

# The effect of spell-check on the essay quality of primary school children

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## 1. Introduction

It is widely accepted that writing fluency and spelling ability constrain compositional quality in children's essays. Despite the usefulness of word processors for those with learning difficulties, Connelly, Gee and Walsh (2007) found that primary school children wrote better essays by hand than by keyboarding. However, spelling ability was not accounted for and so poor spellers may have benefitted more than their peers due to the presence of spell-check in the keyboarded condition (MacArthur et al, 1996).

The current study investigated the effect of spell-check on children's essays. It hypothesised that children's compositional quality and error rates would be greatest in the keyboarded essays without spell-check. Children's familiarity with spell-check when keyboarding may enable them to focus on other higher-level processes.

A further question is the impact of keyboarding fluency on children's keyboarded essays.

## 2. Method

### Participants

33 9-11 year-olds (mean age = 10 years, 7 months)

### Procedure

- Children wrote three 15-minute essays in response to the WOLD prompt on 3 separate occasions.
- Tasks: keyboarding with spell-check, keyboarding without spell-check and handwriting.
- They also completed the 'Alphabet Fluency Task' on the keyboard (1st visit) and the BAS-II Spelling Test (3rd visit).

### Scoring Criteria

#### WOLD (CQ)

- 6 criteria\* (marks out of 4) from the standard mark scheme, with an overall potential score of 24. \*'Ideas & Development', 'Organisation, Unity & Coherence', 'Vocabulary', 'Sentence Structure & Variety', 'Grammar & Usage' and 'Capitalisation & Punctuation'
- Inter-rater reliability for all categories and overall WOLD was greater than or equal to 0.8.

#### Script Errors

- Six error categories (each error was only counted once):
  - Spelling: simple, word choice (substitution) & merger
  - Other: grammar, total misc, overall total.
- Overall analyses used percentage error in whole text.

#### BAS-II Spelling Test:

- Raw score of number correct

#### Keyboarding Fluency:

- Letters per minute

## 3. Results

### Compositional Quality

#### Transcription Method

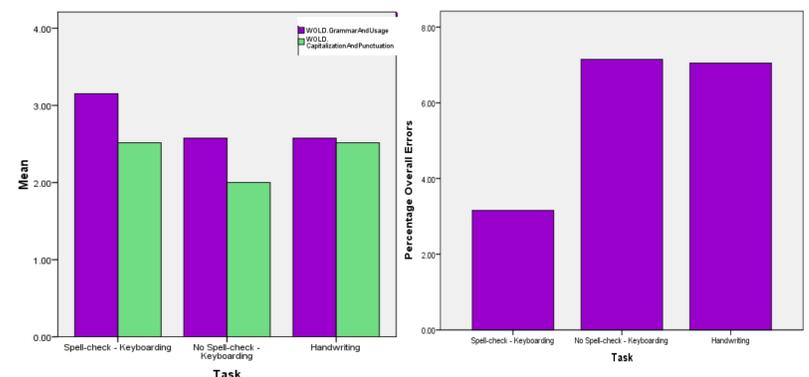
- Grammar & Usage ( $F(2,64)=4.484, p=0.015$ )
  - Spell-check > Handwritten and No Spell-check
- Capitalisation & Punctuation ( $F(2,64)=4.431, p=0.016$ )
  - Spell-check & Handwritten > No Spell-check
- When controlling for keyboarding fluency and spelling ability – no effect of transcription method
- Correlations of at least 0.43 between keyboarding fluency and the CQ for each essay.

#### Keyboarding Fluency

- Predictive of 12-44% of variance in most WOLD scores across transcription methods.
- Did not predict: Grammar & Usage, Capitalisation & Punctuation for any transcription method, nor the Organisation, Unity and Coherence scores for the handwritten essays.

#### Spelling Ability

- Not predictive of any WOLD score, except Grammar & Usage in the spell-check condition (23%,  $p=0.005$ )



### Percentage Errors

#### Transcription Method

- Percentage Spelling, Grammar and Overall Errors:
  - No Spell-check and Handwritten > Spell-check

#### Typing Fluency

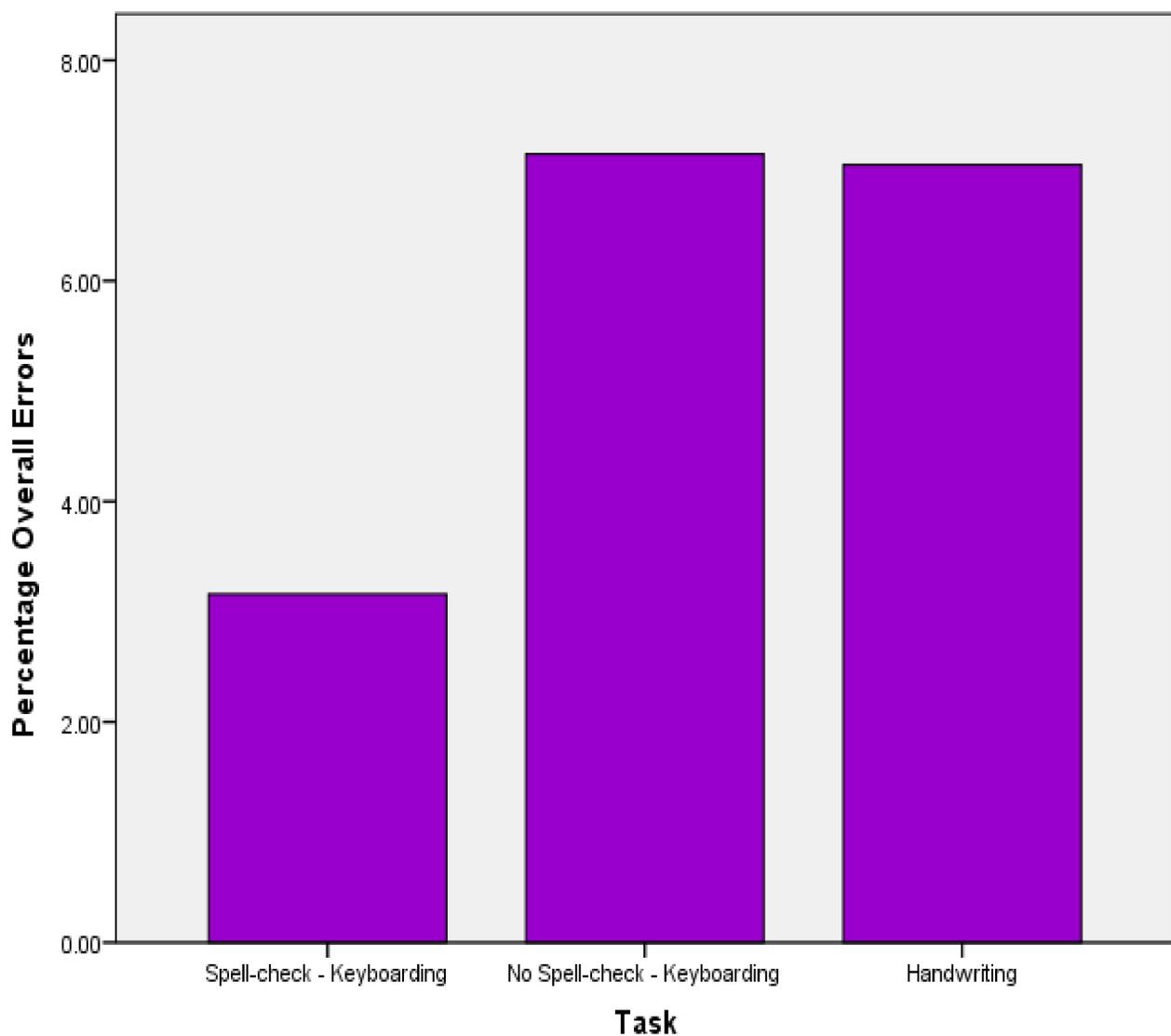
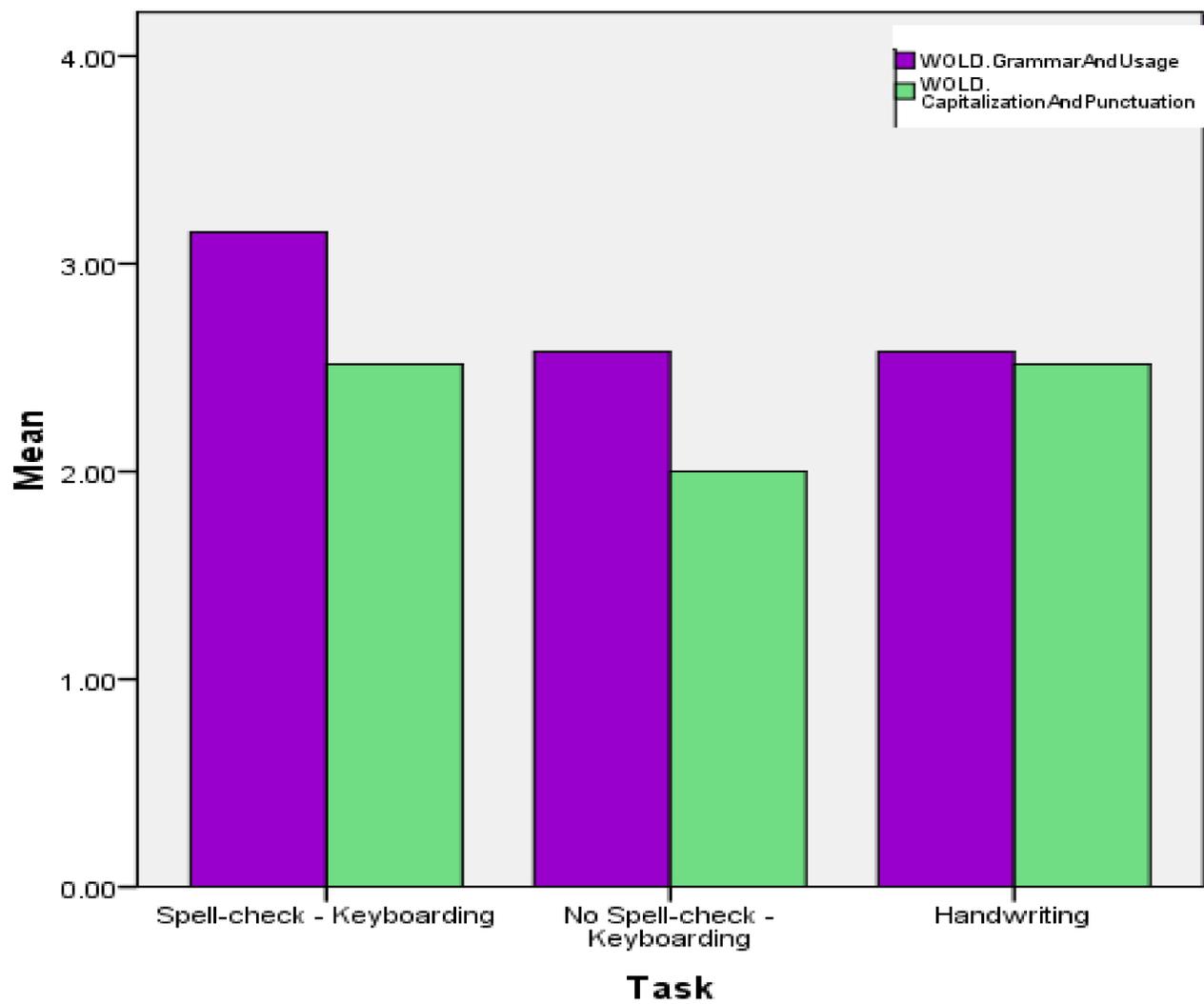
- Predicted 14% of total other errors in the spell-check condition, indicating that greater keyboarding fluency means fewer errors.

#### Spelling Ability

- Predicted at least 25% of the variance in percentage of Spelling and Overall errors for the No spell-check and Handwritten essays.

## 4. Conclusions

- The difference in errors between the handwritten and no spell-check essays indicates that children may 'sub-contract' spelling to the computer when keyboarding (even when no aid is present).
  - Implications for keyboarded exam scripts and different writing strategies depending on transcription method (handwriting vs. keyboarding).
- CQ was constrained by children's relatively low keyboarding fluency.
- Future research looking at older children, with greater keyboarding fluency, could help clarify the effects of transcription methods found in this study.



## References

- Connelly, V., Gee, D., and Walsh, E. (2007). A comparison of keyboarded and handwritten compositions and the relationship with transcription speed. *British Journal of Educational Psychology, 77*, 479-492.
- MacArthur, C. A., Graham, S., Haynes, J. B., and De La Paz, S. (1996). Spelling checkers and students with Learning Disabilities: Performance comparisons and impact on spelling. *The Journal of Special Education, 30*(1), 35-57.
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