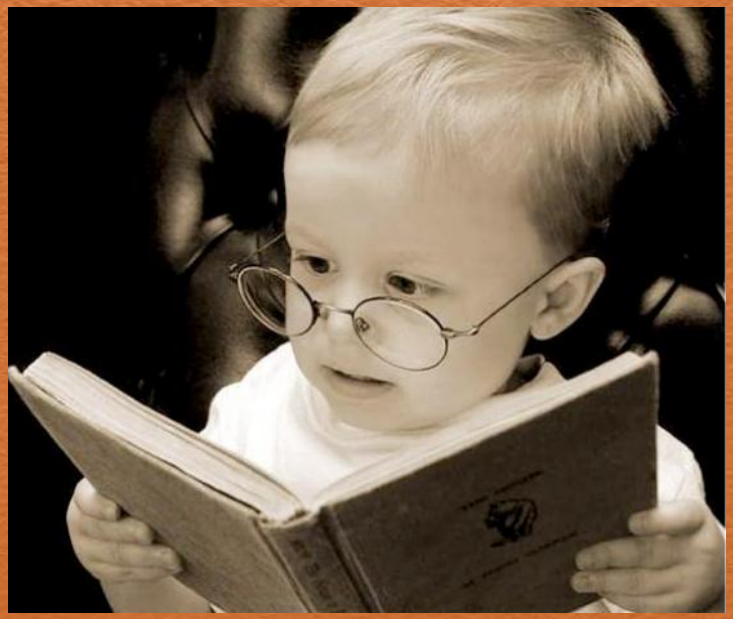
Language for reading:



Lessons from the crib for the classroom

Kathy Hirsh-Pasek, Ph.D.
Temple University

Reading is complex

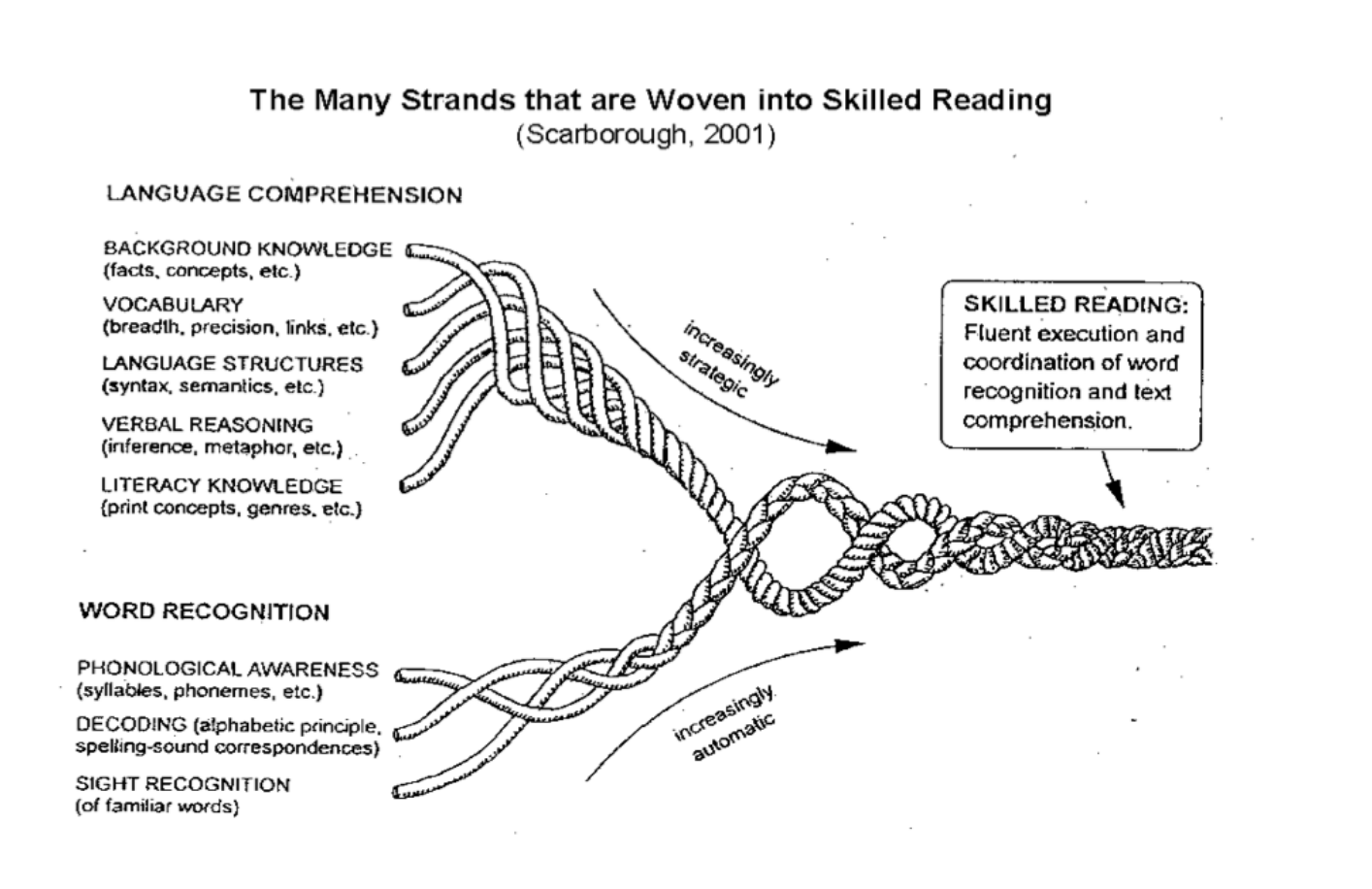
One second in the mind of a reader

From processing visual print

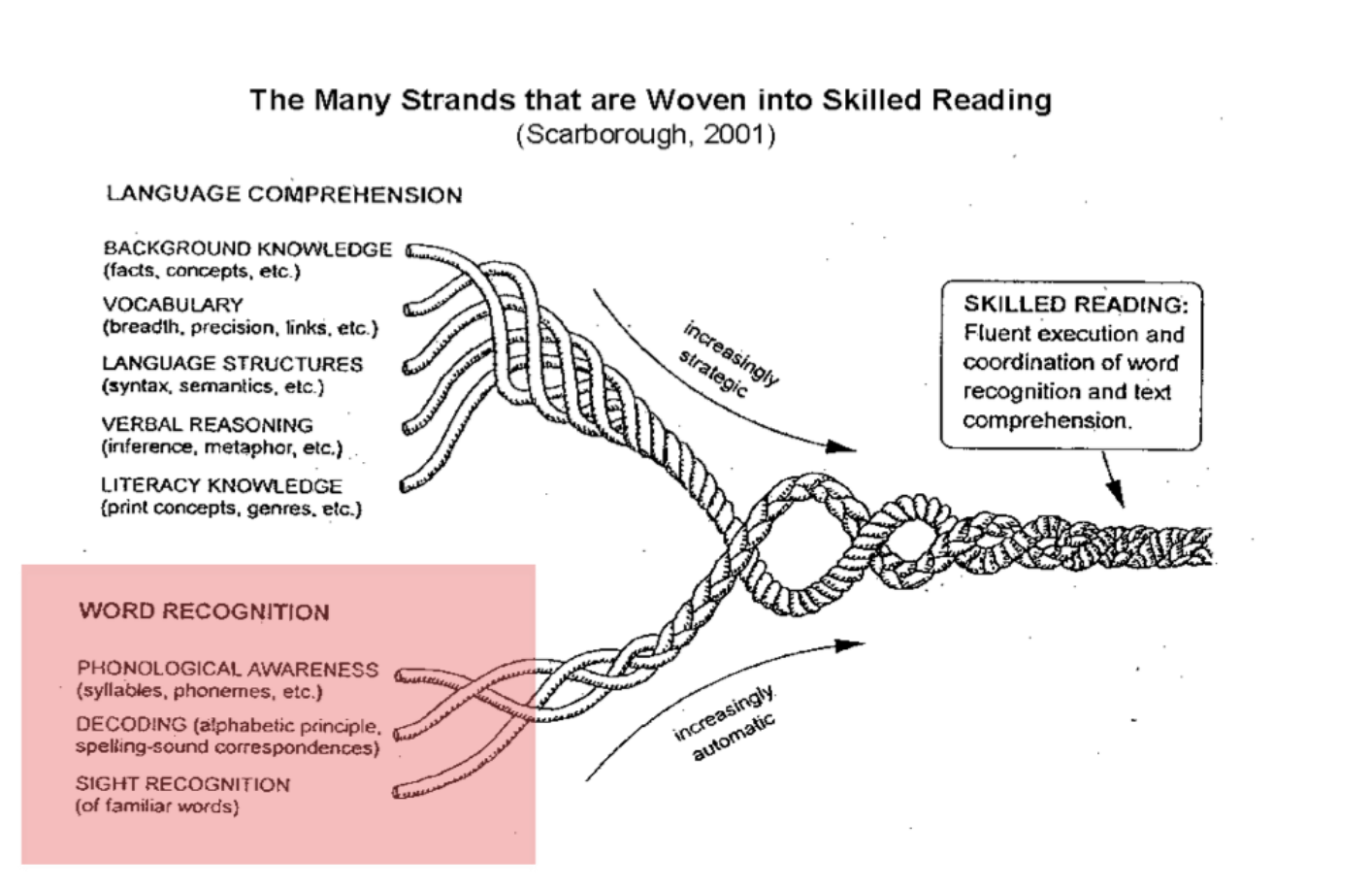
To decoding sights to sounds (B-O-Y = boy)

To infusing text with meaning

In Scarborough's terms



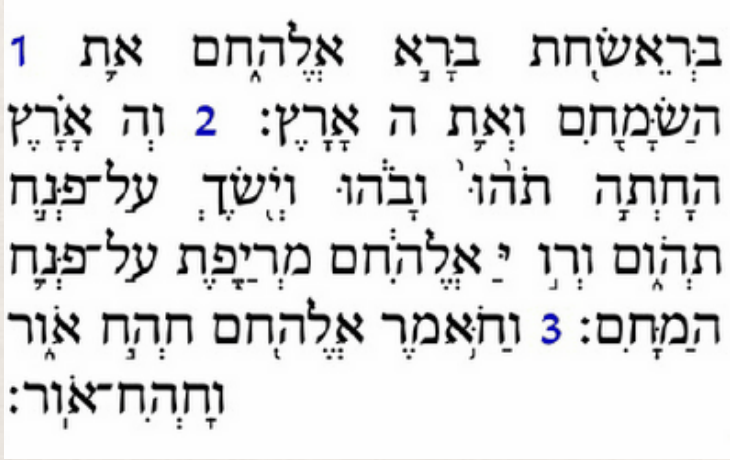
We know a tremendous amount about the word recognition or "code" skills



And they are critical for learning to read

But code skills are not enough!

Hebrew

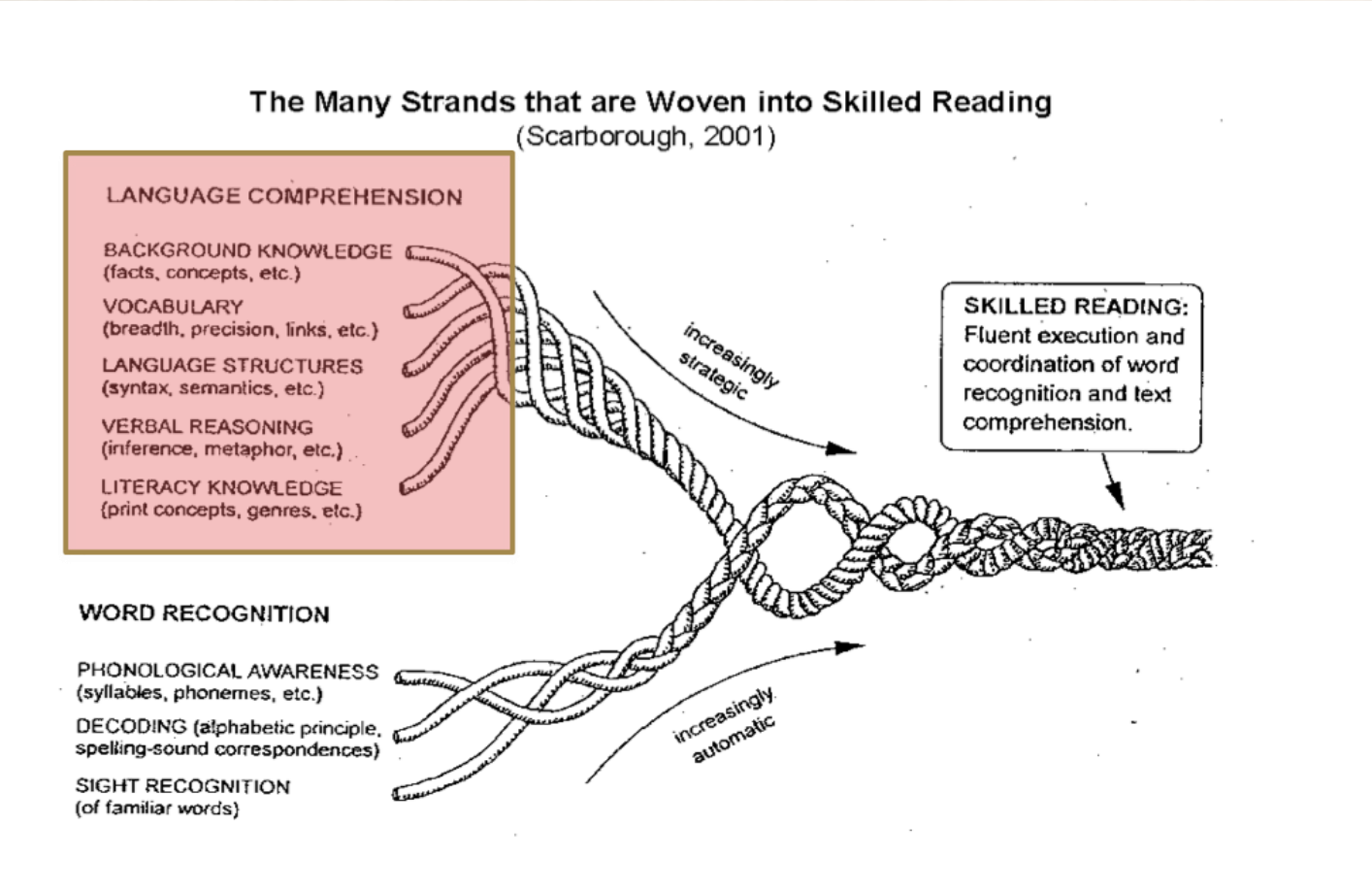


Greek

Αυτή η αναφορά περιλαμβάνει σημαντικές πληροφορίες σχετικά με το πόσιμο νερό σας. Ζητήστε από κάποιον να σας τη μεταφράσει, ή μιλείστε με κάποιον που την καταλαβαίνει.

You have to translate print into meaning!

And we know much less about how to support language for reading



A Talk in 4 parts

- **Language is a critical foundation for reading**

- **A bird's-eye view of language development**
  - Language development: what you see
  - Language development: what you don't see

- **Lessons from the crib for the classroom: 6 principles of language learning**

- **Looking forward**
  - Using the 6 principles in pedagogy
  - Using the 6 principles in language and reading research
  - Policy implications

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The Evidence

- **Early language abilities are directly related to later reading abilities**
  - Direct effects (NICHD ECCRN, 2002; Dickinson & Tabors, 2001)
    - 1137 diverse sample from 3 years to 1st and 3rd grade
    - Lee, 2011 (N=1073; early language relates to language and reading achievement up to 5th grade)
    - Grissmer, 2011 (language and attention in K predict 4th grade reading better than does reading at K)

- **Early language abilities are indirectly related to reading through code skills like phonemic awareness; to finding the "b-sound" in "boy." These code skills are then related to reading. (Munson et al; 2004,2005; Storkel, 2001, 2003; Whitehurst & Lonigan, 1998, 2001; Silven et al., 2007)**
  - Indirect effects (Storch & Whitehurst, 2002)
    - 626 low-income children, 4 yrs to 4th grade

- **Language skills become relatively more important than code skills for reading over time. The shift from *learning to read* to *reading to learn.***

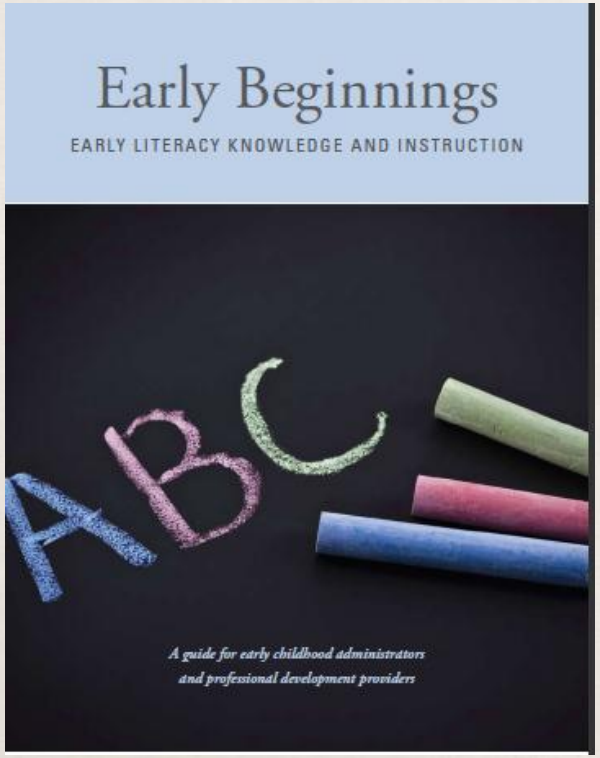
(Storch & Whitehurst, 2002; Catts et al., 2006; Vellutino et al, 2007).

More recently…

* Reviews of the relationship between language and reading show a persistent, strong and significant role of early language on reading…
  * Harris, Golinkoff and Hirsh-Pasek, 2011
  * See Marulis & Neuman, 2011 for a review

Despite these facts,

* Most instruction in early school spends the bulk of its time on code skills rather than on the language skills that support reading.



Goodson, Layzer, Simon, & Dwyer, 2009

And for low income children this can have dire consequences

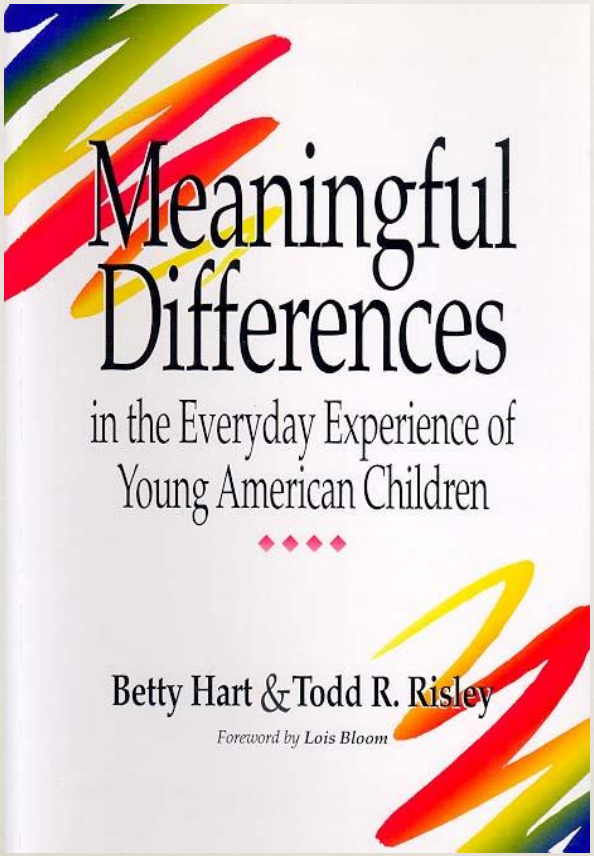
> The research suggests that children from low income environments do not have the basic language skills that will directly and indirectly support reading success.

Further,

> ”learning minority” learners who entered kindergarten with limited English proficiency had large persistent deficiencies in English reading achievement…Even the students who acquired English most rapidly, in the course of a year of kindergarten, continued to lag behind the national average for native English speakers by more than .33 standard deviation in 3rd and 5th grade.

p. 865, Kieffer, 2008

1995: Hart and Risley

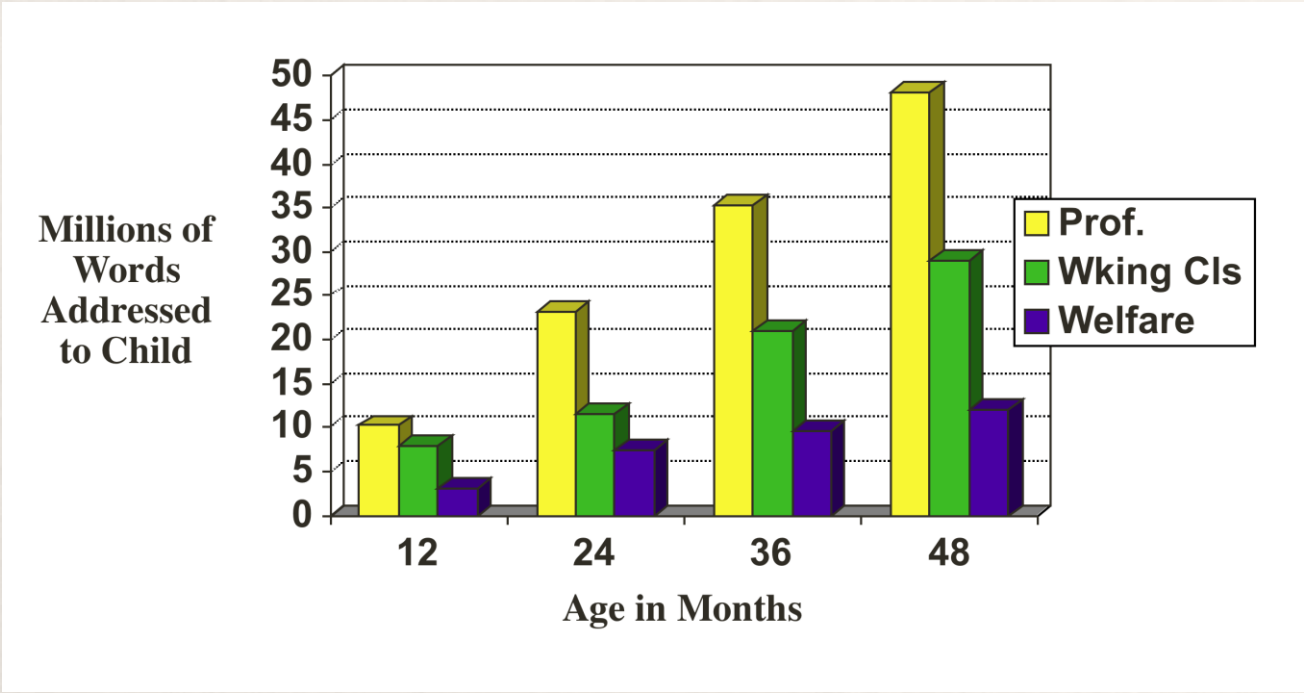


Examines language input to children from…

- Welfare
- Working class
- Professional families

(see also Hoff, 2002, 2003; Pancsofar & Vernon-Feagans, 2010)

Results?



Number of words heard per hour by children in each group:

Welfare - 616

Working Class - 1,251

Professional - 2,153

Significance?

Children's recorded vocabulary size?

Professional - 1,116

Working Class - 749

Welfare - 525

- Vocabulary assessed at age 3 predicted PPVT scores at age 9-10 (r = .58) and TOLD (more comprehensive) r = .72

- Vocabulary at age 3 correlated with reading comprehension scores on Comprehensive Test of Basic Skills r = .56

1996: Saffran, Aslin & Newport

The amount of language you hear matters because babies do statistical learning on the input they hear to find patterns of sounds and words!

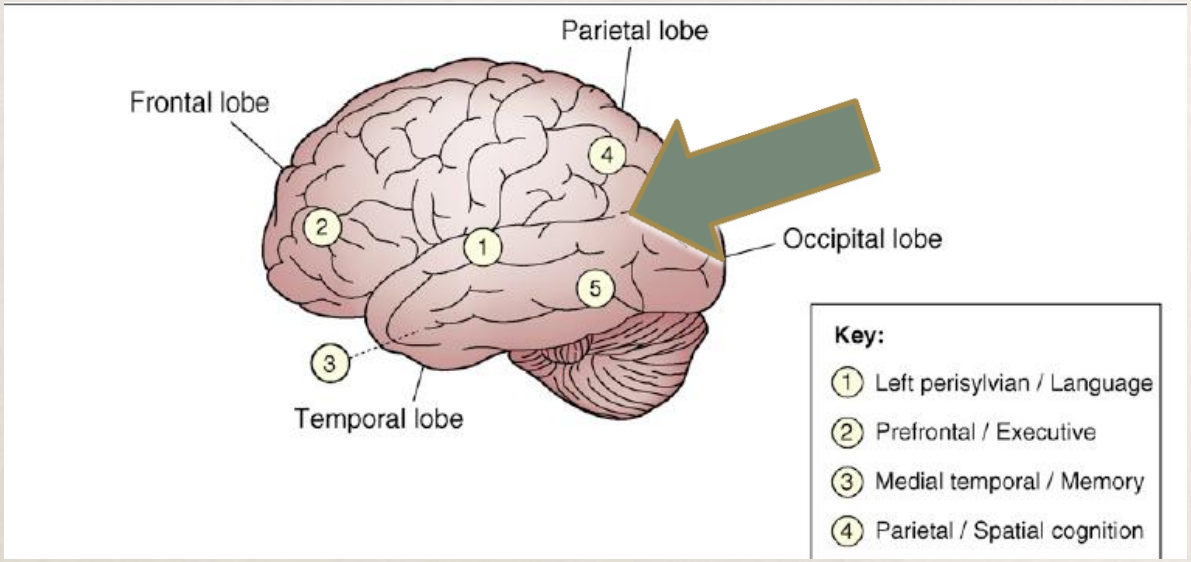
2009: Fernald finds

That the amount of language a child hears also affects processing speed and hence later acquisition of vocabulary – findings that hold in English and Spanish

And early vocabulary is one of the best predictors of later reading ability!

2010: Hackman & Farah

SES is an important predictor of neuro-cognitive performance, particularly of language and executive function, and that SES differences are found in neural processing even when performance levels are equal.



These findings are particularly important for those learning English as a second language

❖As lower SES families, they will have depressed input even in their first language

❖Spanish speaking low-income parents are unlikely to offer much input at all in their new "foreign" language

- Among English Language Learning children:
  - 65.9% - lower-income households
  - 40.8% come from families with less than a high-school degree

If reading is parasitic on language and not just on decoding, the question before us is how we can strengthen the language outcomes that children will need for reading

It is here that lessons from the crib might be important for the classroom

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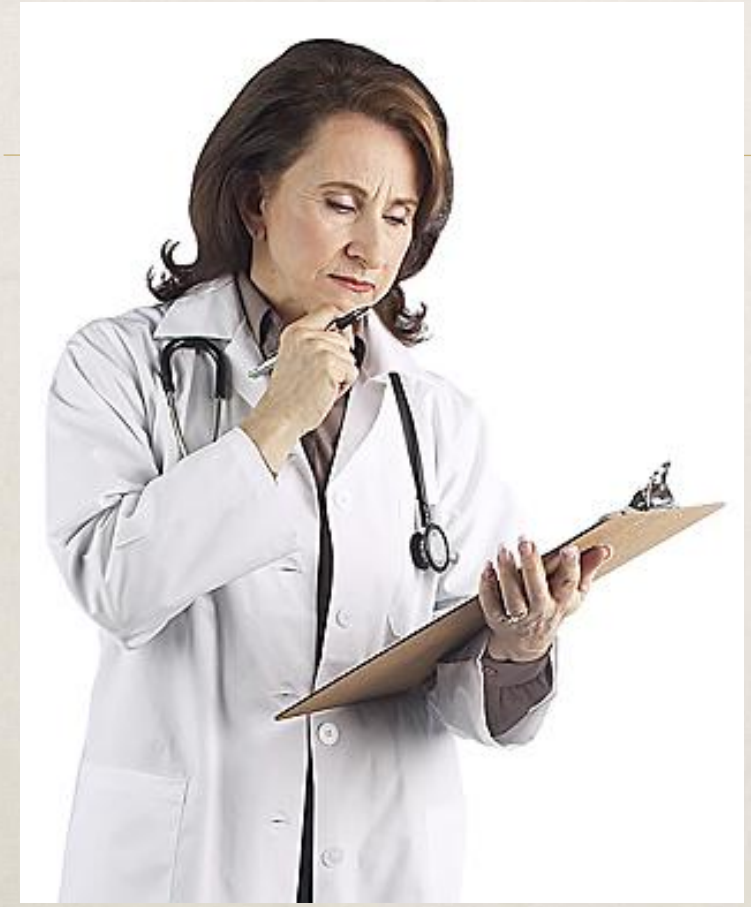
What you see

What you see: The Doctor's chart



0-3mo: coos, burps

3-6 mo: coos; laughs, cries, gurgles

6-9 mo: babbling (e.g., bababa)

turn taking; pat-a-cake

9-12 mo: points; first words; Bam Bam

12-18mo: 2 words per week; 50 words

18-24 mo: naming explosion; "Whas sat?;

Talk about here and now;
loves stories over and over;
follows simple commands

2-3 yrs: 500 words; asks questions;

past tense; Wh-; sits 20 minutes; WHY?;
pronounce clearly - m,n,f,b,d,h,y;
uses fuller sentences with "in," and "on.";
girls might appear to stutter

Between 3 and 4 years …

~800 words; contractions - won't; or "amn't" (instead of "I'm not") - not always correct but searching for rules

- **Can follow plot in story line**
- **Use time words - morning; afternoon;**
- **Wonderful new made-up words like, "Michael wave"**
- **Elio: "Where is my backpack go?" [auxiliary did missing]**

Question formation and response:

- **Marina to her pregnant Mom: "Is the baby in your belly in a boat? Where is the baby going to live?**

Doctor's chart continued

- **4-5 yrs: 2000 words; speaks clearly most of the time; can make up stories; use complex sentences; still might mispronounce s,r,th,t,v,sh,ch, j.**
- **5-7 yrs: retells stories with more depth; participates in discussions; learns relationships like big/little/happy/sad**
- **1st grade: 11,000 words**
- **3rd grade: 20,000 words**
- **5th grade: 40, 000 words**
- **YOU: 52,000 words**

A cautionary note – the issue of WIDE variability

And for dual language learners?

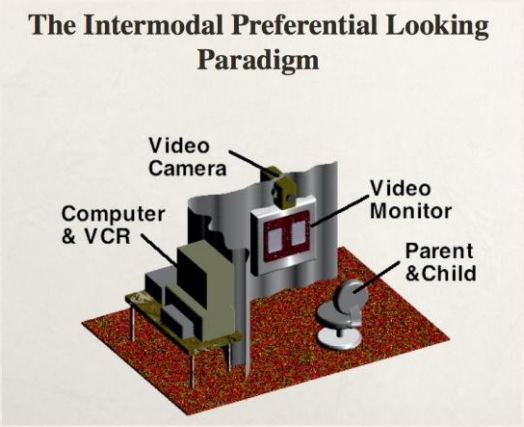
- We are biologically primed to learn multiple languages
  - Over 50% of the children in the world learn more than one
    - Grosjean 1982, 2010, Petitto & Kovelman, 2003; Werker & Byers Heinlein, 2008
- 25% of US children under age 5 live in homes where English is not the prime language
    - US Census 2006
- Milestones for second language learners generally follow same timetable as first language learners (Petitto et al., 2001) but some studies find that even though they are within the normal range…learning two languages takes a bit longer than learning one.
  - Slightly slower in vocabulary within any one language
    - Hoff & Place, in press
  - Slightly behind in grammar for any one language
    - Marchman, Fernald, Hurtado, 2010

The real news, however, is not in what you see, but
What you don't see!

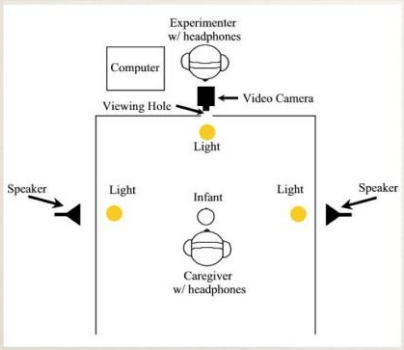
There's a lot more going on than meets the eye!

Psychology has developed a host of methods that allow us to peer at language learning beneath the surface –

High Amplitude Sucking



Habituation



Head Turn Preference Procedure

And as we move into brain research…

Baby ERP

Near Infrared Spectroscopy

Meg Imaging studies

(From Kuhl)

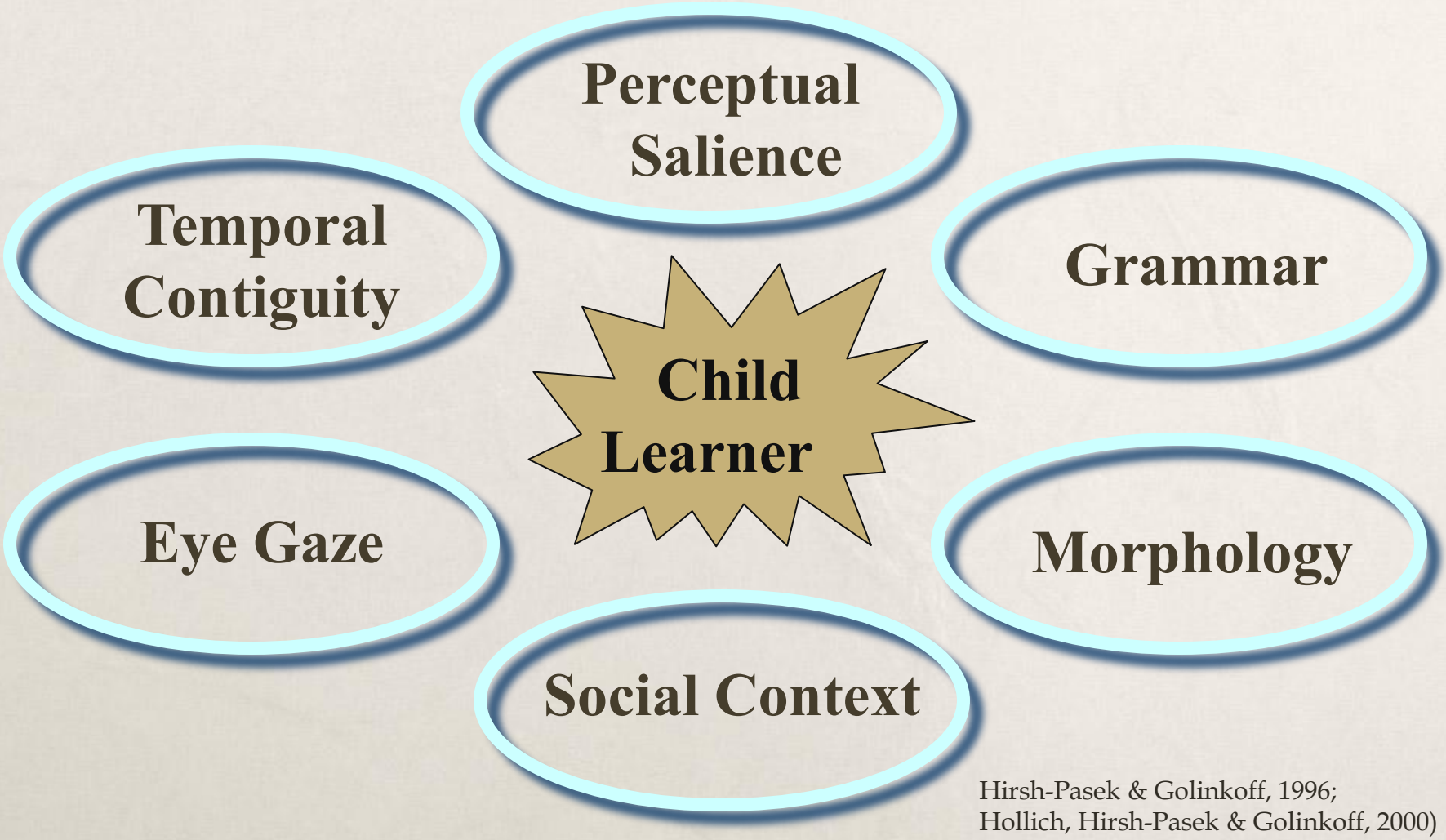
What we have found is that infants are…..

Processing multiple input cues

Differentially weighing these cues over time.

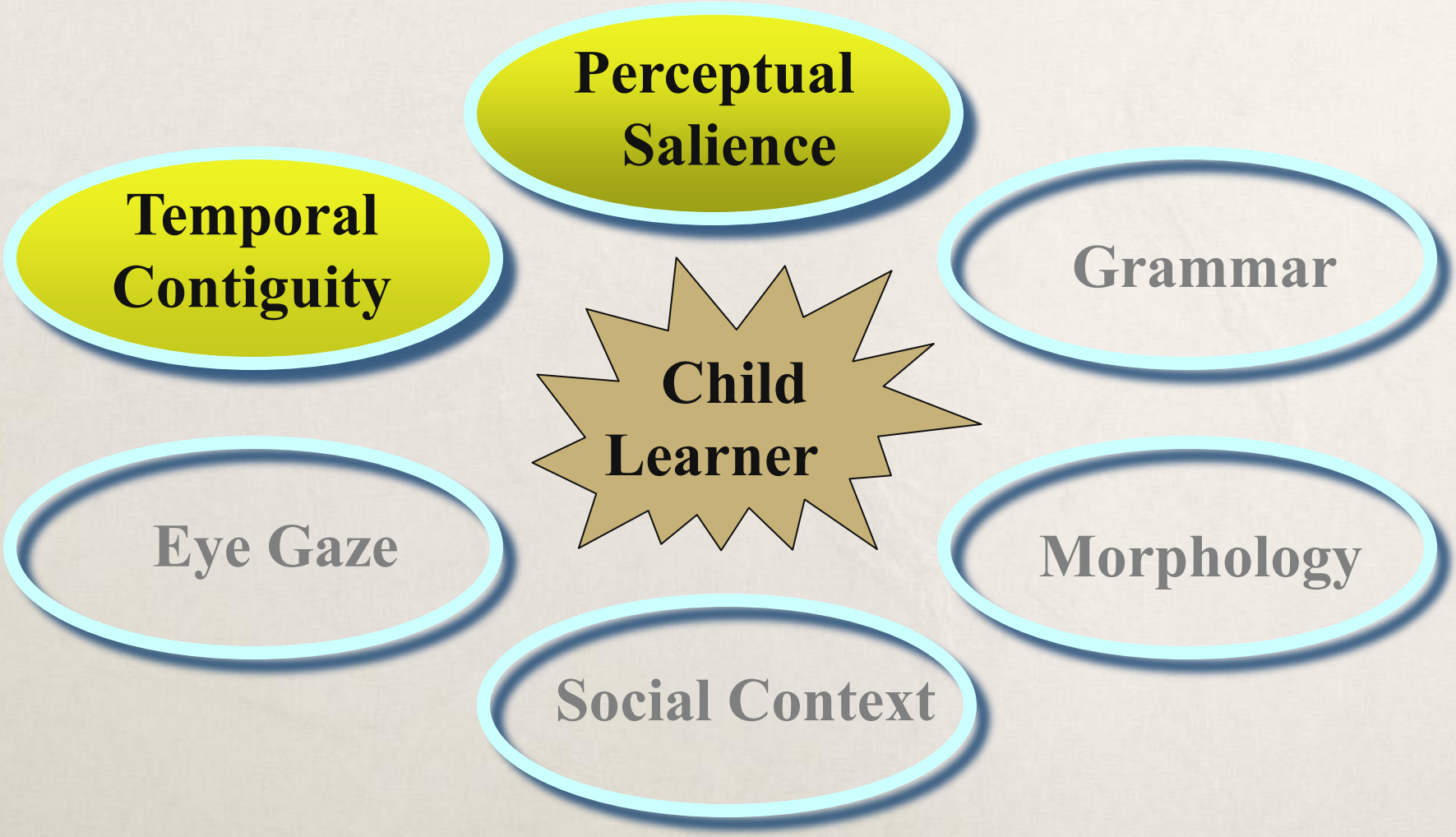
Hollich, Hirsh-Pasek & Golinkoff, 2000
Golinkoff & Hirsh-Pasek , 2008

Multiple Cues

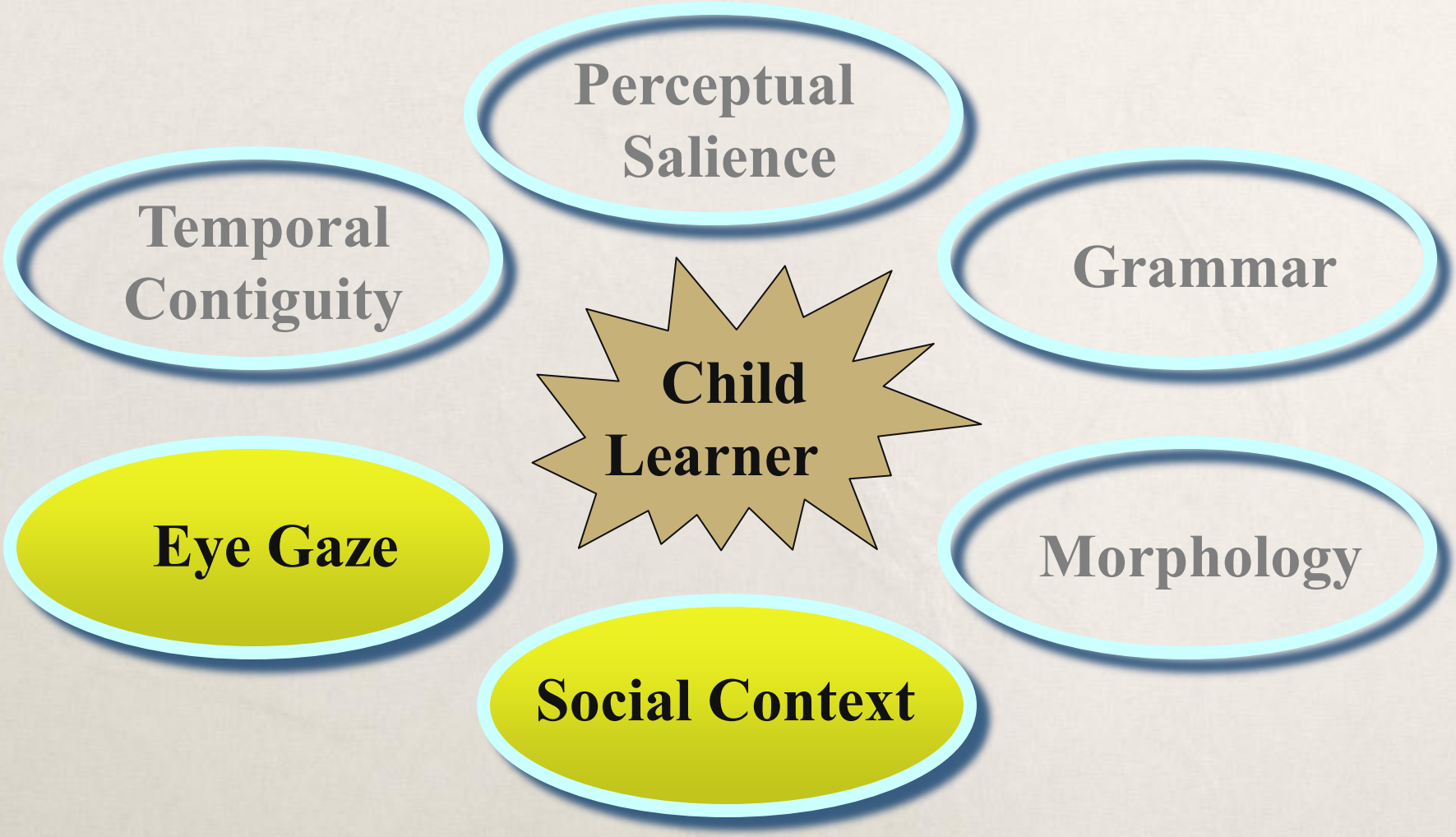


Hirsh-Pasek & Golinkoff, 1996;
Hollich, Hirsh-Pasek & Golinkoff, 2000)

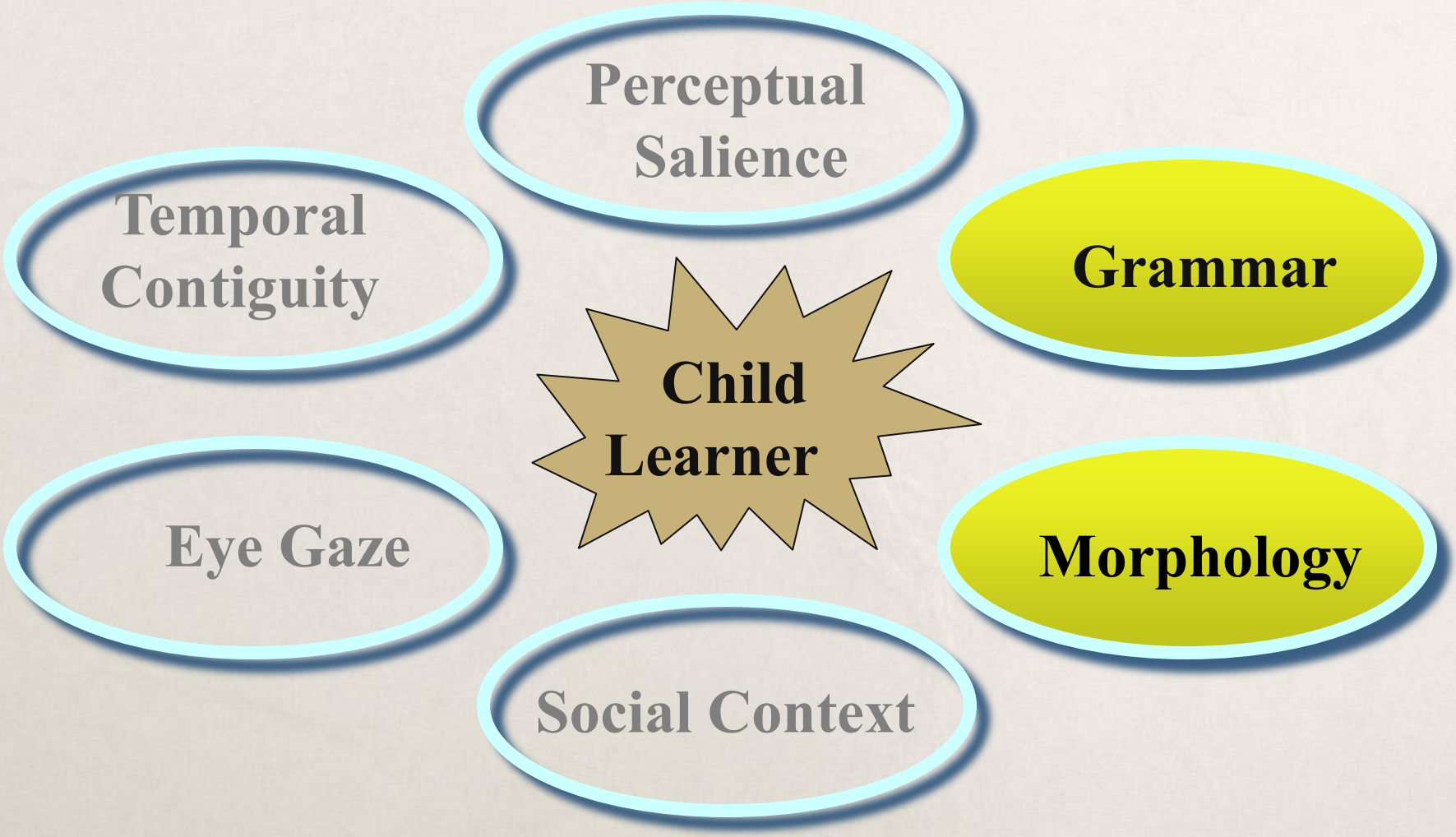
Differential Weighting: Time 1



Differential Weighting: Time 2



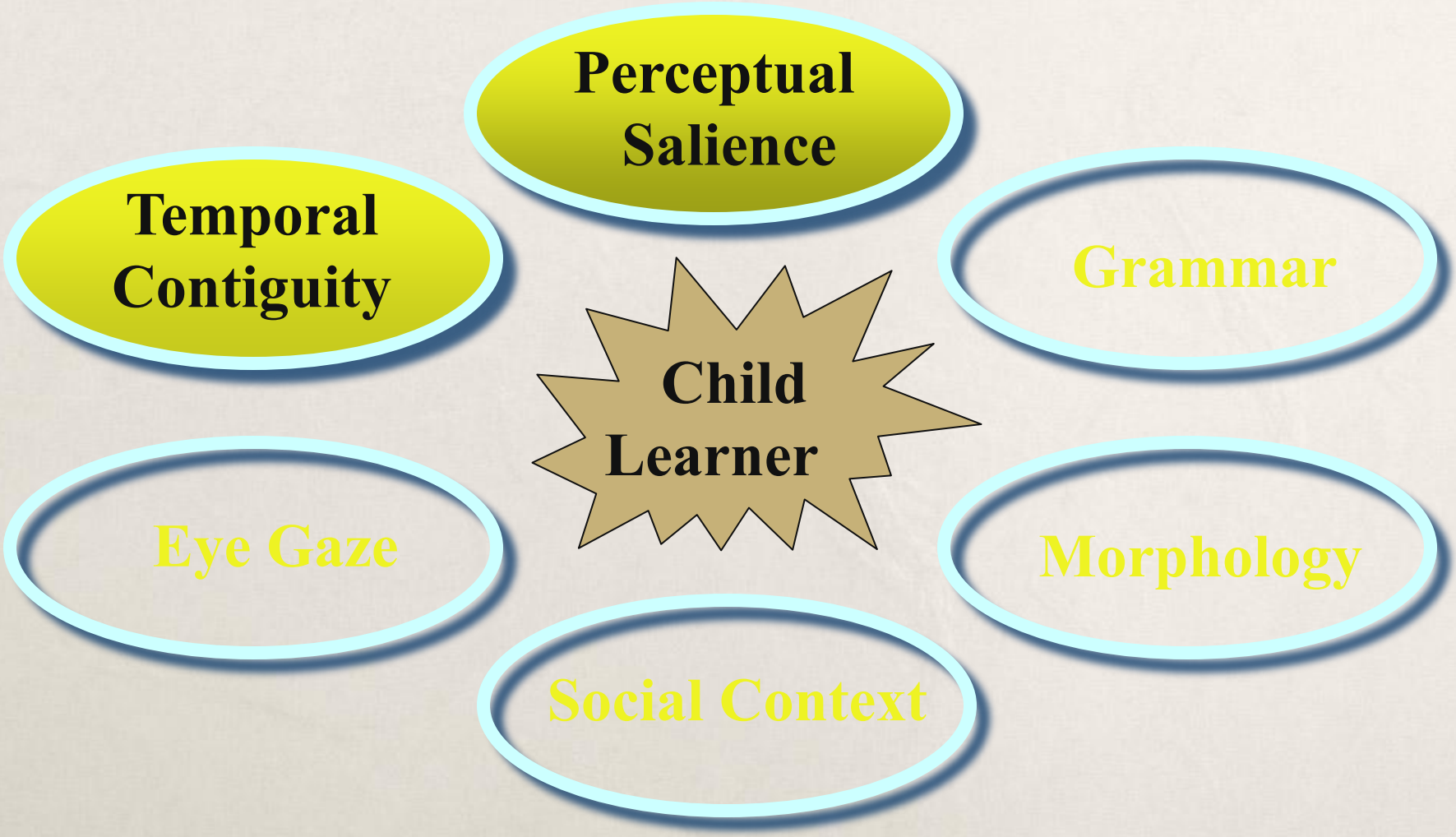
Differential Weighting: Time 3



Looking at some of the major new findings that support language growth

- **In perception**
  - **Of sounds**
  - **Of events in the world**
- **In social skills**
- **In word learning and grammar**

New research in perception supporting language learning



In the first year of life, babies discriminate sounds from all of the world's languages and become specialists in finding the words and sounds in their native tongue.

(Mehler & colleagues; Werker & colleagues)

The evidence?

- **Womb works- remember stories and songs heard in the womb!**
  DeCasper & Spence, 1986

- **4.5 months: baby recognizes sound pattern of own name e.g, Lauren vs. Suzanne**
  Mandel & Jusczyk, 1999

- **6 months – use own name or momma to segment speech and learn a new word presented in a passage**
  Bortfeld et al., 2005

- **7 months - speech perception relates to 24 mo vocabulary (Tsao et al., 2004)**

- **8 months: statistician**
  Saffran et al., 1996

- **9 months: homes in on native language becoming language specialist**
  Jusczyk, 1996

An example: Baby as Statistician
Saffran, Aslin, & Newport, 1996

High probability — Low probability — High probability

PRE 80% TTY .02% BA BY

Could 8-month old babies detect these low and high probabilities in an artificial sample and find the word boundaries?

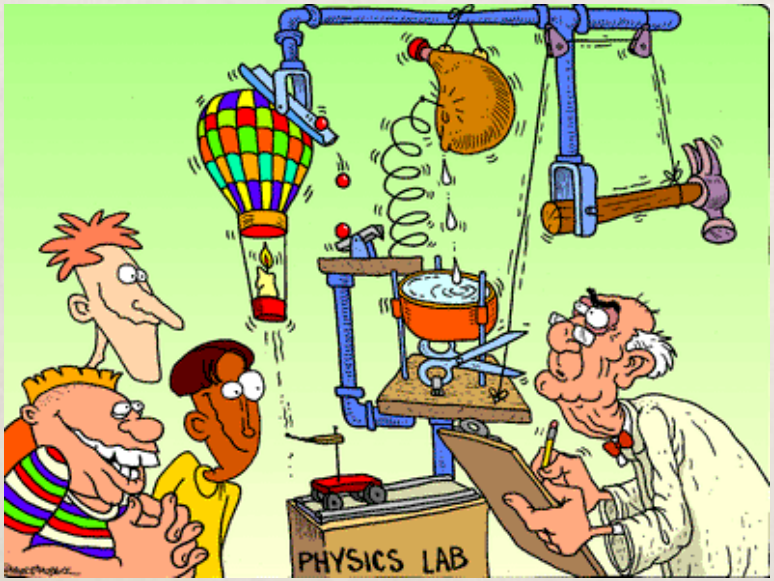
tokibugikobagopilatipolutokibu
gopilatipolutokibugikobagopila
gikobatokibugopilatipolugikoba
tipolugikobatipolugopilatipolu
tokibugopilatipolutokibugopila
tipolutokibugopilagikobatipolu
tokibugopilagikobatipolugikoba
tipolugikobatipolutokibugikoba
gopilatipolugikobatokibugopila

YES! Listening to only two minutes of speech

tokibugikobagopilatipolutokibu
gopilatipolutokibugikobagopila
gikobatokibugopilatipolugikoba
tipolugikobatipolugopilatipolu
tokibugopilatipolutokibugopila
tipolutokibugopilagikobatipolu
tokibugopilagikobatipolugikoba
tipolugikobatipolutokibugikoba
gopilatipolugikobatokibugopila

They discovered that tokibu was a word and latipo was not.

And babies are not only statisticians, but also physicists who find the building blocks of events!



* 4-month-olds are sensitive to properties of objects

  Spelke, 1990; Baillargeon, 1987

* 6-month-olds detect repeated actions in events

  Wynn, 1996

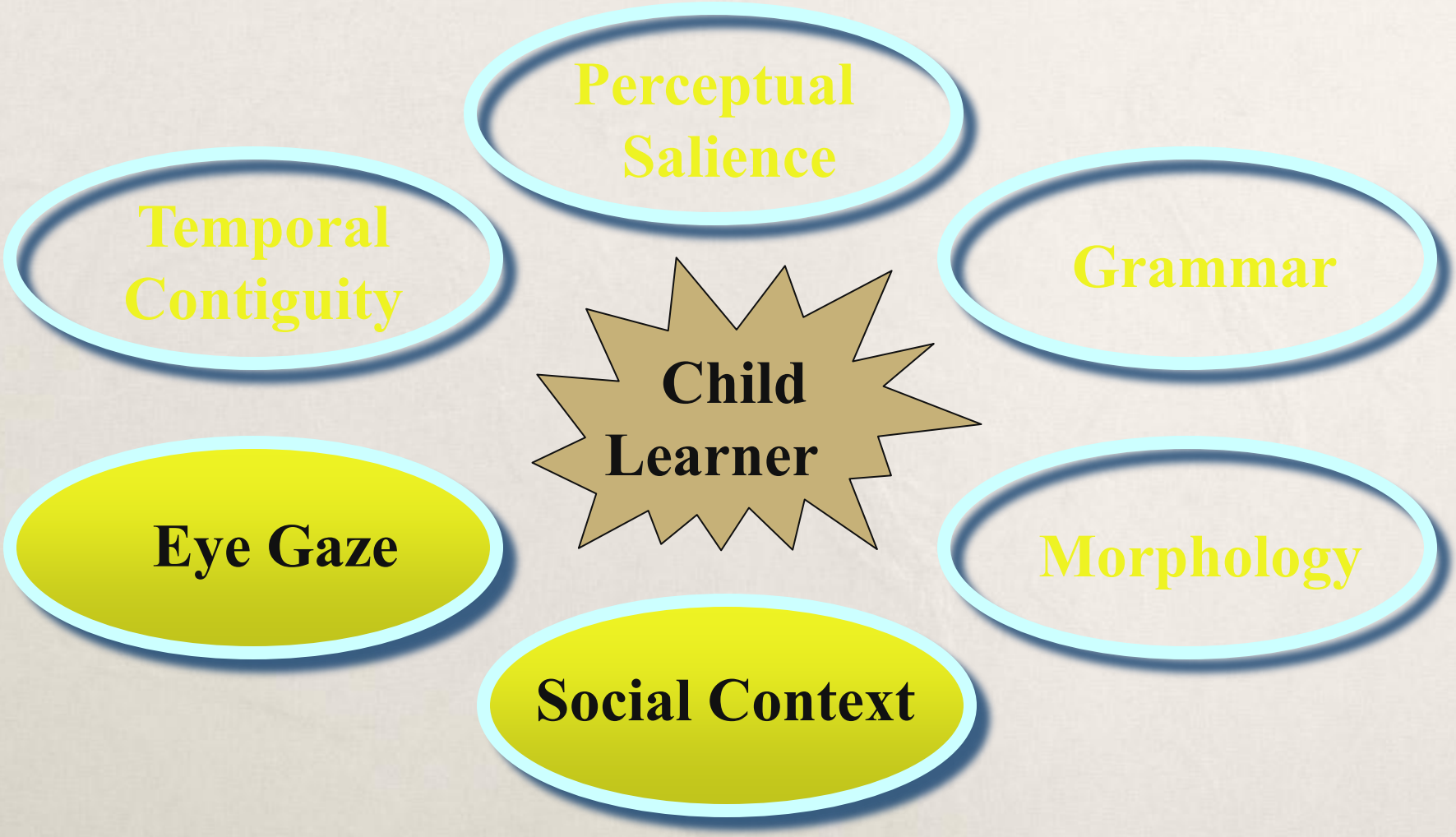
* 7- to 9-month-olds attend to properties of event structure like paths, manners, containment and support

  Pulverman et al., 2008; Pruden, 2007; Casasola & Cohen, 2002; Golinkoff & Hirsh-Pasek, 2008

* 13- to 15-month-olds home in on the way these event structures are packaged in their native tongue

  Hespos & Spelke, 2004; Choi et al., 1999; Goksun, Hirsh Pasek, & Golinkoff, 2010

New Research in Social Skills supporting language learning



The evidence

Children use joint attention, joint intention and eye gaze as a cue to learning new words

- 5- month-olds are sensitive to social contingency
  - **Goldstein & Schwade, 2009; Goldstein, Schwade & Bornstein, 2009**
- 8-month-olds link audio-visual events better with social cues than with non-social cues
  - **Wu & Kirkham (in press)**
- 12-month-olds can follow an adult's eye gaze to one of several targets, establishing joint attention
  - **Butterworth & Grover, 1988; Adamson, 1995; Carpenter & Tomasello, 2000**
- Children whose parents engage in more episodes of joint attention in infancy have more advanced vocabularies at age 2
  - **Akhtar et al.; Masur et al., 2005; Adamson, 1995; Tomasello & Farrar, 1986**
- By 24 months, infants follow social over perceptually salient cues to word reference
  - **Hollich, Hirsh-Pasek & Golinkoff, 2000**

And research from our lab suggests that children move from focusing more on perceptual information in the input to processing social input in the input.

A demonstration from Pruden et al. (2006)

Focus on the changing character of word learning in the first two years of life

Fido versus Freddy

Fido learns words associatively

Freddy learn words by noting the social intent of the speaker

Hollich, Hirsh-Pasek & Golinkoff, 2000; Pruden et al., 2006; Golinkoff & Hirsh-Pasek, 2006

What did we find?

- **10 months:**

Child systematically assumes that a label refers to an interesting object -- *even in the conflict condition when we looked at and labeled the boring object.*

Fido lives!

- **12 months:**

Can learn name only for interesting object; no longer mismap.

Fido fading!

Pruden, Hirsh-Pasek, Golinkoff, & Hennon. (2006). The birth of words. *Child Development*.

- 18 months

emerging!

Can learn name for boring object but still lured by perceptual salience.

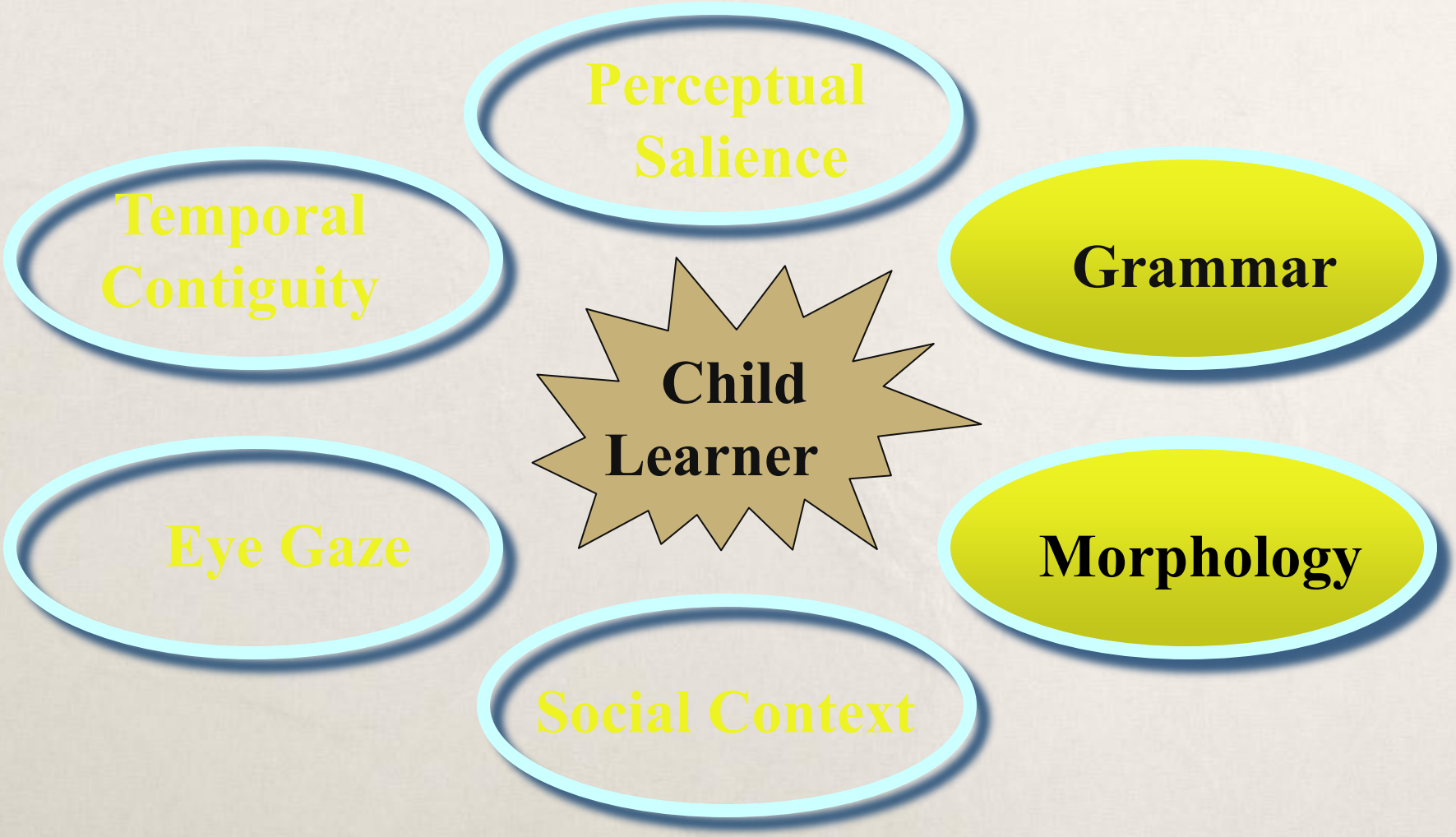
Freddy

- 24 months

Mature word learning. Uses social cues to label boring object; overrides perceptual salience.

Freddy lives!

New research on grammatical cues that support language learning



The evidence?

Babies connect sounds, objects, and events through words and grammar

- **7 months - extract algebraic patterns from sound sequences**
  - -- e.g., *roo tee roo* the 'same' as *ben ka ben* but not *ben ben ka* (Marcus et al, 1999)
- **8 months sensitive to fundamental grammatical device - *word order.***
  - -- Prefer to hear phrases using typical order of their native language (Japanese - Object-Verb; Italian - Verb-Object). Frequency and placement of function words like *the, a* vs content words responsible. (Gervain et al., 2008)
- **12 months: comprehends on average 100 words (**Fenson et al., 1994**)**
- **17 months: Babies can find events that map to differences in word order !**
  Hirsh-Pasek & Golinkoff, 1996; Golinkoff & Hirsh-Pasek, 2008

Are you impressed?

And babies hearing more than one language show these skills in both languages!

Conclusions

- We know a lot about the trajectory of language development

- Language development involves the integration of multiple systems

- There's a lot going on beyond the doctor's chart!

NOTE:
Milestones for second language learners generally follow same timetable as first language learners (Petitto et al., 2001) but some studies find that even though they are within the normal range…learning two languages takes a bit longer than learning one.

Slightly slower in vocabulary within any one language
Hoff & Place, in press

Slightly behind in grammar for any one language
Marchman, Fernald, Hurtado, 2010

The question is whether we can use what we know about early language development to optimize outcomes

6 Principles of language learning that can be used to enhance language (and hence reading) outcomes

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Distilling from the literature, we **boldly** (or was that tentatively) suggest 6 principles of language learning that can be used to enhance language outcomes and the foundation for reading

The 6 principles

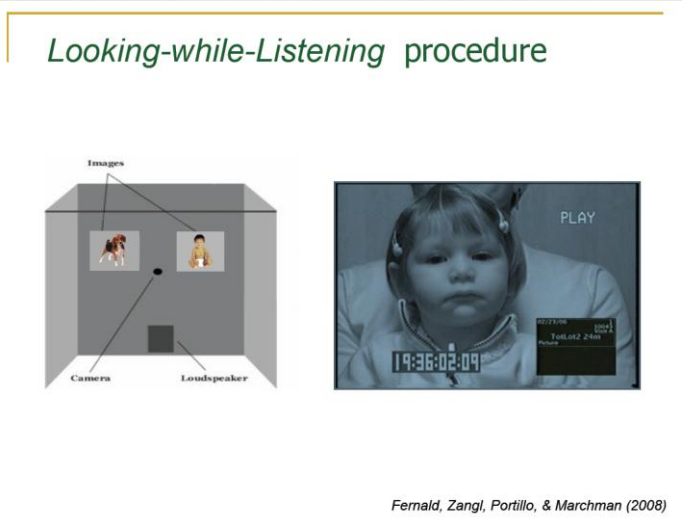
1. Children learn what they hear most-- frequency matters
2. Children learn words for things and events that interest them
3. Interactive and responsive environments build language learning
4. Children learn best in meaningful contexts
5. Children need to hear diverse examples of words and language structures
6. Vocabulary and grammatical development are reciprocal processes

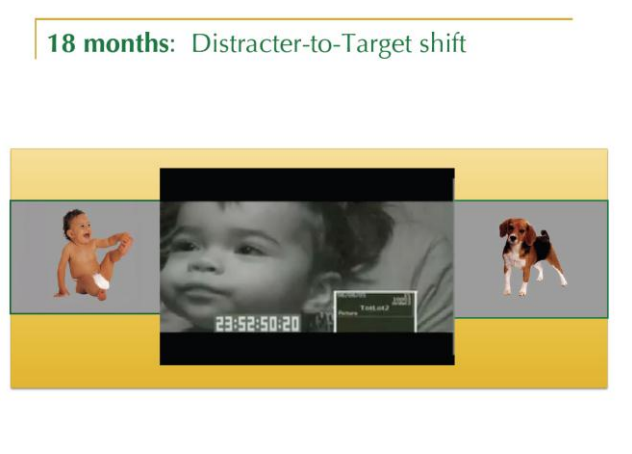
1. Children learn what they hear most--frequency matters

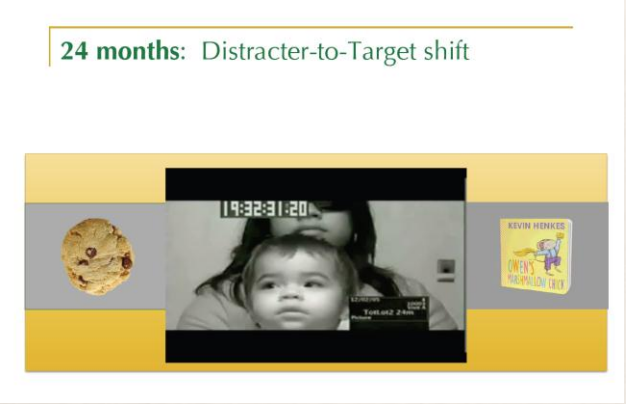
- Hart & Risley (1995)
- Amount of speech is important for statistical learning (Saffran et al., 1996)
- Amount of speech is important for speed of processing (Fernald, 2009)

A closer look at Fernald (2009): Amount matters because it increases processing speed!

Enter "looking while listening"

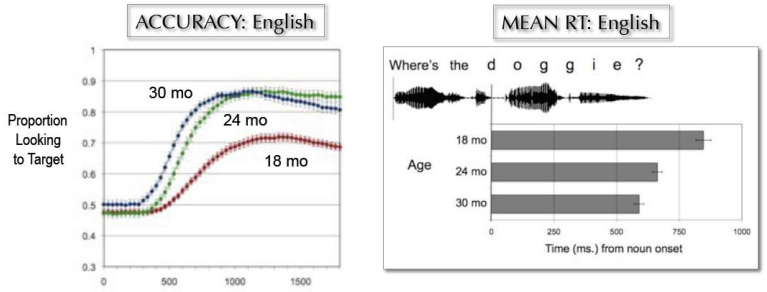






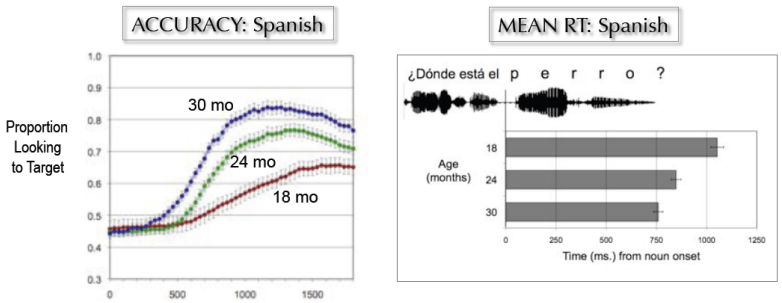
Results over time for English (n=76) and Spanish (n=50) children

ENGLISH longitudinal study: Changes in processing efficiency and vocabulary size from 18 to 30 months



VOCABULARY English (CDI)	18 Mo	24 Mo	30 Mo
	100	236	562

SPANISH longitudinal study: Changes in processing efficiency and vocabulary size from 18 to 30 months



VOCABULARY Spanish (CDI)	18 Mo	24 Mo	30 Mo
	60	230	411

And this processing speed relates to language and cognitive outcomes (e.g. reading) at age 5 years!

The **amount** **of input also** affects processing efficiency!

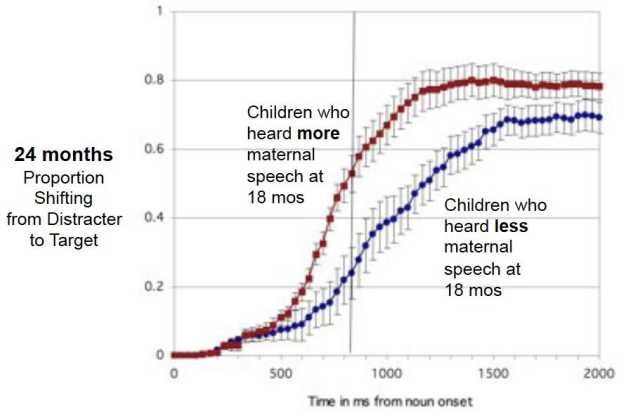
Does input affect *processing efficiency* as well as vocabulary growth?

- Children of mothers who talked with them more heard:
  - 7 times more words
  - 3 times more different words
  - Sentences twice as long
- Children of mothers who talked more at 18 mo had **larger vocabularies at 24 mo** AND ***increased more in processing speed***

  [controlling for differences in CDI & RT at 18 mo]

Hurtado, Marchman, & Fernald (2008)

Results: Input affects uptake!



Hurtado, Marchman, & Fernald (2008)

The 6 principles

1. Children learn what they hear most
2. **Children learn words for things and events that interest them**
3. Interactive and Responsive environments build language learning
4. Children learn best in meaningful contexts
5. Children need to hear diverse examples of words and language structures
6. Vocabulary and grammatical development are reciprocal processes

The evidence?
Children learn words for things and events that interest them

* L. Bloom's Principle of Relevance
  * "Language learning is enhanced when the words a child hears bear upon and are pertinent to the objects of engagement, interest and feelings…" (p.19)
* Babies attach labels to interesting not boring objects
  * Pruden, Hirsh-Pasek, Golinkoff & Hennon, 2006
* Evidence from babies and toddlers in joint attention: talk about what baby is looking at and examining and baby is more likely to learn a word than if you try and change the child's focus of attention
  * Akhtar, Dunham & Dunham, 1991; Tomasello & Farrar, 1986

Introducing the 6 principles

1. Children learn what they hear most
2. Children learn words for things and events that interest them
3. **Interactive and responsive environments build language learning**
4. Children learn best in meaningful contexts
5. Children need to hear diverse examples of words and language structures
6. Vocabulary and grammatical development are reciprocal processes

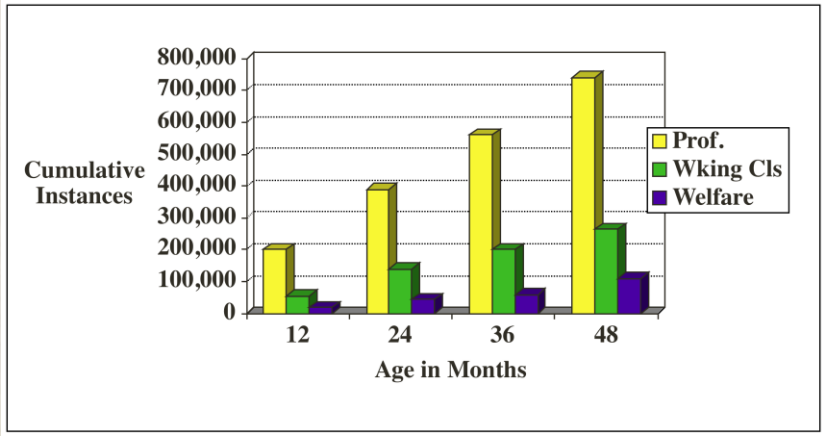
The evidence: Interactive and responsive environments build language learning

- What counts as sensitive and responsive language?

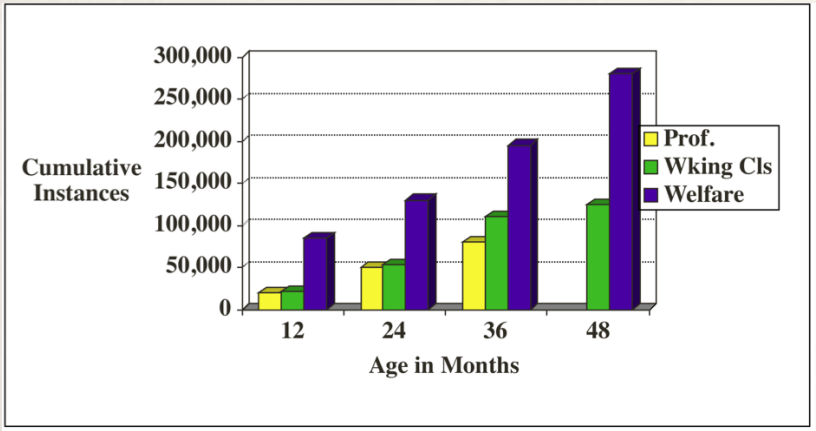
  - Talking *with* not talking *at*
  - Expanding on what the child says and does
  - Noticing what the child finds interesting and commenting
  - Asking questions rather than just making demands

Evidence 1: Back to Hart and Risley

Encouragements
(Affirmatives,praising)



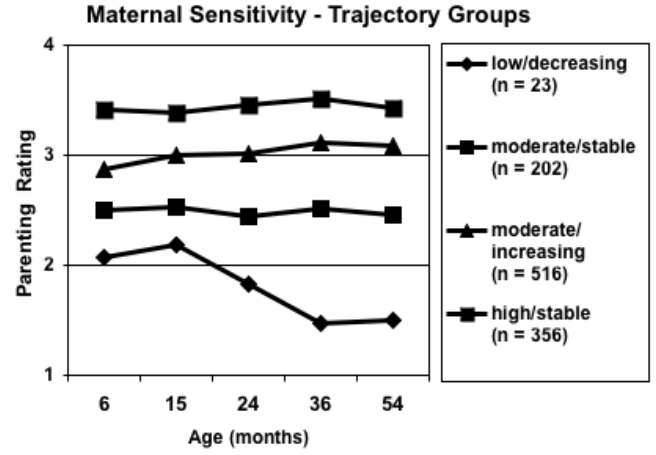
Discouragements
(Prohibitions, negative evaluations)



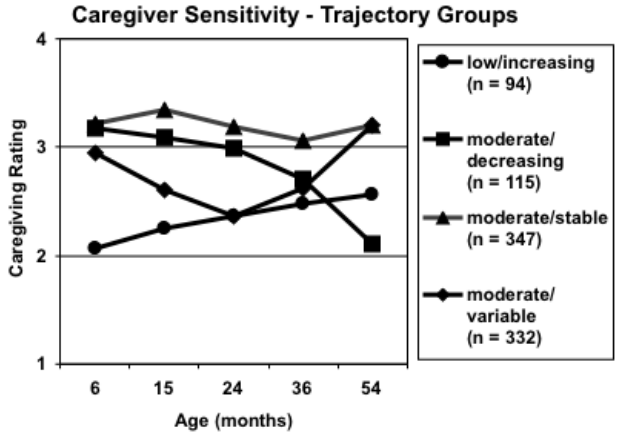
There is wide variability in the sensitivity and responsivity parents show to child language

Evidence 2: Focus on Hirsh-Pasek & Burchinal (2005) using the NICHD ECCRN Data Base

|Figure 1: Child experienced *maternal* sensitivity: Trajectory groups



|Figure 2: Child experienced care provider sensitivity: trajectory groups



The type of sensitivity pattern children experienced over time related to 54 month outcomes in language and in academic achievement (e.g. reading).

Evidence 3: Video chats vs TV

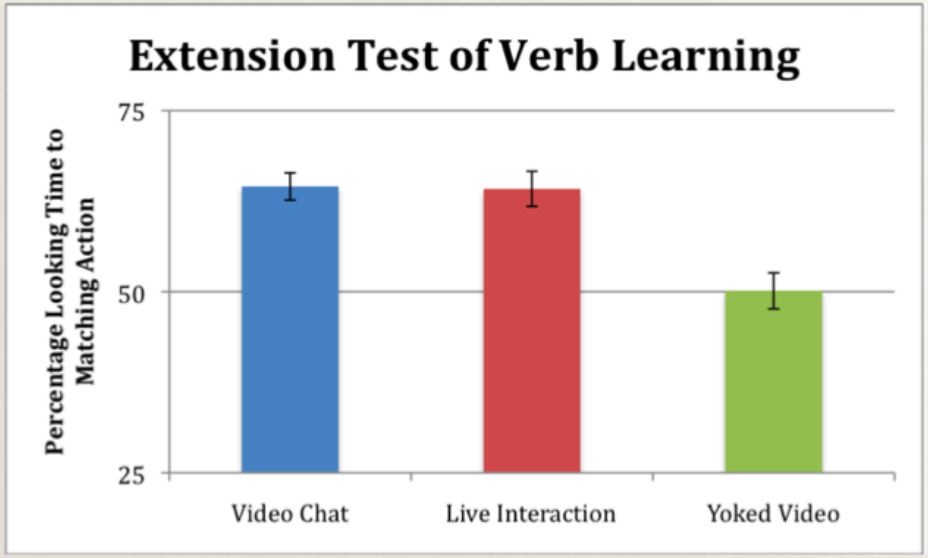
Roseberry, Hirsh-Pasek and Golinkoff, in preparation

Tested word learning from 24- to 30-month-olds in one of three ways:

* Video Chat Training (responsive and contingent but 2D)
* Live Interaction Training (responsive and contingent 3D)
* Yoked Video Training (a pre-recorded video not responsive or contingent)

Results – How did children respond to video chats compared to live interactions?

Learning from video chats was more like LIVE than like TV



The 6 principles

1. Children learn what they hear most
2. Children learn words for things and events that interest them
3. Interactive and responsive environments build language learning
4. **Children learn best in meaningful contexts**
5. Children need to hear diverse examples of words and language structures
6. Vocabulary and grammatical development are reciprocal processes

The evidence: Children learn best in meaningful contexts

Recent studies from our lab suggest that children learn richer vocabulary in playful learning where the information is meaningful than they do in direct instruction methods devoid of meaningful engagement.

This has been found in…

* Studies on shape learning with 4-year-olds
    * Hirsh-Pasek, Newcombe & Golinkoff, in progress
* Spatial language through block play with 4-year-olds
    * Ferrara, Shallcross, Hirsh-Pasek, Newcombe & Golinkoff, in press

The 6 principles

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The Evidence: Children need to hear diverse examples of words and language structures

* **Amount and diversity of verbal stimulation fosters early and rich language outcomes**
    * Beebe, Jaffee & Lachman, 1992, Snow, 1986. Tamis-LeMonda, in preparation

* **When fathers used a more diverse vocabulary in interactions with their infants at 6 months of age, their children developed more advanced communication skills at 15 months accounting for 7% of the variance.**
    * Pancsofar & Vernon –Feagans, 2010

* **Children's vocabulary performance in kindergarten and later in second grade related more to the occurrence of sophisticated lexical items than to quantity of lexical amount of child's talk produced during the interactive settings, at age 5, predicted 50% of the variance in children's second grade vocabulary**
    * Weizman & Snow (2000)

The 6 principles

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4. Children learn best in meaningful contexts
5. Children need to hear diverse examples of words and language structures
6. **Vocabulary and grammatical development are reciprocal processes**

The evidence: Vocabulary and grammatical development are reciprocal processes

- **Words and grammar are "developing in synchrony across the first few years of life"** (Conboy & Thal, p.209)

- **In a bilingual sample, the amount of English words predicts English grammar and amount of Spanish words predicts the onset of Spanish grammar** (Conboy & Thal, 2006)

- **There is a reciprocal relationship between words and grammar: sometimes grammar allows children to learn words** (Naigles, 1990; Gillette, Gleitman, Gleitman & Lederer (1999) Imai, Li, Haryu, Hirsh-Pasek, Golinkoff, & Shigematsu (2008); Fisher & Song (2006)

Reprise: We can define language learning through 6 basic principles

1. Children learn what they hear most
2. Children learn words for things and events that interest them
3. Interactive and responsive environments build language learning
4. Children learn best in meaningful contexts
5. Children need to hear diverse examples of words and language structures
6. Vocabulary and grammatical development are reciprocal processes

And one shocking note

* Bilingualism is the norm….not the exception

* So these principles work well for children learning more than one

* SO…if we use these principles as a guide, we should also be able to help low income and ELL children improve their language and school readiness skills!

A Talk in 4 parts

- **Language is a critical foundation for reading**

- **A bird's-eye view of language development**
  - Language development: what you see
  - Language development: what you don't see

- **Lessons from the crib for the classroom**
  - **6 Principles from the crib for the classroom**

- **Looking forward**
  - Using the 6 principles in pedagogy
  - Using the 6 principles in language and reading research
  - Policy implications

What we know is …

- **That Reading depends on a strong language foundation**

- **That Low SES children are getting significantly less language input**
  - This affects their ability to do the statistical learning that supports language
  - This affects their processing speed
  - This affects their brain development
  - This will affect later school readiness
  - When we see that ESL children are learning less well it is likely because they are poor, not because they are learning two languages

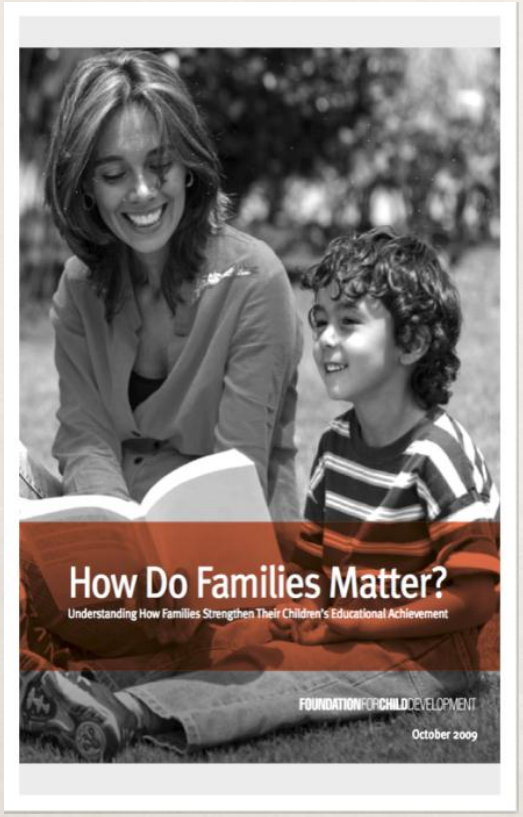
- ***What* typical development looks like**
  - there is wide variability in trajectories for language learning
  - language development is malleable

- **And *how* we can change trajectories: 6 principles**

Putting the theory to the test.

The practical and empirical challenge.

The practical challenge: The 6 Principles in practice



Three Mothers and an Eggplant

Foundation for Child Development (2009)

The 6 Language principles in two language styles

	Mother 3	Mother 1
✓ Children learn what they hear most	* yes	no
✓ Children learn words for things and events that interest them	* yes	maybe
✓ Interactive and Responsive environments build language learning	* yes	no
✓ Children learn best in meaningful contexts	* yes	no
✓ Children need to hear diverse examples of words and language structures	* yes	no
✓ Vocabulary and grammatical development are reciprocal processes	* yes	maybe

Can we train parents and teachers to be more like mother 3?

We are trying…
by making supermarkets into museums

In collaboration with Fresh Grocer

thefreshgrocer

Ridge, Ilgaz, Weisberg, Hirsh-Pasek & Golinkoff, in progress


IMG769.jpg
Status: Downloaded
Mime-type:image/jpeg
Control-click for menu
I'm a red delicious apple!
Can you find other kinds of apples?
Certificate of Completion
RED DELICIOUS APPLES
.99 lb
What can you make with me? Stuffed Apples!
GOLDEN DELICIOUS APPLES
.99 lb
Certificate of Completion
thefreshgrocer


We are purple onions!
Do we grow on trees or in the ground?
thefreshgrocer
ASSORTED PEARL ONIONS
PRODUCT OF USA
$2.99
RED SWEET ONIONS
1.49 lb
YELLOW ONIONS
1.49 lb

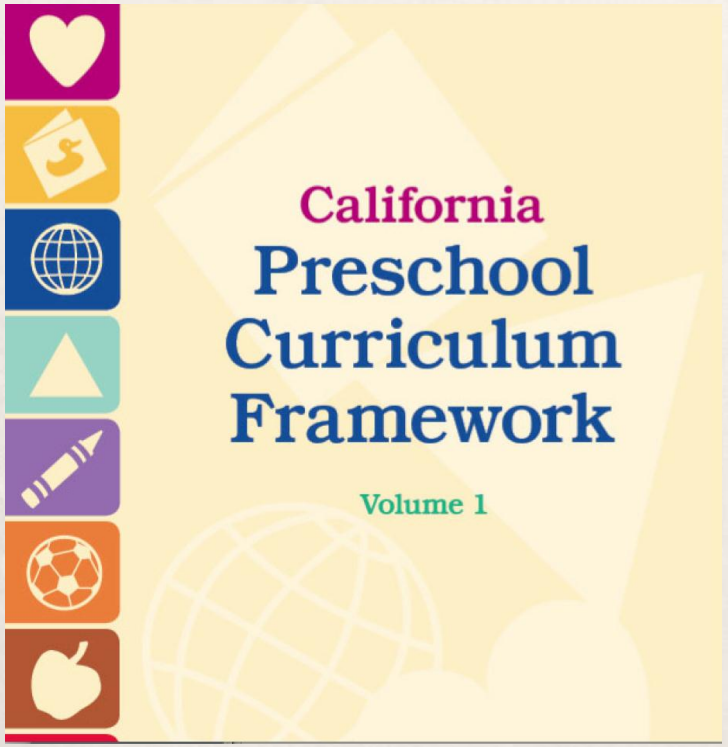
We also trained parents and caregivers in our work on the California Preschool Curricula

* The California Curricula
* The Goal: Building language to support reading and school outcomes
* The Design: Putting the 6 principles to work
* An example:

  Armand finds a worm on the playground and gently carries it to show the teacher. A group of excited children follow him, eager to learn more about the worm. Ms. Krim asks, "What did you find there, Armand?" as she signals to others to join the conversation. "Is it alive?" one child asks. The teacher responds, "What do you think? How could we tell?"

  Principles: interest, interactive and responsive, meaning, vocabulary and grammar

California Department of EDUCATION



The empirical challenge

To show that by changing input --- by systematically manipulating the 6 principles, we can change language trajectories for young children by starting early

The language for reading is malleable!

In fact, our current research is doing just that…

asking whether …

> Children who learn language in ways consistent with the 6 principles learn more language and vocabulary that translates into reading outcomes?
>
> Dickinson, Hirsh-Pasek & Golinkoff (2011)

STAY TUNED

In sum…

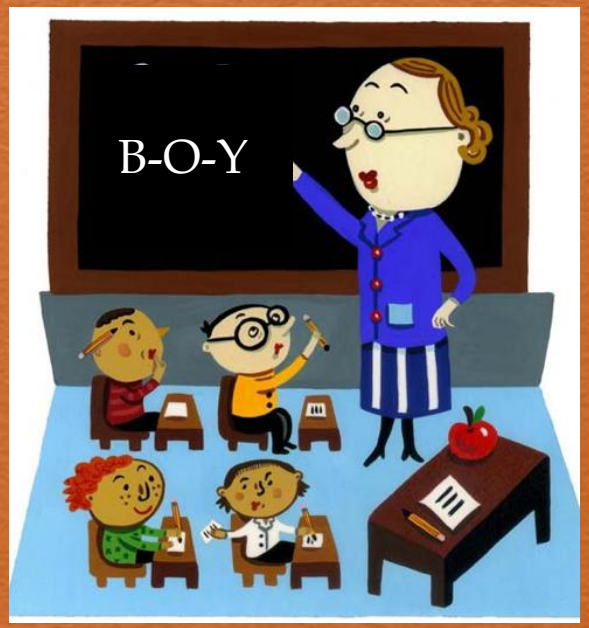
1. Reading is a complex process

1. We know about how to support code skills and less about language to support reading

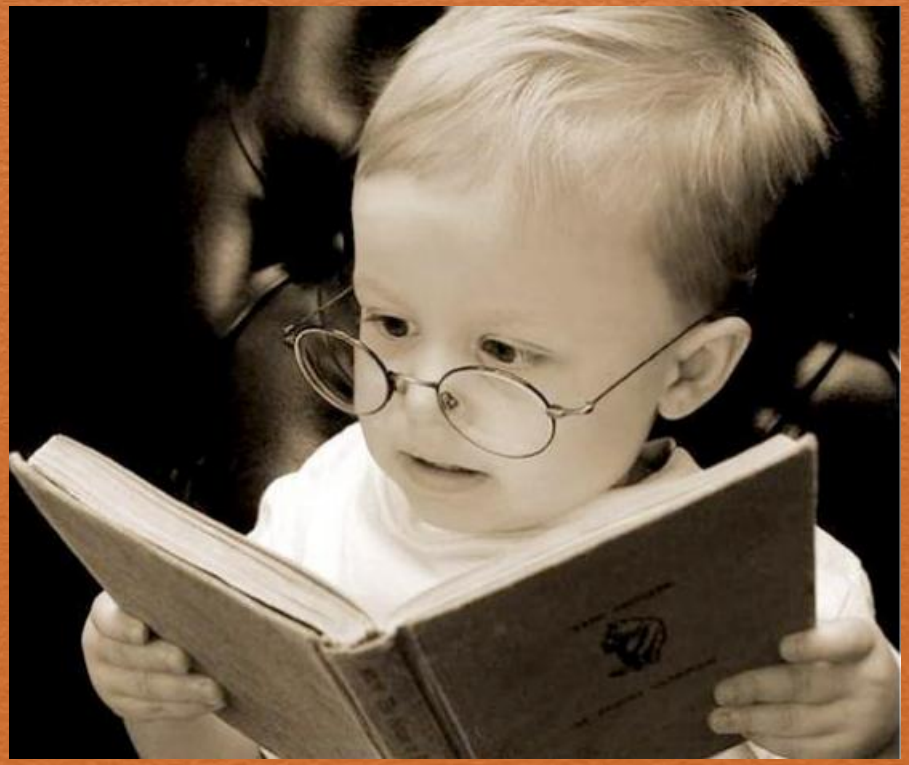
1. Yet those who study language development in the crib have lessons for the classroom

1. Six principles of language learning can help us promote strong language for reading for all children

2. **More research needs to establish links between these principles from the crib and reading outcomes in the classroom.**



Strong language predicts strong reading



And we need to support strong language skills not just in classrooms….

* But in communities where parents live….

From the subways

to the supermarkets

Policy implications??

- Reading outcomes will not be strong unless a child's language is strong
- Start early (4 years is too late)
- Use high teacher to child rations (so that children get enough direct input)
- Ensure high quality language in – not TV, but meaningful interaction
- Mandate professional development to link research and practice
- Need a curriculum that covers all domains of development and goes beyond the classroom
- Ensure that teachers use the curricula (assess through observation & process meas.)
- Ensure that evidence based practice in preschool aligns with practice in higher grades by…
  - Using effective practices that translate from preschool into elementary school
  - NOT merely pushing down 1st grade into preschool
- Respect that having 2 language is a GOOD not BAD thing for children!

Thanks to NSF, NIH & IES along with….

The most amazing labs ever!

My long-term collaborator Roberta Golinkoff, and my colleagues Jenny Saffran and Ann Fernald who so graciously shared their slides for this presentation.