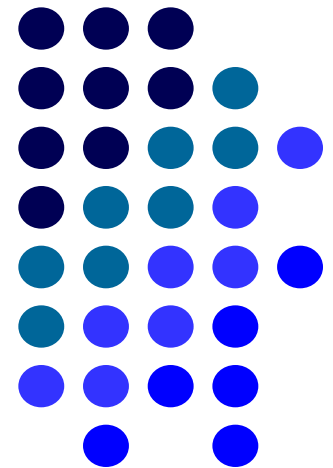


Automatic Text Processing, Cultural Familiarity & Reading Comprehension Performance

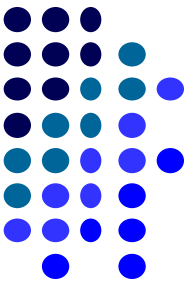
The case of the KPG English Language Exams



Jenny Liontou

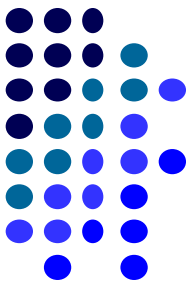
Ph.D., M.Sc. MA, BA

Presentation outline



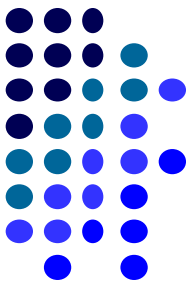
- Literature review
- Aim of the research
- Research Questions
- Research Methodology
- Research Findings
- Concluding remarks

Literature review (I)



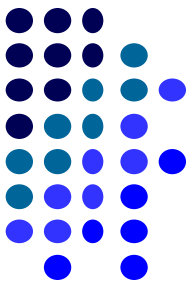
- Ketchum (2006: 23) proposed a definition of **cultural schemata** as a culture-specific extension of content schemata because they refer to the role of cultural membership that is needed to fully comprehend the meaning intended by the writer.
- One effect of this process is **lessened workload** when making personal interpretations, because culture specific texts entail involvement with "real persons, events, places and sociocultural relations with which [readers] can identify and find some common ground" (Oller, 1995: 299).

Literature review (II)



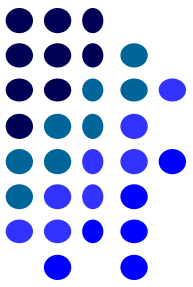
- Carrell (1987: 476) investigated the simultaneous effects on EFL reading comprehension of both culture-specific content schemata and formal schemata and found that **culture-specific content schemata** affected reading comprehension to a **greater extent** than **formal** ones.
- Floyd & Carrell (1987: 89) found that by providing students with **first-hand experiential cultural knowledge**, reading comprehension measured by objective tests as well as by a free written recall test, **was facilitated**.

Literature review (III)



- Sasaki (2000: 103) examined the effect of cultural schemata on cloze test performance and found that changing **culturally unfamiliar** words to **more familiar ones** in a cloze test **had some impact** on the participants' test-taking processes.
- Still of interest to the present days, Erten & Razi (2009: 70) investigated whether nativizing the stories could compensate for the lack of prior knowledge and found a **powerful impact of cultural schemata** on **overall comprehension**.

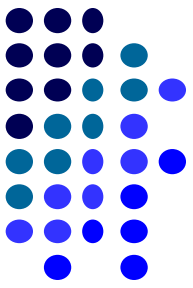
In a nutshell...



Given the influence of **culture-specific schemata**, test designers need to:

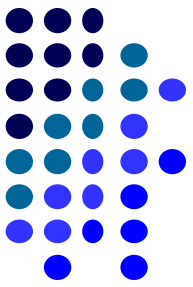
- be particularly sensitive to the potential comprehension difficulties EFL readers may encounter due to their **lack of familiarity** with the culture-specific content presumed by a text
- eliminate any test features that can be **sources of measurement error** and thus distort testers' attempts to achieve an accurate assessment of EFL learners' language proficiency.

Aim of the research



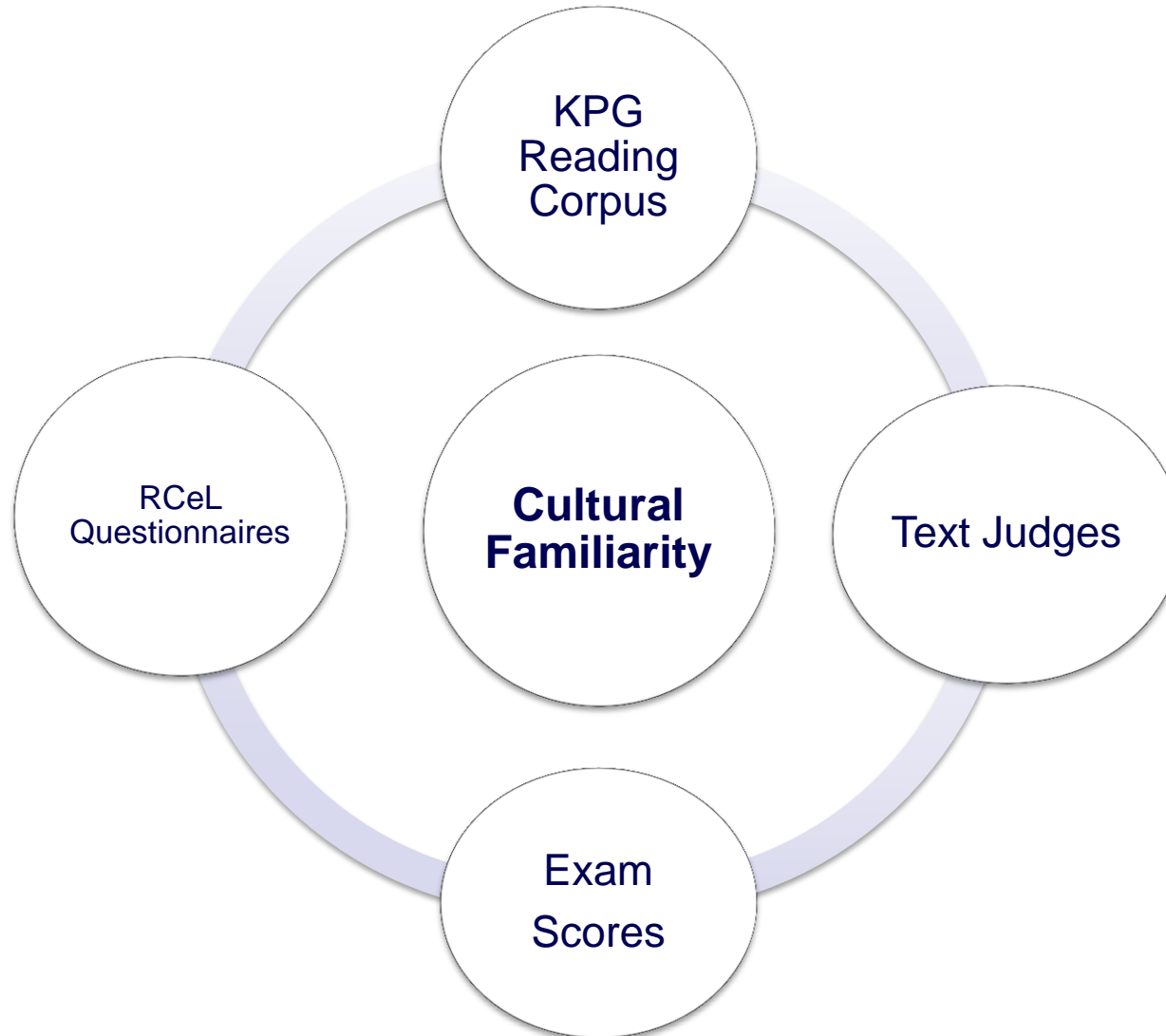
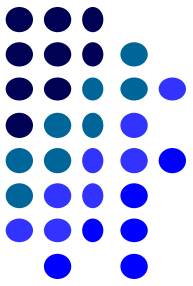
- Examine whether **culture-specific texts** are related to test-takers' **perceptions of reading difficulty**.
- Examine whether **culture-specific texts** affect test-takers' **exam performance**.
- Examine whether **culture-specific texts** are **lexicogrammatically** different from **general texts**.

Research questions

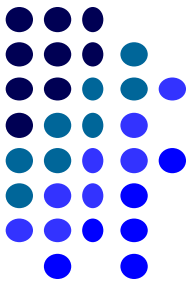


1. Is there a significant relationship between **culture-specific texts** and KPG test-takers' **perceived level of exam difficulty**?
2. Is there a significant relationship between **culture-specific texts** and KPG **test-takers' exam performance**?
3. Are there any significant differences between **culture-specific texts** and **general exam texts** with regard to specific lexicogrammatical features?

Research methodology

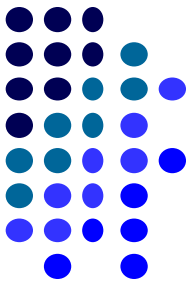


Research data



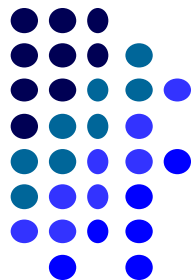
	B2 Level	C1 Level	Total
Examination Periods	15	14	29
KPG Reading Texts	33	28	61
Test-takers' Questionnaires	4,750	2,500	7,250
Test-takers' Scores	142,045	31,989	174,034

RCeL National Survey



	B2 Level		C1 Level	
	Number	Cronbach's Alpha	Number	Cronbach's Alpha
May 2006	1,750	0.794	500	0.771
November 2006	500	0.799	500	0.822
May 2007	1,000	0.741	500	0.801
November 2007	750	0.829	500	0.774
May 2008	750	0.791	500	0.773
TOTAL	4,750		2,500	

KPG English Reading Texts



ACTIVITY 1

Read the text below and do steps 1-2.

Times Literary Supplement

Out of Crete

Roderick Beaton



Zorba the Greek and *The Last Temptation of Christ* are both better known as films, than the books they are based on. Even harder to identify, behind the opera *The Greek Passion* by **Bohuslav Martinů**, that has played to full houses at

Covent Garden in recent seasons, is the novel that provided its libretto, its title translated in the UK as *Christ Crucified*. In the game of 'name' recognition', **Nikos Kazantzakis**'s scores well below his most successful creations.

In the public imagination around the world, the name Zorba has become the symbol for an exuberant, lovable stereotype of the modern Greek. Every tourist in Greece, and **Greece** philes the world over, will have been exposed to 'Zorba's dance', the **sytaki**, that was actually invented for the 1965 film, and the accompanying music by **Mikis Theodorakis**. In Crete, where the story of Zorba is set, just about every second **taaverna** is named after him. All over the globe, how many more Greek restaurants, bars, nightclubs, rely on the name 'Zorba' alongside **ouzo**, **retsina**, and the blue-and-white Greek flag, to promote what they have to offer?



In a more sombre way, the fuss that followed the release of the **Scorsese** film, *The Last Temptation of Christ*, particularly in the US, in 1988, turns out, in hindsight, to have been one of the first clashes in a battle that may yet prove to be the defining conflict of the early twenty-first century – between religious fundamentalists and secular 'Western' liberalism. Pressure by religious groups in America so intimidated the cinema chains that public screenings of the film were effectively banned – and that was almost twenty years ago.

Still, if his name is not exactly on everybody's lips, **Kazantzakis** has not done too badly for a writer who has been dead fifty years. In the UK, all seven of his novels that established his international reputation during the last ten years of his life are still in print, even if the publishers (Faber) seem neither to know nor to care that three of them were translated, back in the 1950s, without reference to the original Greek, and that the English versions contain translation errors that would not be acceptable in a translation published today.

After *Zorba the Greek* and *The Last Temptation*, next best known is *Christ Crucified*, published in the US as *The Greek Passion*, whence the title of **Martinů**'s opera. In this novel, a group of villagers in Anatolia, under Turkish rule, are preparing a re-enactment of the Passion when the arrival of refugees from a neighbouring village destroyed in a massacre raises the stakes to such a pitch that all the major figures end up playing their biblical roles for real.

ACTIVITY 1

Read the text below and do steps 1-3.

Should soya carry a health warning?

Felicity Lawrence Investigator

For Dr Mike Fitzpatrick, the saga of soya began with a dead parrot. His investigations into the ubiquitous bean started in 1991 when Richard James, a multimillionaire American lawyer, turned up at the laboratory in New Zealand where Fitzpatrick was working as a consultant toxicologist. James was sure that soya beans were killing his rare birds.

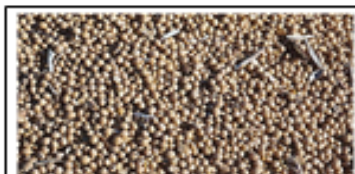
'We thought he was mad, but he had a lot of money and wanted to find out what was going on,' Fitzpatrick recalls.

Over the next few months, Fitzpatrick carried out an exhaustive study of soya and its effects. 'We discovered quite quickly,' he recalls, 'that soya contains toxins and plant oestrogens powerful enough to disrupt women's menstrual cycles in experiments. It also appeared damaging to the thyroid.'

James's lobbying eventually forced governments to investigate. In 2002, the British government's expert committee on the toxicity of food published the results of its enquiry. It concluded that in general the health benefits claimed for soya were not supported by clear evidence and judged that there could be risks from high levels of consumption for certain age groups, particularly babies fed on soya milk. Yet little has happened to curb soya's growth since then.

More than 60% of all processed food in Britain today contains soya in some form, according to food industry estimates. Soya, crushed, separated and refined into its different parts, can appear on food labels as soya flour, hydrolysed vegetable protein, soy protein isolate, protein concentrate, etc. Its many guises hint at its value to manufacturers. However, you may think that when you order a skinny soya latte, you are choosing a commodity blessed with an

undiluted aura of health. But soya today is in fact associated with patterns of food consumption that have been linked to diet-related diseases. And 50 years ago it was not eaten in the west in any quantity.



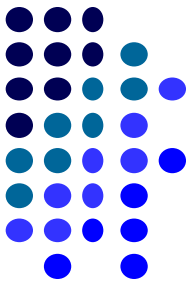
Harvested, unprocessed soya beans

In 1965, the earliest year for which the Chicago Board of Trade keeps figures, global soya production was just 30m tonnes. By 2005, the world was consuming nine times that a year, at 270m tonnes. World soya oil production, meanwhile, has increased sevenfold over the same period, from 5m tonnes to 34m tonnes a year.

To feed demand, new agricultural frontiers are being opened up in Brazil, where large areas of virgin rainforest have been illegally felled to make room for the crop. US-based transnationals are now exporting soya back to China, the country from which it originated, as newly urbanised Chinese switch to industrialised western diets. Thanks to US agribusiness, we have developed an apparently insatiable global appetite for the bean produced by farmers in the Americas.

James and Fitzpatrick became convinced early on that this entirely new dependence on soya was, in fact, a dangerous experiment. The dead parrots were the canaries in the coalmine.

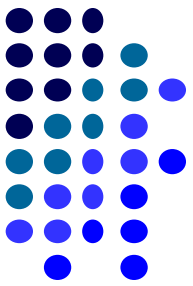
Judges & C1 Reading Texts



Culture-specific	General interest
1. Cretan tradition	1. Detective agency
2. Famous people biographies	2. Modern European History
3. Helen of Troy opera	3. Soya
4. Zorba	4. History of sport
5. Alexander the Great	5. Climate crisis

Culture-specific vs. General KPG C1 reading texts

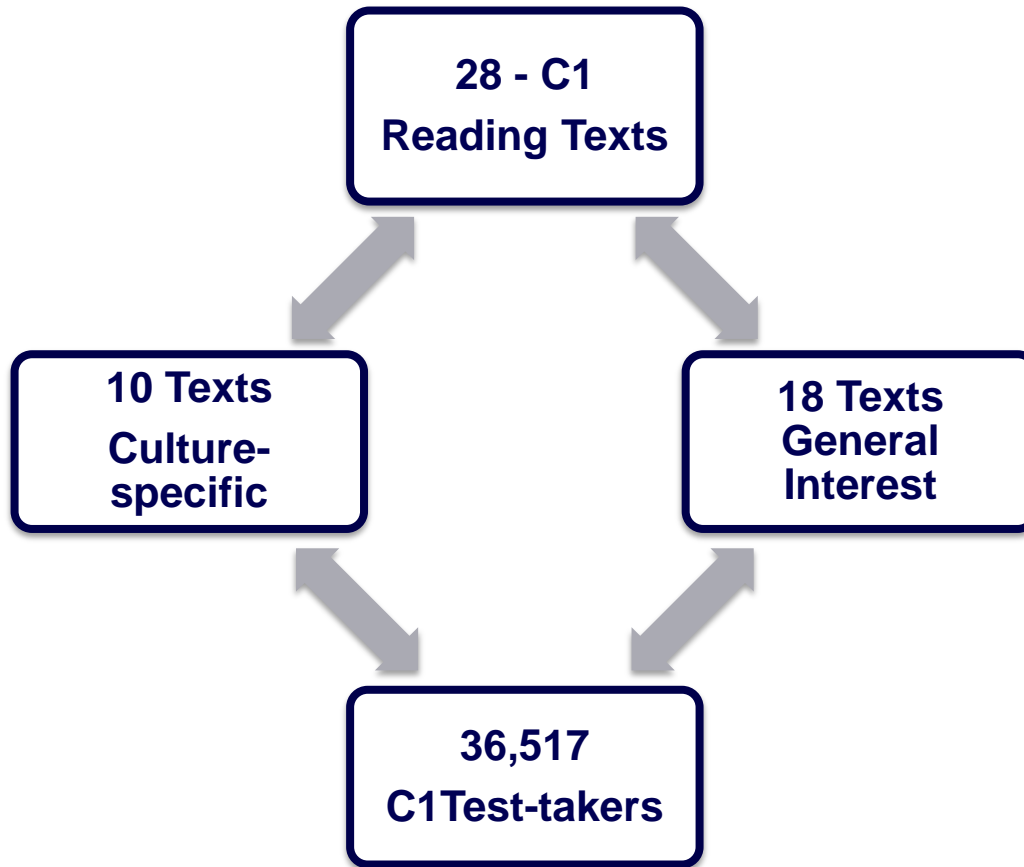
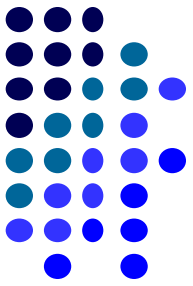
C1 Test-takers' Perceptions



	Culture Specific	General Interest	
	Mean	Mean	Adj. sig. (2-tailed)
Slightly Difficult Reading Paper	.39460	.31920	.007
Fairly Difficult Reading Paper	.43640	.48260	.004
Very Difficult Reading Paper	.14260	.19860	.007
Lower Text Level	.09520	.07500	.034
Lower Item Level	.07540	.05280	.023
Slightly Anxious	.45300	.52100	.001
Fairly Anxious	.17200	.22950	.003
Very Anxious	.20600	.24950	.003
Exam Scores	68.8700	71.2240	.220

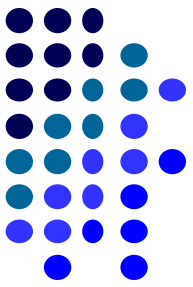
Results of Independent samples t-tests between Culturally Familiar & Culturally Unfamiliar
KPG C1 Reading Texts

Culture-specific Texts & Exam Performance



	Culture Specific	General Interest	
	Mean	Mean	Adj. sig. (2-tailed)
MEAN C1 READING SCORES	67.88500	64.61438	.255

Text processing tools



Coh-Metrix 2.0 (Graesser *et al.*, 2004; McNamara *et al.*, 2005)

Web VocabProfiler (Cobb, 2003)

Gramulator 5.0 (McCarthy & Jarvis, 2010; Min & McCarthy, 2010)

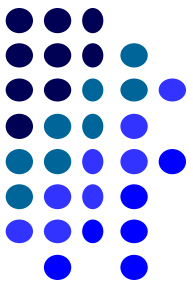
GPAT (Lamkin & McCarthy, 2011; Rufenacht *et al.*, 2011)

CLAN (Malvern & Richards, 2002; McKee *et al.*, 2000).

LIWC (Pennebaker, 2003; Tausczik & Pennebaker, 2010)

Wordsmith Tools 4.0 (Scott, 2006)

In-depth text analysis



Basic Text Information: Average number of words per sentence, syllables per text, sentences per paragraph, etc.

Readability Indices: Flesch Reading Ease, Dale-Chall Grade Level, Gunning's Fog Index, BNC Frequency Bands, Academic Words List, etc.

Lexical Richness Indices: vocd-D, HD-D, Lexical Density, Families per Text, etc.

Syntactic complexity: higher level constituents, modifiers per noun phrase, passive sentences, syntactic structure similarity, etc.

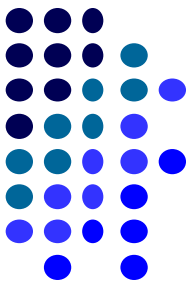
Cohesion: Causal, Intentional, Temporal, Spatial, Referential, Logical Operators, Connectives, etc.

Latent Semantic Analysis: LSA for adjacent sentences, all sentences, all paragraphs.

Text abstractness: Noun hypernym, verb hypernym, concreteness content words, etc.

Additional Text Variables: idioms, phrasal verbs, part, present, future tenses, negations, etc.

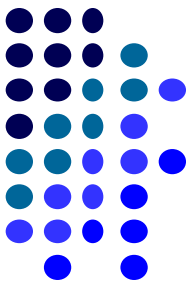
Culture-specific vs. General texts



	Culture-specific	General Texts	
	Mean	Mean	Adj. sig.
Syllables per word	1.661	1.567	.004
Characters per word	5.020	4.805	.003
Flesch Reading Ease	44.666	52.586	.016
Dale-Chall Grade Level	13.150	10.472	.004
Fry Readability Graph	12.500	10.388	.007
K1 Words (1-1000)	71.917	77.541	.005
K3 Words (2001-3000)	4.809	3.115	.012
Negations	4.046	8.782	.012
Verb Density	7.741	10.017	.005
Present Tenses	2.990	4.702	.010

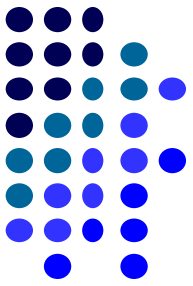
Results of Independent samples t-tests between Culture-specific & General C1 reading texts

Concluding remarks



1. KPG English Language Exams promote **in practice culture awareness** through the implementation of culture-specific texts in the C1 reading comprehension test paper.
2. Such an implementation **doesn't affect** exam scores. Thus, it is **not** a source of measurement error.
3. Culture-specific exam texts can have an **alleviating effect** on KPG C1 test-takers' perceived level of **anxiety** while increasing their feelings of **topic preference**.

Acknowledgements



Special thanks are due to Prof. Dendrinos, President of the KPG Central Examination Committee and Director of the RCeL, for her continuous advice and support at all stages of the present research.

Greek Ministry of Education

URL: <http://www.minedu.gov.gr>

Research Centre for Language Teaching, Testing and Assessment

Faculty of English Language & Literature, University of Athens

URL: <http://rcel.enl.uoa.gr>

References

- Al-Fallay, I. (1994). *Limiting Bias in the Assessment of English as a Foreign Language: The Impact of Background Knowledge on the Proficiency of Saudi Arabian Students Learning English as a Foreign Language*. Unpublished PhD. thesis, University of New Mexico, Albuquerque.
- Carrell, P. (1987). Content and Formal Schemata in ESL Reading. *TESOL Quarterly*, 21, 3, 461-481.
- Chihara, T., Sakurai, T. & Oller, J. (1989). Background and culture as factors in EFL reading comprehension. *Language Testing*, 6, 2, 143-151.
- Erten, I. & Razi, S. (2009). The effects of cultural familiarity on reading comprehension. *Reading in a Foreign Language*, 21, 1, 60-77.
- Floyd, P. & Carrell, P. (1987). Effects of ESL Reading of Teaching Cultural Content Schemata. *Language Learning*, 37, 1, 89-108.
- Graesser, A., McNamara, D., Louwrese, M. & Cai, Z. (2004). Coh-Metrix: Analysis of text on cohesion and language. *Behavioral Research Methods, Instruments, and Computers*, 36, 193-202.
- Johnson, P. (1981). Effects of reading comprehension on language complexity and cultural background of a text. *TESOL Quarterly*, 15, 2, 169-181.
- McCarthy, P. & Jarvis, S. (2010). MTLD, vocd-D, and HD-D: A validation study of sophisticated approaches to lexical diversity assessment. *Behavior Research Methods*, 42, 2, 381-392.
- McKee, G., Malvern, D. & Richards, B. (2000). Measuring Vocabulary Diversity Using Dedicated Software. *Literary & Linguistic Computing*, 15, 3, 323-337.
- Ketchum, E. (2006). The cultural baggage of second language reading: An approach to understanding. *Foreign Language Annals*, 39, 1, 22-42.
- Oller, J. (1995). Adding abstract to formal and content schema: Results of recent work in Peircean semiotics. *Applied Linguistics*, 16, 3, 273-306.
- Sasaki, M. (2000). Effects of cultural schemata on students' test-taking processes for cloze tests: a multiple data source Approach. *Language Testing*, 17, 1, 85-114.
- Steffensen, M., Joag-Dev, C. & Anderson, R. (1979). A cross-cultural perspective on reading comprehension. *Reading Research Quarterly*, 15, 1, 10-29.

