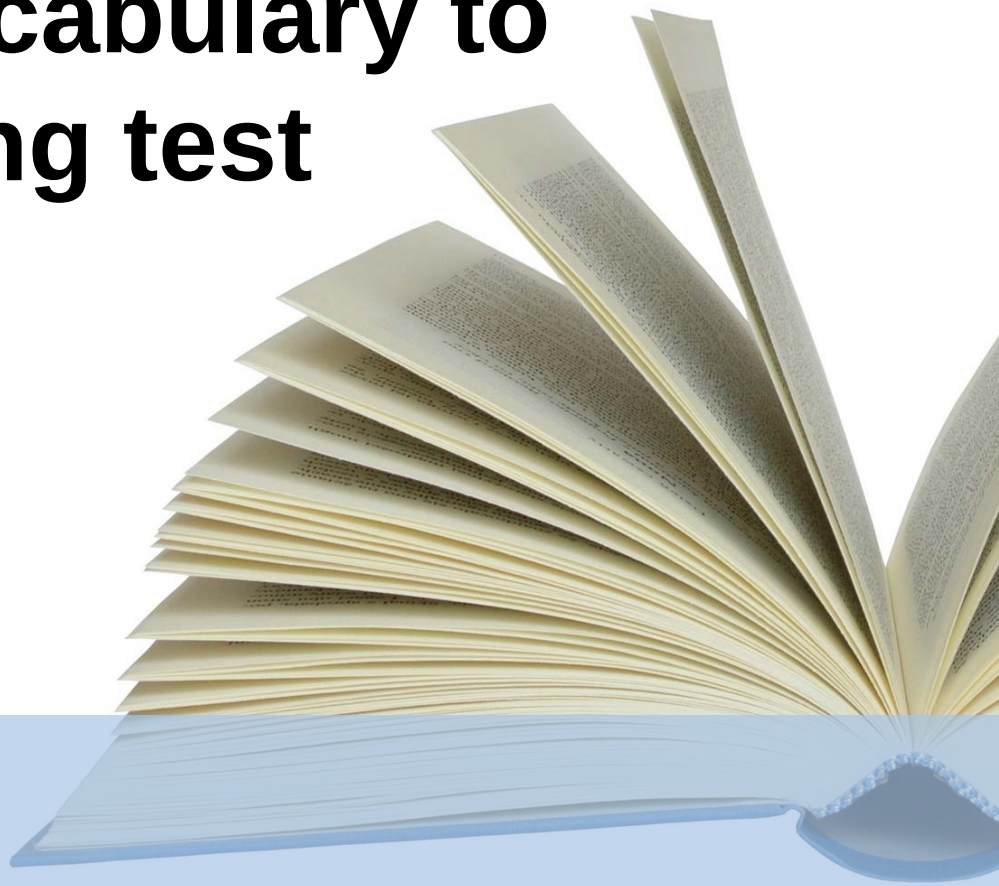
The relative contribution of grammar and vocabulary to explaining reading test performance



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EALTA Conference, Turku

7 June 2009

Background to the Study

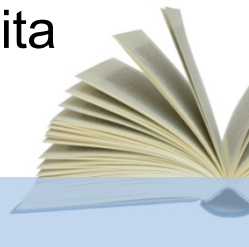
- Componential approach to research in reading
- Language knowledge:
  - Level of study

    e.g. Bernhardt & Kamil (1995), Carrell (1991)
  - Vocabulary

    e.g. Schoonen, Hulstijn & Bossers (1998)
  - Grammar & vocabulary (combined)

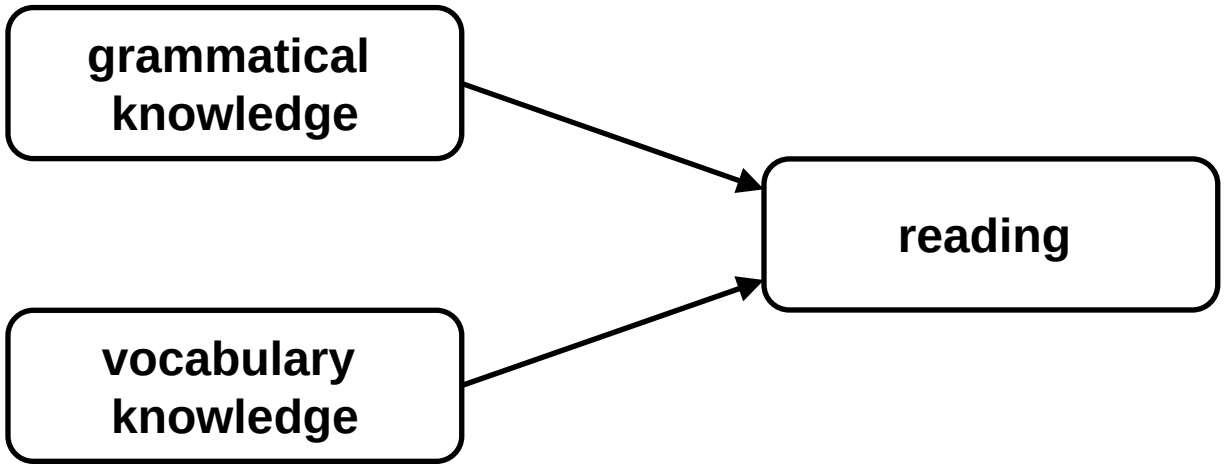
    e.g. Yamashita (2002)
  - Grammar & vocabulary (separate)

    e.g. Bossers (1992), Brisbois (1995), Shiotsu & Weir (2007), Van Gelderen et al. (2003), Van Gelderen et al. (2004), Yamashita (1999)



General Model

Comparative studies on the impact of grammar and vocabulary on reading



Comparative Studies

- Haynes & Carr (1990)
  - 60 Taiwanese students reading in English L2
  - Reading comprehension: $r_{L2vocab}$=.37 versus $r_{L2gramm}$=.29
- Bossers (1992)
  - 50 L1-Turkish students reading in Dutch L2
  - $\beta_{L2vocab}$=.41 versus $\beta_{L2gramm}$=.36
- Brisbois (1995)
  - L1-English students reading in French L2 (84 beginners, 38 upper level)
  - L2 vocab accounted for 10.1%, 9.3% (beginners), and for 6.2%, 7.6% (upper level students) of the variance in L2 reading

    versus

    L2 gramm accounted for 0.5%,1.1% (beginners), and for 0.4%,1.4% (upper level students) of the variance in L2 reading

Comparative Studies

- Yamashita (1999)
  - L1-Japanese students reading in English L2
  - L2 vocab accounted for 33%, 34% of the variance in reading versus L2 gramm accounted for 5%, 7% of the variance in reading

→ Vocabulary stronger predictor

Comparative Studies

- Shiotsu and Weir (2007)

  Study 1
  - 107 UK pre-sessional EAP students reading in English L2
  - $\beta_{L2gramm}$ = .47*, $r_{L2gramm}$ = .62* versus $\beta_{L2vocab}$ = .42*, $r_{L2vocab}$ = .60*

  Study 2
  - 128 L1-Japanese students reading in English L2
  - $\beta_{L2gramm}$ = .61*, $r_{L2gramm}$ = .89* versus $\beta_{L2vocab}$ = .34*, $r_{L2vocab}$ = .85*

  Study 3
  - 591 L1-Japanese students reading in English L2
  - $\beta_{L2gramm}$ = .64*, $r_{L2gramm}$ = .85* versus $\beta_{L2vocab}$ = .25*, $r_{L2vocab}$ = .79*

→Grammar stronger predictor

Comparative Studies

Inconclusive findings

- Objections against previous studies by Shiotsu & Weir (2007):
  - Methodological criticism
  - Statistical techniques:
    - Multiple Regression (MR) vs.
    - Structural Equation Modelling (SEM)

Comparative Studies

Shiotsu & Weir (2007) Study 3:

	grammar	**vocabulary**
number of items	32	60
alpha	.79	.95

Comparative Studies

Shiotsu & Weir (2007) Study 3:

	grammar	**vocabulary**
number of items	32	60
alpha	.79	.95
SEM β	.64*	.25*

Comparative Studies

Shiotsu & Weir (2007) Study 3:

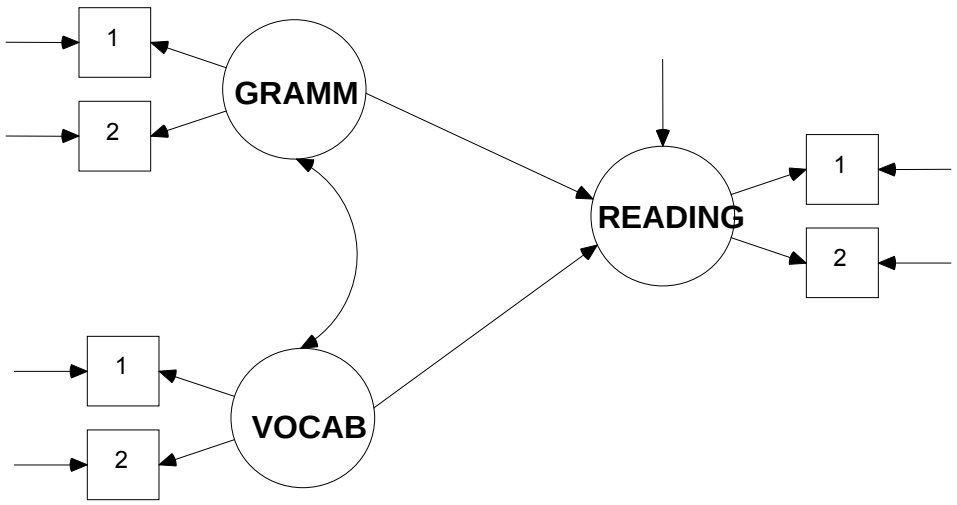
	grammar	**vocabulary**
number of items	32	60
alpha	.79	.95
SEM β	.64*	.25*
MR β	.35*	.40*

Brunfaut (2008): Research design

Analysis

- Standard Multiple Regression
- Structural Equation Modelling

SEM model



Research design

Population

- BA & MA students of English linguistics and literature, L1-Dutch

Research Instruments

L2

- IELTS Specimen Materials 2003 academic reading module
  (40 items, N=105, M=32.85, SD=4.529)
- English subject-specific academic reading test
  (24 items, N=128, M=17.11, SD=3.628)
- English academic grammar test
  (34 items, N=105, M=23.04, SD=4.155; N=128, M=22.74, SD=4.382)
- English academic vocabulary test
  (34 items, N=105, M=21.58, SD=4.540; N=128, M=20.82, SD=5.022)

Research design

L1

- Dutch subject-specific academic reading test
  (22 items, N=111, M=14.06, SD=3.553)
- Dutch academic grammar test
  (34 items, N=111, M=18.66, SD=3.753)
- Dutch academic vocabulary test
  (34 items, N=111, M=16.18, SD=4.756)

Results

1. IELTS academic reading module

MR analysis (34% jointly)	**grammar**	**vocabulary**
β	.14	.50*
r	.47*	.59*
explained variance	21%	34%
uniquely explained variance	0%	13%

SEM analysis (56% jointly)	**grammar**	**vocabulary**
β	-.02	.77*
r	.65*	.75*
explained variance	42%	56%
uniquely explained variance	0%	14%

* p<.05

grammar x vocabulary: SEM r=.88 ; SMR r=.67

2. English subject-specific academic reading

MR analysis (25% jointly)	**grammar**	**vocabulary**
β	.06	.47*
r	.40*	.51*
explained variance	15%	26%
uniquely explained variance	0%	10%

SEM analysis (43% jointly)	**grammar**	**vocabulary**
β	-.37	.98*
r	.51*	.64*
explained variance	26%	41%
uniquely explained variance	2%	17%

* p<.05

grammar x vocabulary: SEM r=.91 ; SMR r=.72

3. Dutch subject-specific academic reading

MR analysis (27% jointly)	**grammar**	**vocabulary**
β	.23*	.39*
r	.40*	.49*
explained variance	15%	23%
uniquely explained variance	4%	12%

SEM analysis (50% jointly)	**grammar**	**vocabulary**
β	.34	.77*
r	.62*	.66*
explained variance	38%	43%
uniquely explained variance	7%	12%

* p<.05

grammar x vocabulary: SEM r=.63 ; SMR r=.44

Conclusions Brunfaut (2008)

Both latent variables grammatical and vocabulary knowledge explain a considerable amount of variance in the latent text reading comprehension variable

BUT **vocabulary** outperforms grammar in predictive power for reading comprehension test performance, when using MR as well as SEM

-> Shiotsu & Weir's argument re the use of MR does not seem to hold

Is language proficiency level an explanatory factor?

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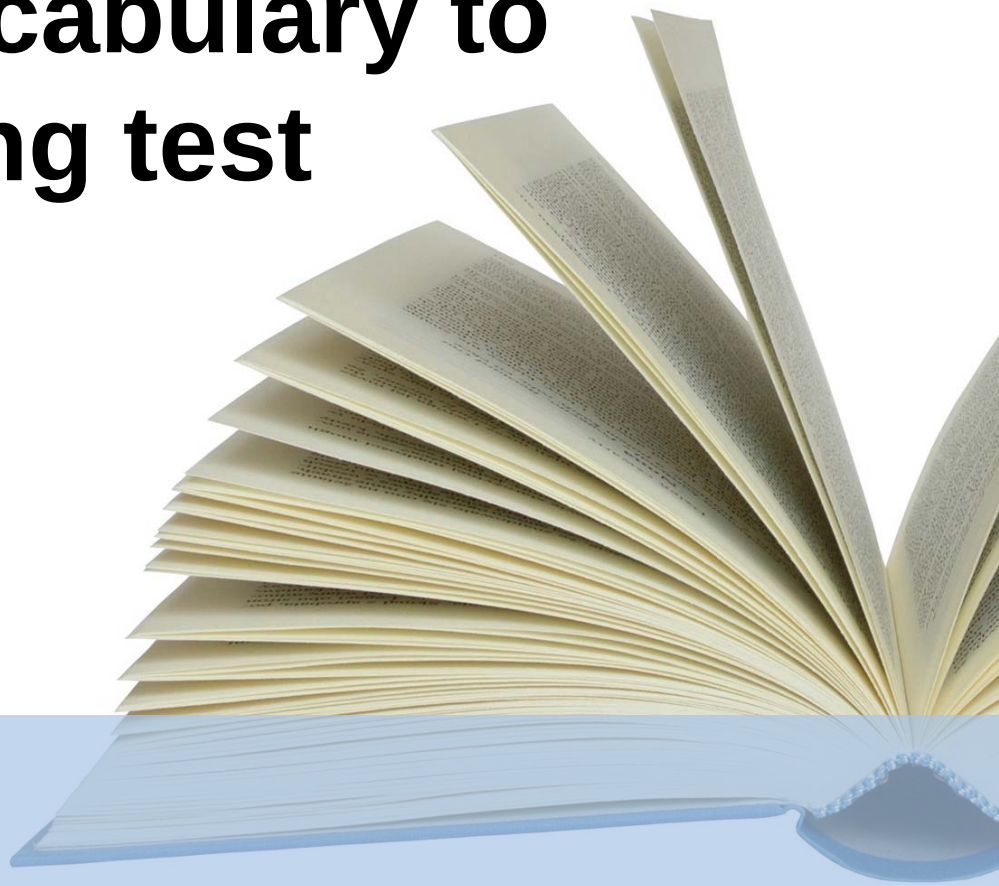

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