

# Karakia



E te hui

*For this gathering*

Whāia te mātauranga kia mārama

*Seek knowledge for understanding*

Kia whai take ngā mahi katoa

*Have purpose in all that you do*

Tū māia, tū kaha

*Stand tall, be strong*

Aroha atu, aroha mai

*Let us show respect*

Tātou i a tātou katoa

*For each other*



**NEW ZEALAND  
WORK RESEARCH INSTITUTE**

# **An empirical portrait of New Zealand adults living with low literacy and numeracy skills**

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# Disclaimer

The results in this presentation are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI), managed by Stats NZ.

The opinions, findings, recommendations, and conclusions expressed in this presentation are those of the authors, not Stats NZ, AUT or individual data suppliers.

Access to the anonymised data used in this study was provided by Stats NZ under the security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business, or organisation, and the results in this presentation have been confidentialised to protect these groups from identification and to keep their data safe.

Careful consideration has been given to the privacy, security, and confidentiality issues associated with using administrative and survey data in the IDI. Further detail can be found in the privacy impact assessment for the Integrated Data Infrastructure available from [www.stats.govt.nz](http://www.stats.govt.nz).

# Research Programme

- Funded via the MBIE Endeavour programme
- 2019 – 2024
- Team of quantitative and qualitative researchers spanning a range of disciplines, and institutions.
  - AUT; University of Waikato; Portland State University and the OECD
- Advisory group across policy makers and practitioners
- Aim: To deliver an empirical base for improved public policy delivery, interventions and wellbeing outcomes for adults living with low literacy and/or numeracy skills in NZ

# Need

- Substantial fraction of NZ's adult working-age population has low L/N skills
- Negative effects felt at individual; family/whanau; national level
- The World Literacy Foundation estimates the economic and social cost of low literacy is \$3billion per year
- Prevalence of low L/N is higher for Māori and Pasifika

# Key Research Goals

**RQ1:** What are the approaches to conceptualizing and defining low L/N? What is the portrait of the low L/N population in NZ?

**RQ2:** Analyse the resilience and socio-economic consequences of economic shocks for low L/N adults

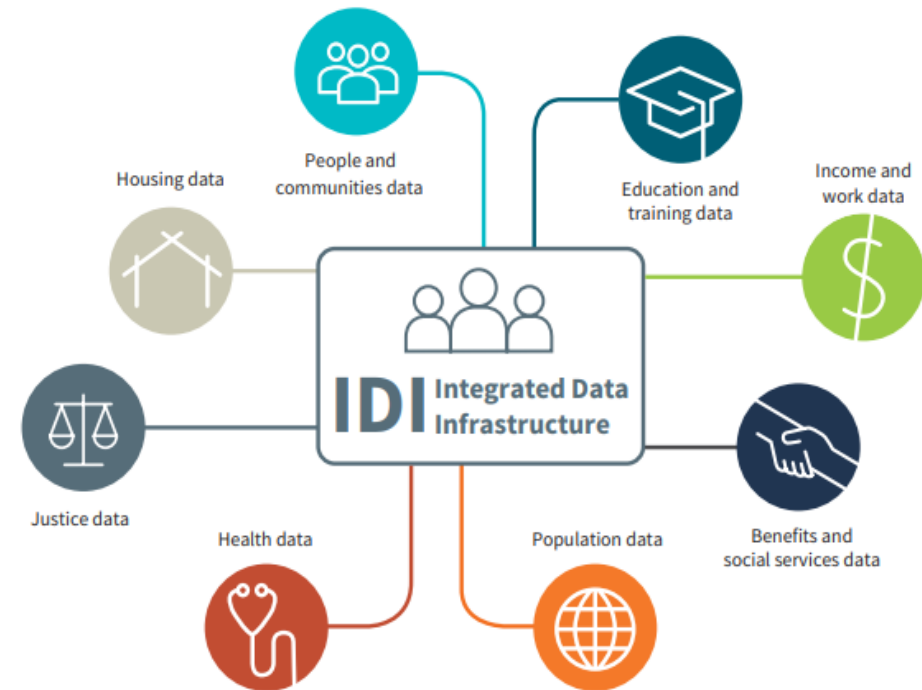
**RQ3:** What are the life-course trajectories (and precursors) for adults living with low L/N skills? What are the relevant social and cultural contextual stories?

**RQ4:** What are the impacts of interventions?

**RQ5:** What are the projected future national levels of low L/N?

# Tools

- PIAAC (Programme for the International Assessment of Adult Competences) data
- Stats NZ's Integrated Data Infrastructure
- Qualitative research – with Māori and Pasifika communities



# Research outputs from Year 1

- Adult literacy and numeracy in Aotearoa New Zealand: Context, conceptual issues and existing evidence – [available here](#)
- Reading components, reading engagement and literacy proficiency – [available here](#)
- An empirical portrait of New Zealand adults living with low literacy and numeracy skills – [paper and infographic available here](#)



# PIAAC: Literacy proficiency levels

Adults at  
**Level 1**  
can

Read relatively short texts to locate a single piece of information.

Complete simple forms, understand basic vocabulary, determine the meaning of sentences, and read continuous texts with a degree of fluency.

Adults at  
**Level 2**  
can

Integrate two or more pieces of information based on criteria.

Compare, contrast or reason about information and make low-level inferences.

Read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information.

Adults at  
**Level 3**  
can

Understand and respond appropriately to dense or lengthy texts.

Understand text structures and rhetorical devices.

Identify, interpret or evaluate one or more pieces of information to make appropriate inferences.

Adults at  
**Level 4/5**  
can

Make complex inferences and apply background knowledge as well as interpret or evaluate subtle truth claims or arguments.

Perform multiple-step operations to integrate, interpret or synthesise information from complex texts that involve conditional and/or competing information.

# PIAAC: Numeracy proficiency levels

Adults at  
**Level 1**  
can

Complete tasks involving basic mathematical processes in common, concrete contexts where the mathematical content is explicit with little text and minimal distractors.

Perform simple processes involving counting, sorting, basic arithmetic operations, understanding simple percent, and locating elements of simple or common graphical or spatial representations.

Adults at  
**Level 2**  
can

Perform tasks that require identifying and acting upon mathematical information and ideas in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors.

Interpret relatively simple data and statistics in texts, tables and graphs.

Adults at  
**Level 3**  
can

Complete tasks that require an understanding of mathematical information that may be less explicit, in contexts that are not always familiar, and represented in more complex ways.

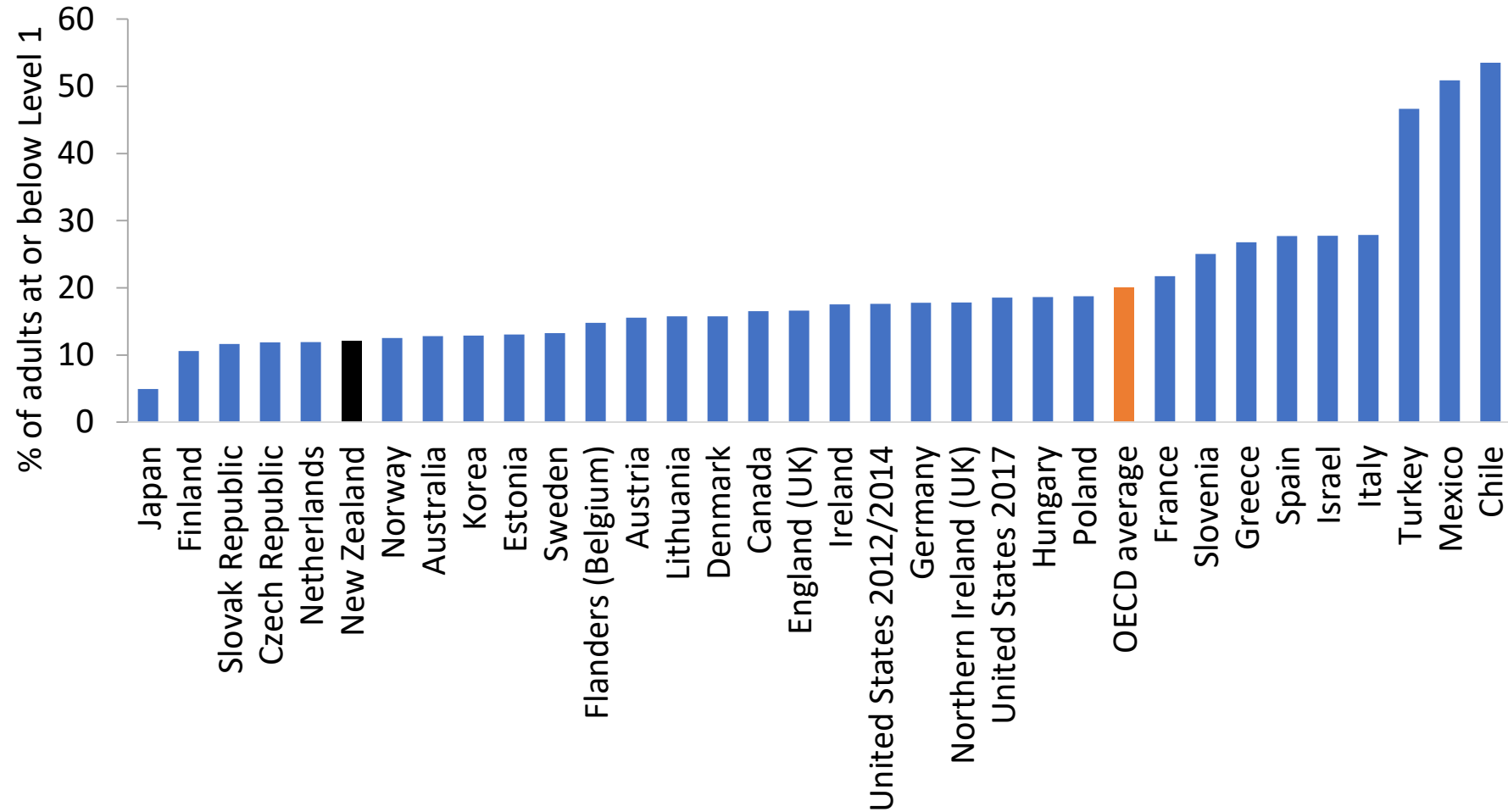
Perform tasks requiring several steps and that may involve a choice of problem-solving strategies and relevant processes.

Adults at  
**Level 4/5**  
can

Understand a broad range of mathematical information that may be complex, abstract or embedded in unfamiliar contexts.

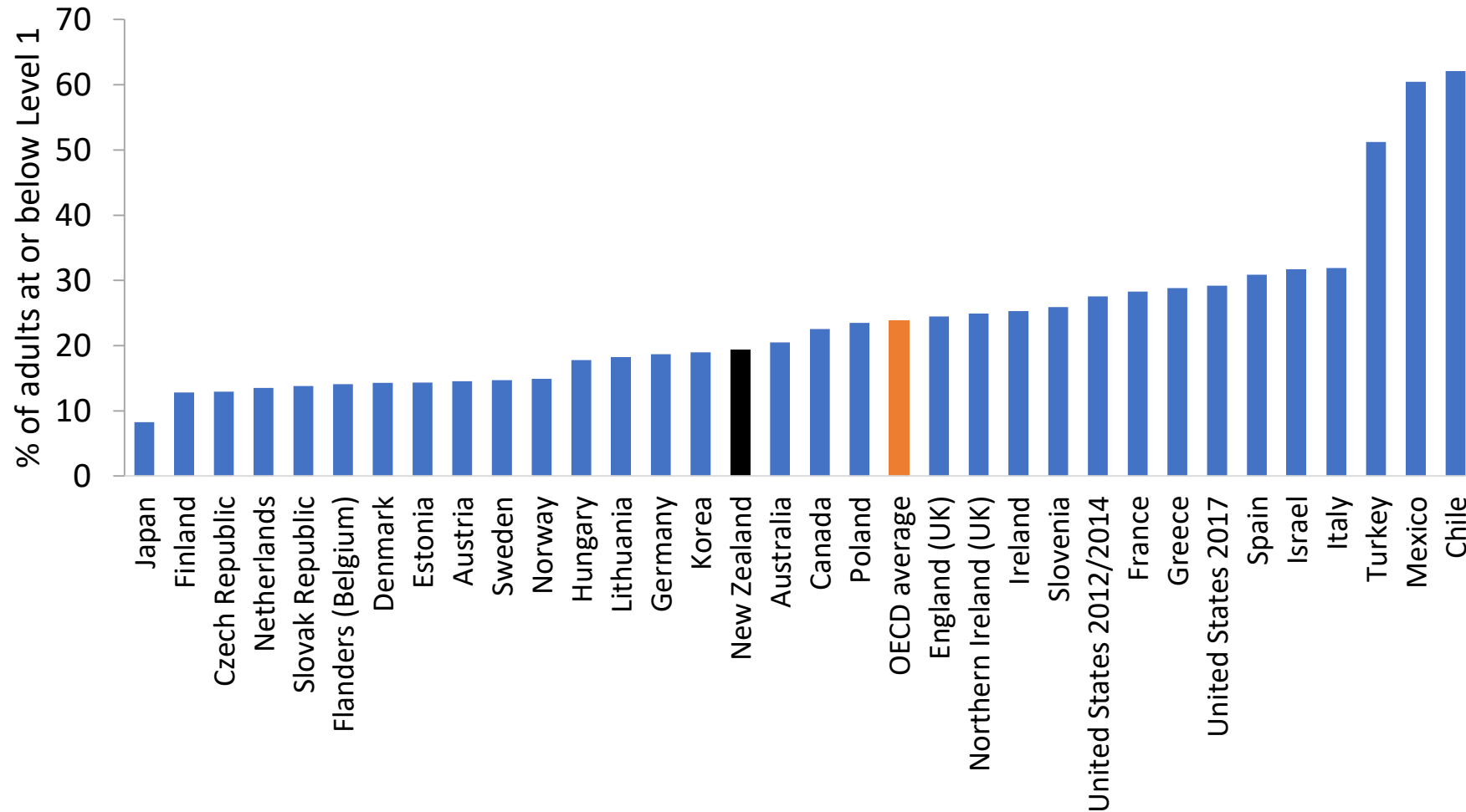
Understand arguments and communicate well-reasoned explanations for answers or choices.

# Literacy: NZ international comparison



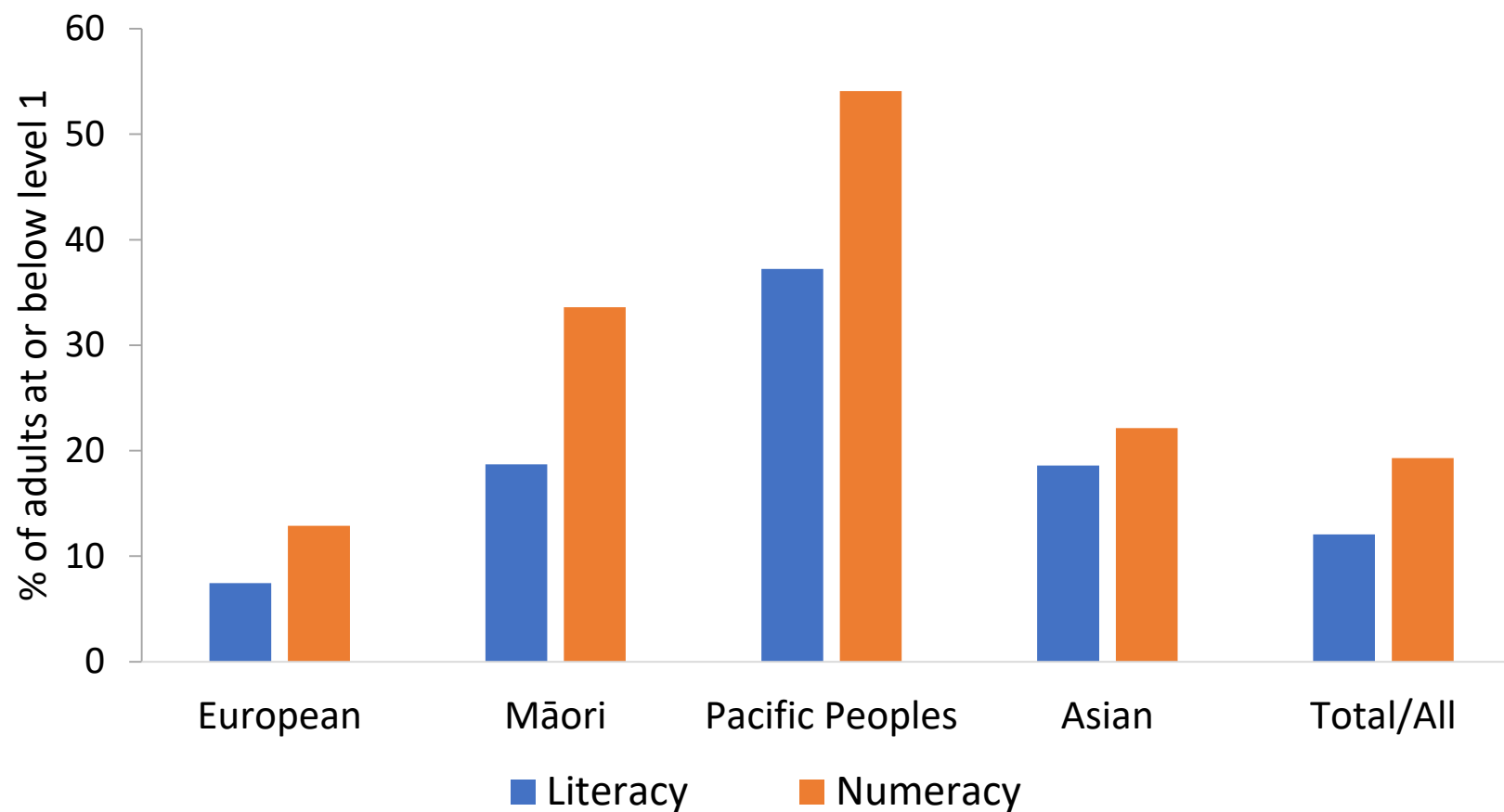
Source: OECD PIAAC

# Numeracy: NZ in international comparison

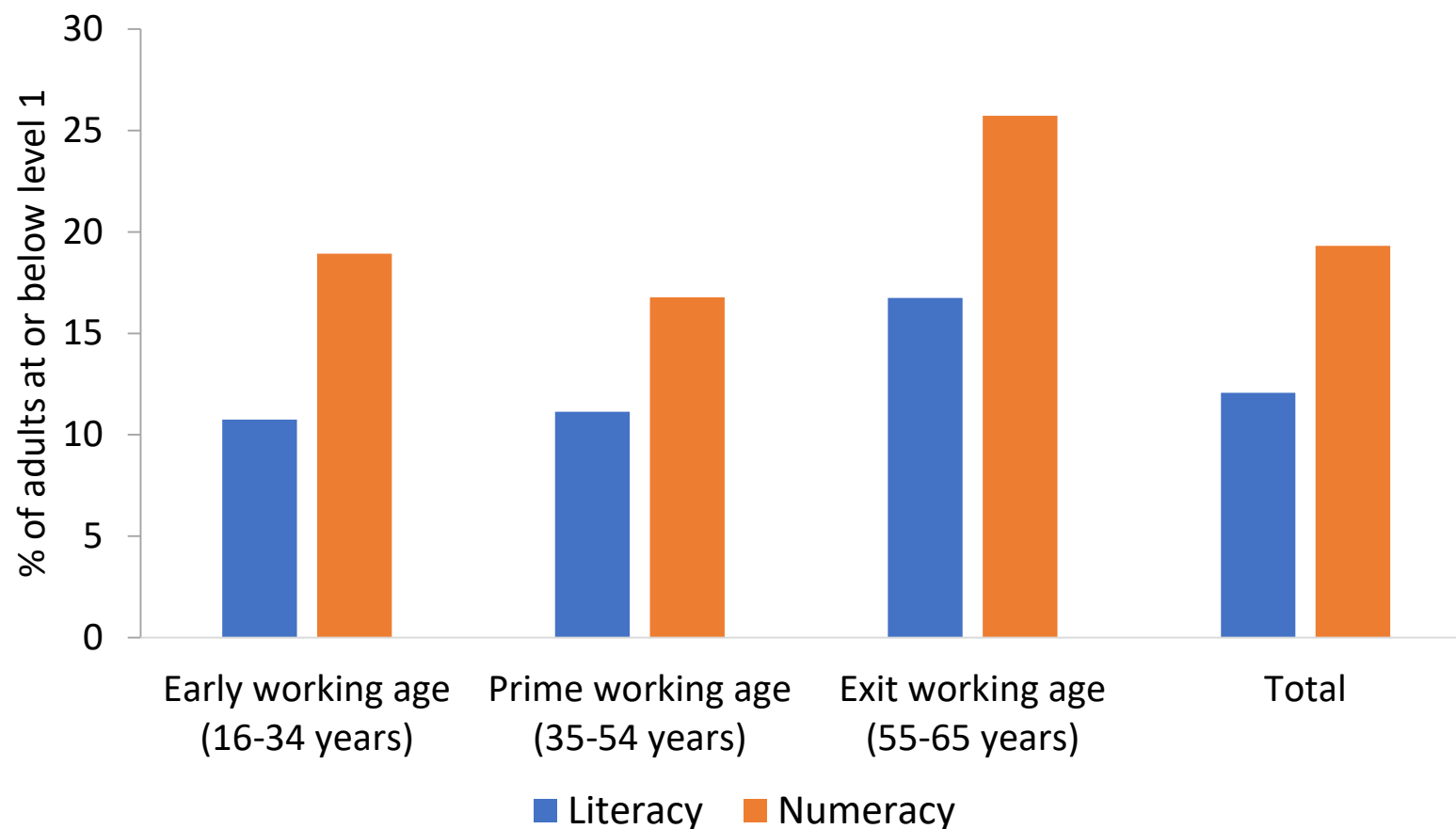


Source: OECD PIAAC

# NZ adults with low L/N by ethnicity



# NZ adults with low L/N by age group



# Characteristics of low L/N adults

|   | Low in literacy<br>and/or<br>numeracy | Not low in<br>literacy and<br>numeracy |
|---|---------------------------------------|--|
| Years of education                            | 12.2                                  | 14.1                                   |
| No qualification (%)                          | 48.8                                  | 26.2                                   |
| Bachelor's or higher (%)                      | 10.1                                  | 32.8                                   |
| Self-rated health: Very good or excellent (%) | 47.6                                  | 63.6                                   |
| Born in NZ (%)                                | 66.8                                  | 72.3                                   |

# Labour market characteristics

|   | Low in literacy and/or numeracy | Not low in literacy and numeracy |
|---|---------------------------------|----------------------------------|
| Full-time employment (%)                | 41.6                            | 55.5                             |
| Part-time employment (%)                | 16.5                            | 18.0                             |
| Unemployed (%)                          | 10.3                            | 4.1                              |
| Student (%)                             | 7.9                             | 10.1                             |
| Permanently disabled (%)                | 5.4                             | 1.0                              |
| Domestic tasks/looking after family (%) | 12.2                            | 7.7                              |
|   |                                 |                                  |
| Hourly wage/salary                      | \$20.65                         | \$29.29                          |
| Receipt of main welfare benefit (%)     | 54.1                            | 38.5                             |
| Number of months of benefit receipt     | 46.3                            | 16.5                             |



# Offending and victimisation

|   | Low in literacy<br>and/or numeracy | Not low in literacy<br>and numeracy |
|---|------------------------------------|-------------------------------------|
| Investigated for a criminal offence (%)     | 22.1                               | 10.7                                |
| Number of offences (if investigated)        | 6.1                                | 3.1                                 |
| Maximum seriousness score (if investigated) | 202.0                              | 136.9                               |
| Victim of an alleged crime                  | 16.3                               | 12.3                                |
| Number of victimisations (if victimised)    | 1.5                                | 1.4                                 |
| Maximum seriousness score (if victimised)   | 194.5                              | 185.8                               |

## Health service use

|   | Low in literacy<br>and/or numeracy | Not low in literacy<br>and numeracy |
|---|------------------------------------|-------------------------------------|
| Any referral for mental health services (%)             | 19.1                               | 11.7                                |
| Any non-admitted emergency department visit (%)         | 62.5                               | 52.7                                |
| Number of non-admitted ED visits                        | 3.9                                | 2.4                                 |
| Any accident-related non-admitted hospital visit        | 38.7                               | 33.2                                |
| Number of accident-related non-admitted hospital visits | 2.5                                | 1.95                                |

# Reading Components & Engagement

- Discussions about adults with low levels of literacy proficiency often branding or stigmatising them as “illiterate”. By looking more closely at their reading components, we have a more nuanced and realistic portrait of reading abilities.
- We 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.

Source: Reder, S. (2020). [Reading components, reading engagement and literacy proficiency in Aotearoa New Zealand](#). NZ Work Research Institute. Auckland, NZ

# Reading Components

- Printed vocabulary

## Sample Print Vocabulary Item



Ear

Egg

Lip

Jar

# Reading Components

- Printed vocabulary

## Sample Sentence Processing Items

- Sentence processing

| 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 |

# Reading Components

- Printed vocabulary
- Sentence processing
- Passage comprehension

## 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: Basic Results

- Adults assessed < Level 1 correctly answered between 72 and 86% of all components.
- Nearly half of adults < Level 1 answered 90% or more of all reading components correctly. However, they averaged 8.4 minutes (adults scoring at Level 3 or above took only 4.7 minutes).
- Reading components are closely associated with both reading engagement and literacy proficiency.
- The findings suggest that practice-centred instruction may be particularly effective with learners living with low literacy, and those from diverse ethnic and linguistic backgrounds.

# Looking ahead – Years 2 - 5

- Complete returns to skills analysis for NZ
- What is the role of skills and tasks in NZ's ethnicity and gender wage gaps
- The literacy and numeracy interventions landscape in NZ
- What are the impacts of Covid-19 and associated lockdown across the L/N skill distribution in NZ?



# Looking ahead – Years 2 - 5

- Cohort analysis of life-course factors associated with low L/N
  - quantitative and qualitative
- Do L/N interventions improve outcomes? (in terms of skills / education / labour market / health / justice)
- What are the barriers and enablers that build resilience to risk and enable pathways to transcend low skills
- Dissemination – working closely with advisory group via both policy and practitioner pathways



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# Thank You

Questions?

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More info at [www.workresearch.aut.ac.nz/low-skills](http://www.workresearch.aut.ac.nz/low-skills)

Follow updates at  [NZ Work Research Institute](#)



# Closing karakia

Kua mutu a mātou mahi

*Our work has finished*

Mō tenei wā

*For the moment*

Manaakitia mai mātou katoa

*Bless us all*

O mātou hoa

*Our colleagues*

O mātou whānau

*Our families*

Āio ki te aorangi

*Peace to the universe*