

Presentation 19: Acquisition of language

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What develops?

Form of signals

("baba" to "water"; pointing to "over there")

Functions of signals

(at first "doggie" = four-legged animal)

Intelligence: Children get smarter as they grow older

- Intelligence develops
- Earliest concepts develop, change
- New concepts acquired
- Understanding of intentions, other minds

Knowledge of the world, how things work

Coordination with others

- Conversations develop in complexity
- Understanding of other's motives, beliefs

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Basic questions in language acquisition

1. How do later functions develop from earlier ones?
2. How do later forms develop from earlier ones?
3. *Why* does language develop?

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Three styles of speaking around children

1. *Talking-for*. Talking to children as a *class* of people
Example: Sesame Street
2. *Talking-to*. Talking to individual children
Example: a voice message for a child
3. *Talking-with*. Engaging children in interaction
Example: talking with a child face-to-face

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Intonation as means of maternal control

Function	Example
1. Approval	"Good boy yeah" in large, smooth pitch swings on each word
2. Prohibition	"No. No. No" in three short, rhythmic, staccato bursts with small pitch swings
3. Attention-bid	"Look at the ball" in two large smooth pitch swings
4. Comfort	"Oh ... yeah ..." in one long, low, smooth pitch swing
5. Game	"Peek-a-boo" in two low plus one large rhythmic pitch swings

Talking-to

(Anne Fernald)

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Development of joint activities *before language*

Specialized routines: kids take active part

- mother feeding child
- dressing child
- peekaboo
- waving bye-bye

Other coordination

- handing things to each other (e.g., blocks, bottles)

Note alternation of activity (*proto-adjacency pairs*)

Part 1: child does something

Part 2: mother reacts

Communicating-with

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Proto-conversation (at 3 months)

Ann: (smiles)
Mother: oh what a nice little smile
yes, isn't that nice?
there
there's a nice little smile
Ann: (burps)
Mother: what a nice little wind as well
yes, that's better, isn't it?
yes
yes
Ann: (vocalizes)
Mother: there's a nice noise

Proto-talking-with

(Catherine Snow)

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Proto-conversation (at 18 months)

Ann: (blowing noises)
Mother: that's a bit rude
Ann: mouth
Mother: mouth, that's right
Ann: face
Mother: face, yes, mouth is in your face
what else have you got in your face?
Ann: face (closing eyes)
Mother: you're making a face aren't you?

Talking-with

(Catherine Snow)

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Child engaged speech

Attention getters

Use of name:
Use of pitch:
Use of gestures, touching

Ned, go to your room
high pitch, pitch variation

Content of talk

About here and now:
Use of child words:
Use of basic level terms:
Avoidance of complex syntax

Look at this!
mama, papa, fishy
dog, not spaniel

Prompts for turn taking

Overuse of questions:
Question + answer:
Inverted questions:

Where did he go?
What do you want? YOU want an apple?
You want what?

Talking-with

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How do children learn from talking with adults?

Do children learn from *polarity* feedback? No.

1. Child receives *explicit approval*, e.g.
 - That's right
 - Correct
 - Very good
 - Yes
2. Or *explicit disapproval*
 - That's wrong
 - That's not right
 - No

But no evidence of learning

Children learn largely from grounding

1. Children learn from normal process of grounding what is said
2. In grounding, adult and child try to reach the mutual belief that the adult has understood what the child meant, or vice versa

Communicating-with

Grounding with gestures in adults

Danny and now get (.75) a-uh eight piece green,
Ed (1.5) (*rummages through the blocks and retrieves an "eight piece green"*)

Ed (*exhibits the block to Danny*) **Action**
Danny and join the two ... (continues) **Uptake**



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Grounding with gestures in adults

Doris Take a short blue.
Betty (*Retrieves a short blue block.*) **Action**
Doris (*Looks at Betty's block.*) **Uptake**
Put it at the end of the yellow close to the green.
Betty (*Places the blue block on the yellow block.*) **Action**
Doris (*Looks at result.*) **Uptake**
Take a ...



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Jordan (12 mo) wants sponge out of reach

1	Jordan (vocalizes repeatedly until his mother turns around)	request
2	Mother (turns around to look at him)	response
3	Jordan (points at one of the objects on the counter)	request
4	Mother Do you want this? (holds up milk container)	initiate-repair
5	Jordan (shakes his head no) (vocalizes, continues to point)	self-repair + signal
6	Mother Do you want this? (holds up jelly jar)	initiate-repair
7	Jordan (shakes his head no) (continues to point)	self-repair + signal
8	[2 more offer-rejection pairs]	
9	Mother This? (holds up sponge)	initiate-repair
10	Jordan (leans back in high-chair, puts arms down, tension leaves body)	acknowledge
11	Mother (hands Jordan sponge)	response to request

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Brenda (18 mo) hair blown by electric fan

Brenda fei
Brenda fae **self-repairs**
Mother Hm? **to establish understanding**
Brenda fei **before going on**
Mother Bathroom?
Brenda fani
Brenda fai
Brenda fei
Mother Fan! Yeah. **confirmation**
Brenda ku
Mother Cool, yeah. Fan makes you cool.

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Brenda (19 mo.) speaking to father

Brenda car [4 times] **self-repairs**
Father What? **to establish understanding**
Brenda go [2 times] **before going on**
Father xxx [untranscribable]
Brenda bus [9 times]
Father What? Oh, bicycle? Is that what you said?
Brenda na'
Father No?
Brenda na'
Father No—I got it wrong **failure to confirm**

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Grounding with children

Children, like adults, try to make sure they are understood

Hence children engage in grounding

With acknowledgements

With uptake

With self-repairs

But how does grounding help children learn language?

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Grounding in adults when there are errors

1. Side sequences

Roger now, - um do you and your husband have a j- car

Nina have a car?

Roger yeah

Nina no - [Svartvik & Quirk]

2. Embedded corrections

[Customer in a hardware store looking for a piece of piping]

Customer Mm, the wales are wider apart than that.

Salesman Okay, let me see if I can find one with wider threads.

(Looks through stock) How's this?

Customer Nope, the threads are even wider than that.

[Jefferson]

A-B-B pattern

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Grounding with children when there are errors

1. Parental side sequence

Abe (2;6): Milk. Milk.

Father: you want milk?

Abe: uh-huh.

Father: OK. Just a second and I'll get you some.

2. Embedded correction taken up:

Abe (2;5): I want butter mine.

Father: okay give it here and I'll put butter on it.

Abe: I need butter on it.

A-B-B pattern

3. Simple acceptance of embedded correction

Abe (2;5): The plant didn't cried.

Father: The plant cried?

Abe: No

Father: Oh. The plant didn't cry

Abe: Uh huh

A-B-yes pattern

"reformulations"

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CHOUINARD & CLARK

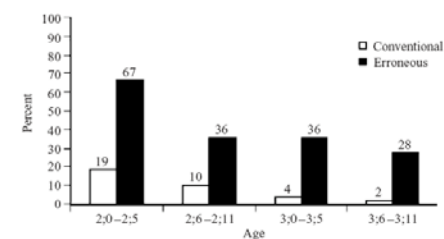


Fig. 1. Percentage of Abe's conventional utterances replayed and erroneous utterances reformulated.

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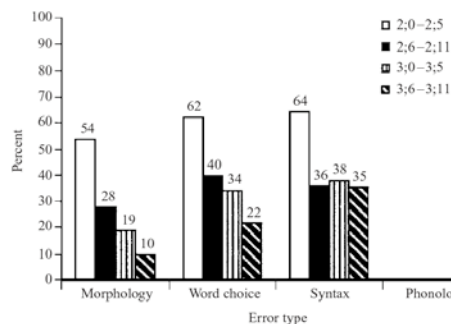


Fig. 6. Percentage of Abe's erroneous utterances for each error type that were reformulated for that error.

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Child-engaged speech is crucial

1. Child makes a mistake (of any kind)

2. Adult reformulates mistake over 50% of the time

- With a side sequence
- With an embedded correction

3. Child follows up with his or her speech

- With a corrected formulation A-B-B pattern
- With uh-huh A-B-yes pattern

Hart & Risley study

Comparison of children in three SES classes

- 13 professional families
- 23 working-class families
- 6 welfare families

Recordings in home over years

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Vocabulary, interactive talk by SES

Families' Language and Use Differ Across Income Groups					
Families					
13 Professional		23 Working-class		6 Welfare	
Measures & Scores	Parent	Child	Parent	Child	Parent
Protest score*	41	31	14	14	14
Recorded vocabulary size	2,176	1,116	1,498	749	974
Average utterances per hour	487	310	301	223	176
Average different words per hour	382	297	251	216	167

*When we began the longitudinal study, we asked the parents to complete a vocabulary pretest. At the first observation each parent was asked to complete a form abstracted from the Peabody Picture Vocabulary Test (PPVT). We gave each parent a list of 40 vocabulary words and a series of pictures (four options per vocabulary word) and asked the parent to write beside each word the number of the picture that corresponded to the written word. Parent performance on the test was highly correlated with years of education ($r = .57$).
*Parent utterances and different words were averaged over 15-36 months of child age. Child utterances and different words were averaged for the four observations when the children were 33-35 months old.

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Cumulative language experience by SES

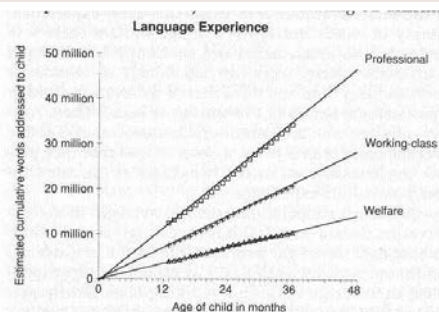
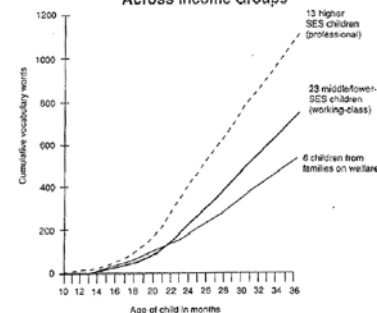


Figure 19. Estimated cumulative differences in language experience by 4 years of age. (See Appendix B for a detailed explanation of this figure.)

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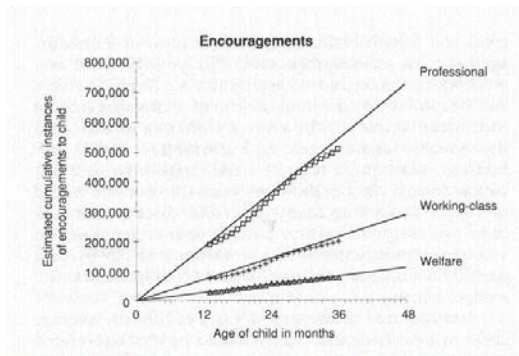
Children's vocabulary by SES by age 3

Children's Vocabulary Differs Greatly Across Income Groups

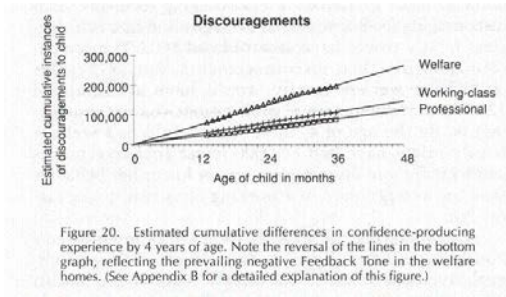


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Encouragements such as “Great” “Right”



Discouragements such as “Stop that” “Don’t”



Speech heard by 19-month olds

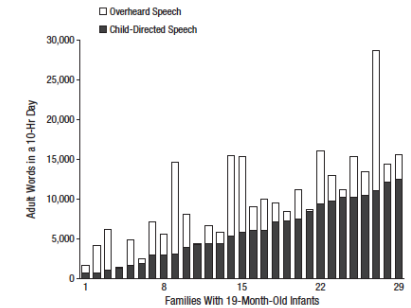
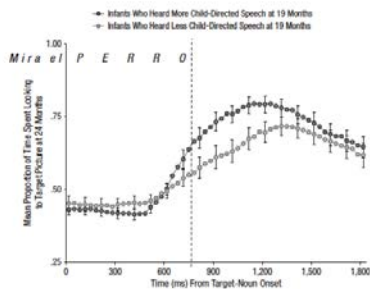


Fig. 1. Mean number of words that infants heard adults speak in a typical day at home for each family and each type of speech.

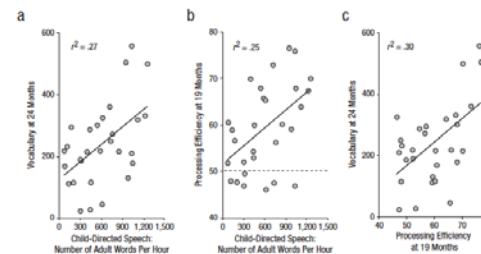
(Weisleder & Fernald 2013)

RT to look at the correct photograph



(Weisleder & Fernald 2013)

Vocabulary at 24 months



(Weisleder & Fernald 2013)

Conclusions

Children acquire words mostly *in interaction with adults*

Case 1: Dutch children watching German TV

Case 2: Child of deaf parents

Children's errors are corrected in the *very process of interacting*

in side sequences

in embedded corrections

Children acquire *more words the more they interact with adults*

the effects are *enormous*

the effects *accumulate* with age