

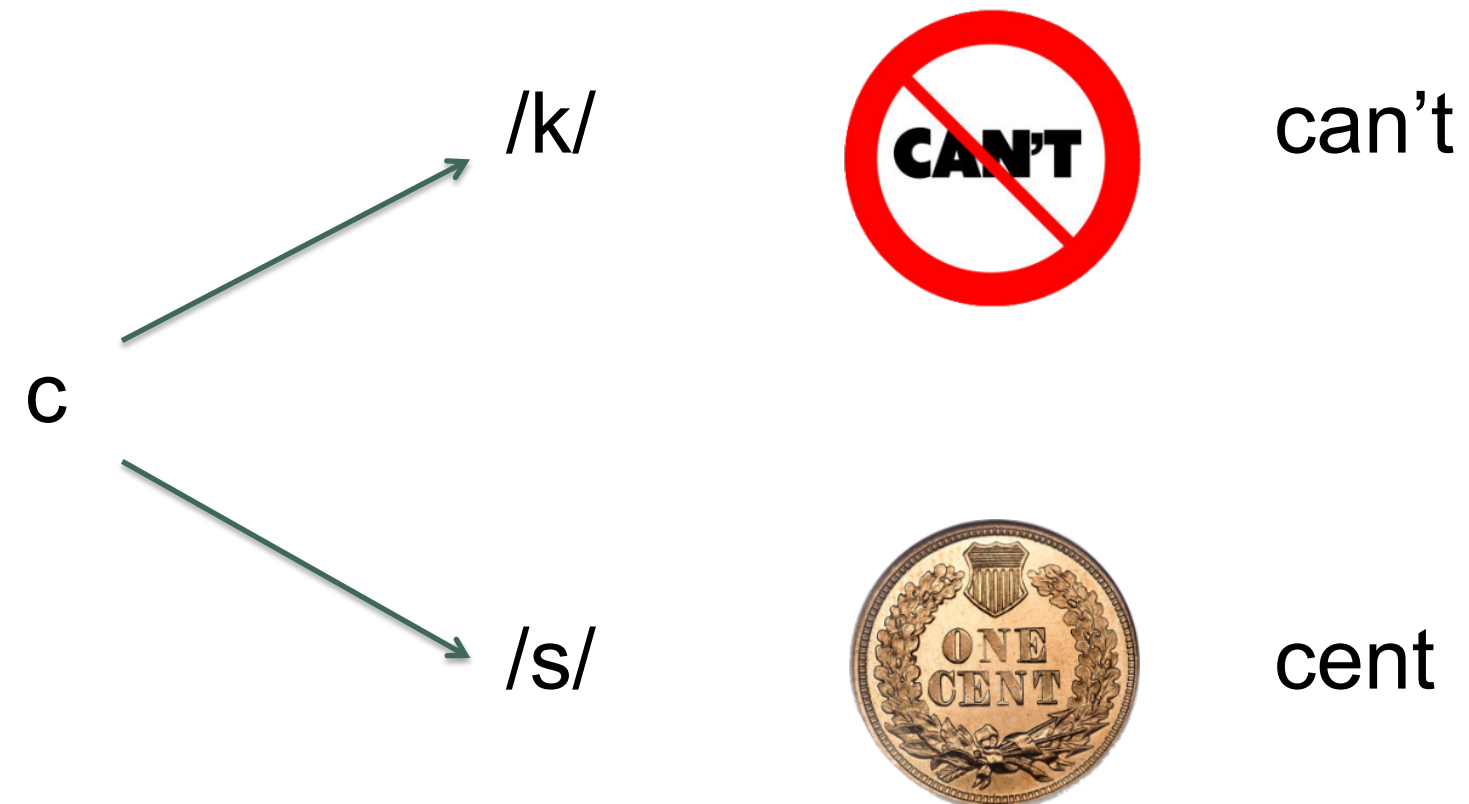
The relation between implicit learning and spelling ability in adults: an individual differences approach

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Background

Implicit learning partly subserves the detection of spelling regularities [1]



Previous findings:

- ❖ Children are able to apply orthographic regularities to pseudoword spelling [2]
 - /ɛt/ written as /ette/ after -v but not -f
- ❖ Non-orthographic sequence learning (ASRT) correlates with English spelling ability [3]

However: limited evidence on relation implicit learning of non-orthographic sequences and spelling

1. Cross-linguistically
2. across different paradigms

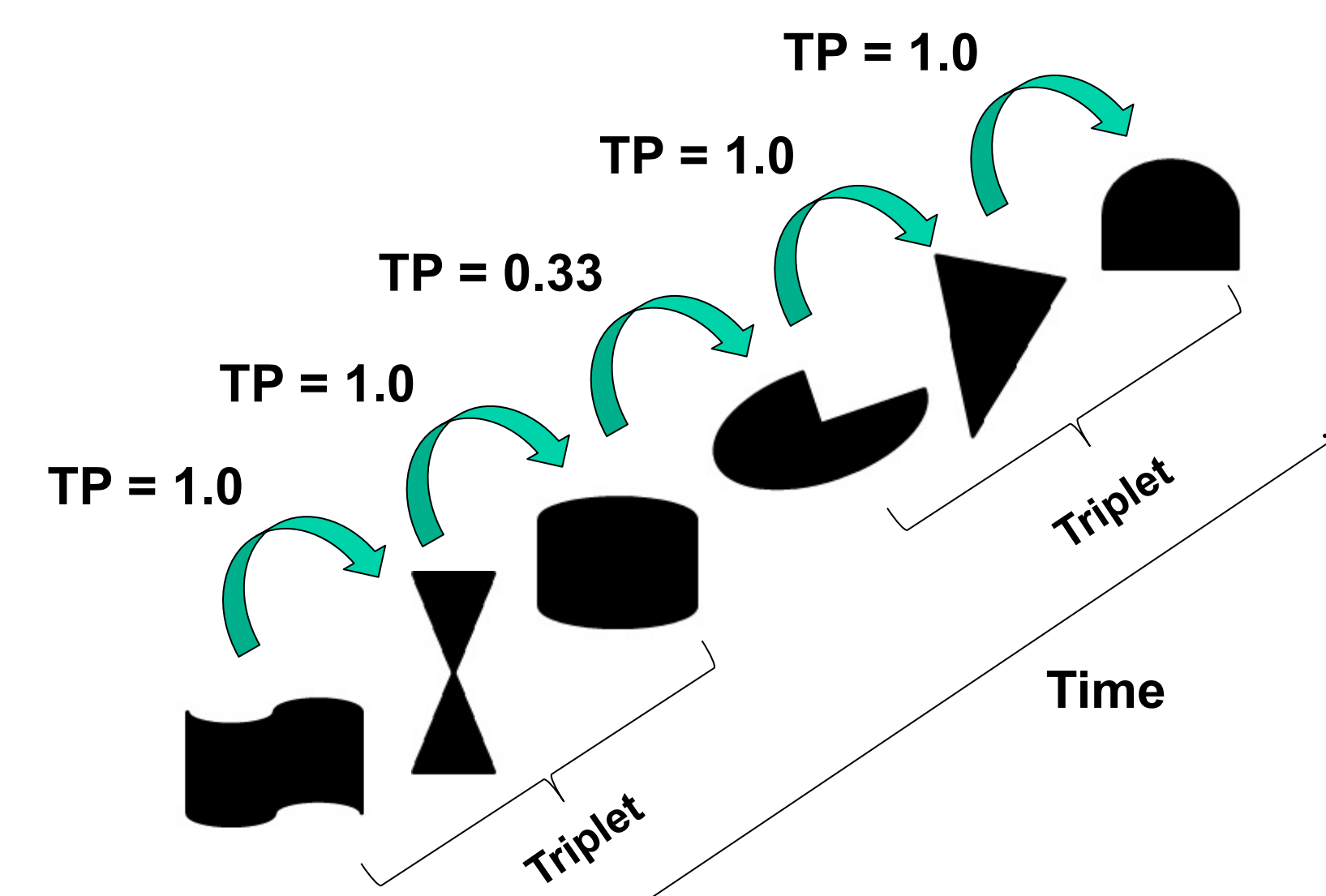
Methods

Participants

28 Dutch adults aged 21 – 38 (mean = 26)

Visual Statistical Learning (VSL)

- ❖ Familiarization: four triplets, presented 24 times in a continuous stream
- ❖ Test: 64 2-AFC items (“Which group of figures is more familiar?”)



Spelling

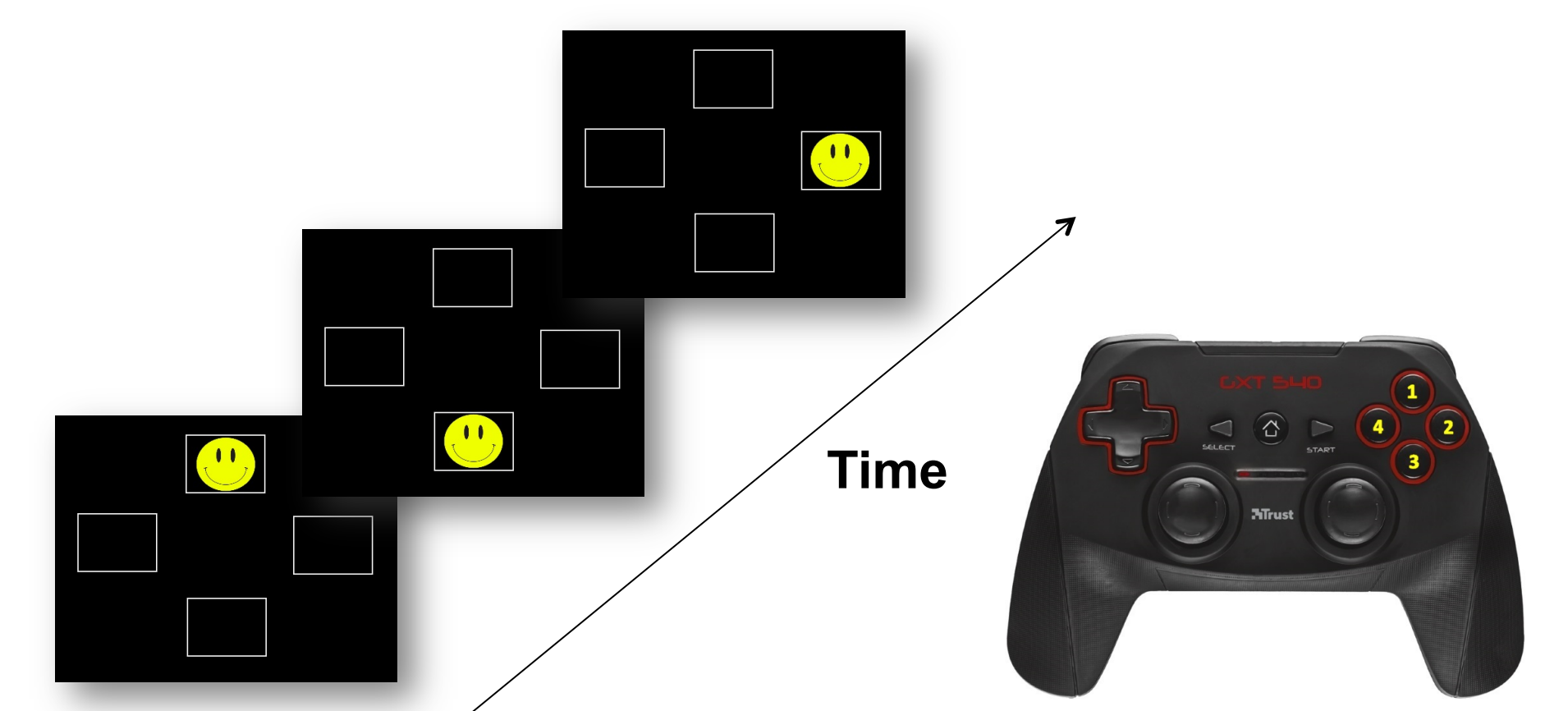
A non-standardized test was used to test spelling of words (N = 10) and nonwords (N = 11)

Participants

25 Dutch adults aged 18 – 57 (mean = 34)

(Alternating) Serial Reaction Time ((A)SRT)

- ❖ SRT: 10-item sequence in block 1-4 and 6 (6 repetitions per block), random presentation in block 5
- ❖ ASRT: 12-item alternating sequence presented in 20 blocks of 5 repetitions



RQ: is implicit learning of non-orthographic sequences associated with spelling ability in a semi-transparent orthography?

Results

	Range	Mean (SD)
Test phase VSL	23 – 50	35* (7)
Spelling Words	3 – 10	8 (2)
Nonwords	3 – 11	7 (2)
Total	8 – 20	15 (3)

*Significantly above chance ($p = .02$)

Legend

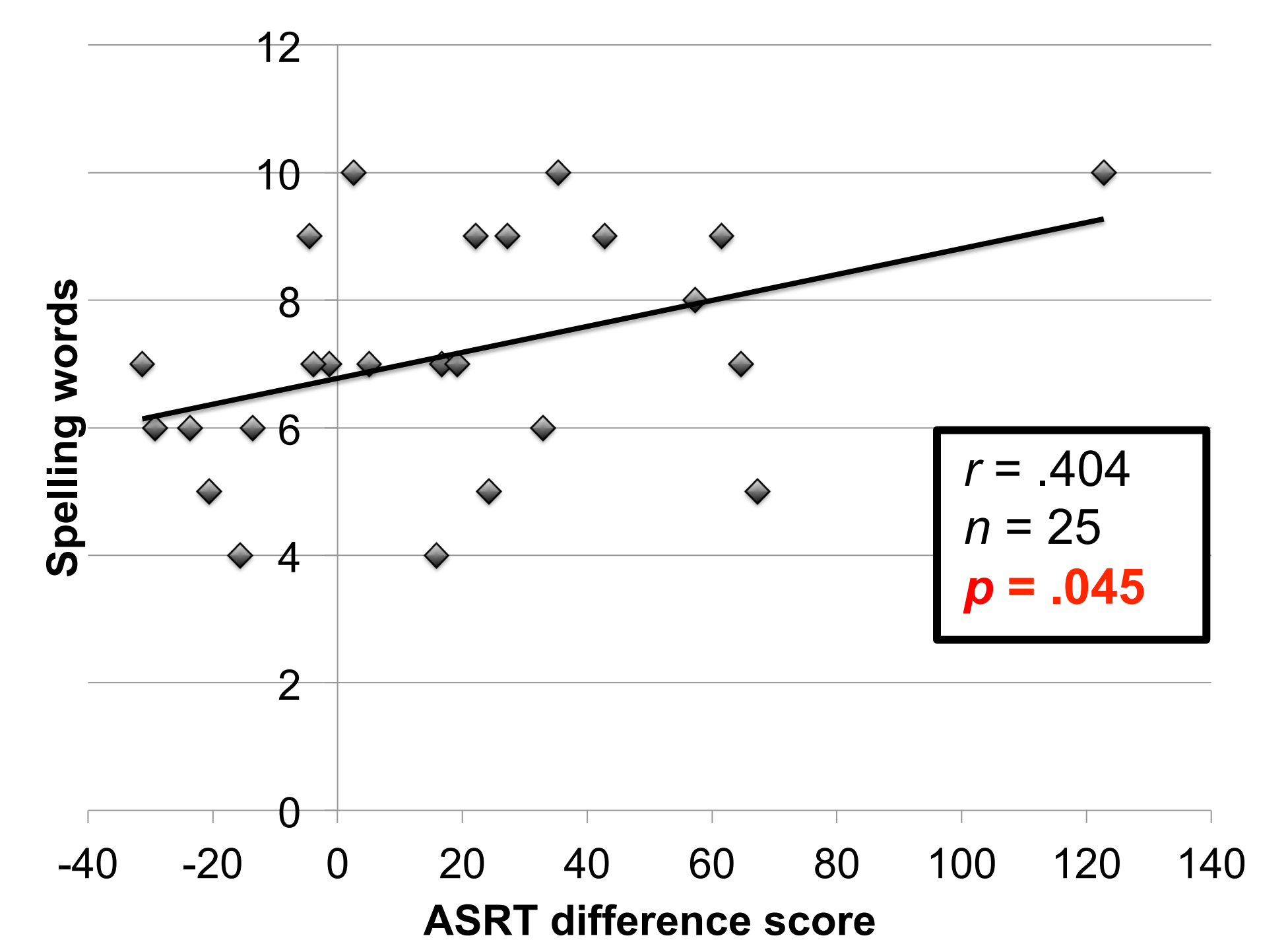
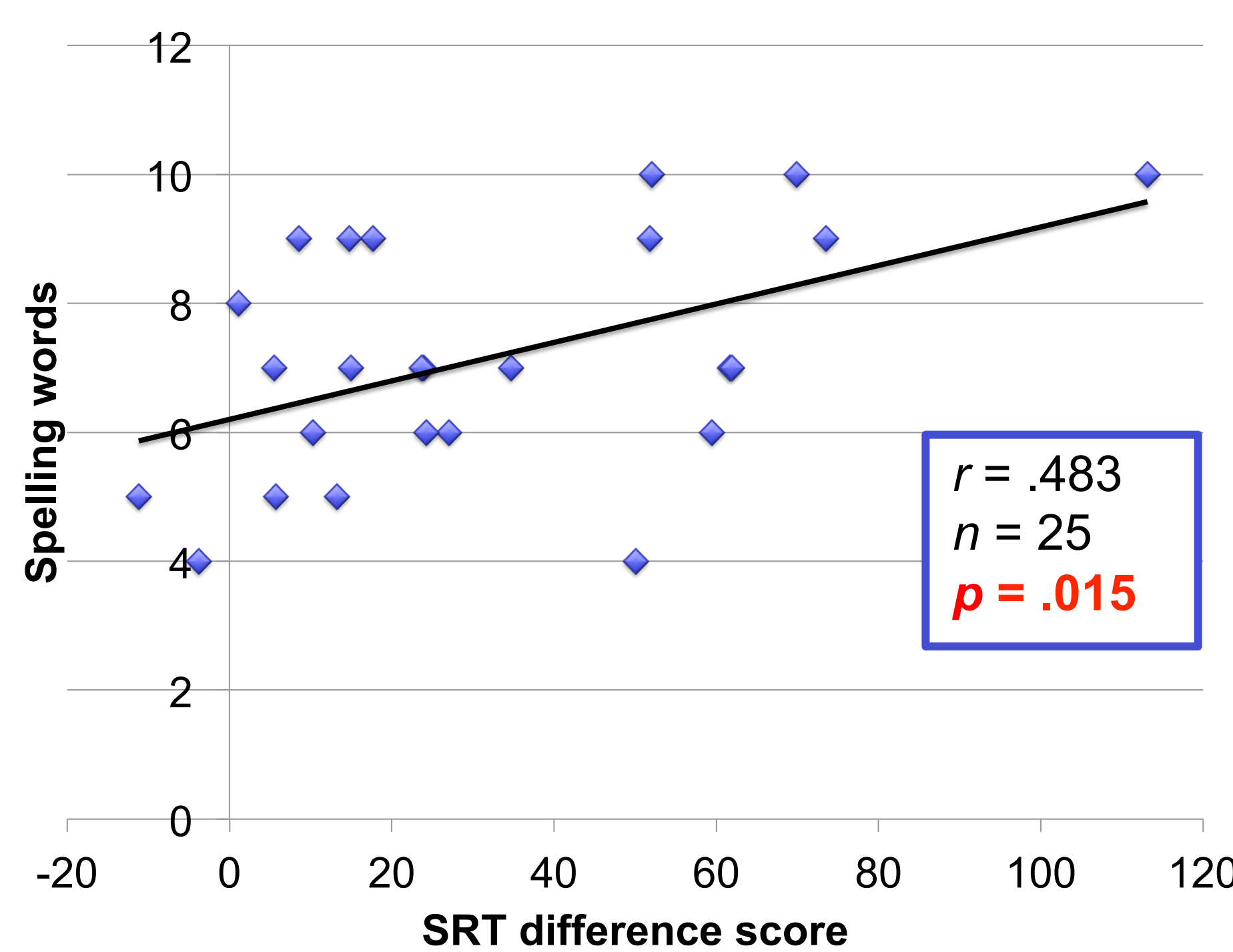
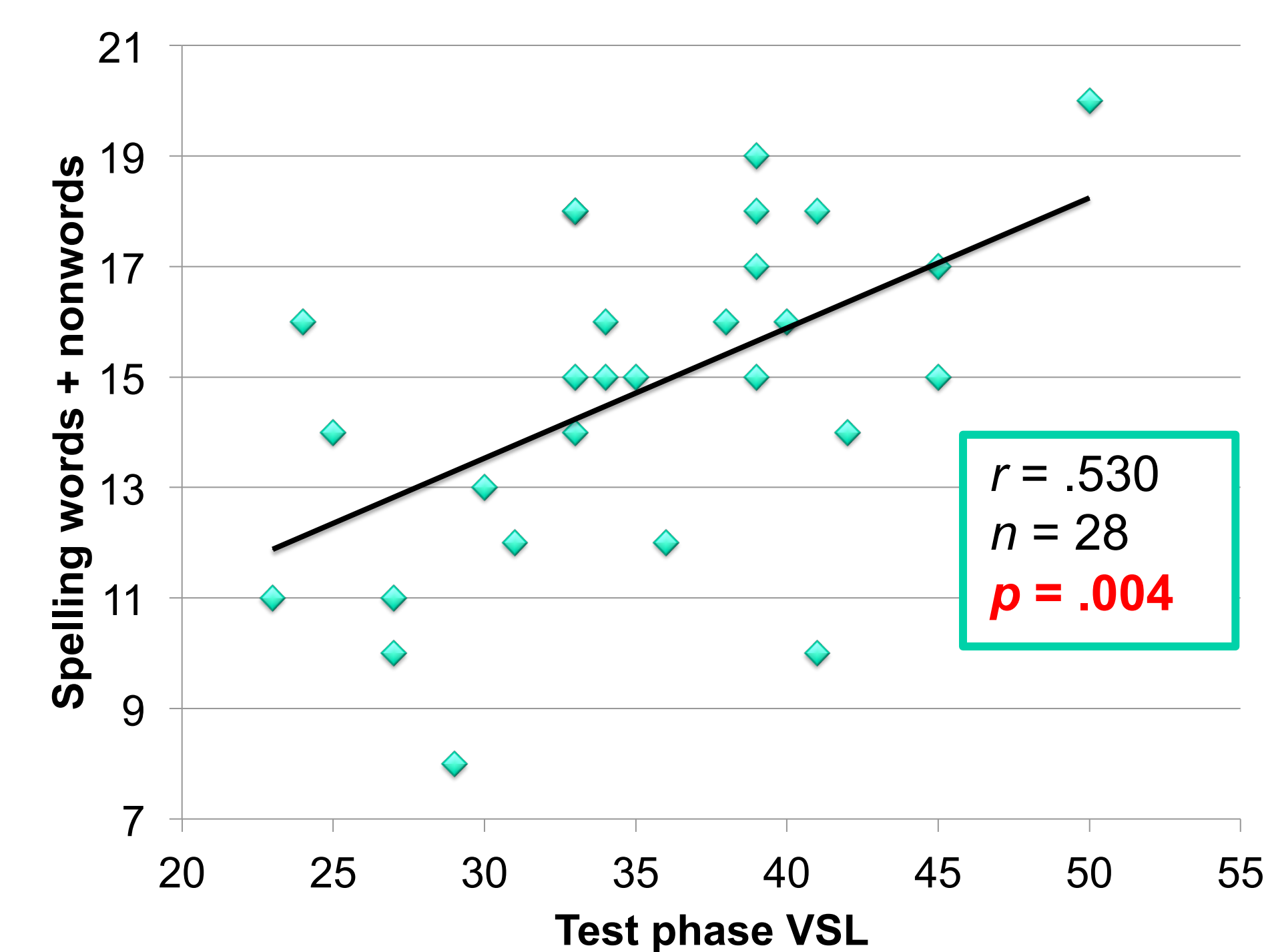
Test phase VSL: number of test items correct (max. = 64)

Spelling scores: number of test items correct

SRT difference score: difference in RT (ms), random block 5 – final sequence block 6

ASRT difference score: difference in RT (ms), random – sequence final block 20

	Range	Mean (SD)
SRT difference score	-11 – 113	32 (30)
ASRT difference score	-31 – 123	19 (37)
Spelling Words	4 – 11	8 (2)
Nonwords	4 – 10	7 (2)
Total	10-19	15 (2)



References

- [1] Deacon, Conrad, & Pacton (2008)
- [2] Pacton, Fayol, & Perruchet (2005)
- [3] Howard, Howard, Japikse, & Eden (2006)

Conclusions

The outcomes underline the **association between implicit learning and spelling ability**

1. in **three different paradigms**, varying in complexity and nature
2. in a **semi-transparent orthography** like Dutch