What do children know about how words go together in sentences?

3. PROCESS:
   How good are children at learning new language items?

Not just what language children know but how children learn language!

Existing tests...

- Require a skilled examiner – like a speech-language pathologist [read that as expensive].
- Often take a long time to administer.
- Are not based on the latest evidence of what children know about language.
- Do not capitalize on technology.