What can the Adult Literacy and Lifeskills Survey (ALLS) tell us?

What's ALL the story?

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Australian Council *for* Educational Research

Background to ALLS

- Reports available free from: http://www.abs.gov.au/
- Data sets available to researchers
- ALLS: document no: 4228.0
- Health literacy: 4233.0

Background to ALLS

- Its predecessor, the International Adult Literacy Survey (IALS) was run in Australia 10 years ago
- Data collection for the survey was undertaken by ABS in late 2006 into early 2007
- Almost 9000 adults surveyed – aged 15-74 years – representative of total Australian population excluding remote indigenous adults
- Survey is an international survey developed by Statistics Canada and the United States' Educational Testing Service coordinated with the OECD.

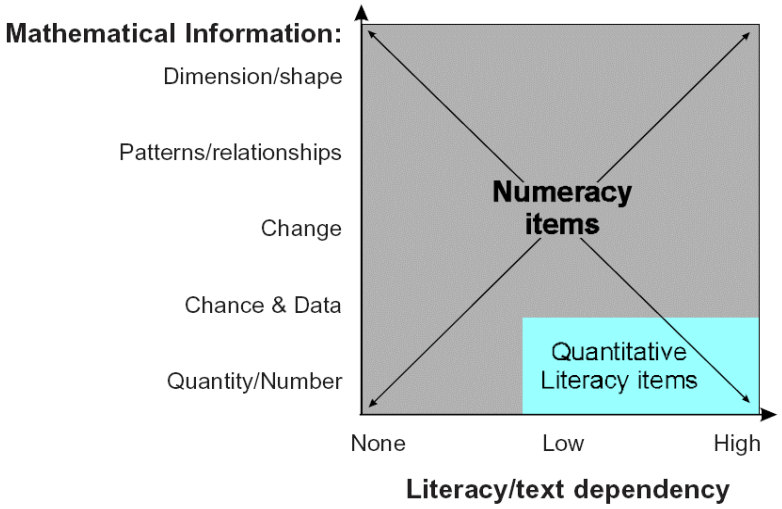
Background to ALLS

ALLS in Australia measured:

- **Prose Literacy** - the knowledge and skills needed to understand and use information from text including editorials, news stories, poems and fiction (in IALS)
- **Document Literacy** - the knowledge and skills required to locate and use information contained in various formats including job applications, payroll forms, transportation schedules, maps, tables and graphics (in IALS)
- **Numeracy** - the knowledge and skills required to effectively manage and respond to the mathematical demands of diverse situations (new)
- **Health literacy** - The knowledge and skills required to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies, and staying healthy (new)
- **Problem Solving** - the knowledge and skills required to identify a problem, search for relevant information and integrate it into a coherent problem representation, evaluating the problem situation with respect to given goals and criteria, devising a plan and monitoring its execution (new)

Background to ALLS

Why numeracy and not QL?



Background to ALLS

- The tasks were, as much as is possible in a large scale testing situation, based on adult contexts and 'real-life' scenarios and texts, and were open ended.
- The items are based upon simulated texts such as advertisements, newspaper articles, instructions, maps, diagrams and plans, photos, etc.
- Items can be adapted to meet national requirements re language, terminology, units, etc.
- A ruler and calculator are provided to respondents for use in the numeracy items

Background to ALLS

- There is a screening process
- The Core Task Booklet consists of six prose, document and numeracy tasks to determine the respondent's ability to undertake further skills assessment.
- Each respondent who correctly answers three questions from the Core Task Booklet were asked to complete a Main Task Booklet
- All respondents complete a comprehensive Background Questionnaire

Background to ALLS

BQ includes almost 300 questions about:

- Demographics
- Education
- Language
- Parental Information
- Labour Force
- Literacy and Numeracy Practices at work
- Literacy and Numeracy Practices generally
- Participation in Education and Learning
- Social Capital and Well Being
- Use of Technologies
- Income

Background to ALLS

Literacy and Numeracy Practices at work:

- How often reads letters, memos or emails
- How often reads or uses reports, articles, magazines or journals
- How often reads or uses manuals or reference books including catalogues
- How often reads or uses diagrams or plans
- How often reads directions or instructions
- How often reads or uses bills, invoices, spreadsheets or budget tables
- How often writes or fills in letters, memos or emails
- How often writes or fills in reports, articles, magazines or journals
- How often writes or fills in manuals or reference books including catalogues
- How often writes or fills in directions or instructions

Background to ALLS

- As in IALS, the literacy, numeracy and problem solving ability is expressed as a score on a scale ranging from 0-500 points. The score is the point at which a person has an 80% chance of successfully performing tasks at that level. (Cf PISA – 60%)
- The scale is grouped into five levels. Level 3 is considered the level adults require to cope with the demands of everyday life and work.
- The 5 levels do not directly correlate to the 5 levels of the Australian National Reporting System (NRS) or its revision, the Australian Core Skills Framework (ACSF). These take into account support and context, for example.

Background to ALLS - Items

MEDCO ASPIRIN 500

INDICATIONS: Headaches, muscle pains, rheumatic pains, toothaches, earaches. RELIEVES COMMON COLD SYMPTOMS.

DOSAGE: ORAL. 1 or 2 tablets every 6 hours, preferably accompanied by food, for not longer than 7 days. Store in a cool, dry place.

CAUTION: Do not use for gastritis or peptic ulcer. Do not use if taking anticoagulant drugs. Do not use for serious liver illness or bronchial asthma. If taken in large doses and for an extended period, may cause harm to kidneys. Before using this medication for chicken pox or influenza in children, consult with a doctor about Reyes Syndrome, a rare but serious illness. During lactation and pregnancy, consult with a doctor before using this product, especially in the last trimester of pregnancy. If symptoms persist, or in case of an accidental overdose, consult a doctor. Keep out of reach of children.

INGREDIENTS: Each tablet contains
500 mg acetylsalicicylic acid.
Excipient c.b.p. 1 tablet.
Reg. No. 88246

0 67736 11079

Made in Canada by STERLING PRODUCTS, INC.
1600 Industrial Blvd., Montreal, Quebec H9J 3P1

One of the easiest literacy tasks (categorised as Level 1) directs the reader to look at a medicine label to determine the "maximum number of days you should take this medicine".

Background to ALLS - Items

DOUBLE YOUR MONEY IN 7 YEARS

10% fixed interest each year, over a period of 7 years
Minimum deposit $1000.00

Handy financial hint

For a quick way to estimate how much your investment is worth, use this formula:

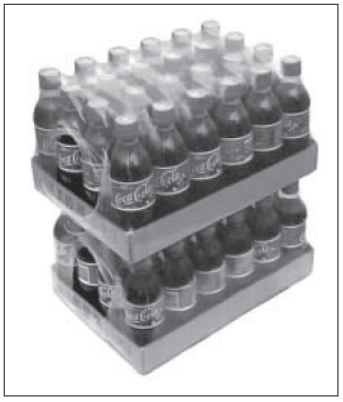
$A = P(1 + r)^t$

A = new amount after the time period.
P = principal (the amount you invest)
r = interest rate
t = time period in years

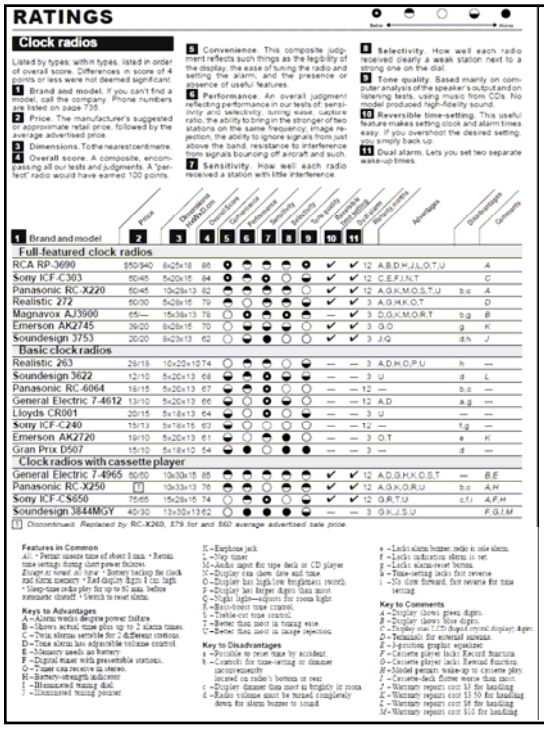
Level 5 Sample numeracy item:

Respondents were asked if it is possible to double $1000 invested at this rate after seven years and had to support their answer with their calculations. A range of responses was accepted as correct as long as a reasonable justification was provided, with relevant computations.

Background to ALLS - Items



One of the easiest numeracy tasks (Level 1) required adults to look at a photograph containing two cartons of coca cola bottles and asked to find the total number of bottles in the two full cases being shown.



RATINGS

Clock radios

Listed by types, within types, listed in order of overall score. Differences in score of 4 points or less were not deemed significant.

1 Brand and model. If you can't find a model, call the company. Phone numbers are listed on page 736.

2 Price. The manufacturer's suggested or approximate retail price, followed by the average advertised price.

3 Dimensions. To the nearest centimetre.

4 Overall score. A composite, encompassing all our tests and judgments. A "perfect" radio would have earned 100 points.

5 Convenience. This composite judgment reflects such things as the legibility of the display, the ease of tuning the radio and setting the alarm, and the presence or absence of useful features.

6 Performance. An overall judgment reflecting performance in our tests of: sensitivity and selectivity; tuning ease; capture ratio, the ability to bring in the stronger of two stations on the same frequency; image rejection, the ability to ignore signals from just above the band; resistance to interference from signals bouncing off aircraft and such.

7 Sensitivity. How well each radio received a station with little interference.

8 Selectivity. How well each radio received clearly a weak station next to a strong one on the dial.

9 Tone quality. Based mainly on computer analysis of the speaker's output and on listening tests, using music from CDs. No model produced high-fidelity sound.

10 Reversible time-setting. This useful feature makes setting clock and alarm times easy. If you overshoot the desired setting, you simply back up.

11 Dual alarm. Lets you set two separate wake-up times.

Brand and model	Price	Dimensions H×W×D cm	Overall score	Convenience	Performance	Sensitivity	Selectivity	Tone quality	Reversible time-setting	Dual alarm	Alarm types	Advantages	Disadvantages	Comments
	2	3	4	5	6	7	8	9	10	11				
Full-featured clock radios														
RCA RP-3690	$50/$40	8x25x18	86	●	◓	◓	◓	○	✔	✔	12	A,B,D,H,J,L,O,T,U		A
Sony ICF-C303	60/45	5x20x16	84	●	◓	○	◒	◓	✔	✔	12	C,E,F,I,N,T		C
Panasonic RC-X220	60/45	10x28x13	82	◓	◓	◓	◓	○	✔	✔	12	A,G,K,M,O,S,T,U	b,c	A
Realistic 272	60/30	5x28x16	79	◓	○	◓	◓	◒	✔	✔	3	A,G,M,K,O,T		D
Magnavox AJ3900	65/—	15x38x13	78	○	●	◓	●	◓	—	✔	3	D,G,K,M,O,R,T	b,g	B
Emerson AK2745	39/20	8x28x16	70	○	◒	◒	◒	○	✔	✔	3	G,O	g	K
Soundesign 3753	20/20	8x23x13	62	○	◒	●	○	○	✔	✔	3	J,Q	d,h	J
Basic clock radios														
Realistic 263	28/18	10x20x10	74	○	◓	◓	○	◒	—	—	3	A,D,H,O,P,U	h	—
Soundesign 3622	12/10	5x20x13	68	◒	◓	●	◒	◒	—	—	3	U	d	L
Panasonic RC-6064	18/15	5x20x13	67	◒	◓	●	○	○	—	—	12	—	b,c	—
General Electric 7-4612	13/10	5x20x13	66	◒	○	●	◒	○	—	—	12	A,D	a,g	—
Lloyds CR001	20/15	5x18x13	64	◒	○	●	○	◒	—	—	3	U	—	—
Sony ICF-C240	15/13	5x18x15	63	◒	○	○	○	○	—	—	12	—	f,g	—
Emerson AK2720	19/10	5x20x13	61	◒	○	◓	●	○	—	—	3	O,T	e	K
Gran Prix D507	15/10	5x18x10	54	◒	●	○	●	●	—	—	3	—	d	—
Clock radios with cassette player														
General Electric 7-4965	80/60	10x30x15	85	◓	◓	◓	◓	◓	✔	✔	12	A,D,G,H,K,O,S,T	—	B,E
Panasonic RC-X250	1	10x33x13	76	◓	◓	○	◓	◓	✔	✔	12	A,G,K,O,R,U	b,c	A,H
Sony ICF-CS650	75/65	15x28x15	74	○	◓	●	○	◒	✔	✔	12	G,R,T,U	c,f,i	A,F,H
Soundesign 3844MGY	40/30	13x30x13	62	○	●	●	●	◒	—	—	3	G,K,J,S,U		F,G,I,M

1 *Discontinued. Replaced by RC-X260, $79 list and $60 average advertised sale price.*

Features in Common

All: • Permit snooze time of about 9 min. • Retain time settings during short power failures. *Except as noted, all have:* • Battery backup for clock and alarm memory • Red display digits 1 cm high. • Sleep-time radio play for up to 60 min. before automatic shutoff • Switch to reset alarm.

Keys to Advantages

A – Alarm tweaks degree power failure.
B – Shows actual time plus up to 2 alarm times.
C – Twin alarms settable for 2 different stations.
D – Time alarm has adjustable volume control.
E – Memory needs no battery.
F – Digital tuner with presettable stations.
G – Timer can receive in stereo.
H – Battery-strength indicator.
I – Illuminated tuning dial.
J – Illuminated tuning pointer.
K – Earphone jack.
L – Nap timer.
M – Audio input for tape deck or CD player.
N – Display can show date and time.
O – Display has high-low brightness switch.
P – Display has larger digits than most.
Q – Night light—adjusts for room light.
R – Bass-boost tone control.
S – Treble-cut tone control.
T – Better than most in tuning ease.
U – Better than most in image rejection.

Key to Disadvantages

a – Possible to reset time by accident.
b – Controls for time-setting or dimmer inconveniently located on radio's bottom or rear.
c – Display dimmer thus most to brightly lit room.
d – Radio volume must be turned completely down for alarm buzzer to sound.
e – Lacks alarm buzzer; radio is sole alarm.
f – Lacks indication alarm is set.
g – Lacks alarm-reset button.
h – Time-setting lacks fast reverse.
i – No slow forward, fast reverse for time setting.

Key to Comments

A – Display shows green digits.
B – Display shows blue digits.
C – Display uses LCD (liquid crystal display) digits.
D – Terminals for external antenna.
E – 5-position graphic equalizer.
F – Cassette player lacks Record function.
G – Cassette player lacks Rewind function.
H – Model permits wake-up to cassette play.
I – Cassette-deck flutter worse than most.
J – Warranty report: cost $3 for handling
K – Warranty report: cost $3.50 for handling
L – Warranty report: cost $6 for handling
M – Warranty report: cost $10 for handling

This Level 5 literacy item asks the reader to identify, from a complicated document taken from a page in a consumer magazine, the average advertised price for the basic clock radio receiving the highest overall score.

Background to ALLS - Limitations

- ALLS does only provide a statistical ‘snapshot’ of the performance and abilities of the adult population in relation to a reading based test of literacy, numeracy and problem solving.
- Survey assessment items can only imitate real life literacy and numeracy tasks. Authenticity and validity are limited by the requirement for written responses with no allowance for oral interaction.
- There is no assessment of writing skills per se and no writing scale has been developed.
- The emphasis is on information processing via reading.
- As such, ALLS is a survey about 'aspects' of literacy and numeracy, not the whole spectrum of literacies that are part of today’s society.
- As well, the survey only deals with English and an international view of English at that - some items may not be consistent with the kinds of ways that these things are understood in Australia.

Background to ALLS - Uses

- Provides a statistical ‘snapshot’ of the performance and abilities of the adult population.
- Reinforces the complexity of literacy/literacies/numeracies
- Comparability - can compare performances (internationally/ statewise/other population categories) and look for factors and influences etc.
- Tells us something we would otherwise not know – dispel the myth of 100% literacy.
- Ammunition for the adult LLN field.
- Source of data for further research.
- Use the research and theories behind the scales – complexity of text and task, complexity of numeracy tasks, ask questions!

ALLS – The Results

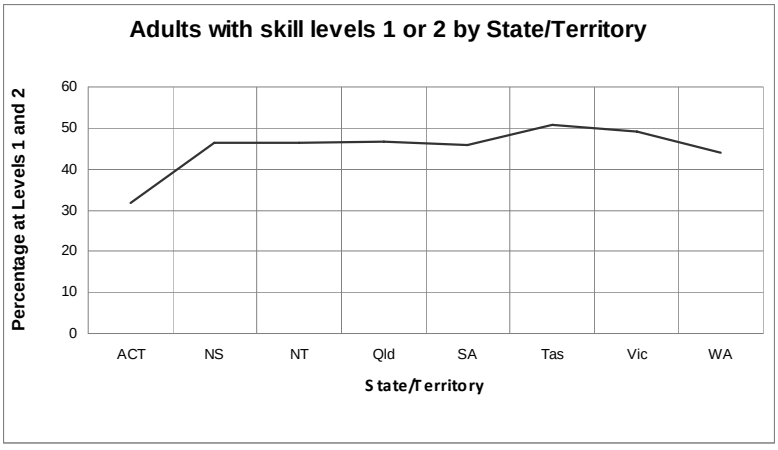
Number and proportion of persons in each group with skill levels 1 or 2

Prose literacy scale		Document literacy scale		Numeracy scale	
1,000s	**%**	**1,000s**	**%**	**1,000s**	**%**
Australia:					
7,002.9	46.4	7,066.9	46.8	7,935.6	52.5

Number and proportion of persons in each group with skill levels 1 or 2

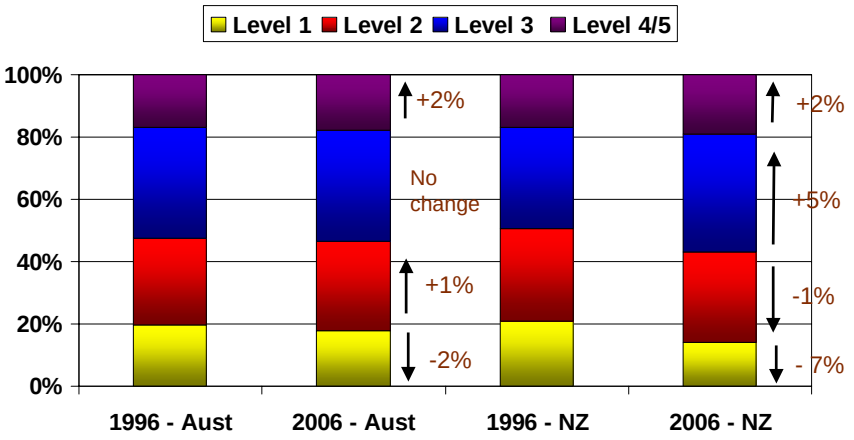
Health literacy scale		Problem solving Scale?
1,000s	**%**	
Australia:		
8,980.3	59.5	

ALLS – The Results



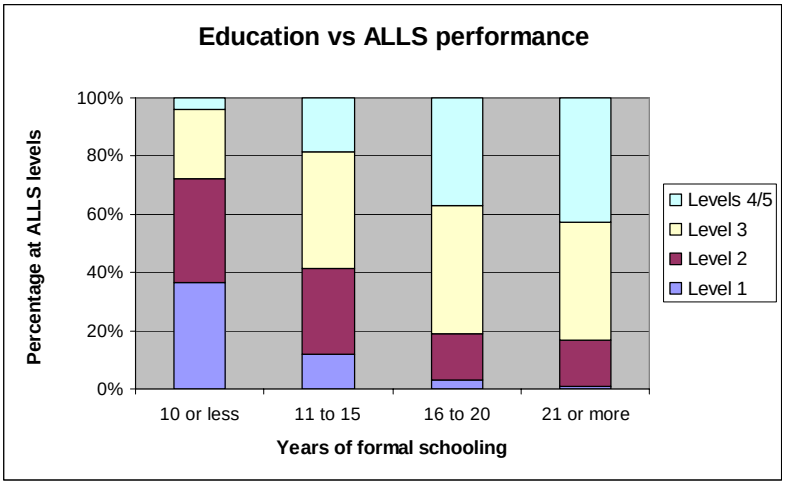
ALLS – The Results

Our nearest neighbours: Document literacy in Oz vs NZ



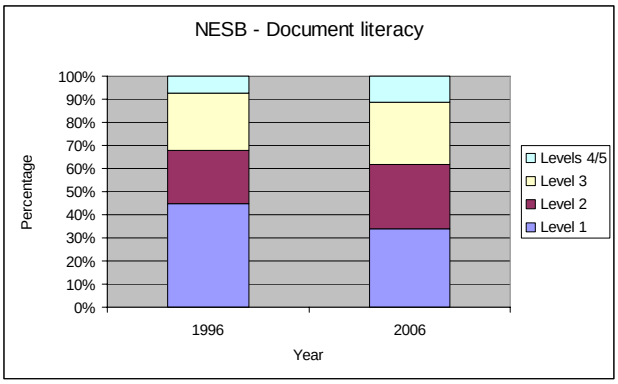
ALLS – The Results

Document literacy and schooling



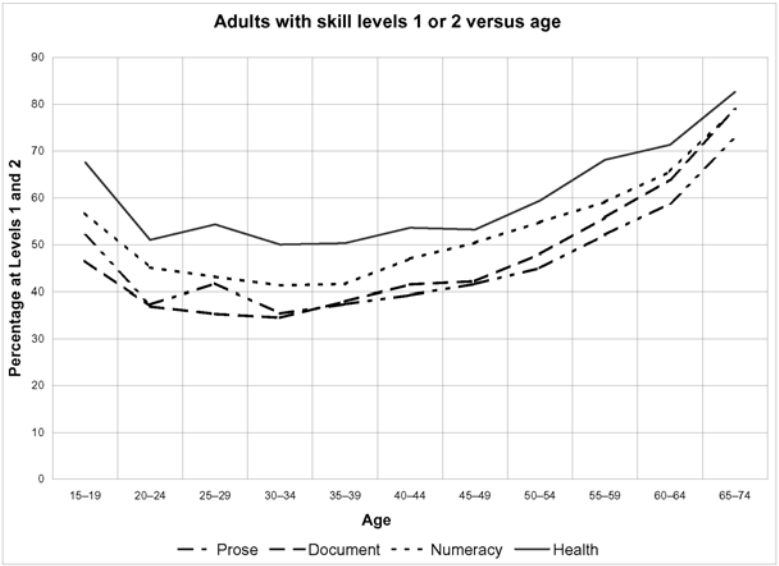
Every year of extra education impacts positively on performance

ALLS – The Results

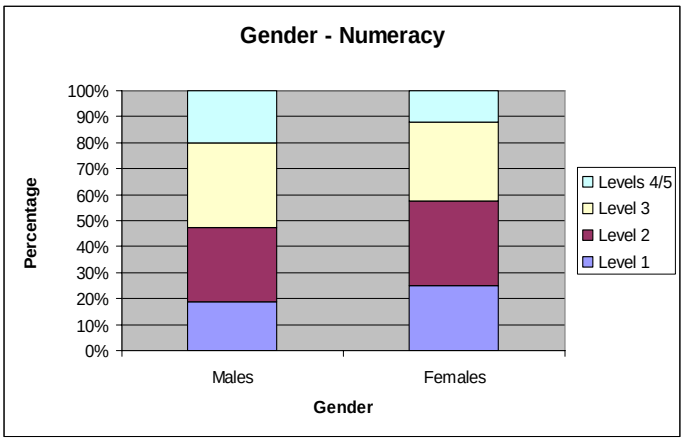


Recent migrants
Compared to 1996, of the people who migrated to Australia in the five years prior to the survey whose first language was not English, there was a statistically significant increase in the proportion of people attaining literacy scores of Level 3 or above on both the prose and document scales. On the prose scale, the proportion of this group with scores at Level 3 or above increased from 22% to 38% while on the document scale the proportion increased from 32% to 50%

ALLS – The Results



ALLS – The Results



Males significantly outperformed females on numeracy:

47.5% of males are at levels 1 or 2

57.6% of females are at levels 1 or 2

A difference of over 10%!

ALLS – The Results

Income

- There is a strong association between prose skill level and median personal gross weekly income. For example, those with a skill level of 1 had a median income of **$205 less per week** than those with a skill level of 2. This gap in income potential remained fairly steady as people moved up the skill levels. For example, the difference between those with a skill level of 2 and 3 was $192.

Employment

- Employed persons had higher literacy levels on average than those who were unemployed or not in the labour force
- Regardless of full-time or part-time status, a greater proportion of employed persons had a skill level of 3 or higher across all scales, than either unemployed people or those who were not in the labour force.

Participation in education and learning

- Those with lower literacy levels were less likely to have participated in course-based learning over the last 12 months

ALLS – The Results

Health literacy

- In Australia, of adults whose parents‘ or guardians' highest educational attainment was a Bachelor degree or above, 68% achieved a health literacy Level 3 or above. This is compared to 58% of adults whose parents or guardians completed an Advanced diploma/diploma or below.
- Half (50%) of those who reported that they had *a lot of energy a good bit of the time* in the 4 weeks prior to the survey achieved a health literacy Level 3 or above.
- Of those people who volunteered in coaching, teaching or counselling, 56% achieved a health literacy Level 3 or above.
- In contrast, of people who did not participate in any type of group or organisation, 30% achieved a health literacy Level 3 or above.

ALLS – The messages

Answers? There’s no single or simple solution, but there is a known problem that isn’t going away.

Post-compulsory, Vocational Education and Training & the Workforce

- There is significant evidence that the core skills of LLN are low in many of the target groups for training and upskilling – esp. trade areas and apprenticeships
- Does this link in, for example, with the large drop out rate for apprenticeships (~50%)?
- How do we train and teach in VET? Text-dense manuals? Online? Reading dependent
- The age data analysis indicates that schools do not prepare students for the real world of work
- Similarly it shows that for the ageing workforce there are also significant issues with LLN skills and therefore the ability to be retrained
- What does it mean for the current workforce and changing practices and expectations and access to retraining?

ALLS – Some key messages

Post-compulsory, Vocational Education and Training & the Workforce: Some potential research questions

- What are the literacy and numeracy skill requirements of training, on-the job requirements, the content of VET courses and Training Packages and training materials? Do we know? How do these compare with what ALLS is saying potential learners and participants have?
- What are the implications for the training system? Which groups of adults are we targeting in our skills shortages? What skills do they have? How do we support them? Do we support them?
- Are VET teachers and trainers able to cope with learners with low levels of LLN? Do we support them? How are they trained?
- And what about numeracy?

ALLS – Some key messages

Post-compulsory, Vocational Education and Training & the Workforce: Some possible solutions/answers? Dave's wish list!

- Need more than words and the rhetoric of lifelong learning - where are our Policies and Programs – what can we learn from overseas eg from NZ?
- It needs a joint effort: work with and form partnerships with industry and business, unions, education and training (supported by government) – it's not just about the ALBE field
- Support and guidelines about LLN for the training system is needed – advice, PD, curriculum, resources, research
- PD Support and training for the LLN field – we know the field is casualised and marginalised and under-supported (the glory days of the 1990s when Oz was a world leader have well and truly gone)
- PD Support and training about LLN for VET trainers. A simple solution available NOW: Make the LLN Unit of TAA compulsory

ALLS – Some key messages

Post-compulsory, Vocational Education and Training & the Workforce: Some possible solutions/answers? Dave's wish list!

- Where are industry, business and the unions in LLN? We need to find some champions – not just from within the ALBE sector
- Work with the school sector to address the issue of not preparing students well for the world of work and VET –need a higher rate of completion and participation via relevant curriculum
- And where are our Family Literacy programs?
- And what about numeracy?

ALLS – Some key messages

Social Capital Outcomes – Health, Aged Care, Social Security, etc' Some messages and potential research questions

- Why is the literacy context of health more difficult?
- And numeracy?
- What are the implications?

"The international research on 'health literacy' is considerable. Studies have found links between lower literacy and a higher risk of hospitalisation, higher rates of depression and an inability to understand and comply with the use of prescription drugs." [Hartley & Horne, 2006, p. 7]

Panadol Elixir (1 - 5 years)

Age	Average Weight	Dose
1 - 2 Years	10 - 12 kg	6 - 7.5 mL
2 - 3 Years	12 - 14 kg	7.5 - 9 mL
3 - 4 Years	14 - 16 kg	9 - 10 mL
4 - 5 Years	16 - 18 kg	10 - 11 mL
5 Years	18 - 20 kg	11 - 13 mL

ALLS – Some key messages

Social Capital Outcomes – Health, Aged Care, Financial and Social Security, Families, etc. Some messages and potential research questions

- The low LLN skills for the over 45s – this has implications for the ageing population – staying at work longer and being expected to be more independent – implications for health, medication and wellbeing
- Why is LLN achievement such a strong indicator of economic and social success? In the US, people at levels 1 or 2 in numeracy are 3 times more likely to be on social security benefits than those at the higher levels
- Research the background information from ALLS and the connections between the range of socio-demographic and education factors/practices and the literacy and numeracy performance of adults as measured by ALLS

ALLS – Some key messages

Social Capital Outcomes – Health, Aged Care, Financial and Social Security, Families, etc. Some messages and potential research questions

- And what about intergenerational literacy (and numeracy)? Australia is not active in Family Literacy programs. Why not? Look at and support the Smith Family model.
- Crucial for indigenous communities
- It needs a joint effort: it's a whole of government approach and working with a range of agencies
- What knowledge is out there about the LLN issue and the consequences?
- And what happened to Plain English and getting messages and information across in different ways
- And what about numeracy? Financial security? Gambling? Scams? Debts?

ALLS – And more …

From IALS we know:

- The proportion of individuals with Level 1 skills exerts a strong negative drag on growth in GDP per capita so one could realise quite large economic gains by investing in the bottom.
- The skill levels of women seem to matter more to the growth in GDP than those of men.

Ref: *Coulombe, Tramblay & Marchand (2004)*

ALLS – The Results

The initial ALLS data supports other research data from the UK that indicates the strong role that numeracy plays in both human and social capital terms.

- People without numeracy skills suffered worse disadvantage in employment than those with poor literacy skills alone. ... Women with numeracy difficulties appeared especially vulnerable to exclusion from the clerical and sales jobs to which they aspired (Bynner & Parsons, 1997, p. 27).
- For women, while the impact of low literacy and low numeracy is substantial, low numeracy has the greatest negative effect, even when it is combined with competent literacy. … Poor numeracy skills make it difficult to function effectively in all areas of modern life, particularly for women. (Bynner & Parsons, 2005, p. 7)

ALLS – so what about numeracy?

Have we learnt anything?

For example: “it is clear from the results that when people have poor literacy skills, they have even worse numeracy skills. The need to upgrade numeracy skills in the context of literacy must be taken into account of in all decisions to raise the level of adult literacy in Australia” (Wickert, 1990)

What do we do now in numeracy (and maths) teaching practices that disadvantages women/girls so much? How do we address the gender issues and priorities?

What policy or program actions have we taken in relation to numeracy? Literacy versus numeracy – is it an equal partnership? Is numeracy buried and not even bolted on? At the policy, program and funding level? At the provider level? At the classroom level?

What are the implications for school maths curriculum?

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