

Reading Fluency in ESL and EL1 Elementary School Children: Developmental Patterns and Cognitive Underpinnings

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Language Acquisition and Bilingualism

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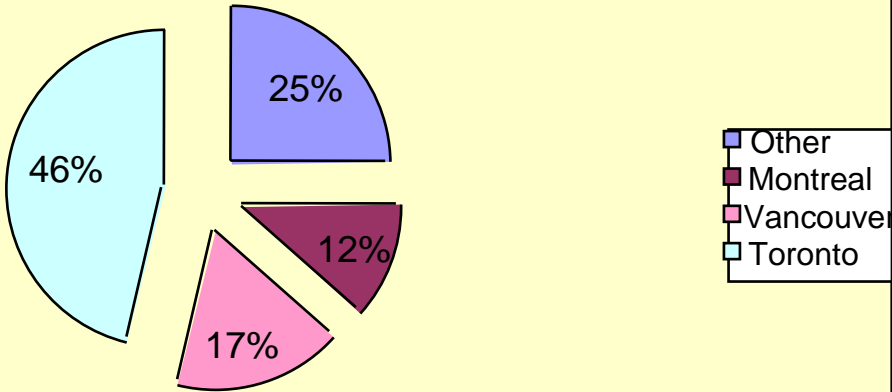
- Fataneh Farnia - Hincks-Dellcrest Centre
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- Zohreh Yagoub-Zadeh - Canadian Council on Learning

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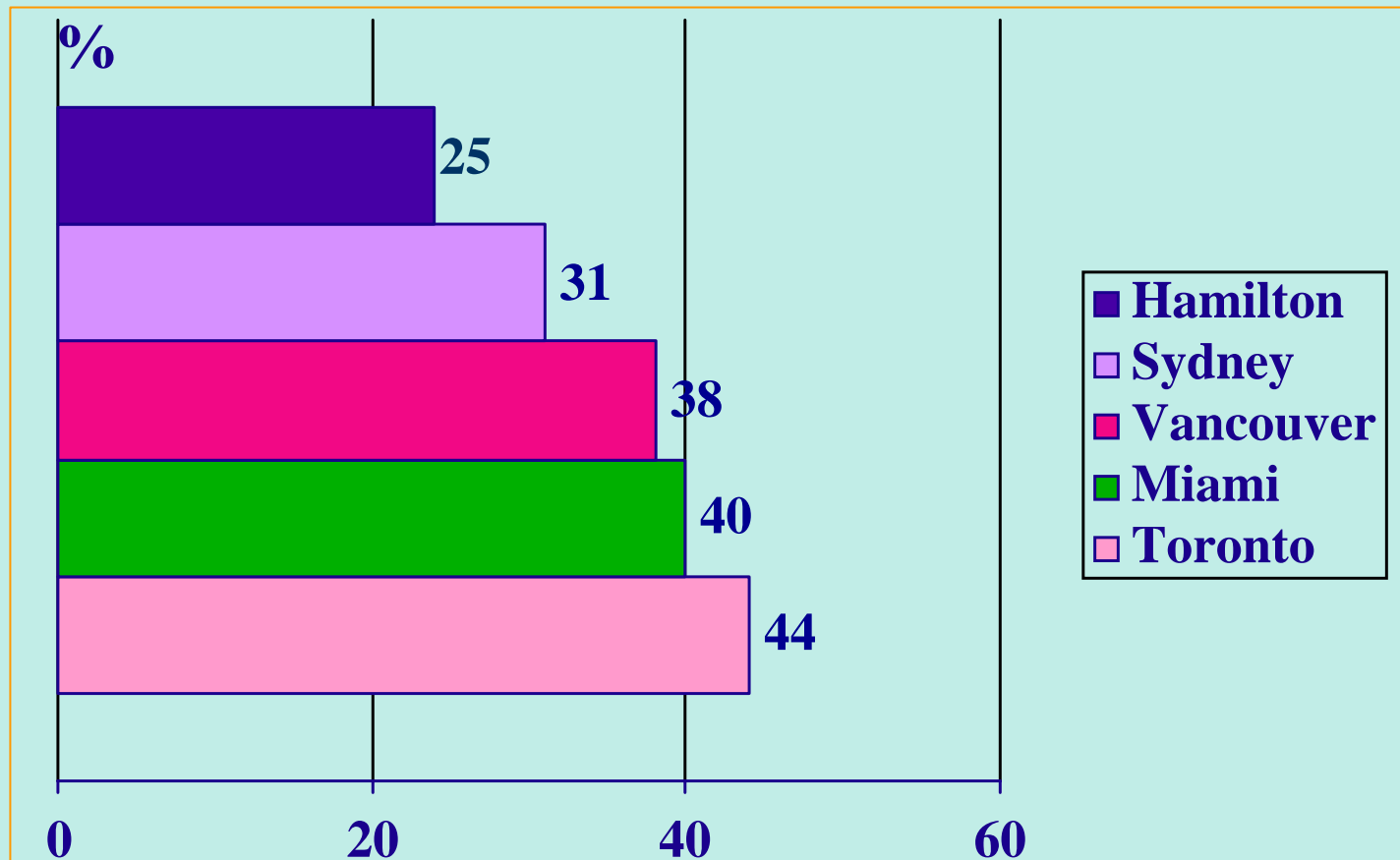
- Social Sciences and Humanities Research Council of Canada (SSHRC)
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Canadian Immigration - Some Demographic Facts

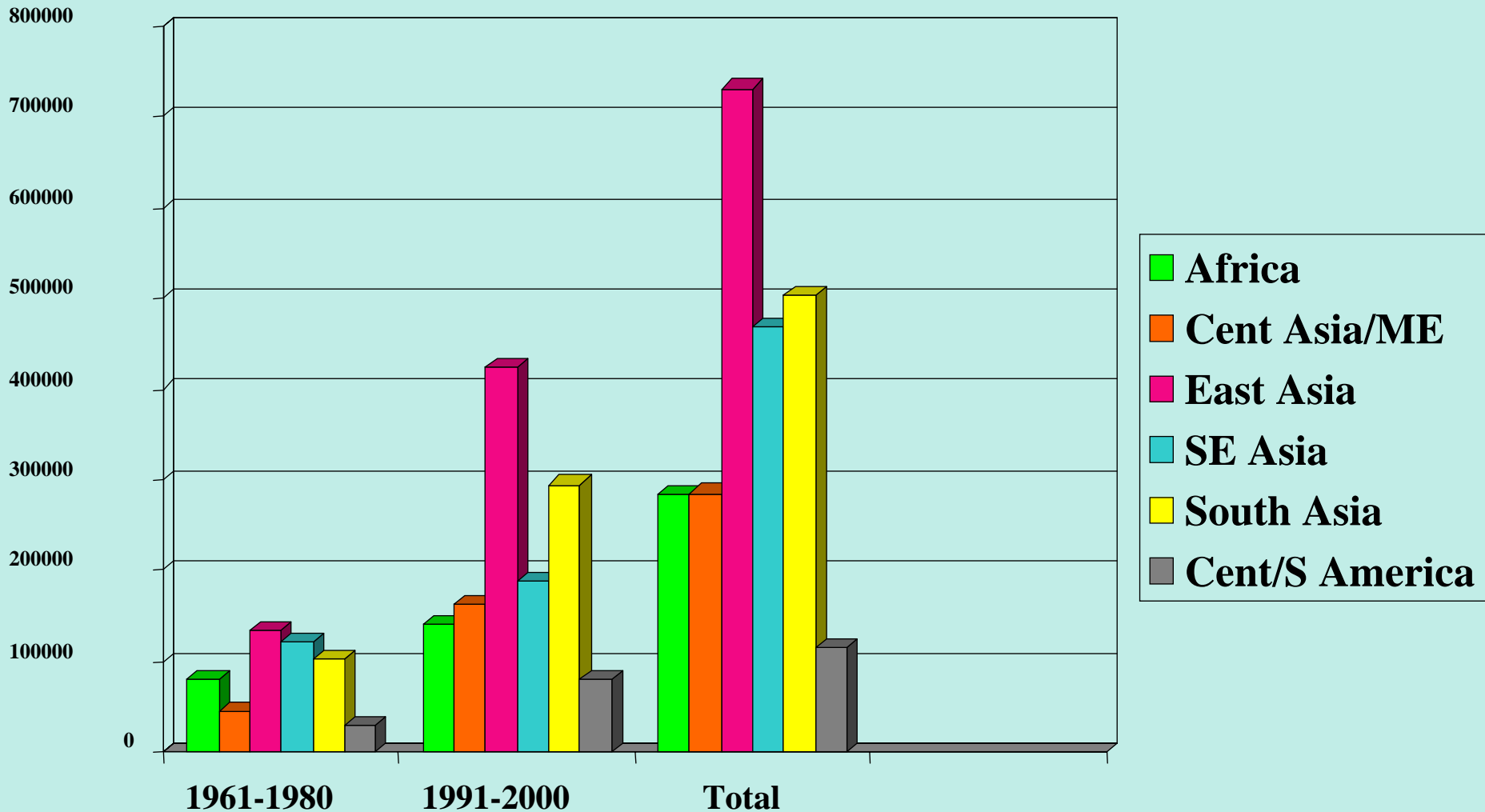
1.2 million immigrants came to Canada between 1996-2001. Here's where they went:



Ethnic diversity in Canadian cities



The changing nature of immigration trends in Canada



What is Reading Fluency?

- ❑ That level of reading competence at which **textual** material can be **effortlessly**, smoothly, and automatically **understood** (Schreiber, 1980)
- ❑ Reading fluency involves **proficient word recognition** & the ability to group words appropriately into **meaningful grammatical units** for interpretation (NRP, 2000)
- ❑ Overlap: "fluency", "efficiency" and "automaticity"

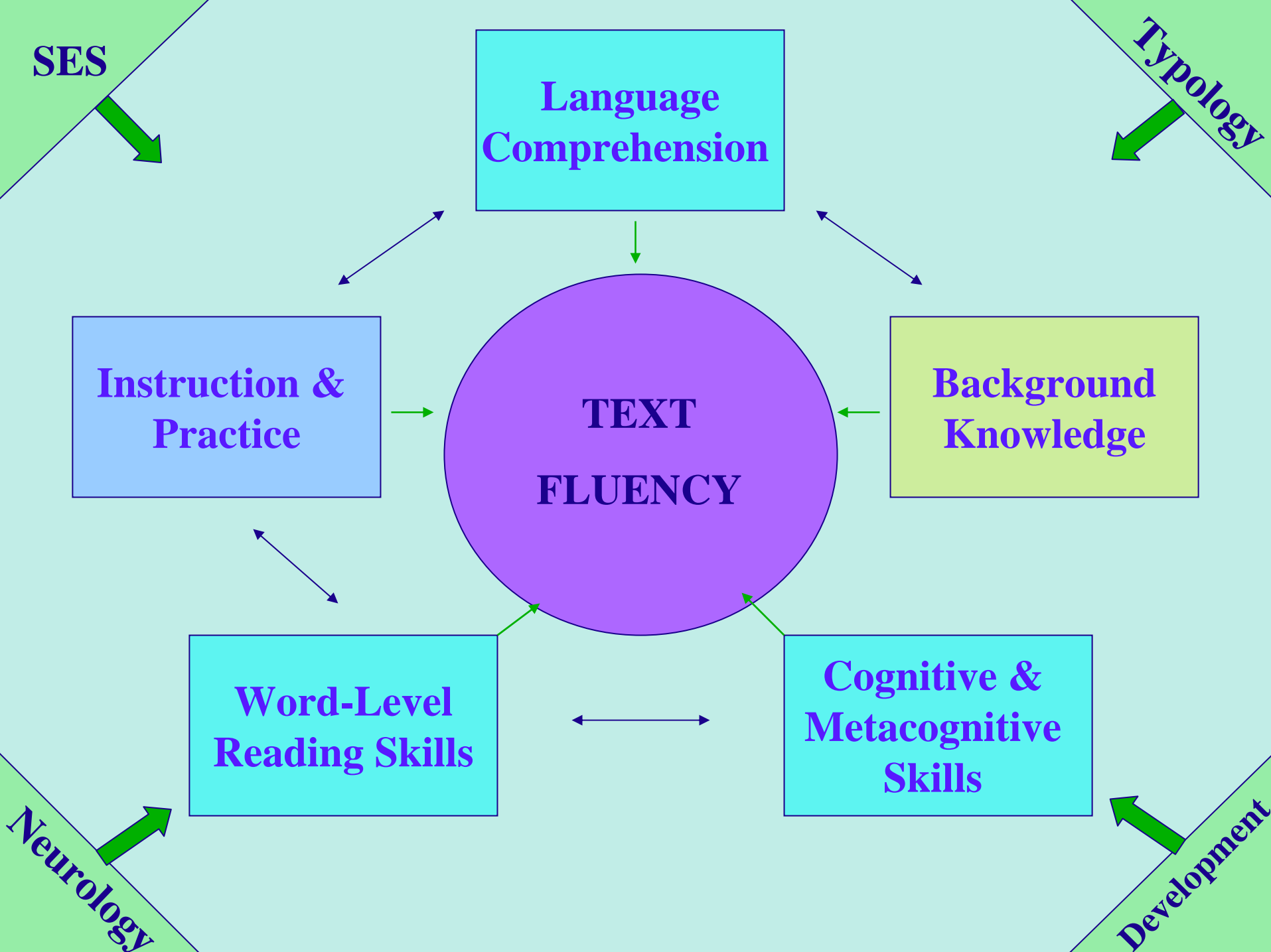
Current models of reading fluency:

- Dynamic, developmental & componential
- Early development: lower level components
- Later development: prosody & comprehension
- Dysfluent reading - impairment in any of the components

Less-skilled L1 readers:

- Recognize printed words more slowly
- Dysfluent
- Slower letter and word naming
- Poorer and slower processing of phonological and orthographic information
- Letter and word naming predict fluent reading
- Synchronization of brain systems is slower (Breznitz, 2006).

Reading Fluency in L2 - an Emerging Model



Overall Objectives of my Research Program on Reading Fluency

- Adequacy of L1 models for L2 literacy development?
- Role of oral language proficiency (OLP)
- Role of underlying cognitive processes
- Word efficiency
- Developmental trajectories
- Fluency ↔ Reading comprehension
- Universal/typological aspects
- At-risk L2 readers

Study 1

Reading Efficiency in EL1 and ESL
Children:

- Role of oral Proficiency
- Role of underlying cognitive-linguistic processes

Method

Focus: ESL & EL1, longitudinal (grades 1-6),
4 cohorts, 12 schools

Focus of study 1 - Grade 2; Fall

Sample:

EL1: N=67

ESL: N=183

Children who could read 2 stories:

EL1 N= 54

ESL N= 151

Predictor Measures

- Non-verbal ability: MAT
- Oral language:
 - Expressive vocabulary
 - Grammatical judgment
- Phonological processing:
 - Rapid naming letters (RAN)
 - Phonemic awareness (PA)
- Basic reading skills:
 - Word Attack
 - Word Recognition

Dependent Measures

□ Reading efficiency

□ Text Efficiency:

Two, 100-word stories

□ accuracy + speed $(ZACC+ZTIME)/2$

□ Word Efficiency:

Words from stories

□ accuracy + speed $(ZACC+ZTIME)/2$

Reading Efficiency (story 2 -“hard”)

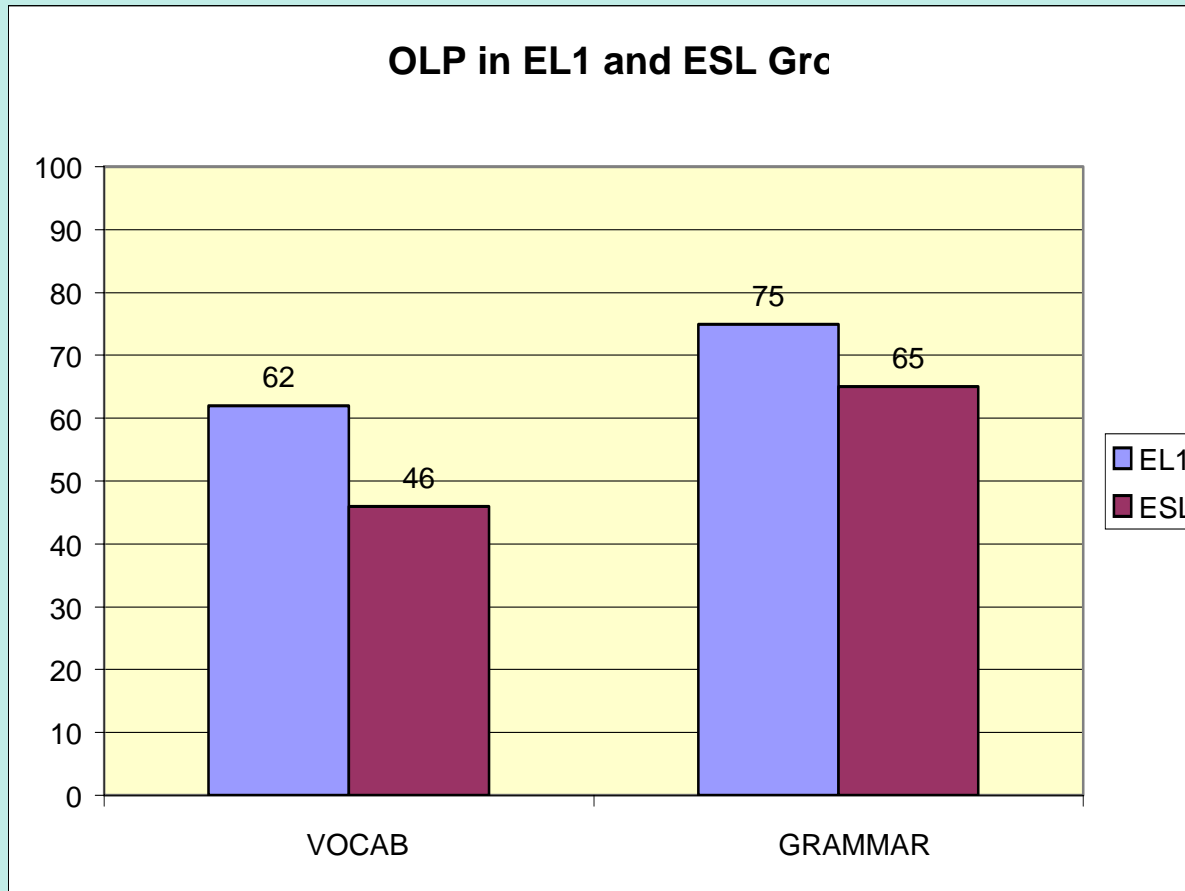
Story 2

John liked visiting the store near the lake. The store was full of food, clothes, and supplies for people who lived around the lake. There were also wood carvings and souvenirs for tourists. John was interested in all these things. But most of all, he liked the model canoe on the shelf next to the cash register. It was the nicest model he had ever seen. Mr. Jones, who ran the store, saw John looking at the model canoe. "How do you like that model, John?" he asked. "I like it very much!" answered John. "How much does it cost?"

Word List

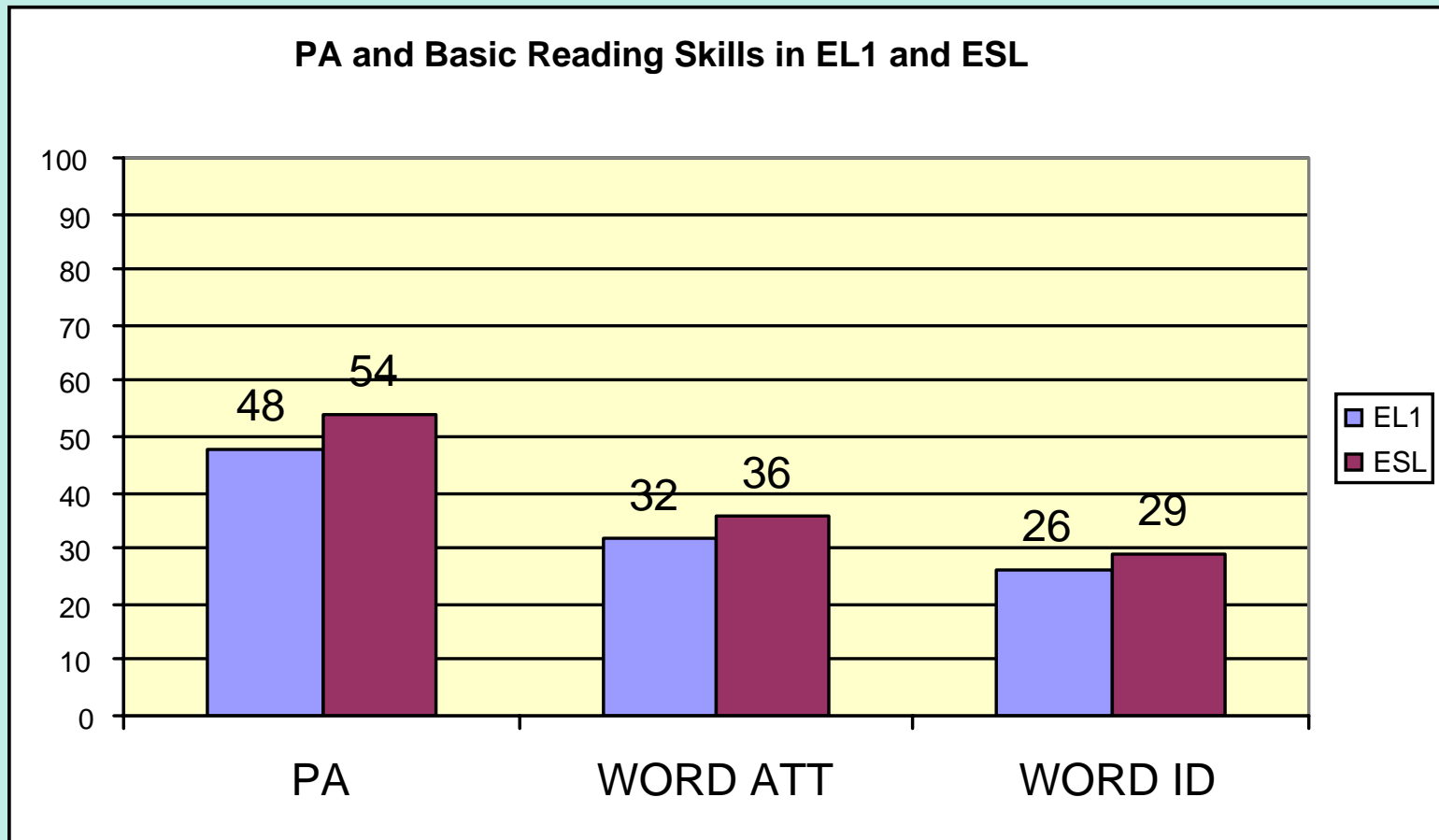
was register visiting that looking answered full carvings here
lake model how shelf cash were it nicest on every supplies
around near but in people he food asked interested saw had
and things wood at who in seen cost does these store ran
cans very tourists a lived much also

EL1 and ESL Performance on Oral Language Proficiency (OLP) Measures



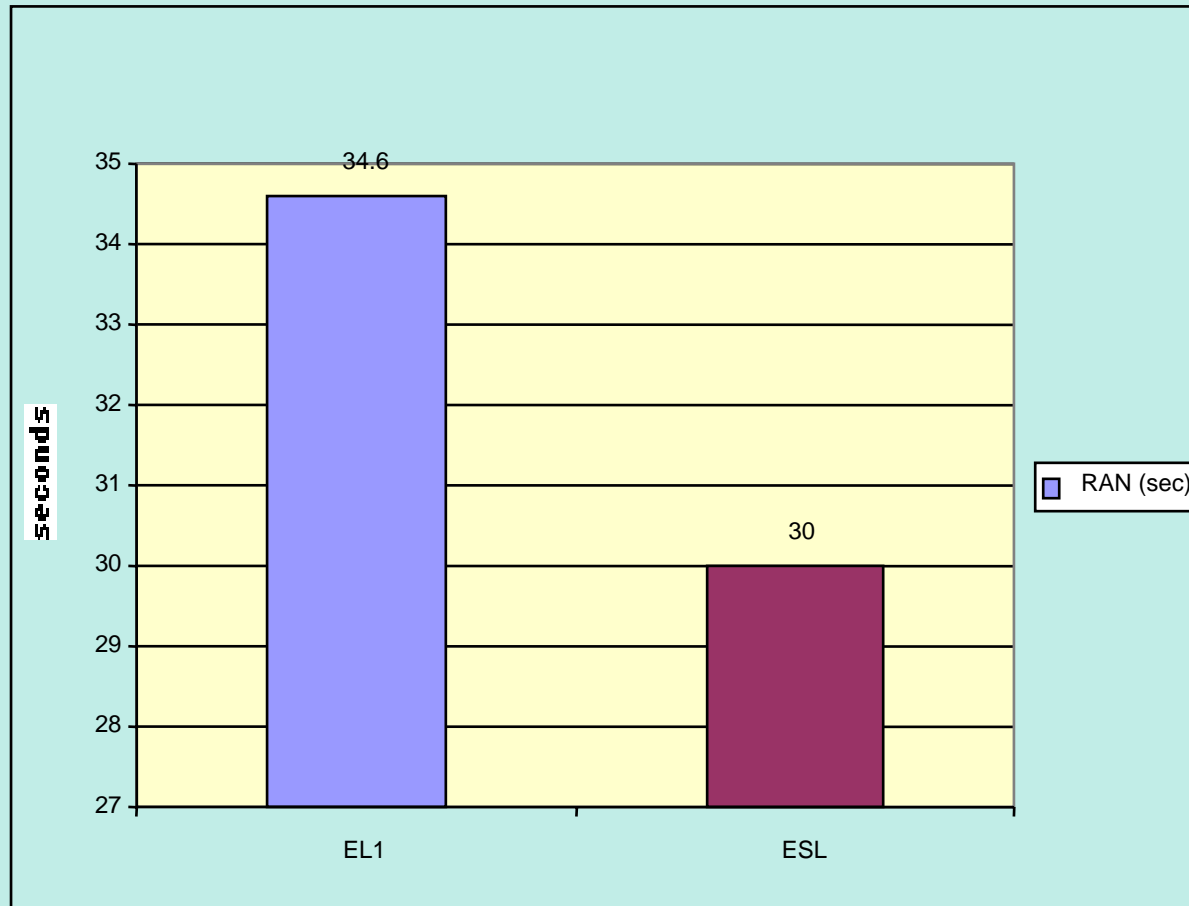
EL1 > ESL

EL1 and ESL Performance on Word Level Skills



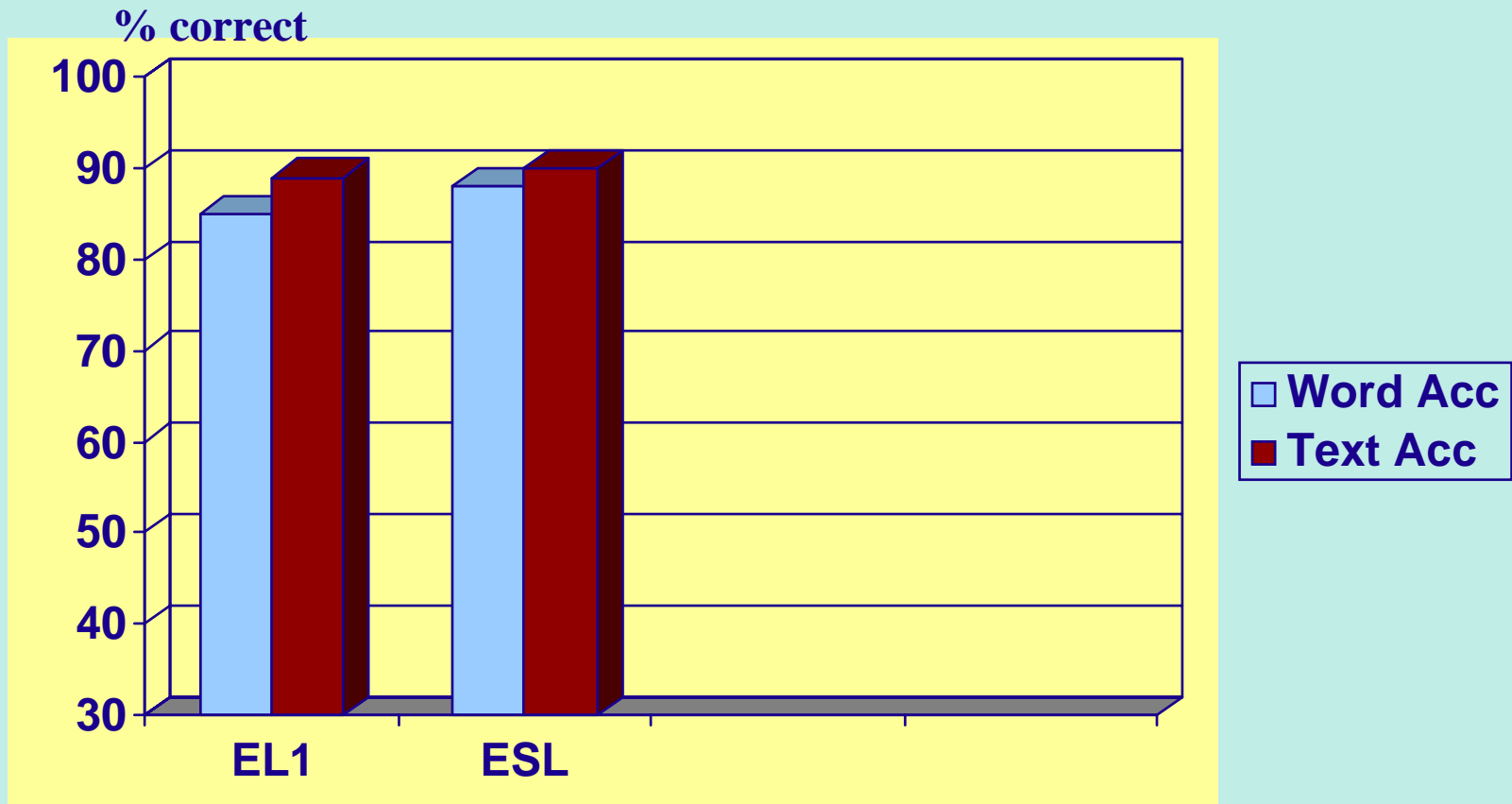
No ESL-EL1 differences

EL1 and ESL Performance on Rapid Automated Naming (RAN) (Letters)



ESL are faster

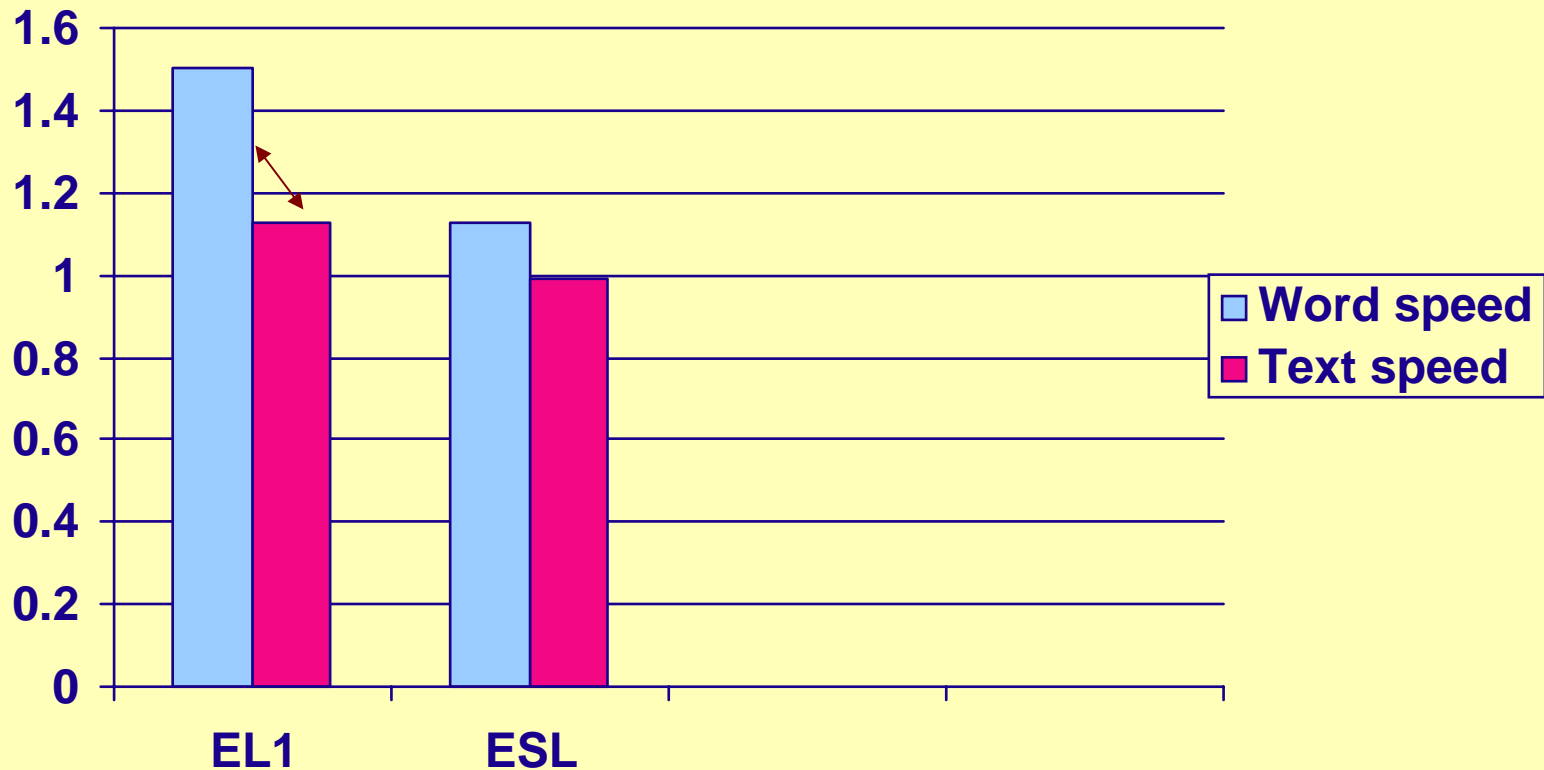
Word and Text Reading Accuracy: EL1 and ESL



No difference

The effect of context: Word vs. text efficiency in EL1 and ESL

Seconds/word



Summary

- ❑ ESL < EL1 on oral proficiency
- ❑ ESL > EL1 on rapid naming
- ❑ ESL = EL1 on word-level reading skills
- ❑ ESL = EL1 on text efficiency
- ❑ EL1 > ESL re benefit more from context

Predictors of Word and Text Reading Efficiency in EL1 and ESL (Gr 2)

	Word- EL1	Word- ESL	Text- EL1	Text- ESL
OLP*	8	11***	9	12***
PA	8	18***	11	16***
RAN	34***	23***	31***	20***
Word ID	28***	19***	27***	22***

* Non-verbal ability Š NOT significant
* OLP = grammar PLUS expressive vocabulary

Summary

- ❑ Phonological awareness & RAN predict word and text efficiency in both groups
- ❑ Unique variance of PA and RAN not identical
- ❑ Oral language proficiency (OLP) plays a significant albeit limited role
- ❑ Accurate word recognition skills - important

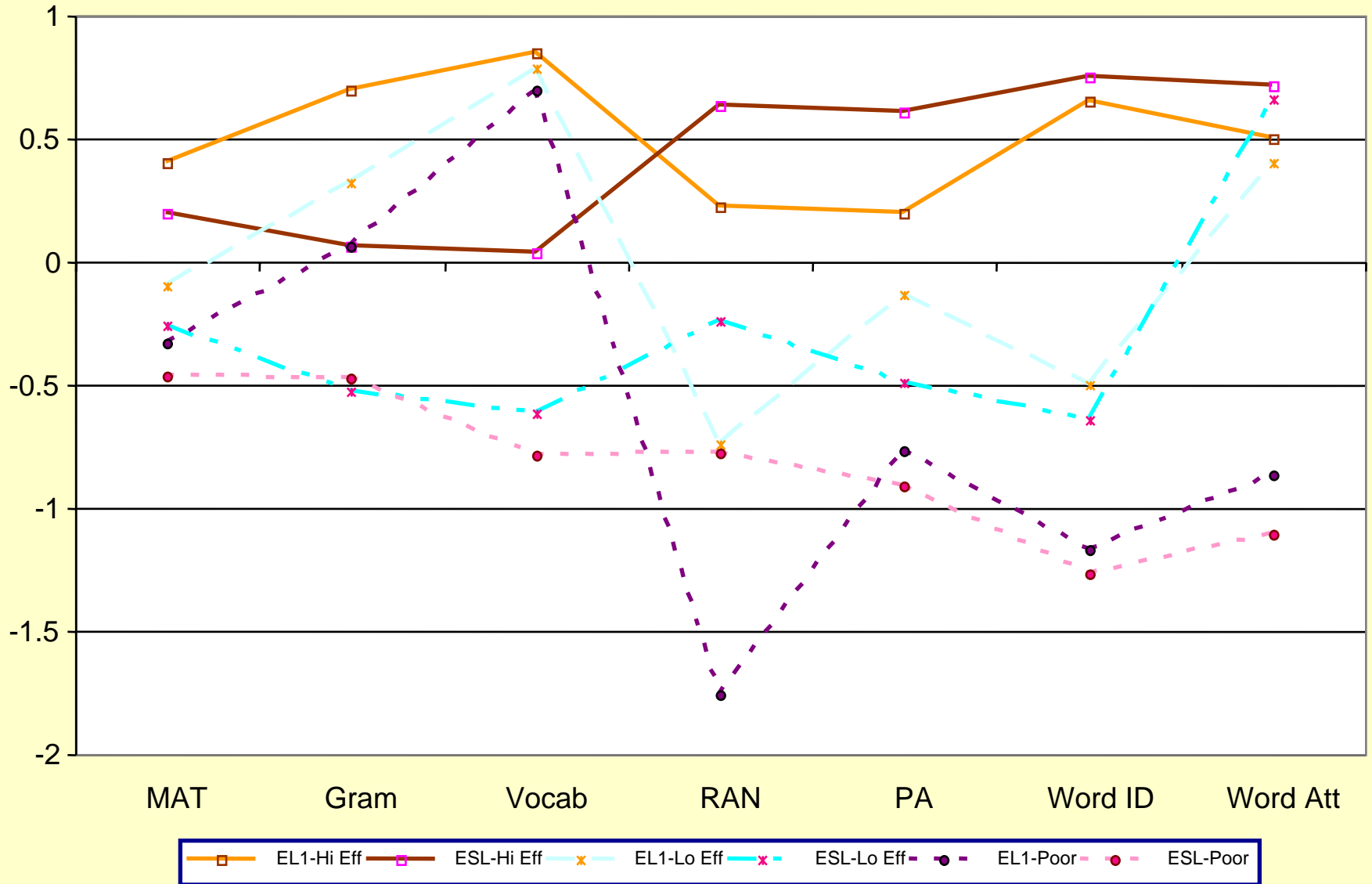
Comparing profiles of “efficient”,
less-efficient, and at-risk ESL and
EL1

Distribution of Hi-Efficiency, Low-Efficiency, and Poor Decoders in EL1 and ESL

	EL1	ESL
Hi-Efficiency	43%	57%
Low-Efficiency	30%	24%
Poor Decoders	18%	17%

($\chi^2 = .07$, $df=1$, $p=.460$)

EL1 and ESL Profiles of Efficient Readers, Non-efficient Readers, and Poor Decoders



Modeling the longitudinal
association between RAN,
PA, oral language and reading
components

Background

- Longitudinal research on L1 reading development has identified RAN, PA, and OLP as early predictors of word identification, reading efficiency and reading comprehension.
- L2 studies have shown that RAN, PA, and measures of OL are concurrent predictors of word reading, reading efficiency, and reading comprehension.
- Is there a longitudinal association between RAN, PA, and OLP as early predictors of word identification, reading efficiency and reading comprehension.

Measures

Grade 1 measures:

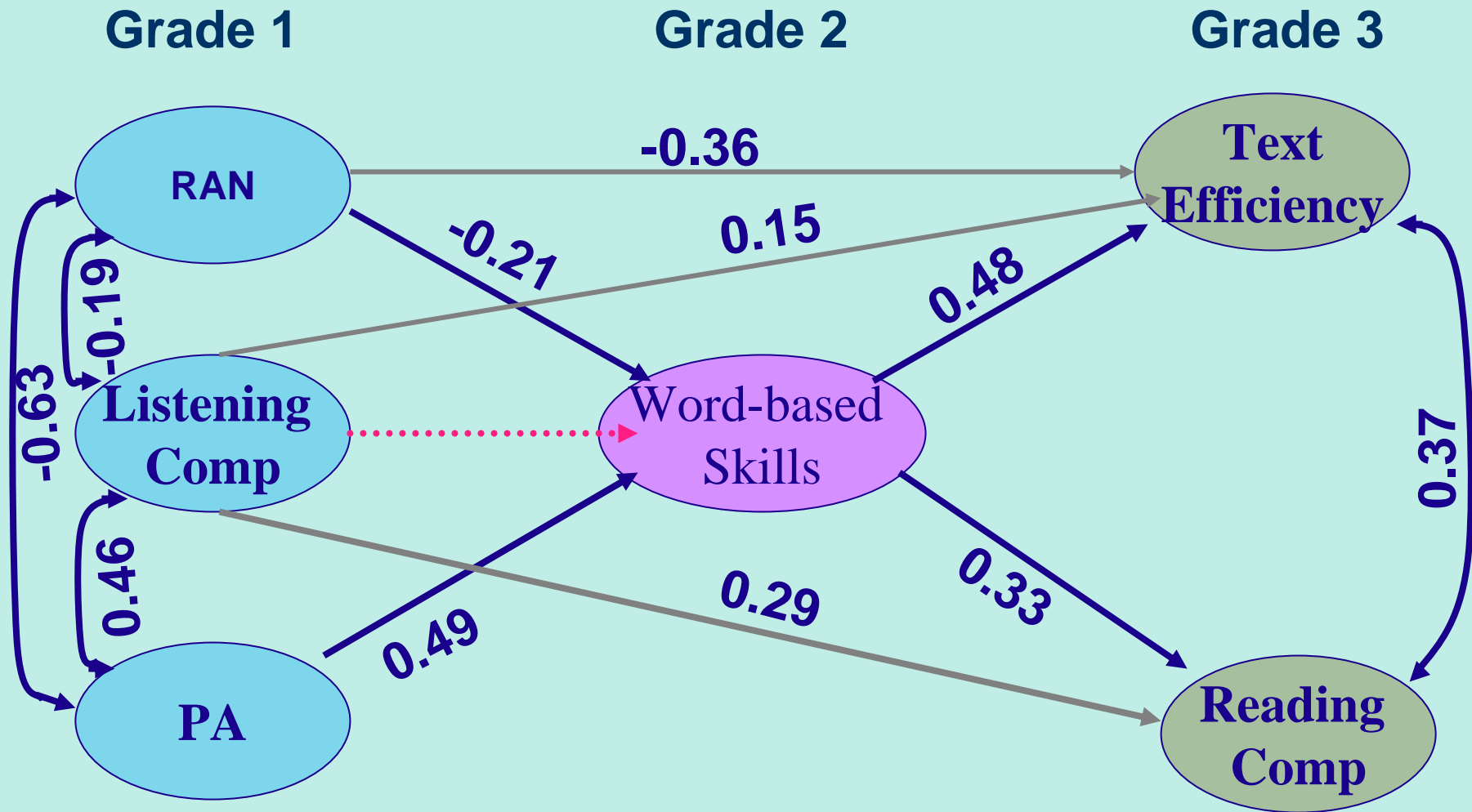
- **Speed**
 - RAN Letter
 - RAN Objects
- **Phonological Awareness (PA)**
 - Rosner
 - Onset
 - Rime
- **Listening Comprehension**
 - Three stories (Durrell); 3 different level of difficulty

Grade 2 measures:

- **Word-based Skills**
 - Word recognition (WRAT)
 - Word attack (WA)

Grade 3 measures:

- **Reading Efficiency**
 - Text Efficiency-Easy story
 - Text Efficiency-Difficult story
- **Reading Comprehension**
 - Three stories (Durrell); 3 different level of difficulties



$\chi^2=92.99, df=77, p=.10, RMSEA=.032$

Fit Structural Model: Grades 1-3

Conclusions

- ❑ Same early predictors contribute to reading acquisition of L1 and ESL students.
- ❑ The influence of early PA and RAN on later reading efficiency and reading comprehension takes place partly through word-based skills.
- ❑ Oral language proficiency affects directly later reading efficiency & reading comprehension.

Study 3

Developmental trajectories and their predictors

Research Questions

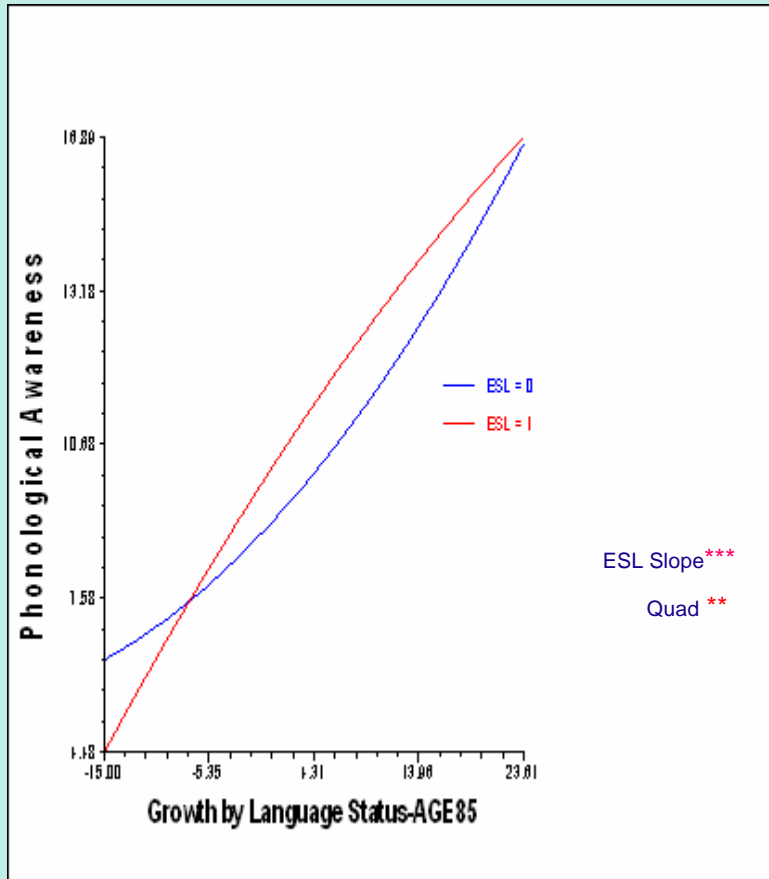
- Cognitive and language predictors of developmental trajectories of text reading fluency
- Do these trajectories vary as a function of reading level?

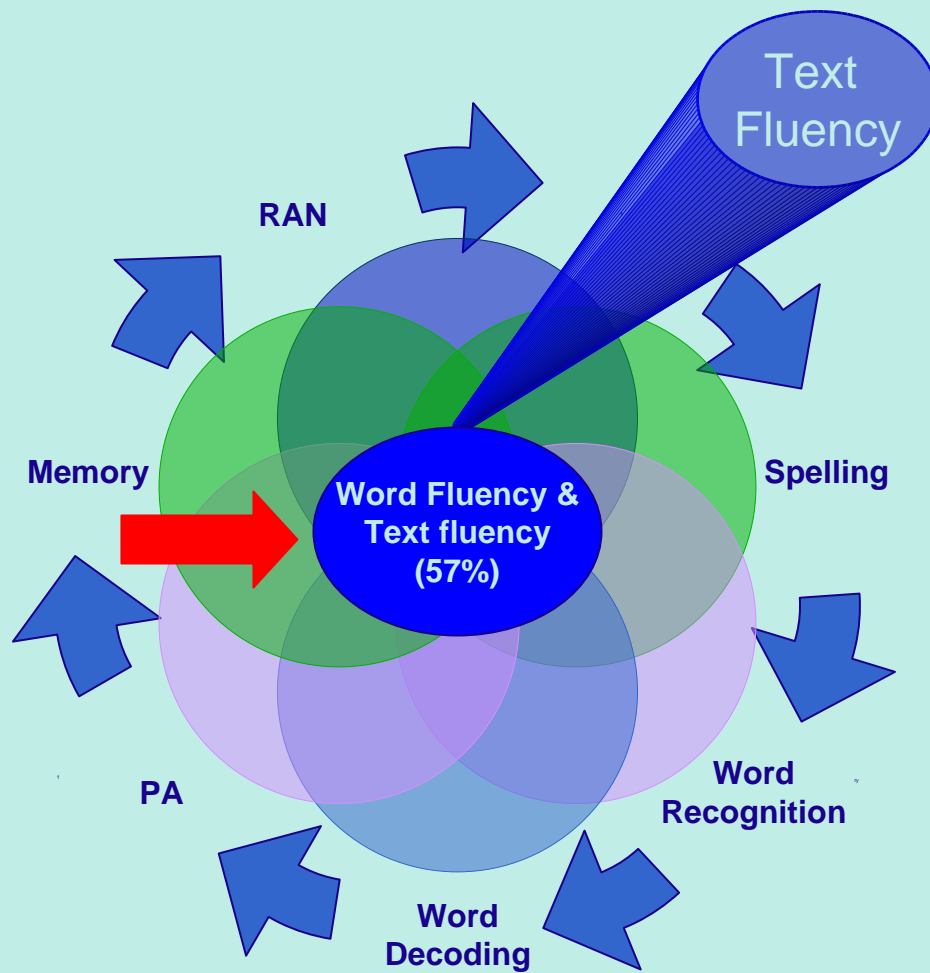
Stage 1

- ESL children: begin at a lower intercept
- ESL children: steeper slope

This patterns applies also to:

- ✓ RAN and PA
- ✓ phonological memory
- ✓ word decoding
- ✓ text reading fluency
- ✓ reading comprehension





Overall Conclusions

- Are L1 models adequate for understanding L2 literacy development? YES, but they are not identical
- Oral language proficiency - Important for text processing
- Underlying cognitive processes - PA and RAN
- Word efficiency? - Very important
- Developmental trajectories? - initially different but become similar over time
- Fluency ↔ Reading comprehension? - Another time
- Universal/typological? - Another time
- At-risk L2 readers? - At-risk is At-risk

Implications

- Focus on language development
- Focus on developing accurate and fast word recognition skills
- Opportunities to read
- Assessment of L2 who are at-risk for reading disability
- Typology matters

- What about reading academic texts?
- What about older children?