



**NEW ZEALAND  
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# Reading components, reading engagement and literacy proficiency in Aotearoa, New Zealand

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# Introduction

- We've already heard quite a bit about "low literacy" in the preceding presentations, referring to the PIAAC standardized assessment of adults' **literacy proficiency**.
- This presentation will try to broaden our view of literacy using the additional lenses of **reading components** and **reading engagement**.
- Discussions about adults with low levels of literacy proficiency often branding or stigmatising them as "illiterate". By looking more closely here at their **reading components**, we will have a more nuanced and realistic portrait of their reading abilities.
- We will look closely at how adults' **reading components** are related to their **literacy proficiency** and to their use of reading in everyday life, which we term their **reading engagement**.

# Reading Components

- **Print Vocabulary**
- **Sentence Processing**
- **Passage Comprehension**

# Sample Print Vocabulary Item



**Ear**

**Egg**

**Lip**

**Jar**

# Sample Sentence Processing Items

Sentence	Response	
Three girls ate the song.	Yes	No
The man drove the green car.	Yes	No
The lightest balloon floated in the bright sky.	Yes	No
A comfortable pillow is soft and rocky.	Yes	No
A person who is twenty years old is older than a person who is thirty years old.	Yes	No

# Sample Passage Comprehension Items

To the editor: Yesterday, it was announced that the cost of riding the bus will increase. The price will go up by twenty percent starting next wife / month. As someone who rides the bus every day, I am upset by this foot / increase. I understand that the cost of gasoline / student has risen. I also understand that riders have to pay a fair price / snake for bus service. I am willing to pay a little more because I rely on the bus to get to object / work. But an increase / uncle of twenty percent is too much.

This increase is especially difficult to accept when you see the city's plans to build a new sports stadium. The government will spend millions on this project even though we already have a science / stadium. If we delay the stadium, some of that money can be used to offset the increase in bus fares / views. Then, in a few years, we can decide if we really do need a new sports cloth / arena. Please let the city council know you care about this issue by attending the next public meeting / frames.

# Reading Components: Who Took the Tests?

## Paper-Based Assessment

Literacy Proficiency  
Numeracy Proficiency  
**Reading Components**

N = 586

## Computer-Based Assessment

Literacy Proficiency  
Numeracy Proficiency  
Problem-Solving in TRE

N = 5,591

Routed to Paper-Based Assessment  
(including **Reading Components**) if:

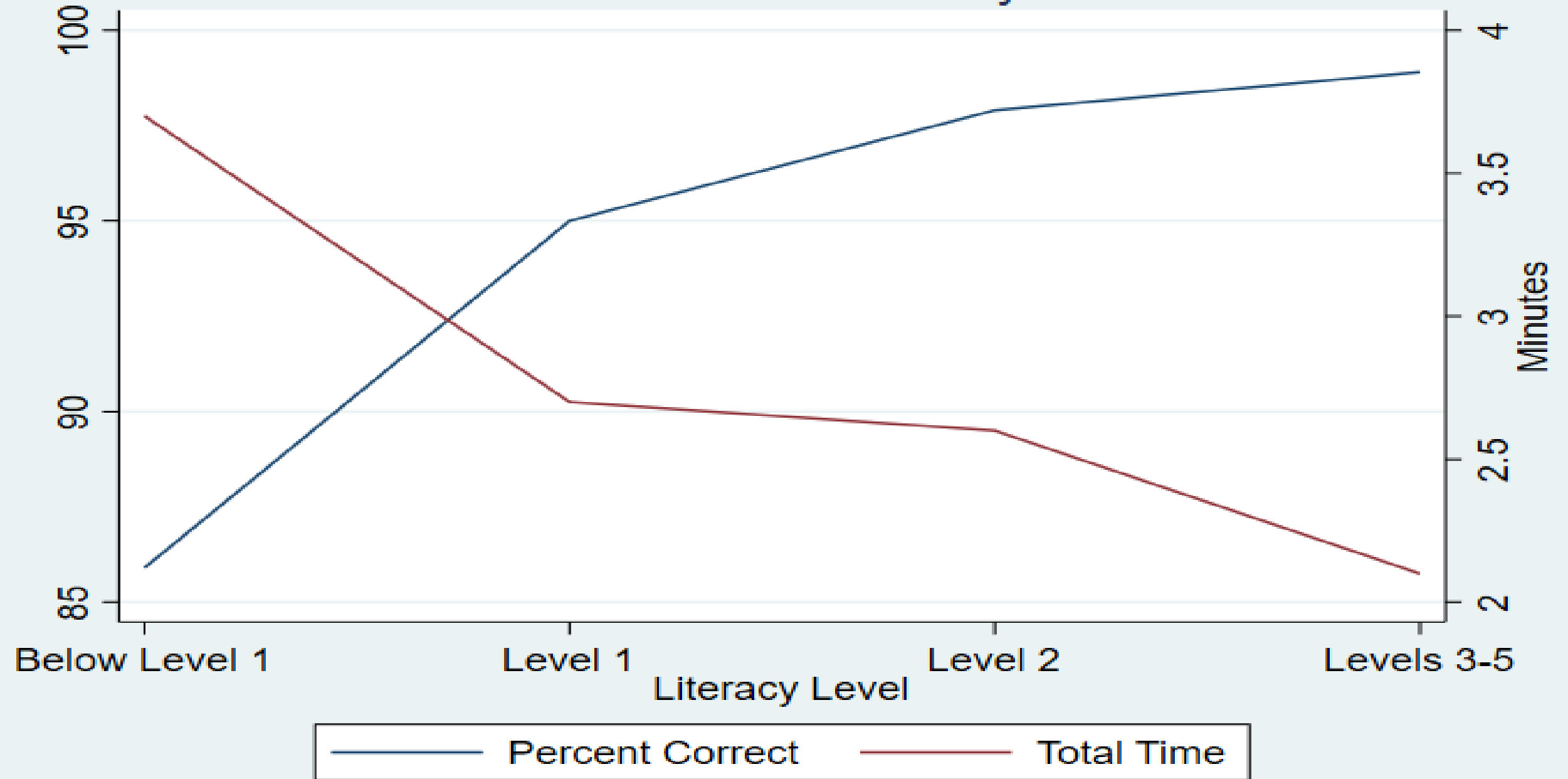
No computer experience:	2.5 %
Some computer experience but opted out:	3.5 %
Opted in but failed computer-based core:	<u>3.6 %</u>
Total:	9.6 %

# Reading Components: Basic Results

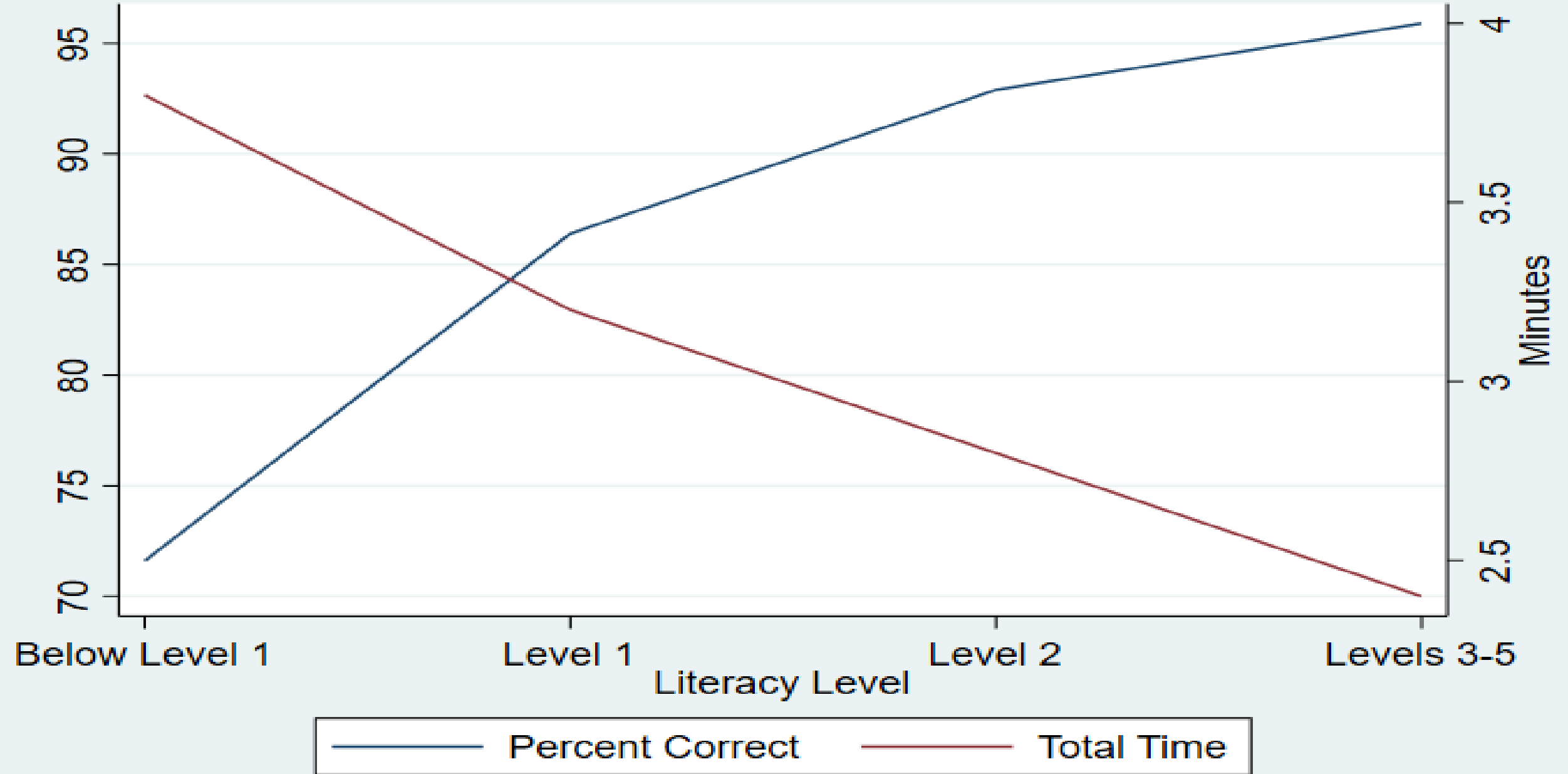
- Most adults -- even at the lowest literacy level – are able to read and understand common words, short sentences and passages. The percentage correct among adults assessed Below Level 1 averages 86%, 72% and 75% for the vocabulary, sentence and passage items, respectively.
- Nearly half (48%) of adults scoring Below Level 1 correctly answered 90% or more of all reading component items, but they took much longer to do so than adults having higher proficiency levels: adults Below Level 1 averaged a total time of 8.4 minutes to complete the reading components compared to 4.7 minutes for adults scoring at Level 3 or above.
- Cognitive research on reading indicates that a lack of fluency in the underlying reading components makes it difficult to utilize written information in more complex tasks.



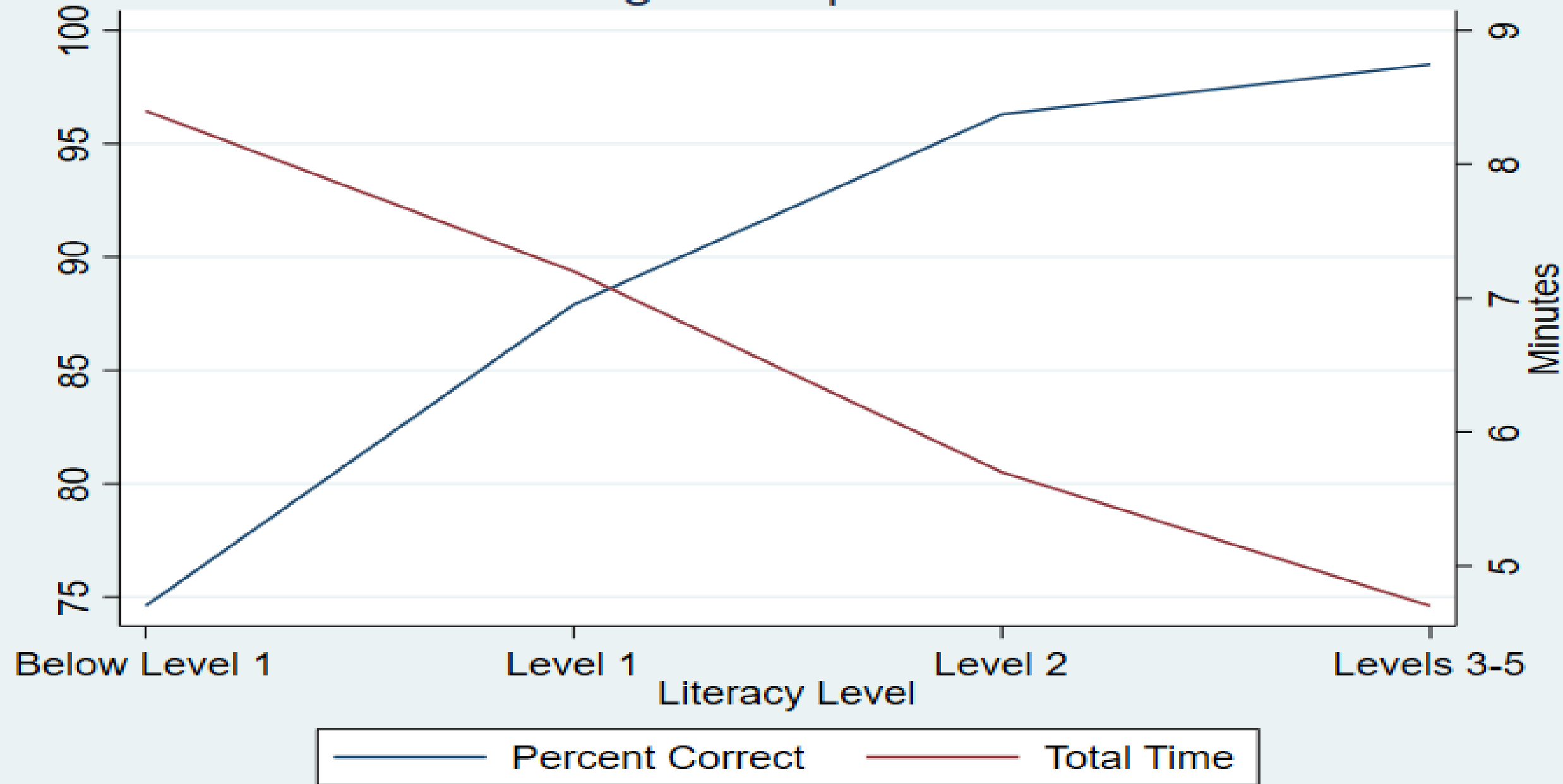
# Printed Vocabulary



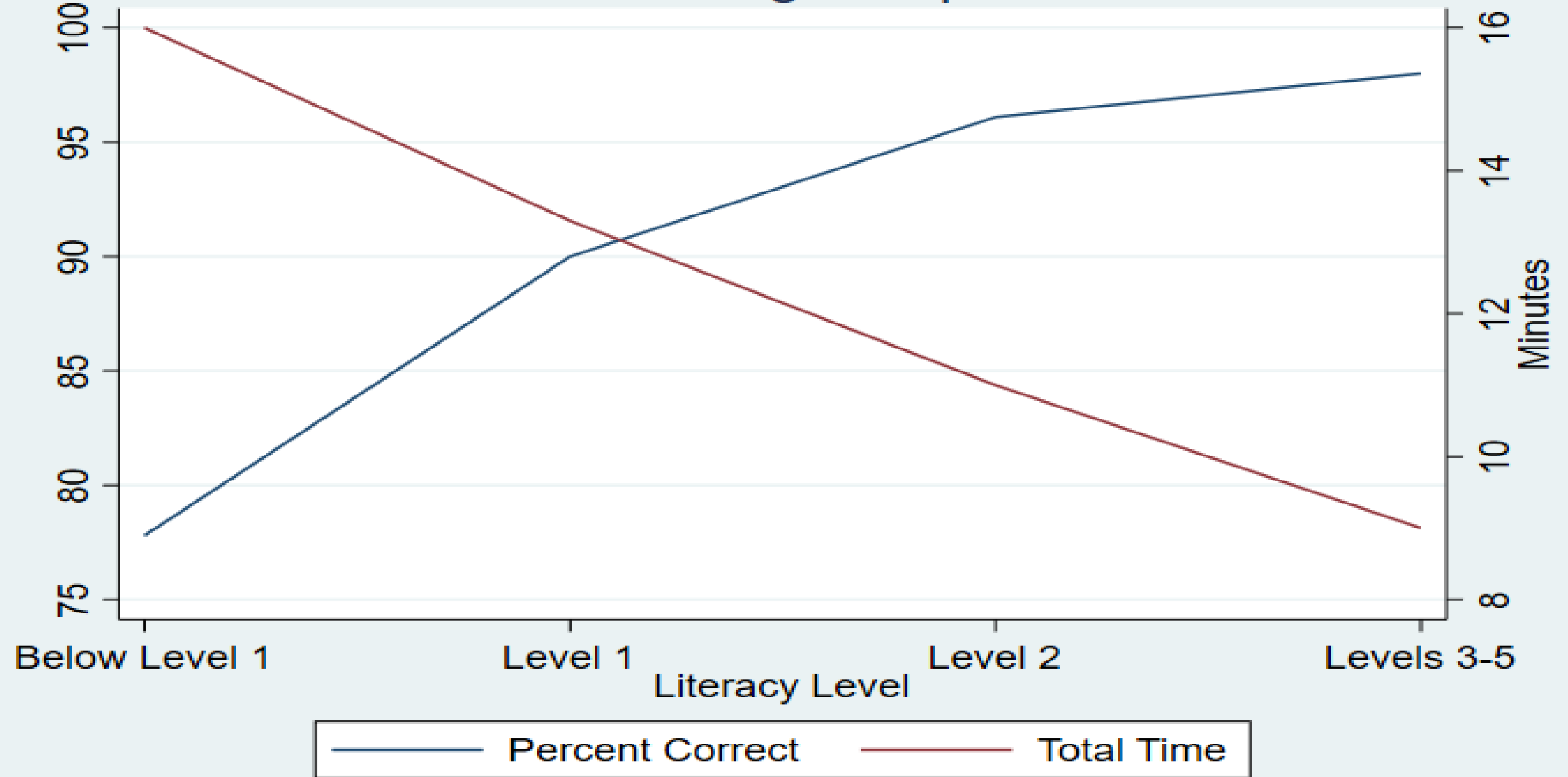
# Sentence Processing



# Passage Comprehension



# Three Reading Components



# Engagement in Reading Practices

*How often do you read...*

- directions or instructions
- letters, memos or e-mails
- articles in newspapers or magazines
- articles in professional journals or publications
- books
- manuals or reference materials
- bills, invoices, bank statements or other financial statements
- diagrams, maps or schematics

***Never***

***Less than once a month***

***At least once per month but less than once a week***

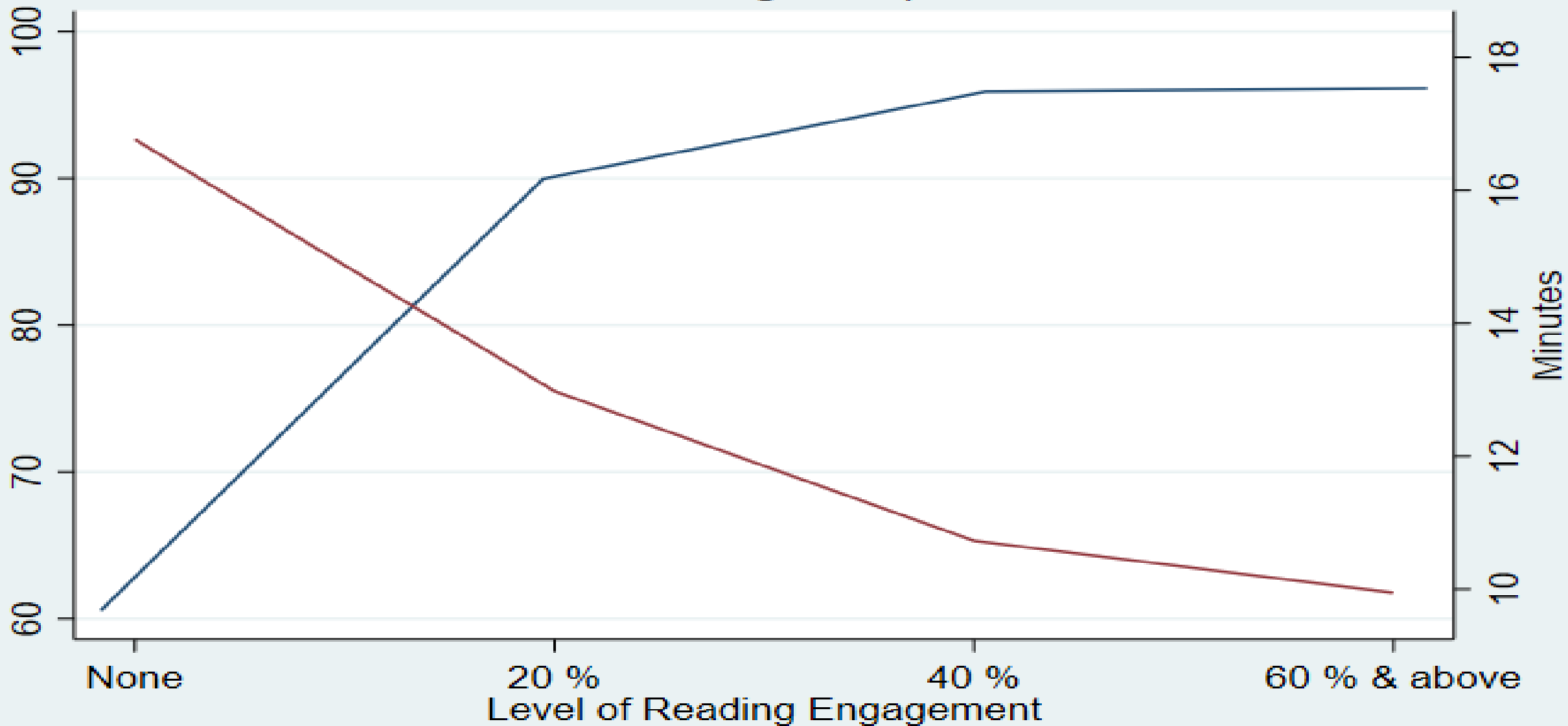
***At least once a week***

***Every day***

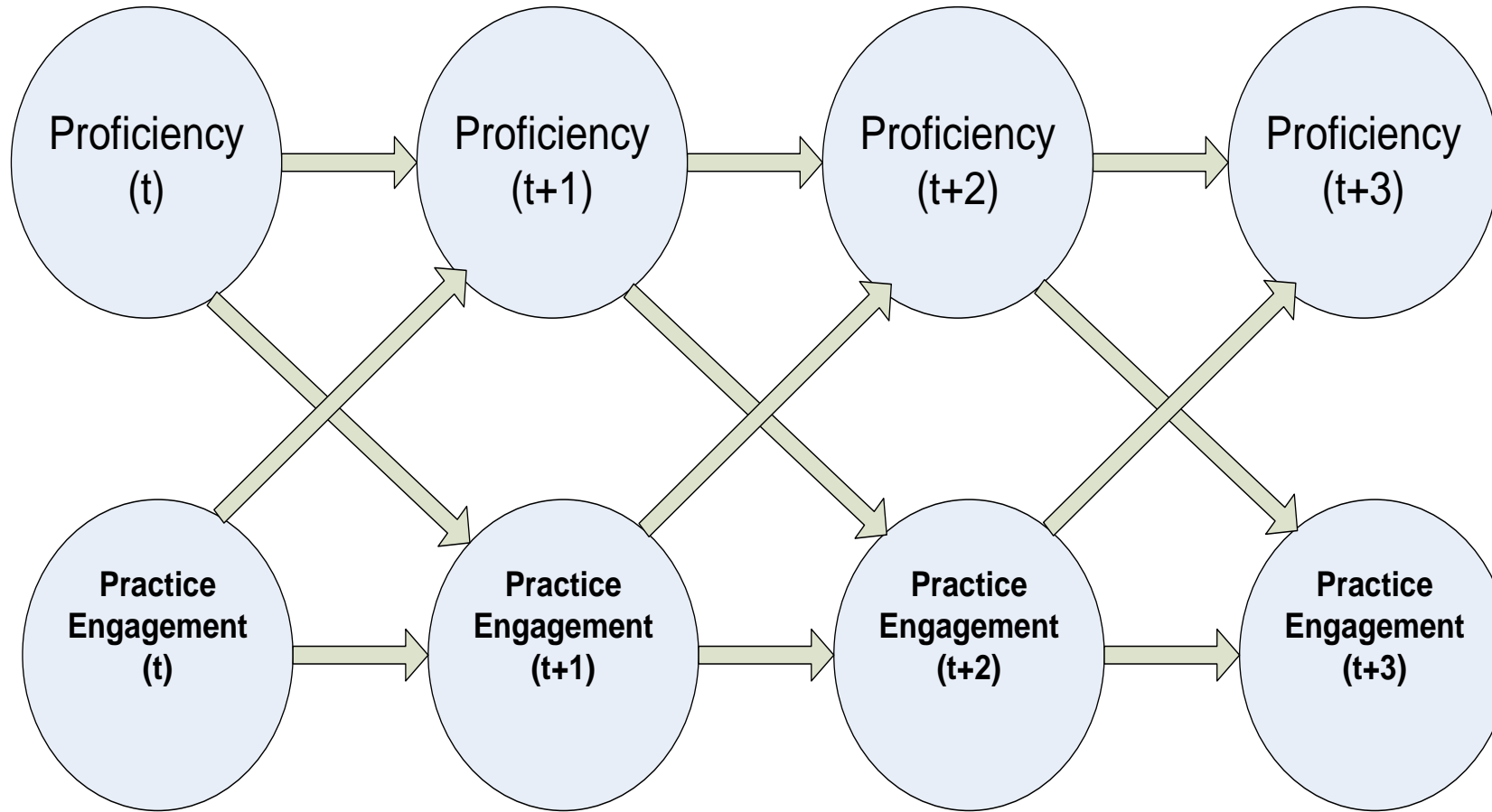
# Reading Engagement Scale

- Responses to individual items were IRT-scaled (generalized partial credit model)
- Reading engagement scales created for:
  - Outside of work
  - At work
  - Overall: responses combined across work and outside of work settings
- Reading engagement is *not* restricted to the English language as are literacy proficiency & reading components

# Three Reading Components



# Practice Engagement Theory





**“Practice Makes Perfect”**

**“Use It or Lose It”**

**“No Pain, No Gain”**

# Regression Models of Literacy

- Estimated linear regression models of literacy proficiency and of reading engagement based on reading components (accuracy and fluency), education, age, gender, native language, birthplace and ethnicity.
- Reading components are positively associated with literacy proficiency when reading engagement and other variables are statistically controlled.
- Reading components are positively associated with reading engagement when literacy proficiency and other variables are statistically controlled.

# Regression Models of Literacy – con't

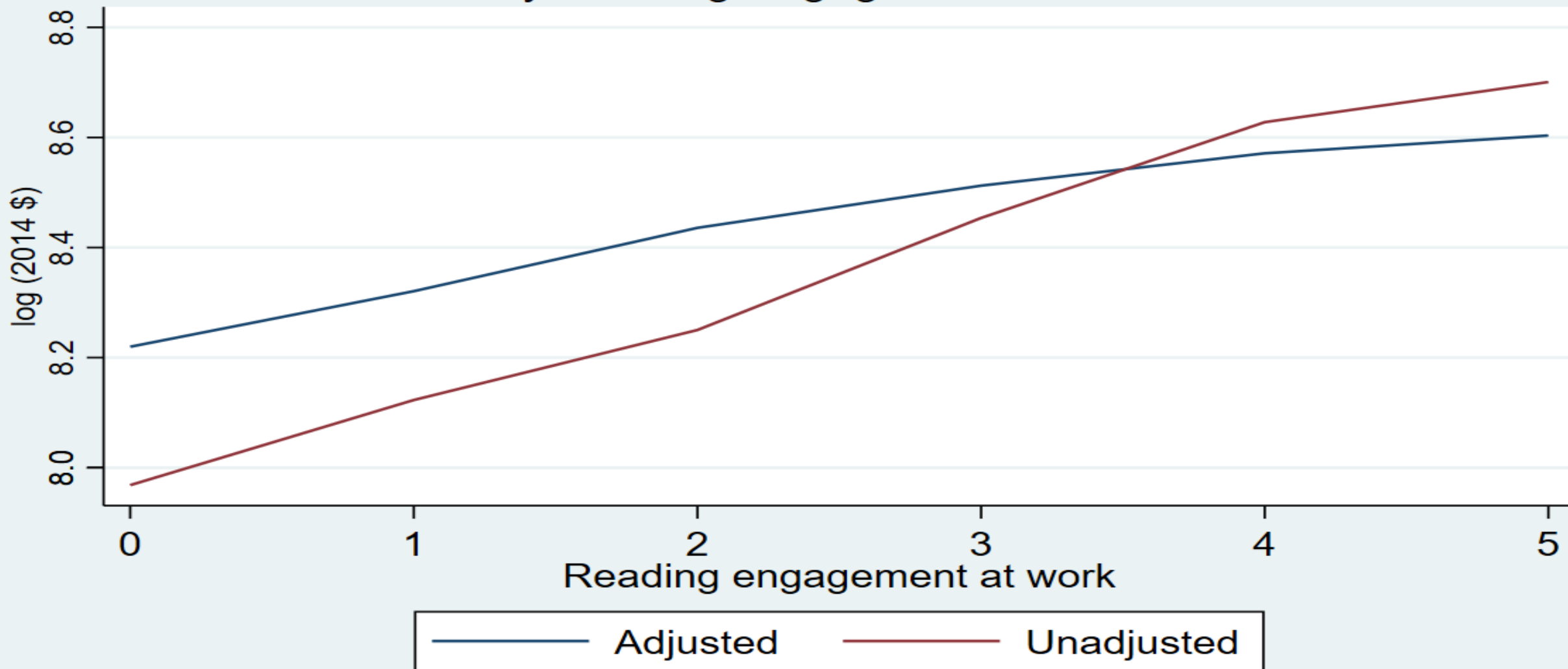
## Influence of Individual Background Characteristics

- Education models both literacy proficiency and reading engagement.
- Age and native language model literacy proficiency but not reading engagement.
- Gender and birthplace model reading engagement but not literacy proficiency.
- In literacy proficiency models where ethnicity indicators are statistically significant, they have negative effects.
- In reading engagement models where ethnicity indicators are statistically significant, they have positive effects.

# Preview of Coming Work

- In progress: looking at economic and social outcomes in a 3-level framework:
  - Economic and social outcomes – “*outcome level*”
  - Literacy proficiency & reading engagement – “*literacy level*”
  - Reading components – “*RC level*”
- Found strong effects of the literacy level on the outcome level but no direct effects of the RC level on the outcome level
- So we are looking at the effects of the literacy level on the outcome level in the entire adult population (not just those who took the reading components)

# Monthly Earnings by Reading Engagement at Work

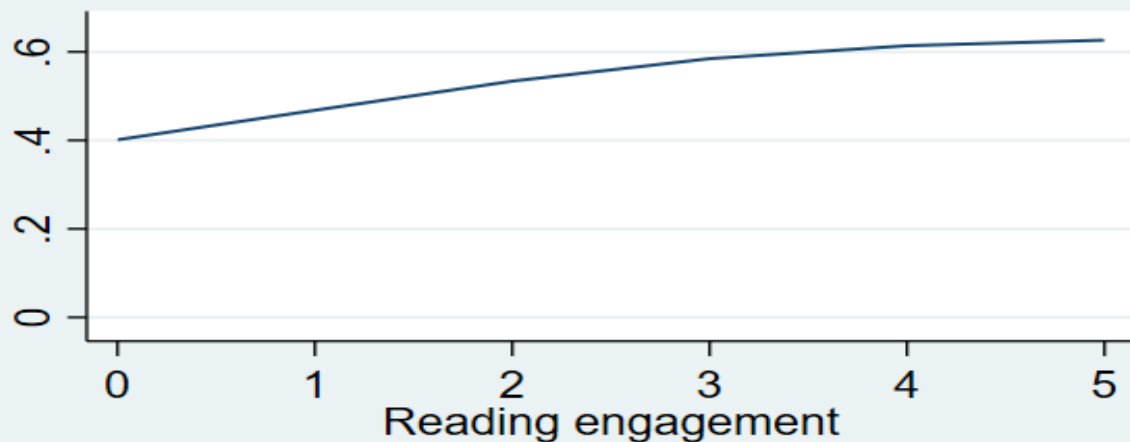


PIAAC 2014, age 25-54, worked 30+ hrs/week.  
Adjusted by work experience, gender, literacy proficiency, education, native language,  
birthplace and ethnicity.

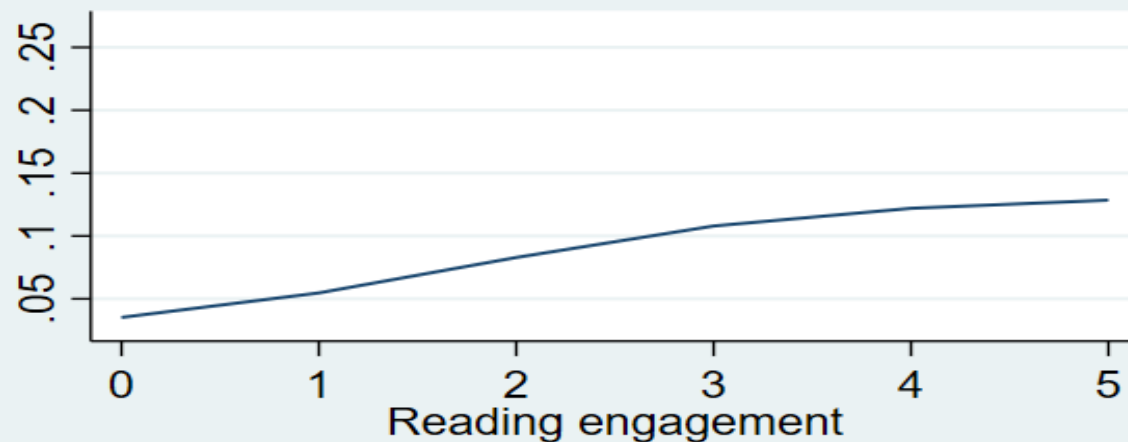
# Probability of High Level of Social Outcomes

## By reading engagement outside of work

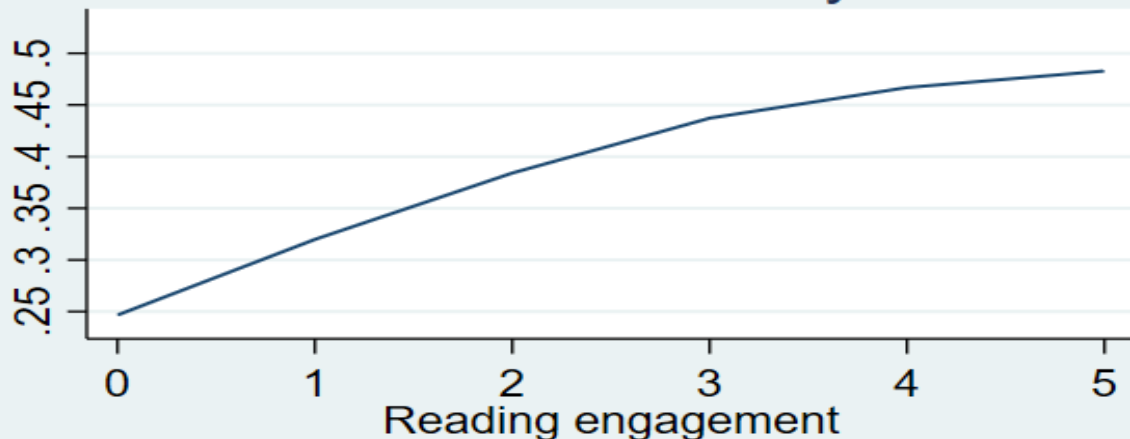
### Health



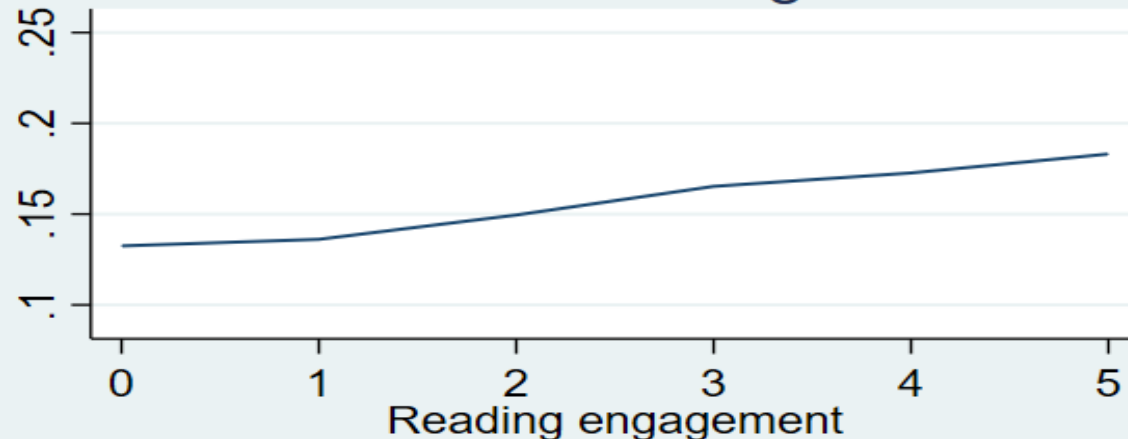
### Social Trust



### Political Efficacy



### Volunteering



# Implications for Programmes

- Reading components offer a more concrete sense of the challenges adults with “low literacy” face in dealing with written information and materials. Reading components may be easier for programmes to align with the needs and experiences of their learners.
- Our finding that reading components are directly associated with engagement in reading practices as well as with literacy proficiency suggest an important strategy for programmatic innovation and design: **practice-centred instruction**.
- In practice-centred instruction, teachers contextualise reading instruction and activities within meaningful everyday literacy practices. Other research shows that such programmes foster short-term increases in reading engagement which if sustained lead to long-term gains in literacy proficiency.
- Practice-centred instruction offers an approach to tailoring instruction to adults having diverse backgrounds and goals. Programmatic support of engagement in everyday reading practices offers a positive pathway to literacy development for adults from varying linguistic and ethnic backgrounds in contrast with the negative barriers they often encounter in programmes focused on short-term proficiency growth.

# Implications for Policy

- The goals for adult literacy programmes and interventions should be formulated in terms of both literacy proficiency and reading engagement outcomes. Programmes should be evaluated and funded in terms of their short-term impact on reading engagement and long-term impact on literacy proficiency.
- Research in New Zealand and elsewhere strongly suggests the importance of incorporating adult literacy and numeracy proficiencies into wellbeing policies. It is important to consider engagement in literacy and numeracy practices as well.



# Implications for Research

- With PIAAC data collected at a single point in time, it is difficult to disentangle the correlational relationships among reading components, literacy proficiency, reading engagement and social and economic outcomes. Further research using stronger causal methods will be very helpful.
- Continue multivariate modeling of the effects of engagement in reading, writing, maths, and digital practices on economic and social outcomes.
- Explore the role of reading and writing in non-English languages in literacy development in the overall New Zealand PIAAC population.
- Examine the role of proficiencies and practice engagement in life trajectory models of economic and social outcomes in data sets linked to PIAAC in New Zealand's Integrated Data Infrastructure (IDI).
- Conduct longitudinal studies measuring literacy proficiency, reading engagement and reading components at multiple points in time.
- Develop better measures of practice engagement for future use in research and programme evaluation.



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# Thank You

Working Paper

Questions?

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