The classroom of the future is here now, and it is blended

2022 AASE National Conference

Greg O'Connor

Head of Education
Texthelp AsiaPac

g.oconnor@texthelp.com
@gregoconnor
www.gregoryoconnor.com

ACKNOWLEDGEMENT OF COUNTRY

texthelp®

support accessibility and learning across the curriculum, working everywhere learning happens

partners include

CAST
ISTE
BATA
Universities worldwide

session focus

Challenges for teachers and students over the last three years

Australian literacy data

Blended learning - opportunities supporting personalisation and learner agency using inclusive technology

slides and resources

bit.ly/AASE2022

bit.ly/AASE2022


last 3 years
uncertainty
disruption

ability of teachers to quickly shift their teaching to remote learning platforms

Student engagement

Home / school partnerships

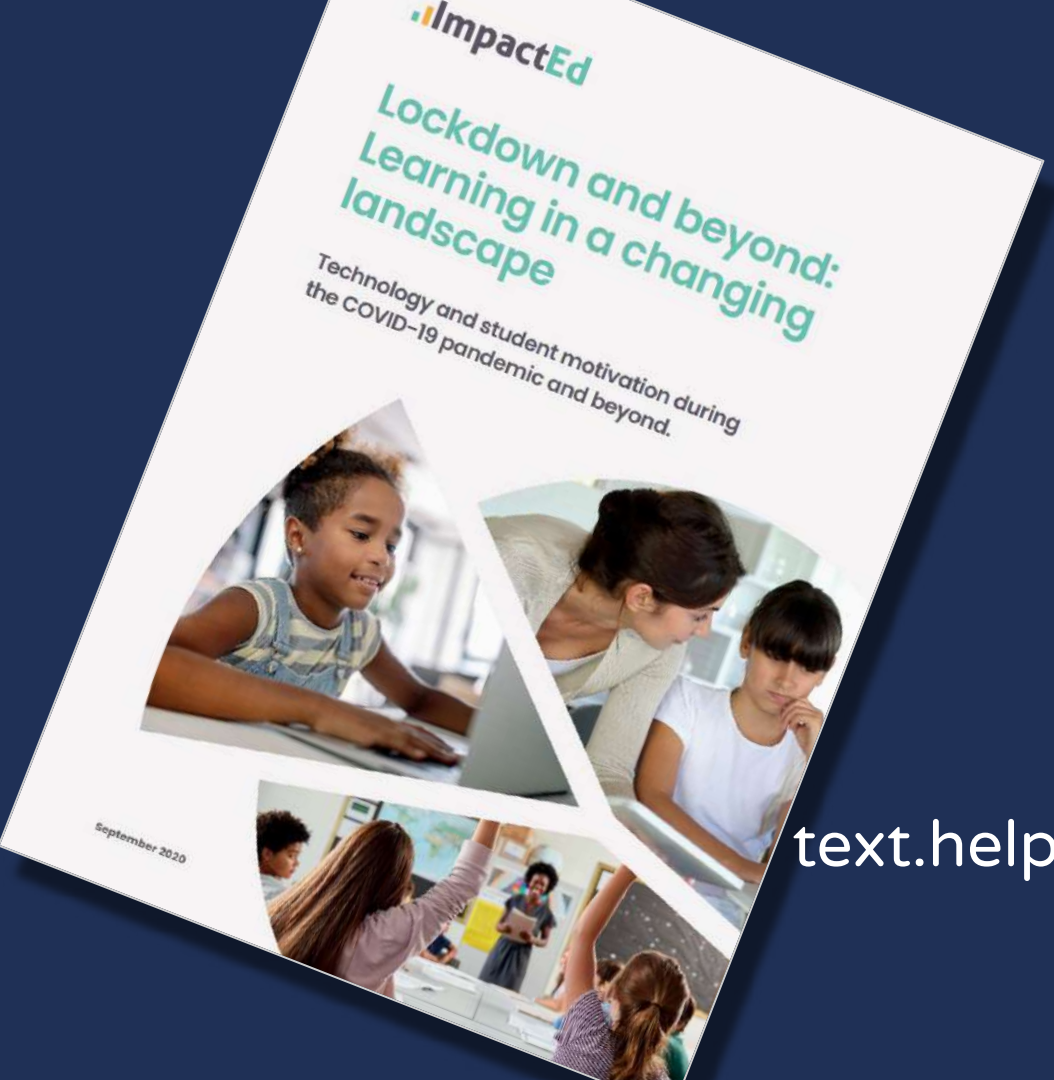
increased stress felt by students, families, teachers and school leaders.

perceived merit in a hybrid or more flexible approach to schooling

ensuring all students have equitable access to technology that supports their learning

meeting student needs from a distance

differing levels of teacher confidence in various technologies



text.help/lockdown-and-beyond-aus

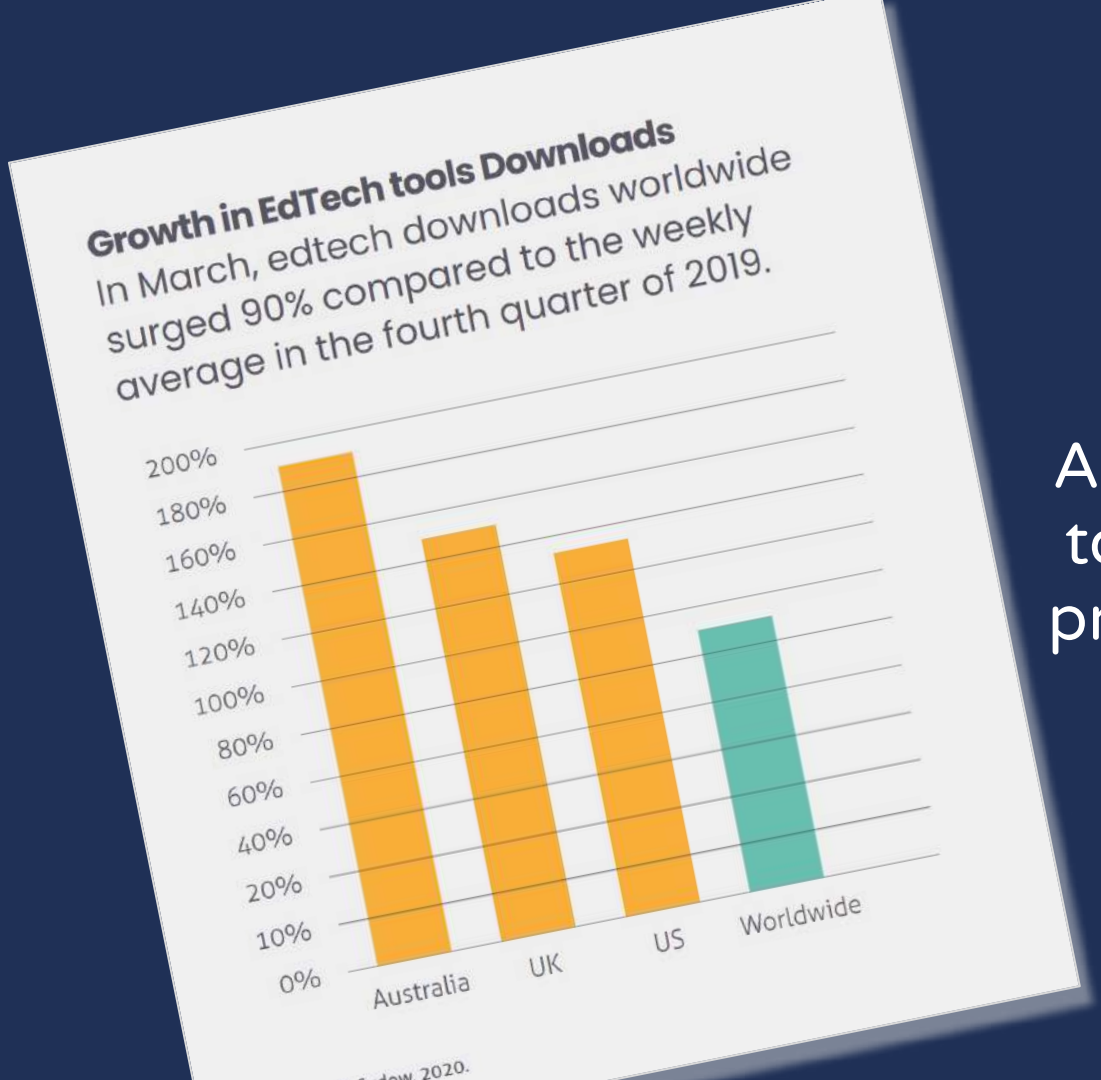
“this is a problem that predates the COVID 19 pandemic”

Lockdown and Beyond: Learning in a changing landscape.

Australia and New Zealand: Top Teacher Concerns about Students

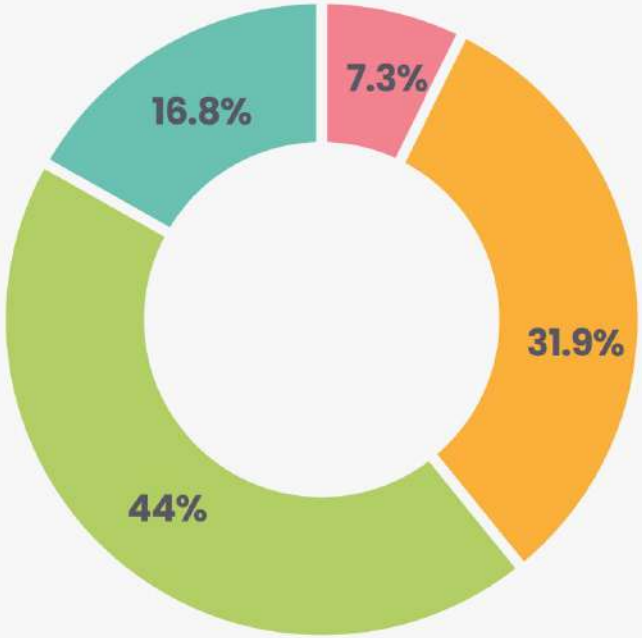
	Aus	NZL
Social Isolation	56%	49%
A decrease in student well-being	54%	46%
Learning loss	46%	47%
Lack of access to technology/internet	37%	43%
Lack of support form a parent or guardian	36%	33%
Disruption in meeting learning targets	31%	21%
Lack of access to basic needs	13%	20%

Source: Flack, 2020.



Australian teachers turned to edtech to support their practice in record numbers

Lockdown and Beyond: Learning in a changing landscape.



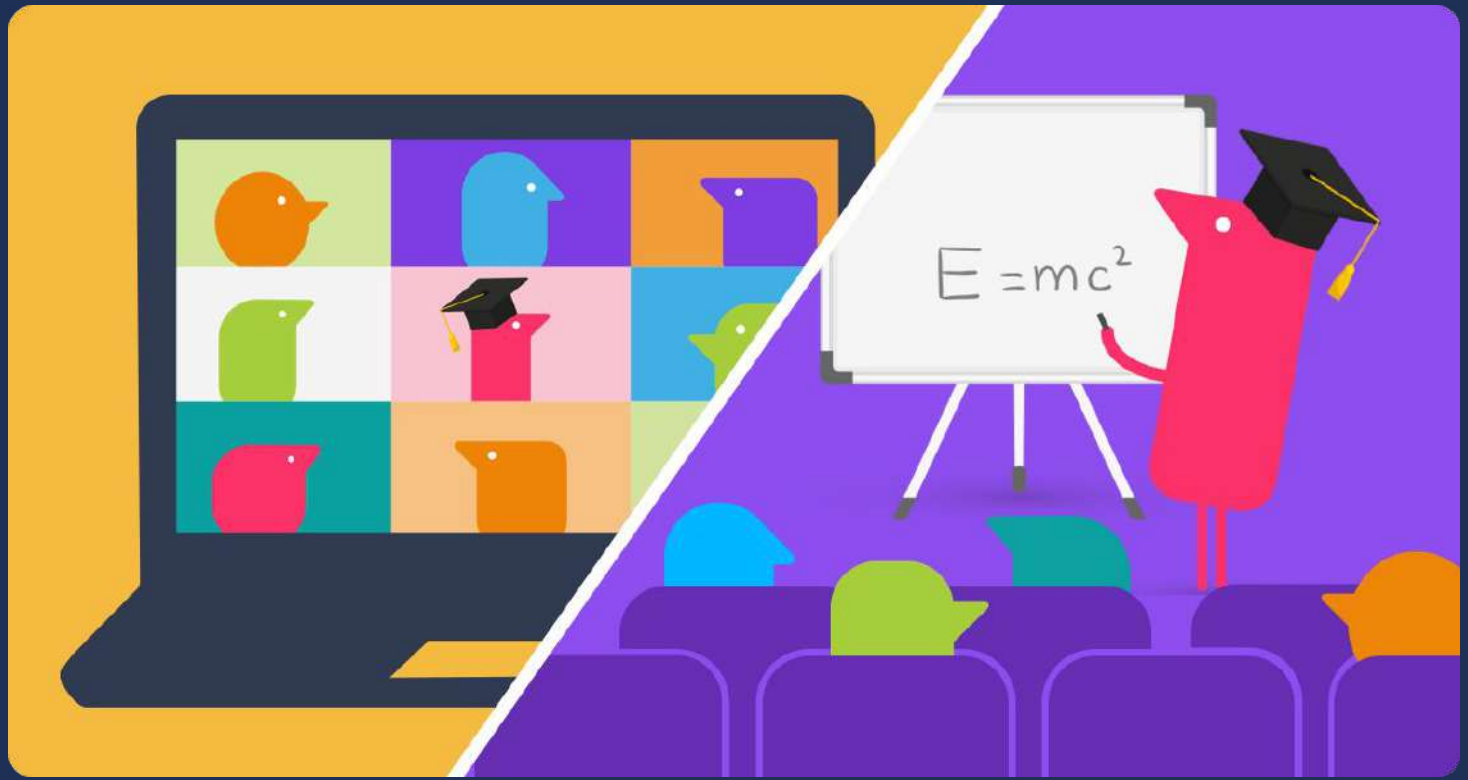
"The future of learning?"

In your opinion, due to the current circumstances created by the COVID-19 virus, when schools fully reopen, will online/distance teaching remain part of school practice?

- School will be different online teaching will become integral to school practices
- School will be a little different, with more online learning than before
- The school will return to its original practice with minor changes
- The school will return to its original practice

Source: School Education Gateway, 2020.

blended / hybrid learning



Universal Design for Learning

Multiple Means of
Engagement

Provide options for:

engaging with content and learning in different ways

Multiple Means of
Representation

Provide options for:

transforming information into useable information

Multiple Means of
Expression

Provide options for:

action, expression and demonstrating understanding

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technology

students expect the quality of the digital experience offered by their university to be as good as that offered face-to-face

literacy data

Challenge by Nick Youngson CC BY-SA 3.0 Alpha Stock Images


7.30
ABC NEWS

Lismore City Council

DISRUPTION TO RECYCLING BIN COLLECTION

Unfortunately due to a truck brake down this morning, we were unable to complete the kerbside collection of the yellow recycling bins in parts of CBD, Koonorigan and Girards Hill.

If your yellow bin was not collected from one of these locations, please leave it by the kerb and it will be collected tomorrow.

We apologise for any inconvenience.

17 9 comments 5 shares

Like Comment Share

Most relevant

Write a comment...

[redacted]
It is 'break' not 'brake'.
Like Reply 1 d 6

[redacted]
Like Reply 17 h

Top fan
[redacted] it was actually a brake failure , breakdown ironically .
Like Reply 1 d

J[redacted] first thing I noticed too
Like Reply 1 d 2

Top fan
[redacted]
J[redacted]e me three ..
Like Reply 1 d

By age 15, 20% of Australian students are not reading with enough proficiency to identify the main idea of a text of moderate length.

PISA Key findings Australia 2018

In 2018, by Year 7, nearly 25% of students (72,419) didn’t have the required numeracy and literacy skills.

Educational Opportunity in Australia 2020 Report

texthelp®

CENSUSWIDE
THE SURVEY CONSULTANTS

Research Report

‘Words are holding us back’

– an Australian literacy report

Breakdown of respondent numbers per state

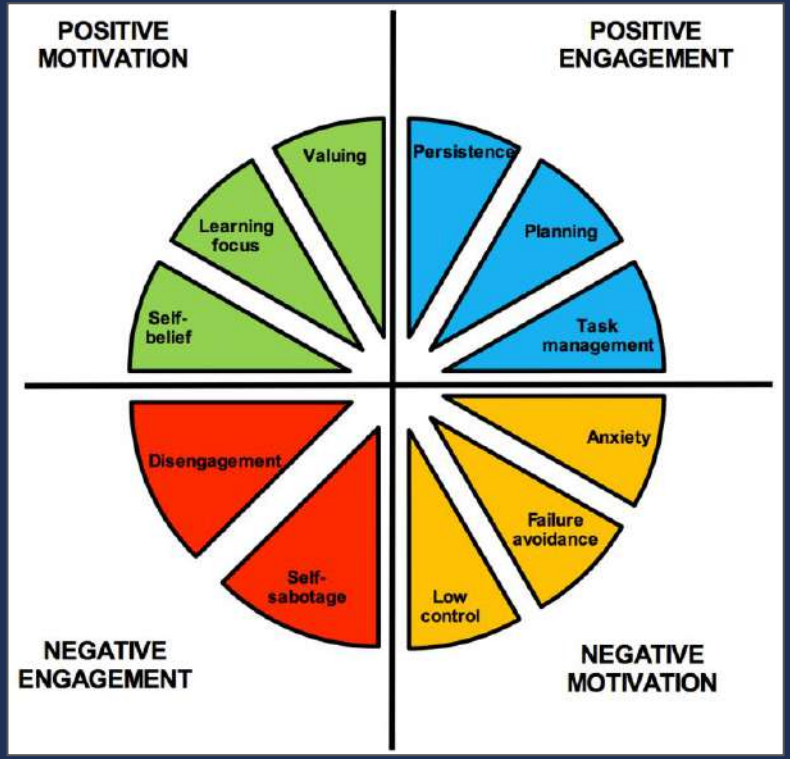
State	Number of respondents
New South Wales	538
Northern Territory	18
Queensland	488
South Australia	231
Tasmania	81
Victoria	442
Western Australia	209

56% experienced difficulties with literacy at school

35% no confidence helping their kids with homework

22% not confident reading to a preschooler

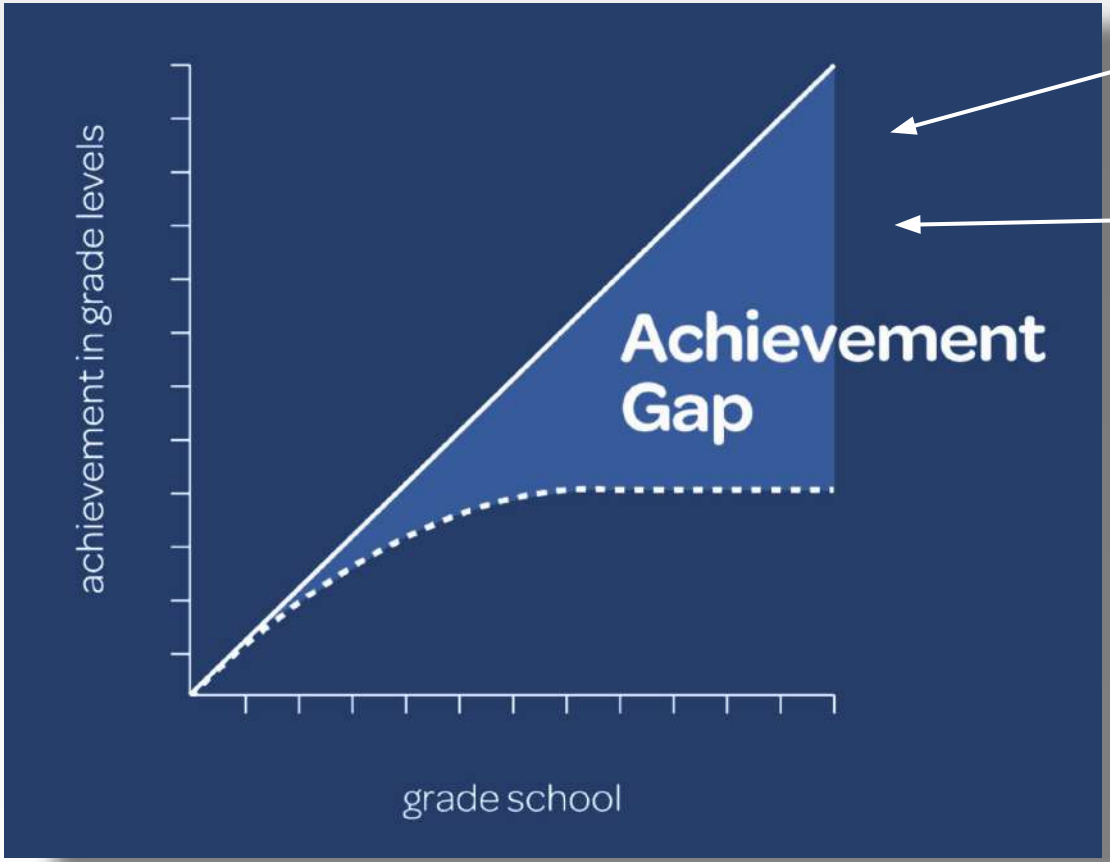
30% feel embarrassed about their reading and writing



Motivation and Engagement Wheel

Dr Andrew Martin, UNSW

https://lifelongachievement.com/pages/the-wheel

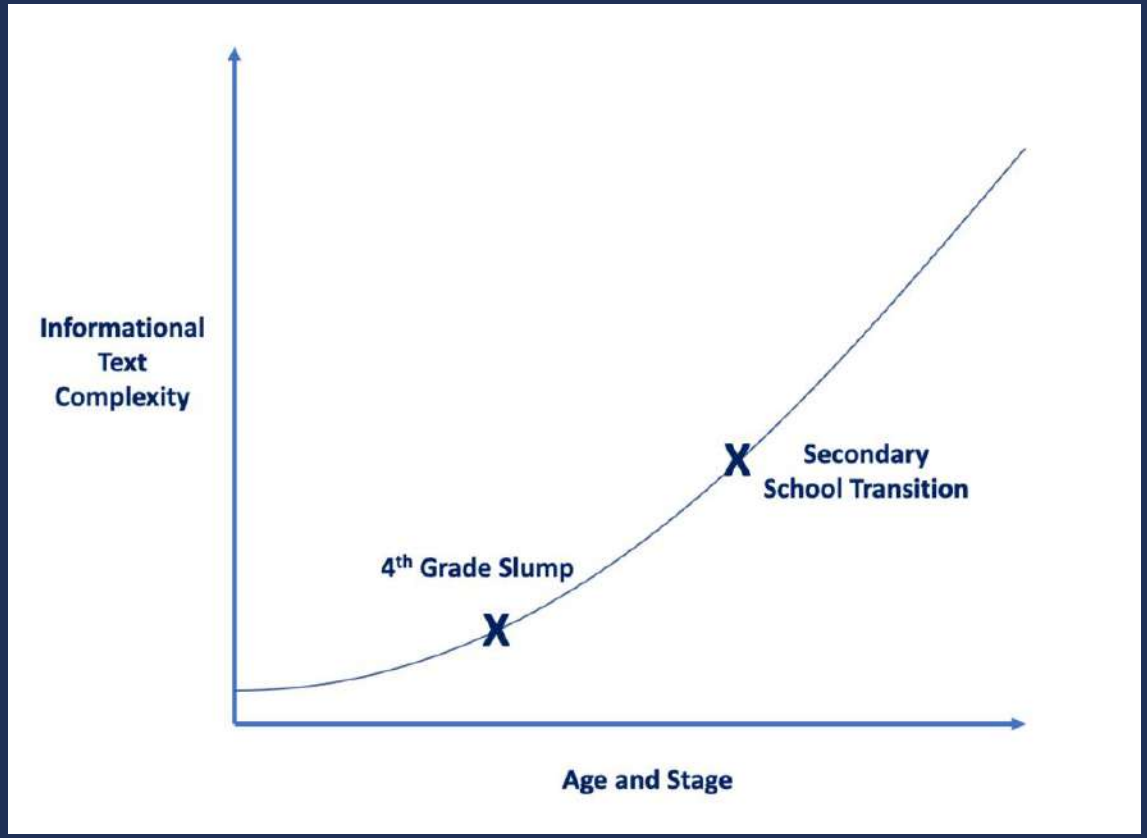


expectancy effect

self esteem

Edyburn, Dave. (2006). Failure is not an option: Collecting, reviewing, and acting on evidence for using technology to enhance academic performance. Learning and Leading with Technology. 34. 20-23.

The Problem with Reading Informational Texts



Closing the Reading Gap / By Alex Quigley

5 pillars of reading instruction

Before we can look at ways of keeping students engaged in oral fluency, there are some key things that need to be established.

We know them commonly as the five pillars of reading, and we've detailed them as a recap here.

1 Phonemic Awareness

Being able to identify, manipulate and substitute the smallest units of sound - the building blocks of speech and the foundation of learning to read.

2 Phonics

Turning those sounds into speech and being able to decode the written word - linking sounds and matching them to letters to formulate a word.

3 Fluency

The ability to read accurately, quickly and with expression - a bridge between word recognition and comprehension.

4 Vocabulary

Knowing what the words mean - helping kids to think more and understand. Better understanding of the meaning of words leads to greater comprehension.

5 Comprehension

The holy grail of reading! Critical thinking - being able to extract meaning, evaluate information and process ideas.

blended learning, literacy and the future

Challenge by Nick Youngson CC BY-SA 3.0 Alpha Stock Images

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Considerations

access

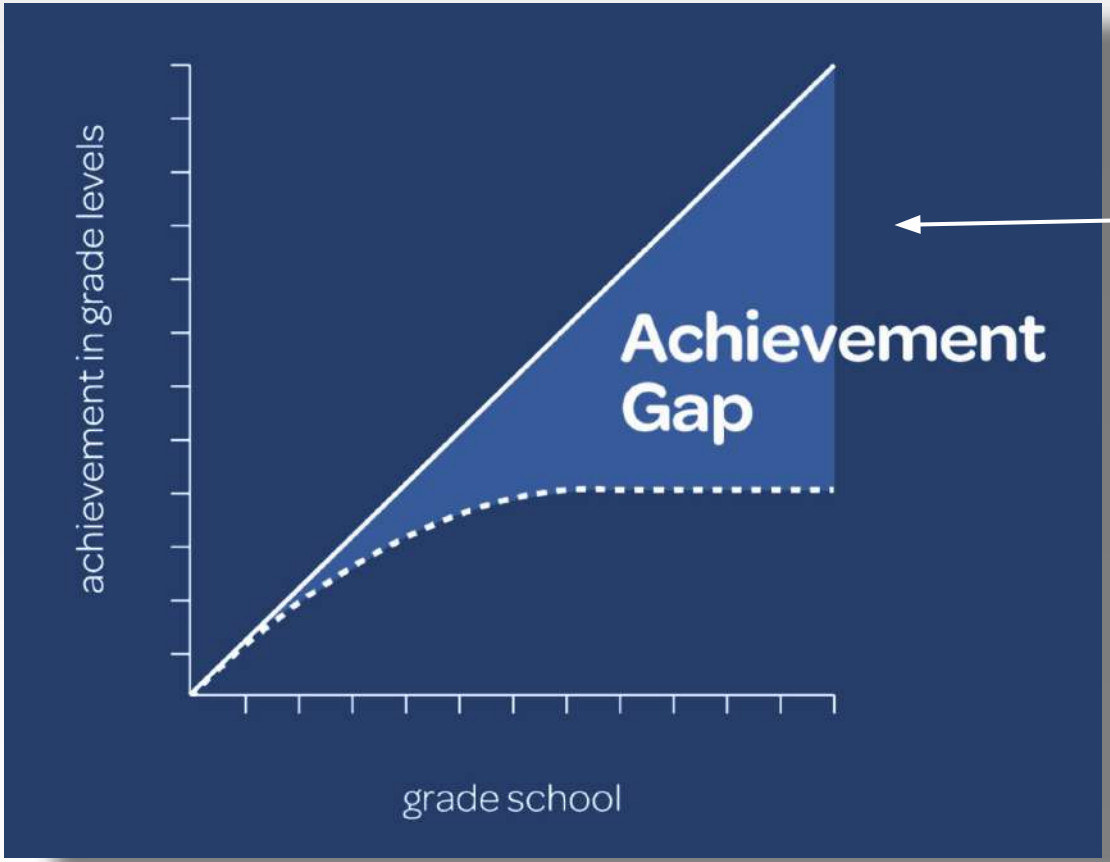
remove barriers

engage

enable success

express

provide opportunity



assistive technology

Edyburn, Dave. (2006). Failure is not an option: Collecting, reviewing, and acting on evidence for using technology to enhance academic performance. Learning and Leading with Technology. 34. 20-23.

Guiding principle

Assistive (inclusive) technology is related to function not a specific disability.

Joy Zabala

https://www.flickr.com/photos/dullhunk/28251201308


pedagogy

Considerations

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engage

enable success

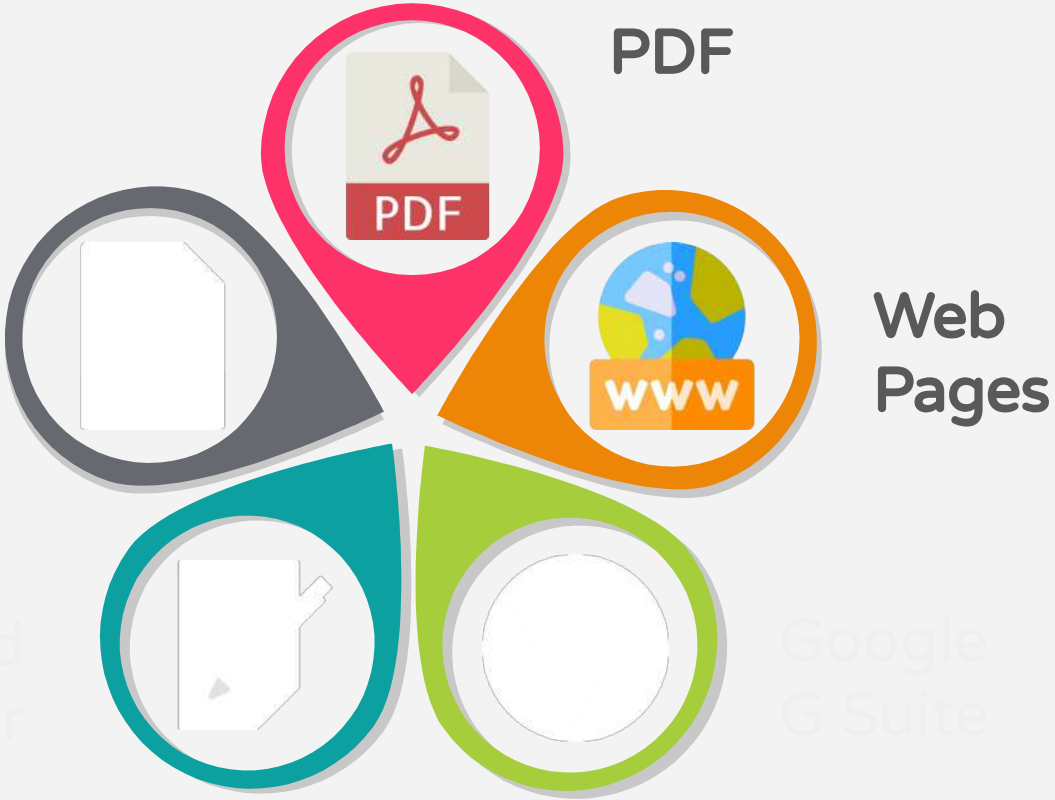
express

provide opportunity

- text to speech
- readability
- accessible format

Reading across all digital formats

Reading across all digital formats



Efficient Reading Strategies[1]

Scanning

Skim read to get general idea

Identify key terms &

expressions

Detailed Reading

Topic requires in depth

understanding

highlight and annotate

Skimming

Locate & comprehend

main ideas

Revision reading

Rapid reading through

known materials

Confirm understanding

[1] https://www.monash.edu/rlo/quick-study-guides/efficient-reading-strategies

read up to 200 - 300 wpm
speak 150-170 wpm

comprehension problems
below 100 wpm

when you listen, you can understand content that is above your reading level

text to speech

texthelp®

text to speech resources

gregoryoconnor.com/resources

Readable.io

Readability Formulas

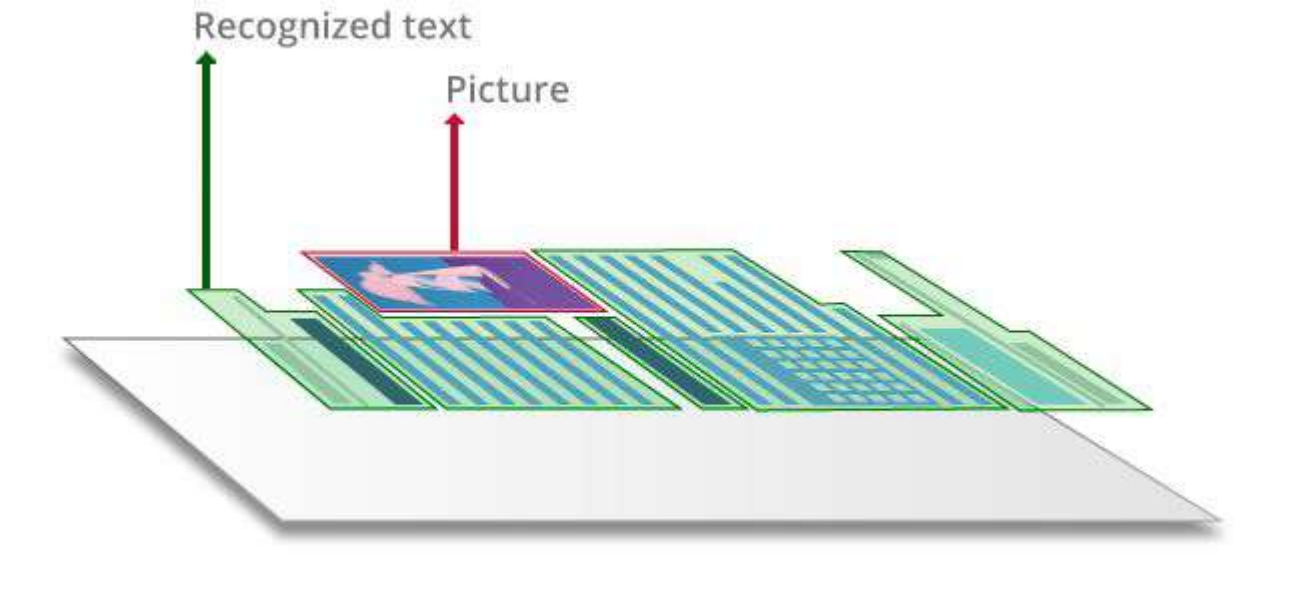
Rewordify

Readability Analyzer

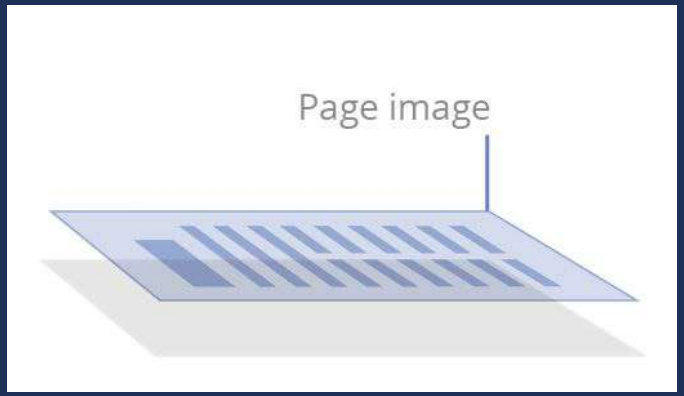
Microsoft Word - Readability Statistics


PDF

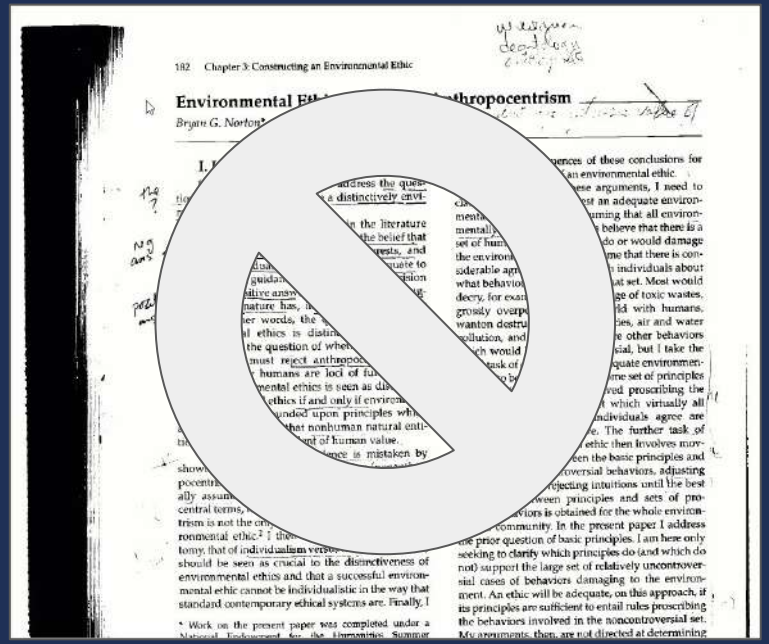
Digitally created PDF’s



Scanned / Image PDF’s



what is an image-based pdf?



182 Chapter 3: Constructing an Environmental Ethic

Environmental Ethics and Weak Anthropocentrism

*Bryan G. Norton**

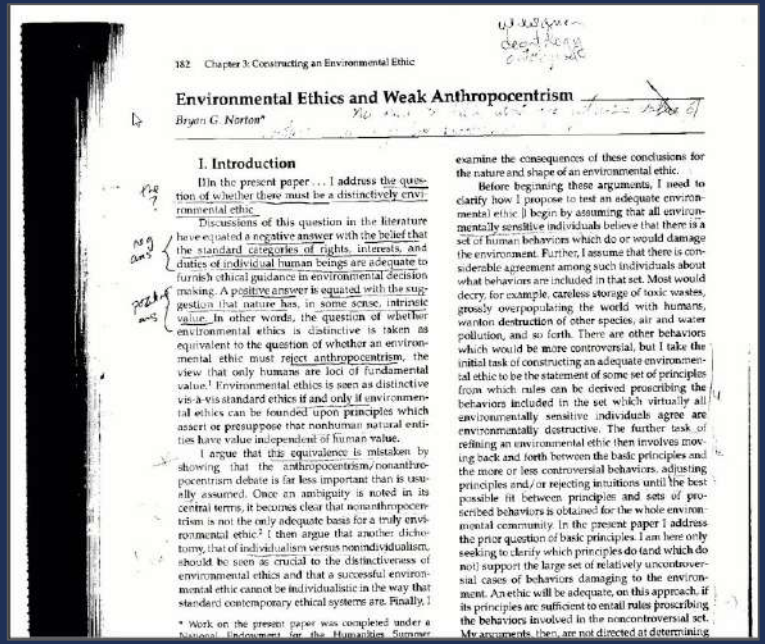
I. Introduction

In the present paper . . . I address the question of whether there must be a distinctively environmental ethic.

Discussions of this question in the literature have equated a negative answer with the belief that the standard categories of rights, interests, and duties of individual human beings are adequate to furnish ethical guidance in environmental decision making. A positive answer is equated with the suggestion that nature has, in some sense, intrinsic value. In other words, the question of whether environmental ethics is distinctive is taken as equivalent to the question of whether an environmental ethic must reject anthropocentrism, the view that only humans are loci of fundamental value.[1] Environmental ethics is seen as distinctive vis-à-vis standard ethics if and only if environmental ethics can be founded upon principles which assert or presuppose that nonhuman natural entities have value independent of human value.

I argue that this equivalence is mistaken by showing that the anthropocentrism/nonanthropocentrism debate is far less important than is usually assumed. Once an ambiguity is noted in its central terms, it becomes clear that nonanthropocentrism is not the only adequate basis for a truly environmental ethic.[2] I then argue that another dichotomy, that of individualism versus nonindividualism, should be seen as crucial to the distinctiveness of environmental ethics and that a successful environmental ethic cannot be individualistic in the way that standard contemporary ethical systems are. Finally, I examine the consequences of these conclusions for the nature and shape of an environmental ethic.

Before beginning these arguments, I need to clarify how I propose to test an adequate environmental ethic. I begin by assuming that all environmentally sensitive individuals believe that there is a set of human behaviors which do or would damage the environment. Further, I assume that there is considerable agreement among such individuals about what behaviors are included in that set. Most would decry, for example, careless storage of toxic wastes, grossly overpopulating the world with humans, wanton destruction of other species, air and water pollution, and so forth. There are other behaviors which would be more controversial, but I take the initial task of constructing an adequate environmental ethic to be the statement of some set of principles from which rules can be derived proscribing the behaviors included in the set which virtually all environmentally sensitive individuals agree are environmentally destructive. The further task of refining an environmental ethic then involves moving back and forth between the basic principles and the more or less controversial behaviors, adjusting principles and/or rejecting intuitions until the best possible fit between principles and sets of proscribed behaviors is obtained for the whole environmental community. In the present paper I address the prior question of basic principles. I am here only seeking to clarify which principles do (and which do not) support the large set of relatively uncontroversial cases of behaviors damaging to the environment. An ethic will be adequate, on this approach, if its principles are sufficient to entail rules proscribing the behaviors involved in the noncontroversial set. My arguments, then, are not directed at determining



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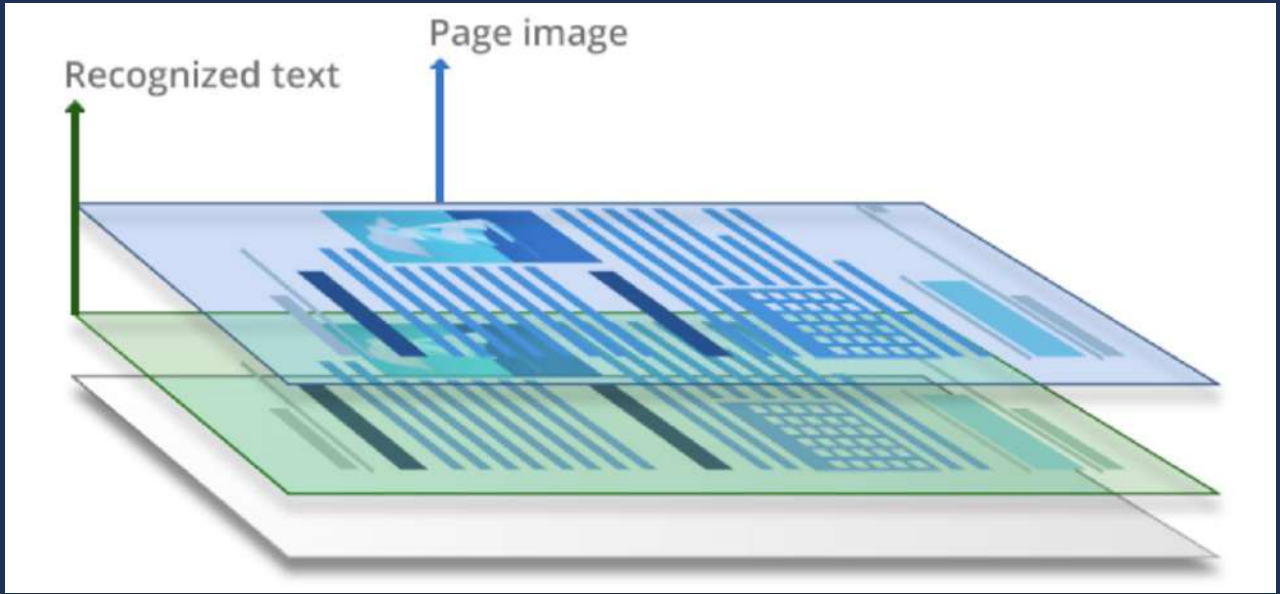
PDF’s that have been through Optical Character Recognition



Accessible Content
Student Access to OCR

assessment

Considerations

access

remove barriers

engage

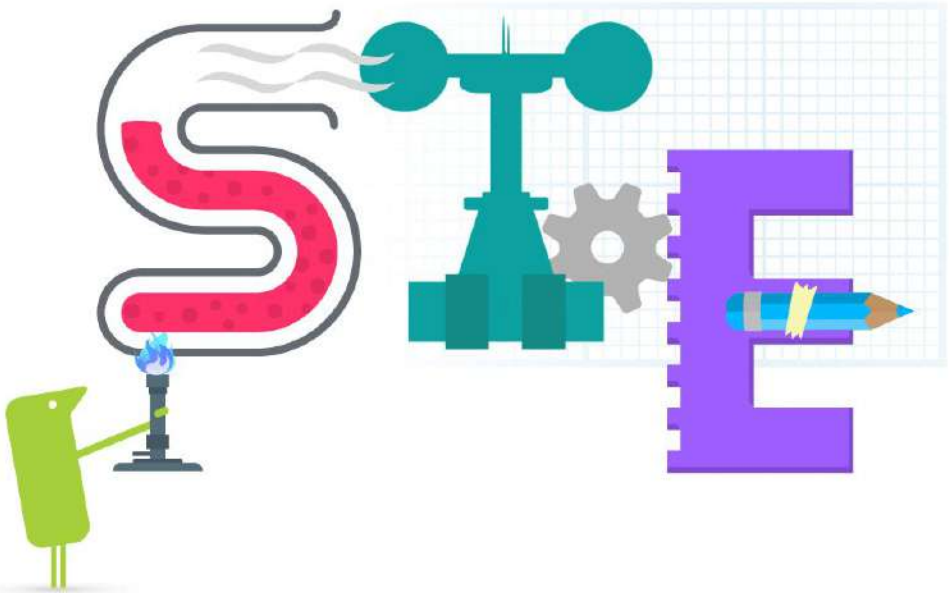
enable success

express

provide opportunity

text to speech
readability
accessible format

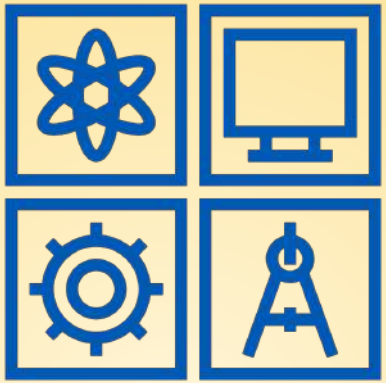
STEM



$$\frac{\text{maths}}{\text{engagement}} \neq \frac{}{\text{motivation}} \text{ success}$$

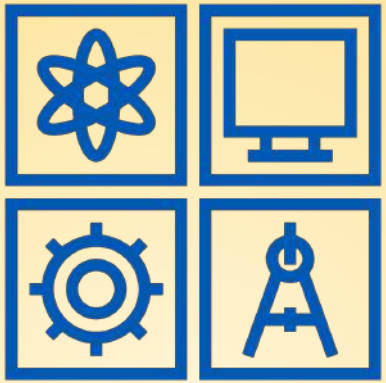
kids don’t understand the importance of STEM until it’s too late

Sources:
Australian Curriculum



STEM jobs are growing at 1.5x the rate of non STEM-based jobs

Sources:
Australia's Office of the Chief Scientist
The state of STEM education



Future workers will spend more than twice as much time on job tasks requiring science, maths and critical thinking than today.

Source: Australian Curriculum

Women only make 27% of STEM workforce

The STEM workforce does not reflect the cultural diversity of the community

SENIA CONFERENCE 2021

Sources:
The state of STEM education
Diversity in STEM

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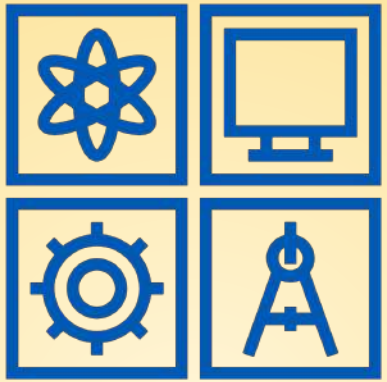
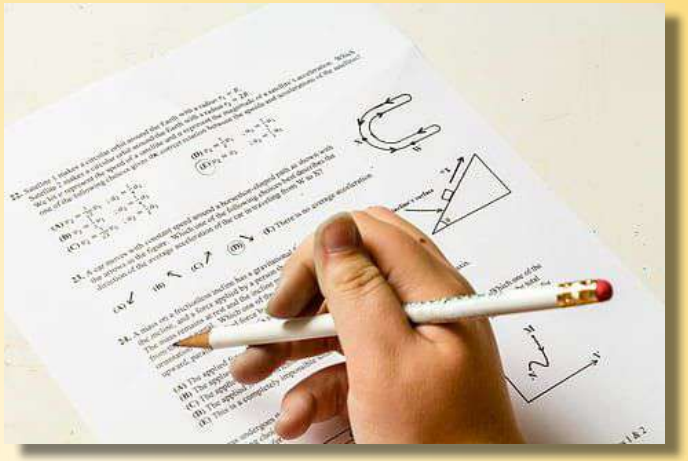


People with disabilities are underrepresented in STEM programs - at schools and in the workplace

Sources:
Why Are Students With Disabilities So Invisible in STEM Education?



literacy and maths

TECHNOLOGY

Literacy the real barrier to STEM uptake

It's almost futile to attempt to increase STEM participation without addressing a key foundational barrier to literacy comprehension.

GREG O'CONNOR, EDUCATION AND TECHNOLOGY LEAD, TEXTHELP ASIA-PACIFIC FEB 23, 2021

Literacy and STEM go hand in hand

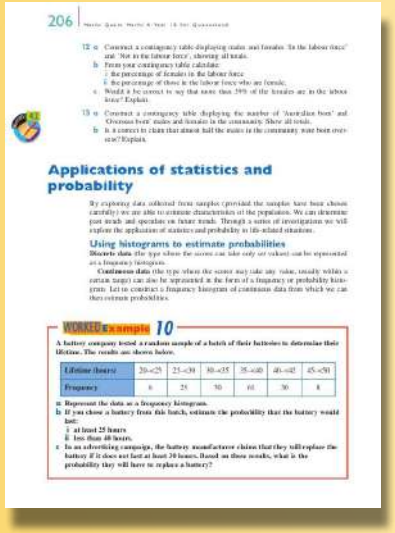
We are told that STEM education – which primarily revolves around Science Technology Engineering and Mathematics – is the key to future success for the next generation of students.

In fact, our country will need an additional 6.5 million digital workers in the next four years according to new data from Amazon.

But in Australia, like many other countries, the demand for STEM qualified graduates outstrips the number of qualified workers with only 6% of the Australian labour force holding a university-level qualification in a STEM-related subject.

Many solutions have been put forward like increasing access to university degrees and ensuring quotas are in place to encourage representation for female students. These are all worthwhile ambitions, but in my view, it's almost futile without addressing a key foundational barrier to literacy comprehension.

Today, up to 30% of Australian students struggle with basic school literacy requirements and this has a significant impact on learning outcomes for our nation's kids. In my



206

12 a Construct a contingency table displaying males and females 'In the labour force' and 'Not in the labour force', showing all totals.
b From your contingency table calculate:
i the percentage of females in the labour force
ii the percentage of those in the labour force who are female.
c Would it be correct to say that more than 50% of the females are in the labour force? Explain.

13 a Construct a contingency table displaying the number of 'Australian born' and 'Overseas born' males and females in the community. Show all totals.
b Is it correct to claim that almost half the males in the community were born overseas? Explain.

Applications of statistics and probability

By exploring data collected from samples (provided the samples have been chosen carefully) we are able to estimate characteristics of the populations. We can determine past trends and speculate on future trends. Through a series of investigations we will explore the application of statistics and probability to life-related situations.

Using histograms to estimate probabilities

Discrete data (the type where the scores can take only set values) can be represented as a frequency histogram.

Continuous data (the type where the scores may take any value, usually within a certain range) can also be represented in the form of a frequency or probability histogram. Let us construct a frequency histogram of continuous data from which we can then estimate probabilities.

WORKED Example 10

A battery company tested a random sample of a batch of their batteries to determine their lifetime. The results are shown below.

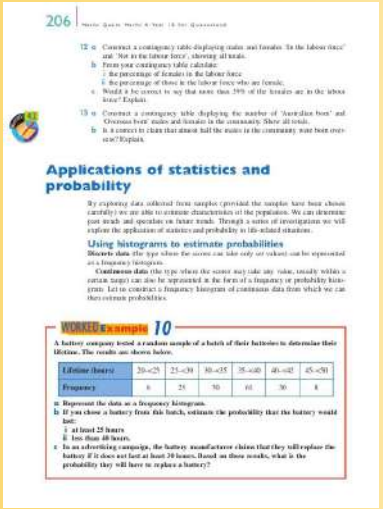
Lifetime (hours)	20–<25	25–<30	30–<35	35–<40	40–<45	45–<50
Frequency	6	25	70	61	30	8

a Represent the data as a frequency histogram.
b If you chose a battery from this batch, estimate the probability that the battery would last:
i at least 25 hours
ii less than 40 hours.
c In an advertising campaign, the battery manufacturer claims that they will replace the battery if it does not last at least 30 hours. Based on these results, what is the probability they will have to replace a battery?

Many STEM texts are written **above the grade level** for which they are intended (Barton & Heidema, 2002)

designed for the average?

See also The Myth of Average: Todd Rose at TEDxSonomaCounty



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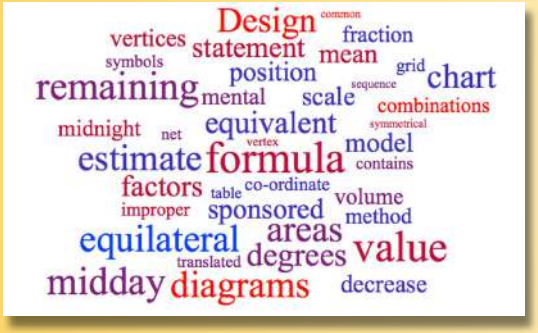
Math textbooks contain **more concepts per sentence and paragraph** than any other type of text.

Joan M. Kenney (2005) Literacy Strategies for Improving Mathematics Instruction, ASCD, 2005

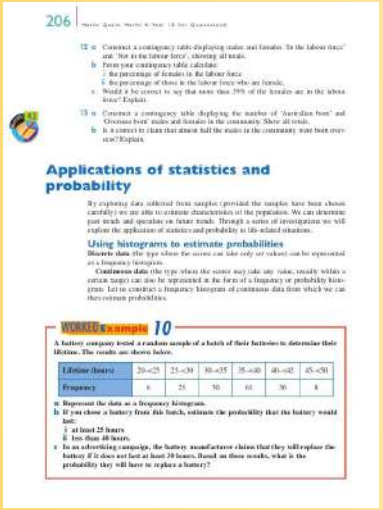
categories of maths vocabulary



Alex Quigley (@HuntingEnglish

1. Specific - ***hypotenuse***
2. Multiple meanings according to context - ***difference, cardinal, take away***
3. Homophones - ***pi / pie***

Does reading *really* matter in mathematics?



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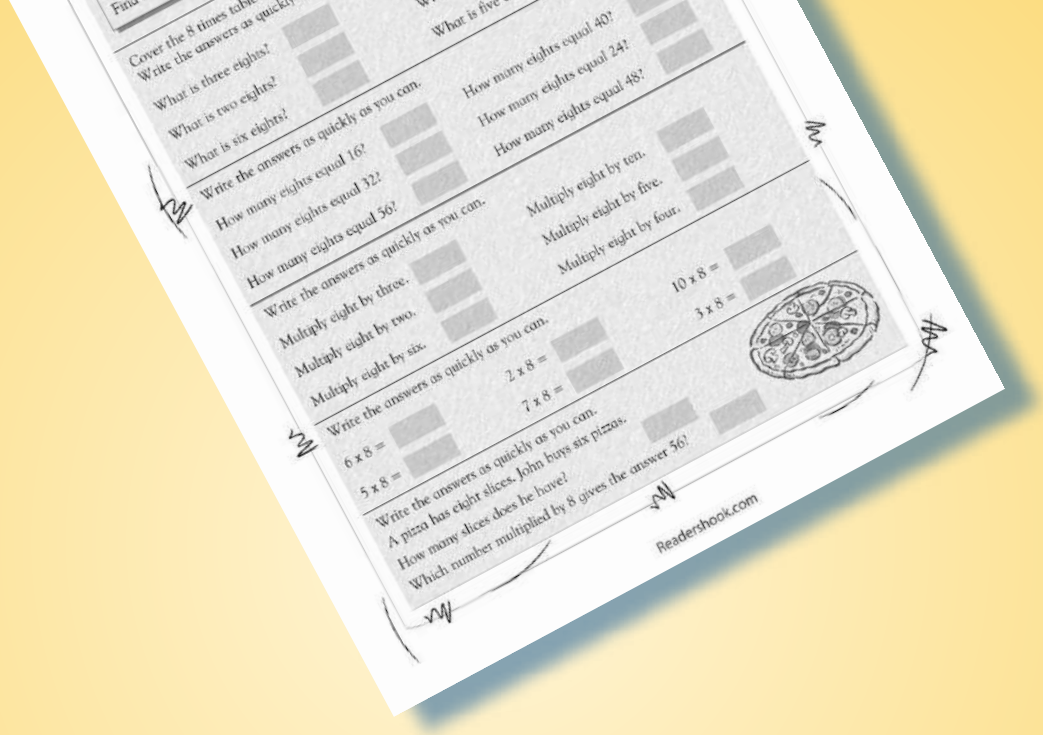
A battery company tested a random sample of a batch of their batteries to determine their lifetime. The results are shown below.

Lifetime (hours)	20–<25	25–<30	30–<35	35–<40	40–<45	45–<50
Frequency	6	25	70	60	30	8

a Represent the data as a frequency histogram.
b If you chose a battery from this batch, estimate the probability that the battery would last:
i at least 25 hours
ii less than 40 hours.
c In an advertising campaign, the battery manufacturer claims that they will replace the battery if it does not last at least 30 hours. Based on these results, what is the probability they will have to replace a battery?

Words as well as numeric and non-numeric symbols to decode

Graphics that must be understood for the text to make sense

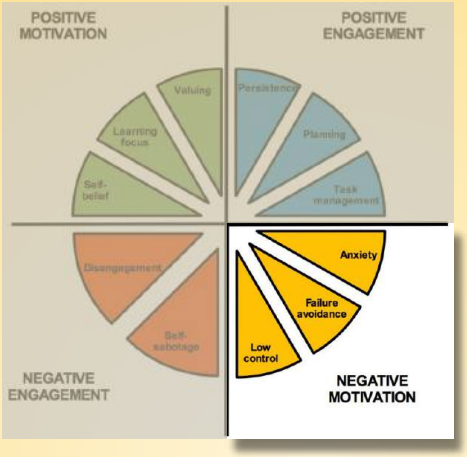


do maths or read maths?

provide text-to-speech

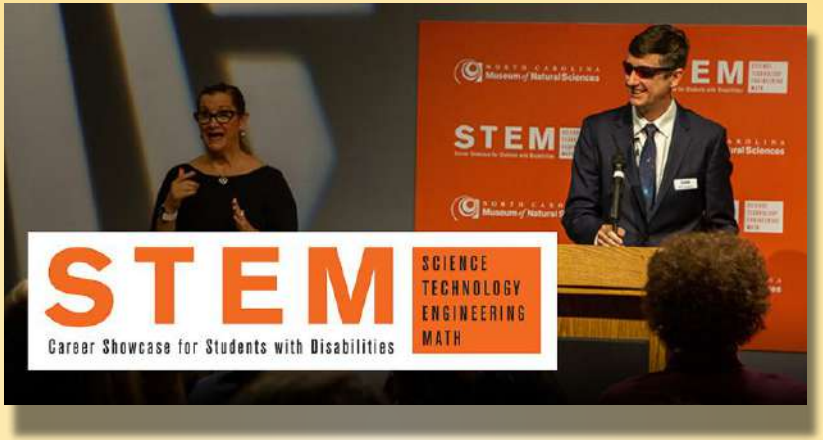
- → focus on comprehension
- → non-math and math text
- → reduce cognitive load

See gregoryoconnor.com/resources

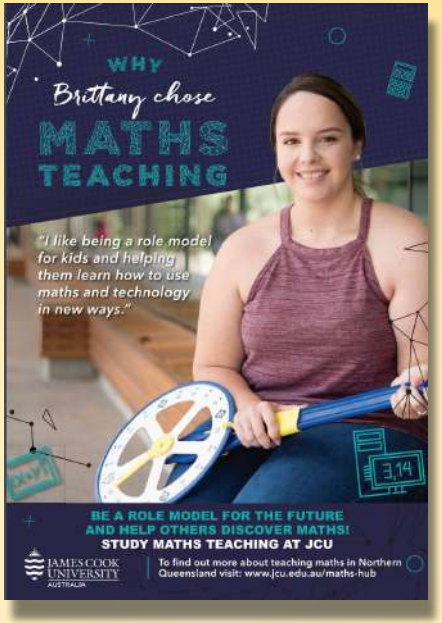


avoiding failure is a stronger motivation than obtaining a positive success or reward

Hattie, J., & Yates, G. C. (2013). Visible learning and the science of how we learn. Routledge.



provide role models
see diversity as possibilities



63% of middle school girls who know women in STEM feel powerful doing STEM

Having an encouraging mum, dad and teacher communicating about STEM has a significant impact

Sources:
The state of STEM education
Why do girls lose interest in STEM? New research has some answers — and what we can do about it

Considerations

access

remove barriers

- text to speech
- readability
- vocabulary

engage

enable success

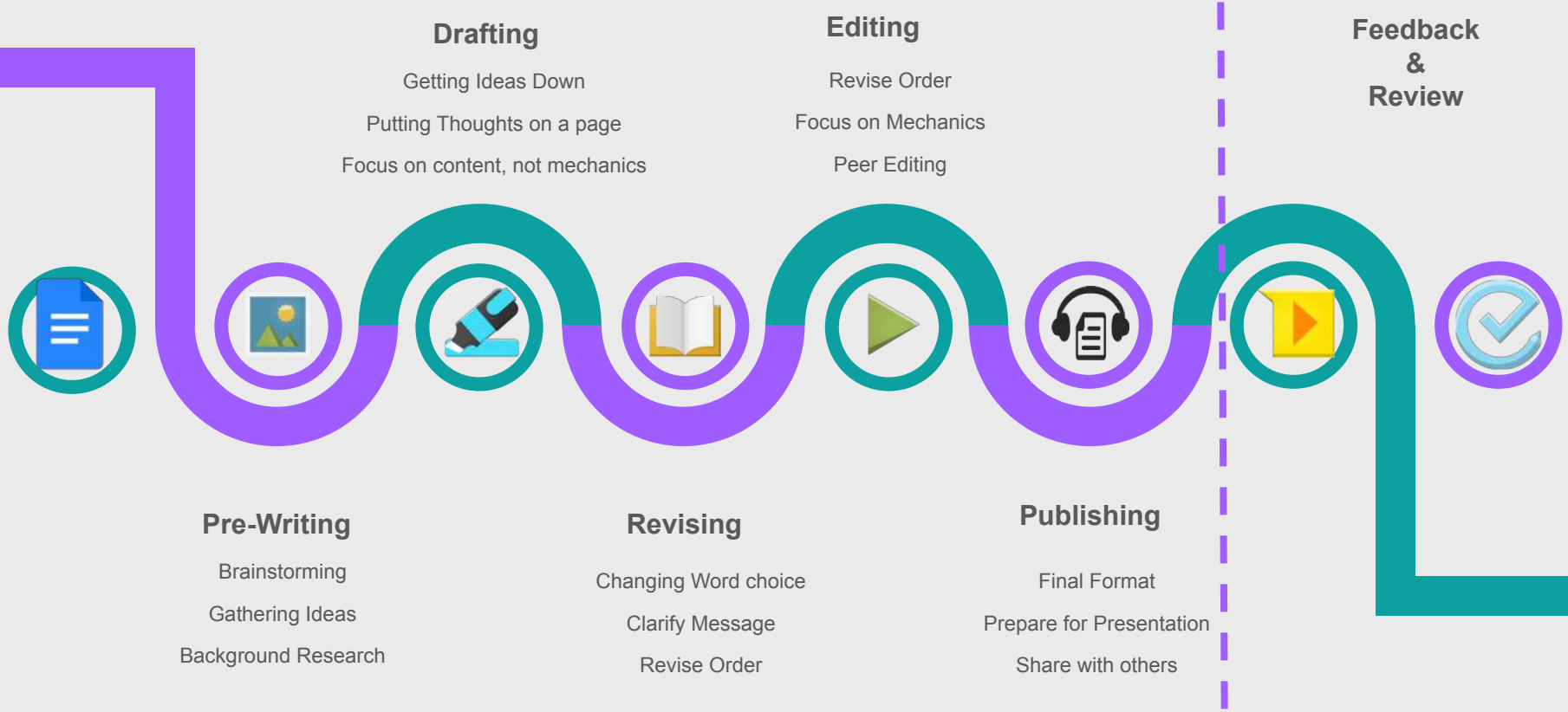
- STEM

express

provide opportunity

- word prediction
- voice to text
- express maths

The Writing Process[1]



Pre-Writing

Brainstorming

Gathering Ideas

Background Research

Drafting

Getting Ideas Down

Putting Thoughts on a page

Focus on content, not mechanics

Revising

Changing Word choice

Clarify Message

Revise Order

Editing

Revise Order

Focus on Mechanics

Peer Editing

Publishing

Final Format

Prepare for Presentation

Share with others

Feedback & Review

[1] https://www.education.vic.gov.au/school/teachers/teachingresources/discipline/english/literacy/writing/Pages/litfocuswritingprocess.aspx

alternative pens

voice typing

word prediction

Speech recognition everywhere?

Voice typing

cognitive load
spelling tool
pre-writing & drafting

Word Prediction

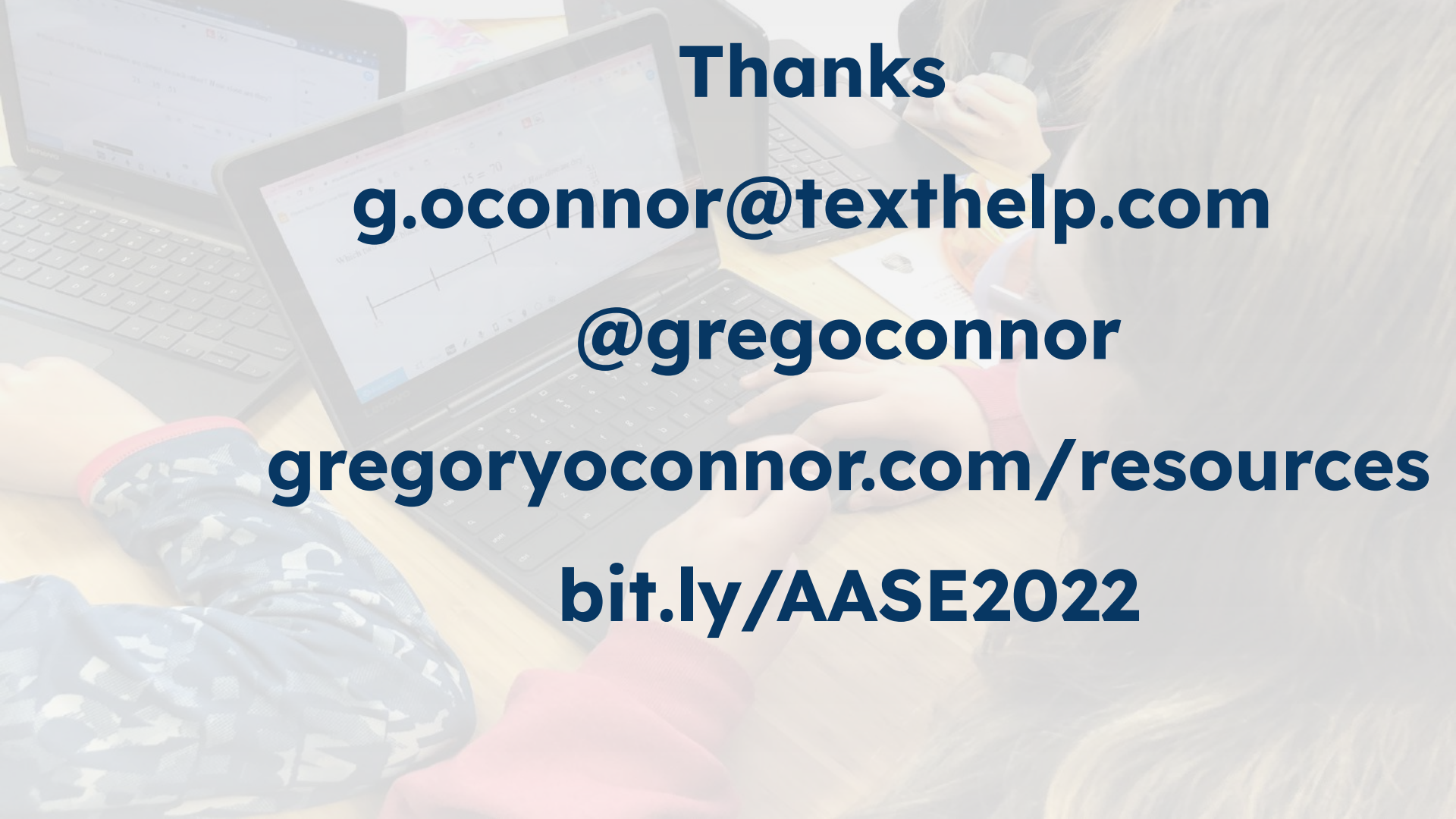
students who used word prediction use longer words, more mature words and less spelling errors

Multiple means to make maths

Our students need to be able to demonstrate maths mastery in multiple ways

#makemathdigital

Photo by Fallon Michael on Unsplash



Thanks

g.oconnor@texthelp.com

@gregoconnor

gregoryoconnor.com/resources

bit.ly/AASE2022