

Literacy Facilitates Ultimate Native Language Attainment

More Evidence From Turkish

Tan Arda Gedik, tan.gedik@fau.de, March 13 2024, FAU Erlangen-Nürnberg/Bilkent University

The Road Map

- 1. Let's face it...
- 2. Take-home messages
- 3. Conventional Wisdom in Linguistics
- 4. Individual Differences in Linguistic Knowledge
- 5. Why is Print Exposure is important?
- 6. What about Illiterates?

Let's face it...

Background

- WEIRD populations
- Dahl (2015): Literate, Lots of Speakers, Official
- Blasi et al. (2022): Linguistics <3 data from a group of niche native speakers
- Overreliance on WEIRD populations is a problem

Take-home messages

Background

- A) we shouldn't over rely on conventional pieces of wisdom in our theories
- B) not all native speakers converge on the same grammatical knowledge uniformly and successfully
- C) literacy facilitates ultimate native language learning

Conventional Wisdom: The Status of Writing in Linguistics

- Writing — secondary
- Writing: as an accessory (Pinker 1994)
- Spoken language is almost always influenced by written language (Linell 2005, the written language bias)

Conventional Wisdom: Convergence Hypothesis

Background

It is also variable: children are exposed to different samples of utterances but converge on the same grammar. (Seidenberg 1997: 1600)

Nonverbal IQ/Learning styles

Feldman et al., 1995

Reber et al., 1991

Yang et al. 2017: 109

cant effect on the progression of syntactic development (Newport et al., 1977). Furthermore, studies of language/dialect variation and change show convincingly that despite the obvious differences in learning styles, level of education, and socio-economic status, all members in a linguistic community show remarkable **uniformity** in the structural aspects of language—which is deemed an “enigma” in sociolinguistics (Labov, 2010). Finally, to seriously assess the role

It is well known, however, that children acquire most of their grammar by the time they are three years old.

Hirsh-Pasek & Golinkoff 1999

It is safe to say that except for constructions that are rare, predominantly used in written language, or mentally taxing even to an adult (like *The horse that the elephant tickled kissed the pig*), all parts of all languages are acquired before the child turns four.

Pinker 1995

By age 5, children essentially master the sound system and grammar of their language and acquire a vocabulary of thousands of words The development of complex (i.e., multi-clause) sentences usually begins some time before the child’s second birthday and is largely complete by age 4.

Hoff 2009

Conventional Wisdom: Problems

Background

- Little evidence to support the convergence hypothesis
- Not experimentally supported
- Data from L1 speakers: highly educated speakers (9-12 yrs. Of schooling)
- University lecturers, graduates, undergraduates... a small percentage of the general population

Conventional Wisdom: Shift

Background

- Since the 1970s: a paradigm shift
- Do all L1 speakers converge on the same grammar successfully?
- No!
- There are many individual differences
- Ewa Dąbrowksa



Individual Differences in Linguistic Knowledge

The Effects of Print Exposure

- Individual Differences: Qualitative/quantitative differences among L1 speakers
- Dabrowska (2018): L1 English speakers-Grammatical knowledge
- Print exposure...
- Nonverbal IQ
- Why print exposure? Written language > spoken language

Picture Selection Task

Individual Differences in Linguistic Knowledge



Individual Differences in Linguistic Knowledge

The Effects of Print Exposure

- Grammar: percent correct!
- ART= 3.4%
- IQ=12.2%

Table 5
Descriptive statistics for the six experimental tasks.

	Mean	SD	Median	Range
Grammar	79	19	83	17-100

Table 7
Regression results for grammar.

Variable	Parameter estimate	Standard error	t value	Pr(> t)	lmg
Intercept	81.791	1.761	46.445	< 0.001 ^{***}	
Education	1.541	0.740	2.082	0.040 [*]	0.046
PrintExp	0.365	0.128	2.863	0.005 ^{**}	0.034
IQ	0.302	0.123	2.463	0.016 [*]	0.122
LgAnalysis	1.127	0.534	2.110	0.038 [*]	0.097
Education × LgAnalysis	-0.520	0.171	-3.032	0.003 [*]	0.053
IQ × PrintExp	-0.025	0.010	-2.514	0.014 [*]	0.025
R ²					0.377

† p < 0.10.
^{***} p ≤ 0.001.
^{**} p ≤ 0.01.
^{*} p ≤ 0.05.

Why does reading modulate comprehending complex syntax?

The Effects of Print Exposure

- Written language > spoken language (more complex language)
- The more you read, the more you abstract
 - NP Verb AdjP Agent PP (of) INFINITIVE (to Verb)
 - NP BE NICE PP (of) INFINITIVE (to Verb)
 - NP BE GOOD PP (of) INFINITIVE (to Verb)
 - IT BE NICE PP (of) YOU TO BE HERE
IT BE GOOD PP (of) YOU TO COME
 - Goldberg & Herbst 2021



What about Illiterates?

- Not everyone is literate, even in literate languages there are illiterate speakers
- If so, how is the knowledge of grammar affected in the absence of literacy?
- Very few studies...
- Existing literature shows: literacy facilitates the acquisition of complex syntax (subject/object relatives) ([Dabrowska et al. 2022](#)).

The Training Wheels Hypothesis

Dabrowska 2021

- Facilitatory effects of literacy: training wheels
- 1) Writing > spoken modality re. Complexity
- 2) Writing as a memory crutch
- 3) Writing improves metalinguistic awareness

Illiterates-Complex Syntax

2 Pioneering Studies: Dabrowska et al. 2022, 2023

- 3 groups: semi-literate, late-literate (at an adult education center in Spain), high-literate
- Semi-literate: basic reading
- Late-literate: more experienced with reading but still struggle
- High-literate: learned reading when young and completed a BA degree

Picture Selection with Illiterate Speakers

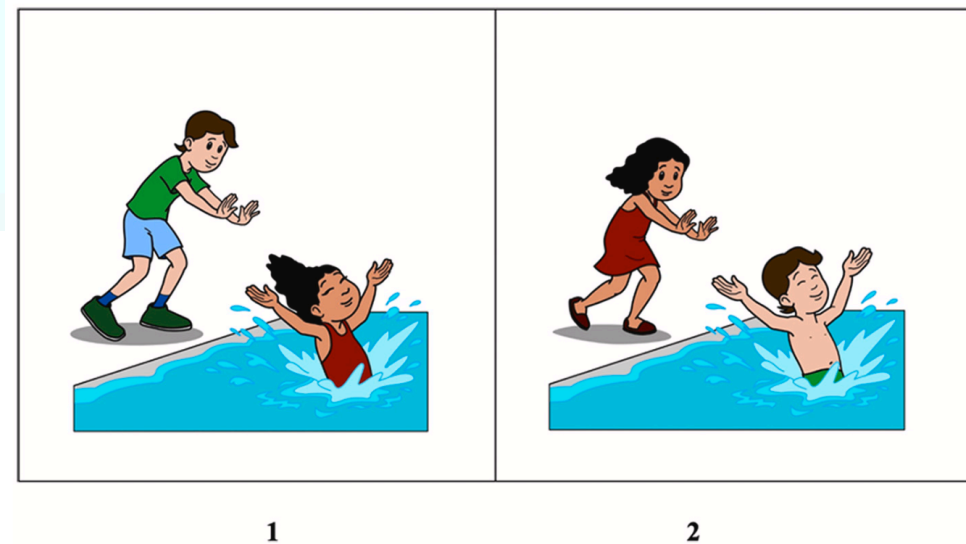
Dabrowska et al. 2022

- Spanish subject and object relatives
- Object relatives are written language biased in Spanish
- SRs at ceiling: ORCs high>late>semi

Table 3
Number of target responses (and standard deviations) by group and condition.

	Semi-literates	Late-literates	High-literates
Subject relatives	15.2 (1.4)	15.5 (0.7)	15.9 (0.3)
Object relatives	8.2 (3.0)	10.5 (4.2)	13.5 (3.5)

Note: The maximum possible score is 16.



Morphosyntactic Productivity in Illiterate Speakers

Dabrowska et al. 2023

- Spanish verbs: -AR/-ER/-IR forms → different conjugation patterns
- Nonce-verb conjugation task
- Again, high>late>semi literates

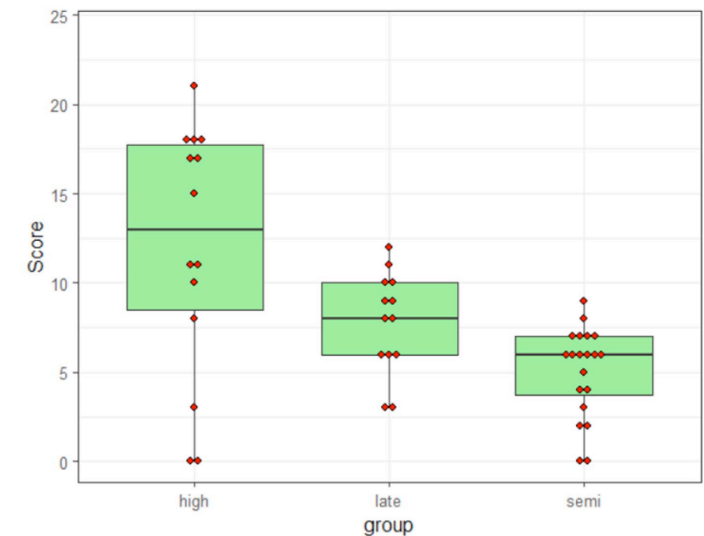
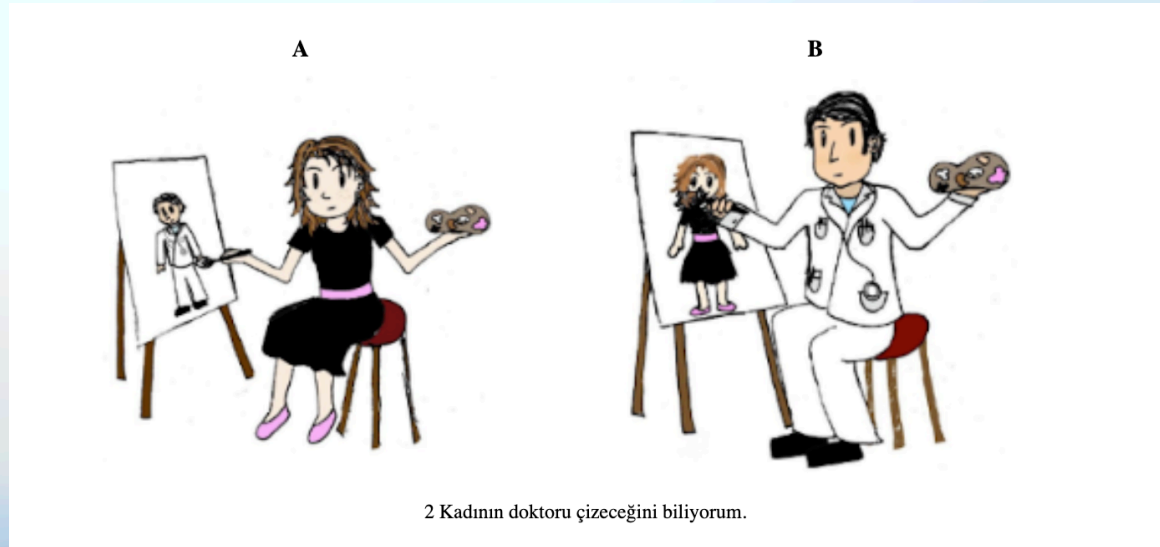


FIGURE 1
Distribution of individual scores.

More Insight into Illiteracy and L1 Development

My research... (27 literate/30 illiterate)

- Picture selection task (comprehension of Turkish passives, SRCs, ORCs, quantifiers, nominalizations)
- Picture-based sentence elicitation task (production of Turkish SRCs, ORCs, and passives)

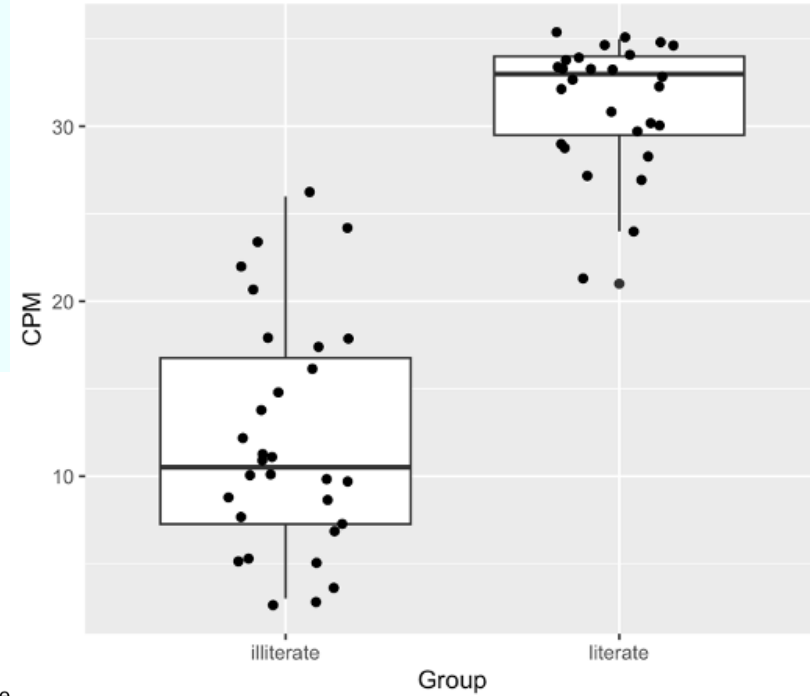
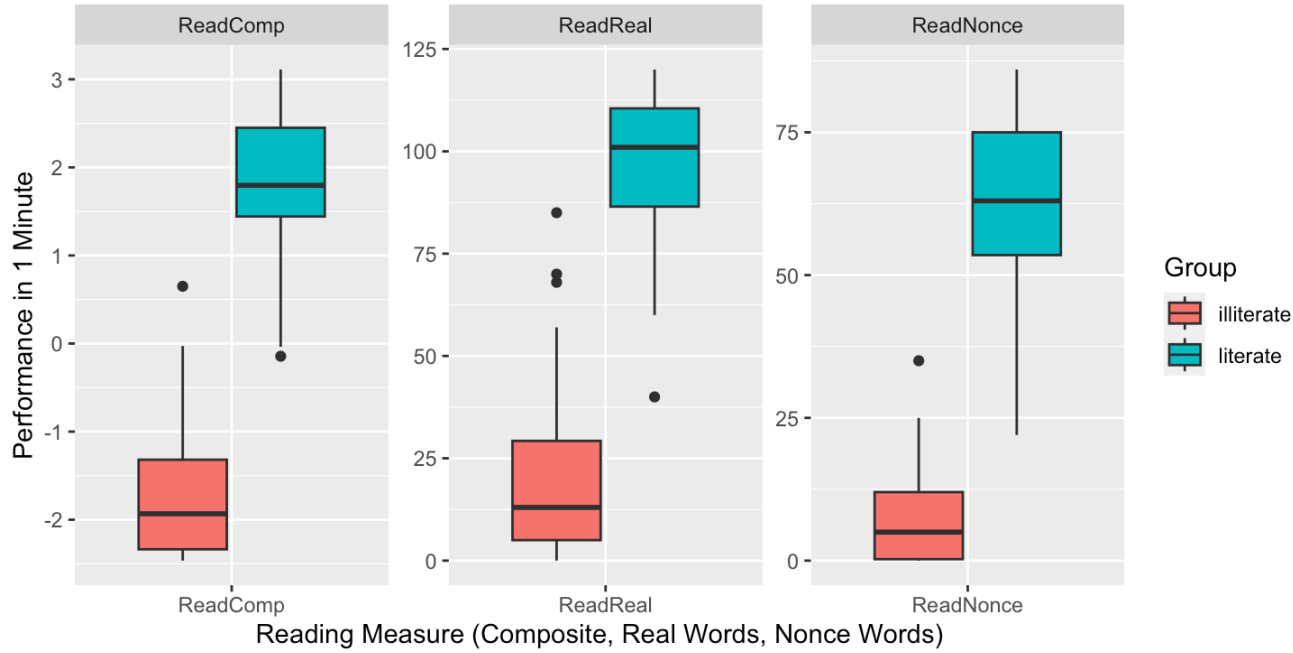


Why Group over Reading?

- 1) Reading + Group: $r = .91 \Rightarrow$ multicollinearity
- 2) Reading measures two things:
 - in illiterates speed of decoding orthographic signs
 - in literates reading fluency
- 3) Writing requires years to influence grammatical knowledge, illiterates practice literacy on avg. 7 months.

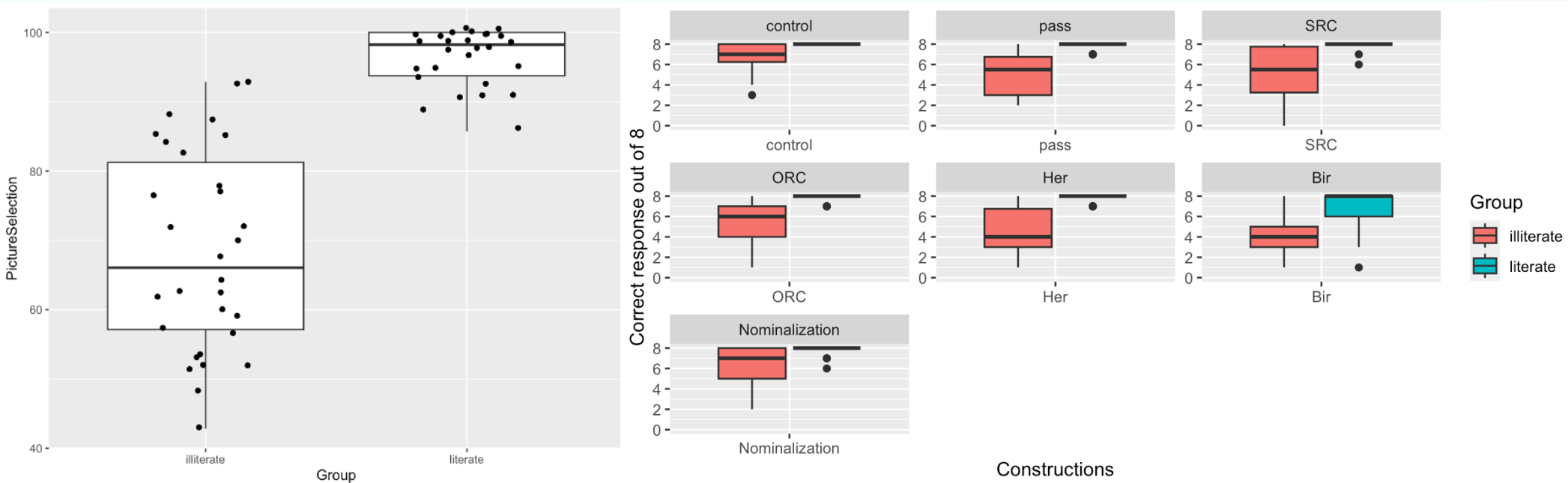
Results

Overview of the Groups



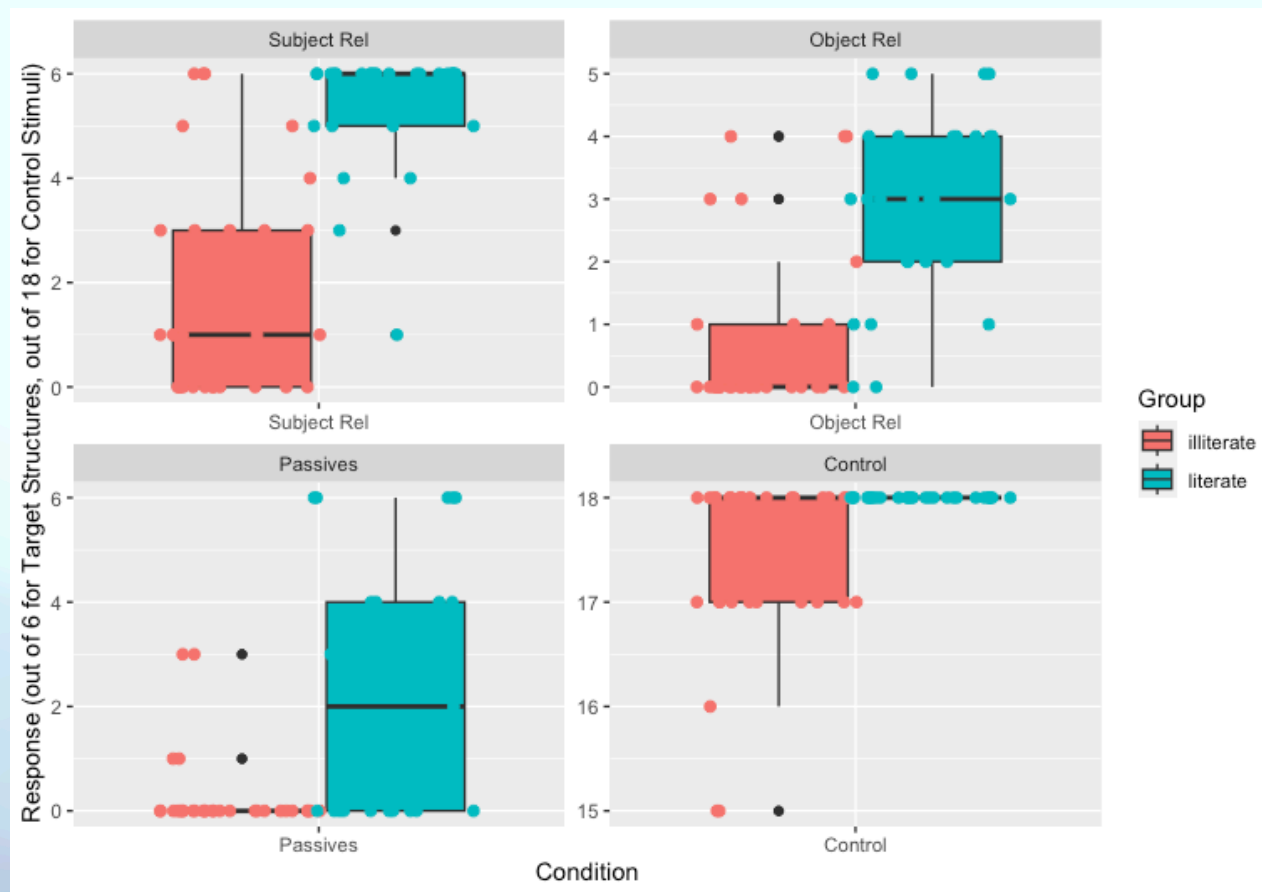
Results: Picture Selection Task

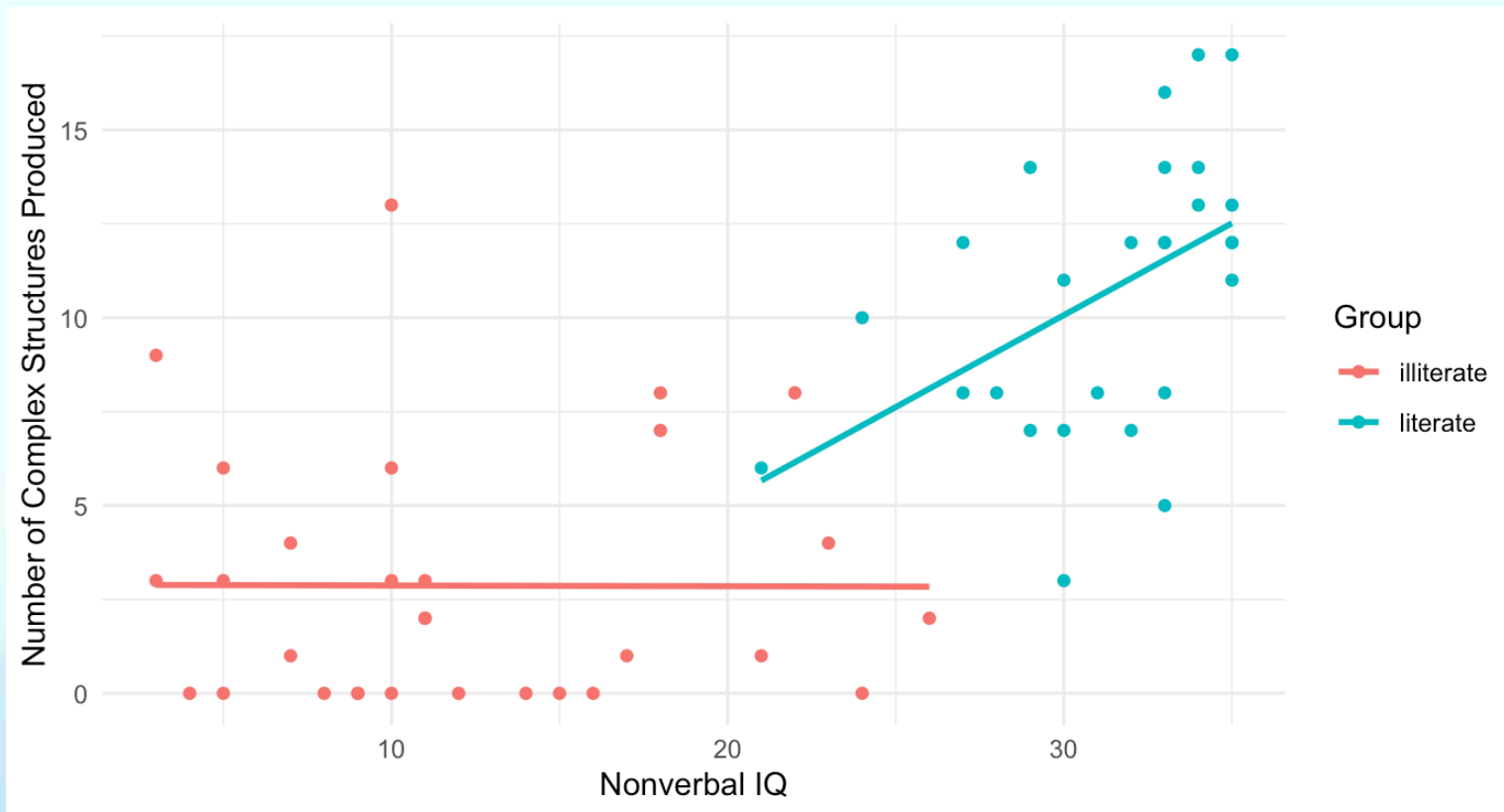
Does literacy modulate L1 comprehension of complex syntax?



Results: Picture Selection Task

Does literacy modulate L1 production of complex syntax?





Do these individual differences reflect differences in underlying linguistic knowledge?

- Providing an unequivocal answer requires additional assumptions
- Usage-based models: the answer is positive, IDs in linguistic knowledge readily hypothesized
- Generativist approaches: difficult, where does experience fall?

Literacy modulates L1?

Plausible explanations: frequency

- Complex structures = Written language > spoken language
- Usage-based: more exposure to written language → stronger representations of written-language biased structures
- BUT mere frequency cannot explain everything; ORCs occur more frequently in spoken language than in written...

Literacy modulates L1?

Plausible explanations: quality over quantity via print exposure

- Frequency + literacy become more plausible when quality > quantity is considered
- Spoken language has more prototypical examples of complex structures
- More exposure to written language ==> helps with extracting more abstract templates
- Street & Dabrowska 2014: The English Passive

Literacy modulates L1?

Plausible explanations: metalinguistic awareness via print exposure

- Quality of exposure reveals distinctions that are otherwise difficult to pick up
- Written language= more non-canonical structures
- These structures occur in various form-meaning pairings
- More print exposure, more metalinguistic awareness, better grasp

Literacy modulates L1?

Plausible explanations: training wheels hypothesis

- Writing eases cognitive load on WM
- Writing= more linguistic experience
- Allows for complex structures to be processed more efficiently

Literacy modulates L1 Grammatical Knowledge?

Plausible explanations: final note

- These accounts are not mutually exclusive
- A combination of all these factors probably modulate L1 knowledge
- Heightened CPM helps with learning a writing system
- A head start in literacy, reading improves cognition, which improves language...
- Positive feedback loop
- PRODUCTION? Teaching native speakers their L1 through writing
- Highly literate speech may reflect conventions of writing...

Conclusion

Does acquiring literacy modulate L1 knowledge?

- More individual differences in L1 than ever postulated ==> ~~no convergence!~~
- The answer is: suggestive YES
- But we need many more studies to confidently claim this.
- What does literacy change in illiterate speakers' lives?

To those who prevail even under the worst circumstances, and to women who emancipated themselves from the patriarchy, one letter at a time.

A few words from these (anonymous) women (in response to “*what has changed in your life since you finished the literacy course?*”):

*It changed everything in my life, my self-confidence increased and I am no longer afraid of doing things,
~Çiçek, 50*

I feel very happy, for example, I go to the hospital on my own and do all my chores myself, I don't feel dependent on anyone anymore., ~Fehriye, 32

Now I can reply to the messages from my husband, and I can read my name at the health center and understand that it is my turn. I read many books and I get very excited. ~Sıla, 41

Conclusion

Take-home messages

- A) we shouldn't over rely on conventional pieces of wisdom in our theories
- B) not all native speakers converge on the same grammatical knowledge uniformly and successfully
- C) literacy facilitates ultimate native language learning

Thank you for listening

Happy to answer your questions and hear your comments