Socioeconomic status and oral language skills in children: A systematic review

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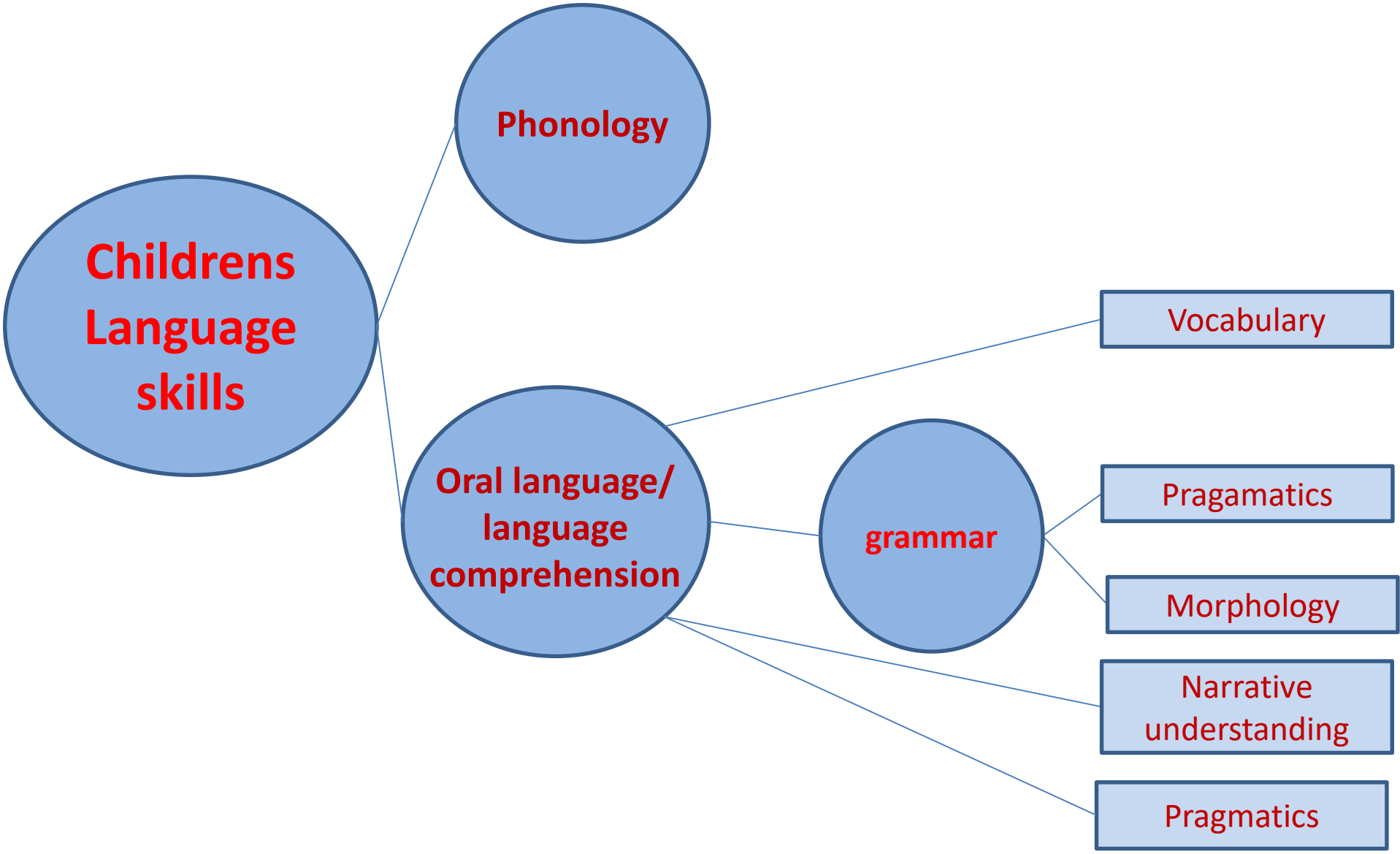

Childrens Language skills
Phonology
Oral language/ language comprehension
grammar
Vocabulary
Pragamatics
Morphology
Narrative understanding
Pragmatics

Oral language skills

Fundamental for social interaction and societal participation

Fundamental for reading comprehension, at later ages the two actually close to isomorphic constructs

Seen as fundamental in humans, therefore included in most intelligense tests as crystallised intelligence

Socio-economic factors

- Socioeconomic factors, such as parental income, educational level, or home environment appear to be related to variation in children's oral language skills (e.g. Pace, Luo, Hirsh-Pasek & Golinkoff, 2016; Sirin, 2005).
- However; previous studies disagree about the strength of the relation and the factors that moderate it (Sirin, 2005; White, 1982).

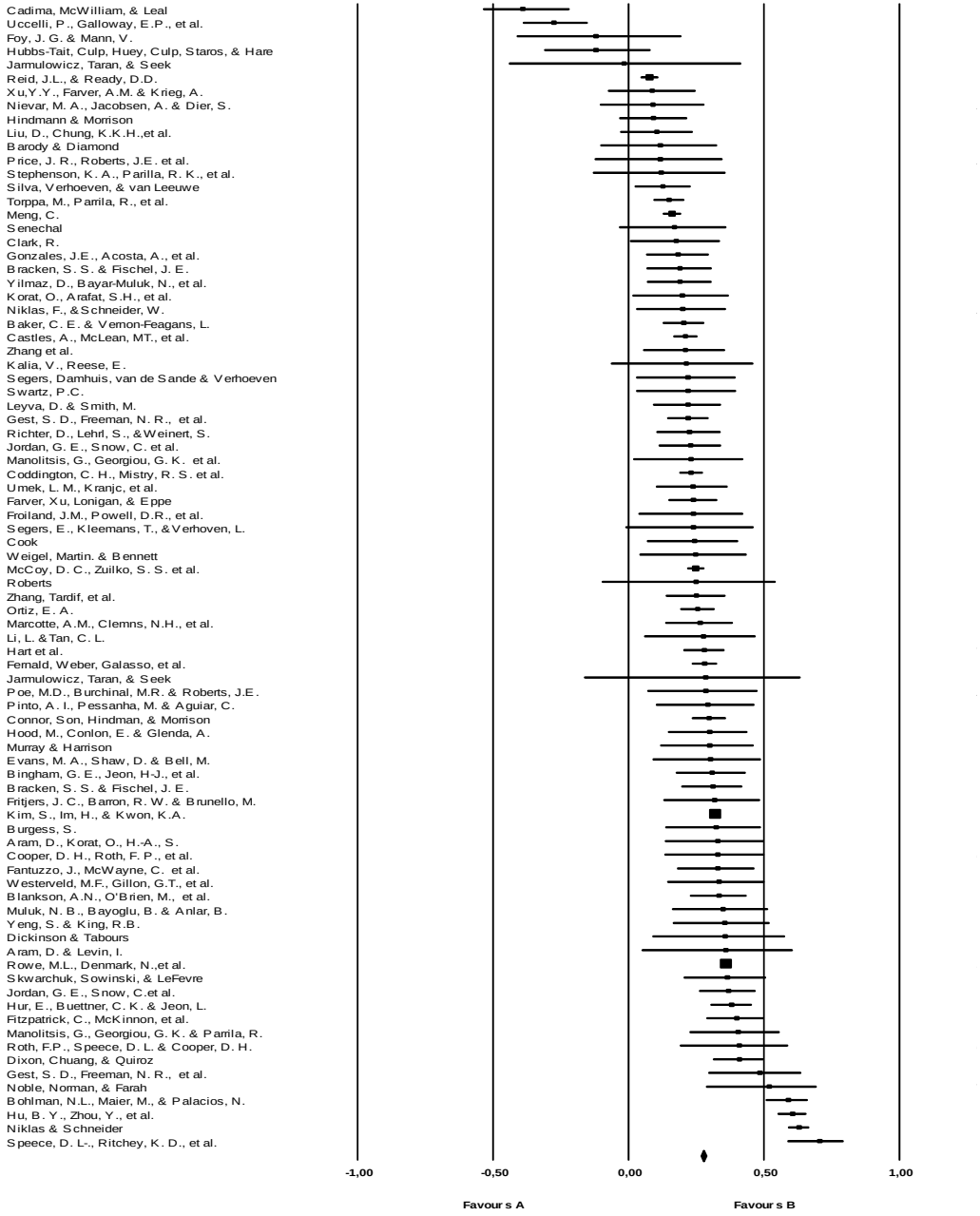
METHOD

- **<u>Inclusion criteria:</u>**
- Studies reporting on concurrent data.
- Studies including children in the age range 4 to 12.
- Studies including L1 or L2 learners.
- Studies published after 2000.
- Stuides reporting on:
- *SES* (a socioeconomic variable, a measure of home environment or SES-scale)
- *Oral language* (vocabulary, grammar, narrative skills, listening comprehension or composites).
- *Pearsons r* correlation

- **<u>Exclusion criteria:</u>**
- Clinical or selected samples

RESULTS

- Search in four databases, reference list, previous reviews
- 3279 references from electronic search.
- **91** studies met the eligibility criteria
- 148 correlations were extracted



Mean correlation

r = 0.25 [0.21, 0.29]

Thus, SES explains 6% of the variation in childrens language skills

BUT:

Large variation in results between studies

Q (82) = 90.96, $p < 0.001$

I square 90.96

What can explain this variation between studies?

- ✓ **Significant difference between different language measures**

Broader individually administered measures tend to give higher correlations, ***r*** =0.31 [0.23, 0.39] Q(6) = 40.43, p = 0.0001 than more narrow measures

- ✓ **Significant differences between type of SES measures**

Home language environment $r = 0.33$ (0.20, 0.45)

Mothers education $r = 0.36$ (0.34, 0.38)

Gives higher correlations than SES composites, fathers education, income and frequency of book reading

$Q(6) = 42.12$, $p = 0.0001$

- ✓ **Significant differences between studies with samples of different SES levels**

Only low SES r = 0.22 [0.17, 0.27] k = 15
Full range SES r = 0.28 [0.24, 0.31] k = 67

Q(1) = 8.69, p = 0.01

- ✓ **No significant difference between US studies, european studies and other studies**

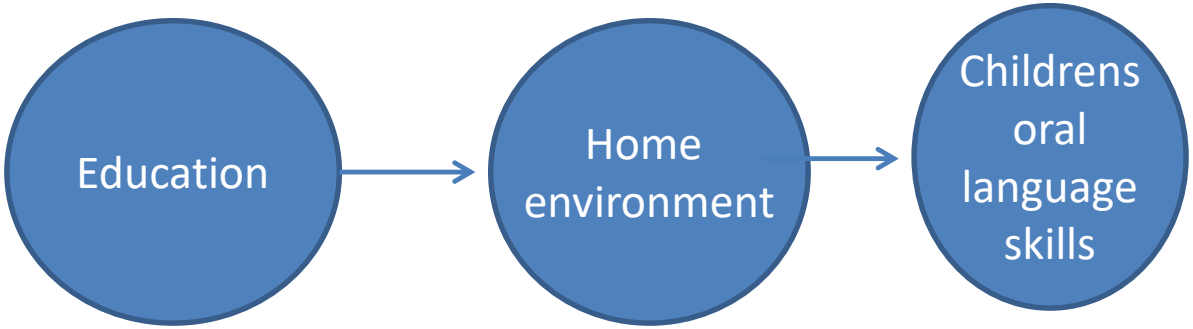
US/Canada = 0.26 (0.22, 0.29) k = 56
European = 0.22 (0.06, 0.37) k = 13
Other = 0.30 (0.22, 38) k = 13

Q(2) = 1.12, *p* = 0.57

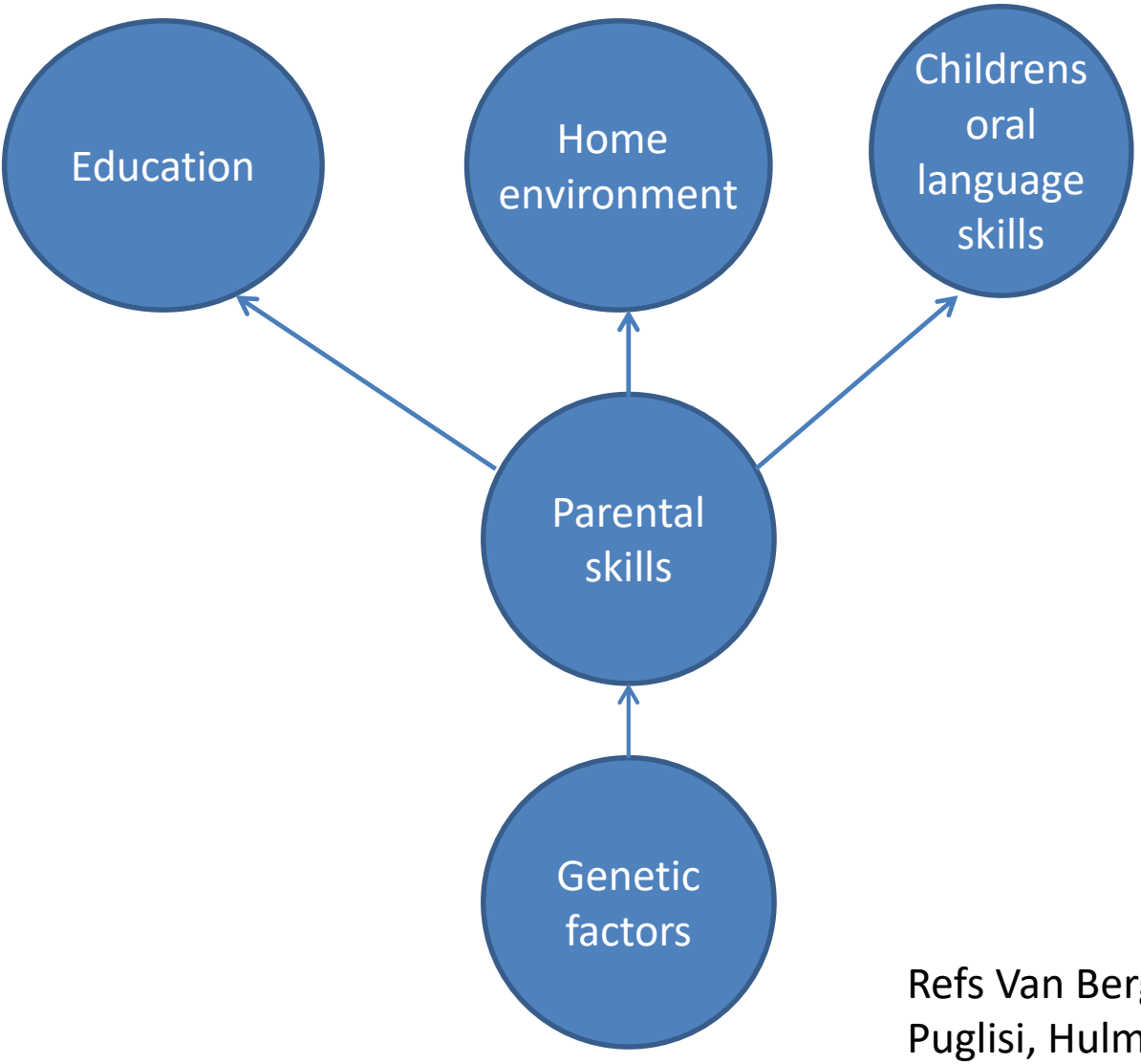
Discussion

- Challenging to disentangle the construct socio-economic status and the various operationalizations.
- Majority are based on crude self reports or register data.
- More common to measure proxy variables like income or education, and not home environment variables such as reading habits etc.
- Few studies report reliability and control for measurement error/use latent variables.
- Measure socio economic variables at only at one point in time
- Few studies use for instance mediation models to examine mechanisms

Correlation/causation



Correlation/causation



Heritability explains around 50% of the variation between children ON AVERAGE

In addition «the nature of nurture», correlation between genes and envitonment

(see Sauce & Matzel, 2018)

Refs Van Bergen, van Zuijen, et al 2016
Puglisi, Hulme et al 2018

Heritability can explain a large amount of variation between children on a trait.
But the average differences between groups – ethnic groups, gender – could be entirely environmental;
For example, as a result of discrimination, poverty (e.g Height).

Gene environment interaction

E.g. In US for higher SES children a large amount of variation in language skills/school achivement is explaind by heritability. This is not the case in lower SES children. This interaction is not found in UK or australia (Tucker-Drob & Bates, 2016)

Too few studies have controlled for parental skills in the relationship between socio economic background, home environment and childrens language skills

Often led to naive accounts about environmental effects (e.g from parental reading or school quality) on individual childrens language skills (and learning in general)

rt & design Film Games Classical Stage

Growing up in a house full of books is major boost to literacy and numeracy, study finds

Research data from 160,000 adults in 31 countries concludes that a sizeable home library gave teen school leavers skills equivalent to university graduates who didn't read

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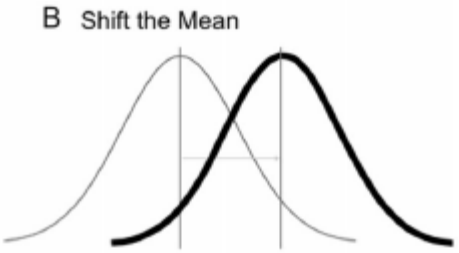
▲ Ideal home ... a child looks at books on the family shelves. Photograph: Alamy

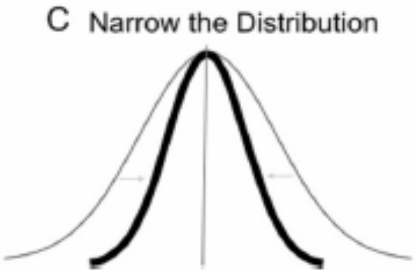
Growing up in a home packed with books has a large effect on literacy in later life - but a home library needs to contain at least 80 books to be effective, according to new research.

Still, heritable does not mean unalterable

1. Move distribution



2. Reduce variation



But...

Difficult

-to both improve the mean and reduce variton at the same time

-to get lasting effects from interventions

The more equal opportunities a society is able to give, the more of the observed differences is down to genetic factors

Thank you for the attention!

Foto: Kathrine Nordli, «Airborne»