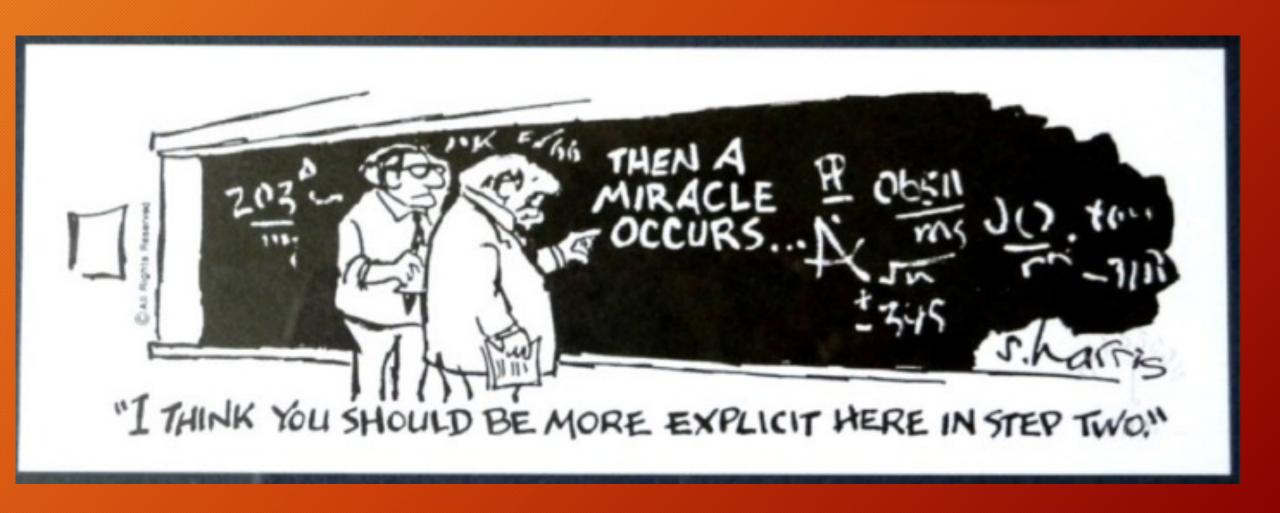
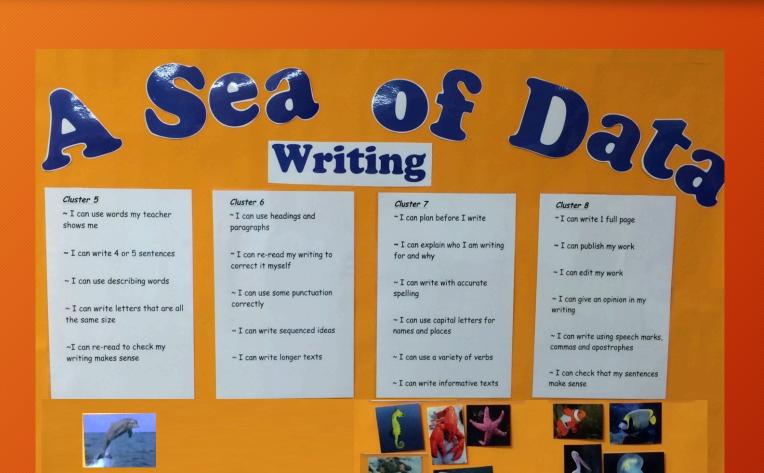
Data, Evidence and Excellence

Presentation to SACPPA conference
Pete Goss
2 June 2021

It's too easy for those outside the classroom to say that data & evidence is the answer...



... but data can be transformative





Agenda

- 1. The big picture
- 2. Using data to improve learning
- 3. Making it stick

1: The big picture

Three overarching challenges

1. Improve the teaching of the core academic subjects

Continuous improvement

+

2. Prepare young people better for a changing world

innovation

3. Reduce the wide and growing gaps between educational haves and have nots



No easy solutions

Learning progress is the key

Three axioms:

• Success comes from maximising *progress*

- By definition, stronger progress lifts *achievement*
- Targeted teaching is essential to maximise progress

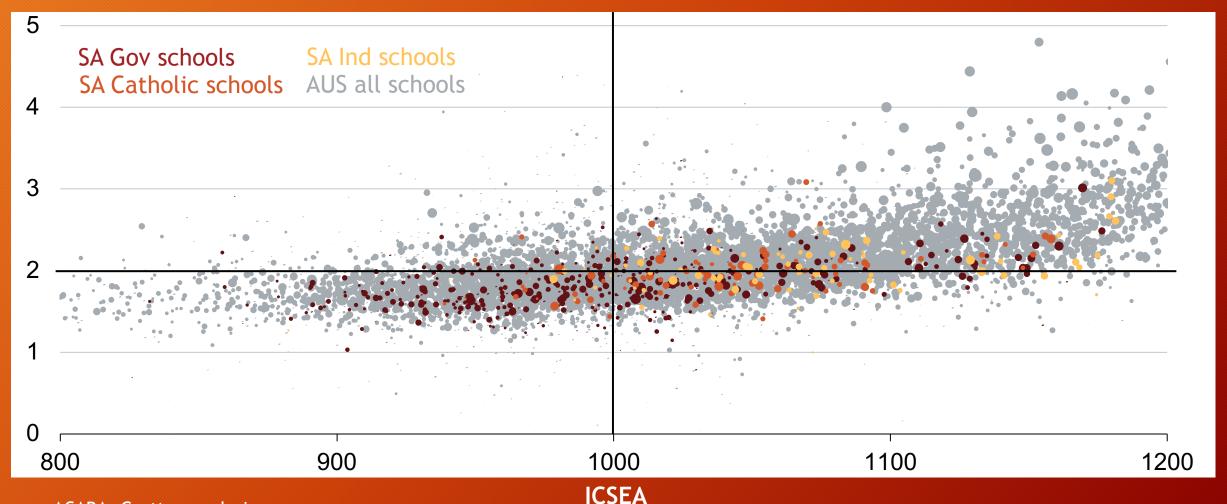
One goal:

At least one year's learning each year for every student

But the story of Australian education is variation

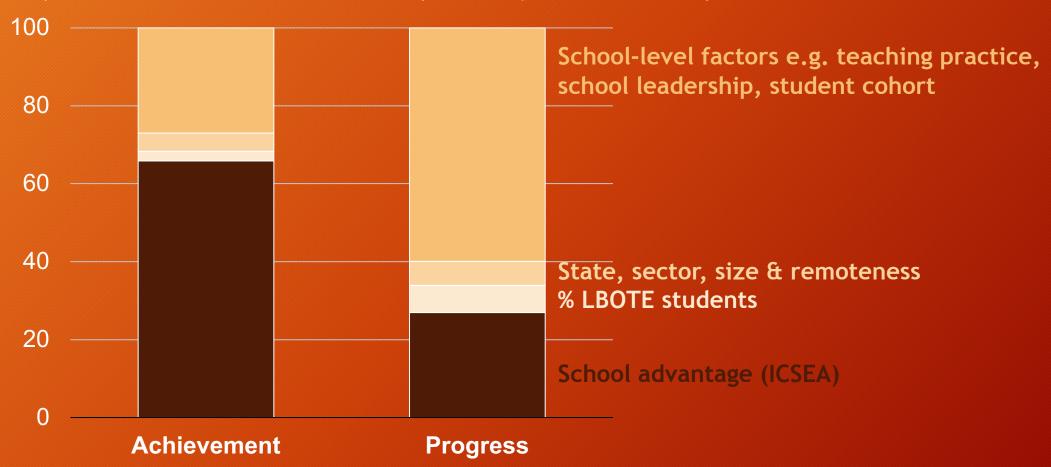
Source: ACARA, Grattan analysis.

Years of progress from Year 3 to Year 5, by school, numeracy, average across 2010-12 to 2014-16 cohorts



Do not despair. Postcode affects progress much less than achievement

Proportion of school-level variation explained by school factors, per cent



Source: Grattan Institute, Measuring Student Progress (2018), Figure B.1

Three main schools of thought on scale-up

Focus on Inputs

Focus on Outcomes

Teacher quality
Quality teaching

Curriculum redesign

Ed Tech

"What works"

School improvement

Adaptive reform

Standards and testing

Autonomy and accountability

Competition and choice

Evidence-based education

Network collaboration

Spirals of Inquiry, PLCs, etc

Focus on Learning Processes

Source: Grattan Institute, Towards an Adaptive Education System (2017)

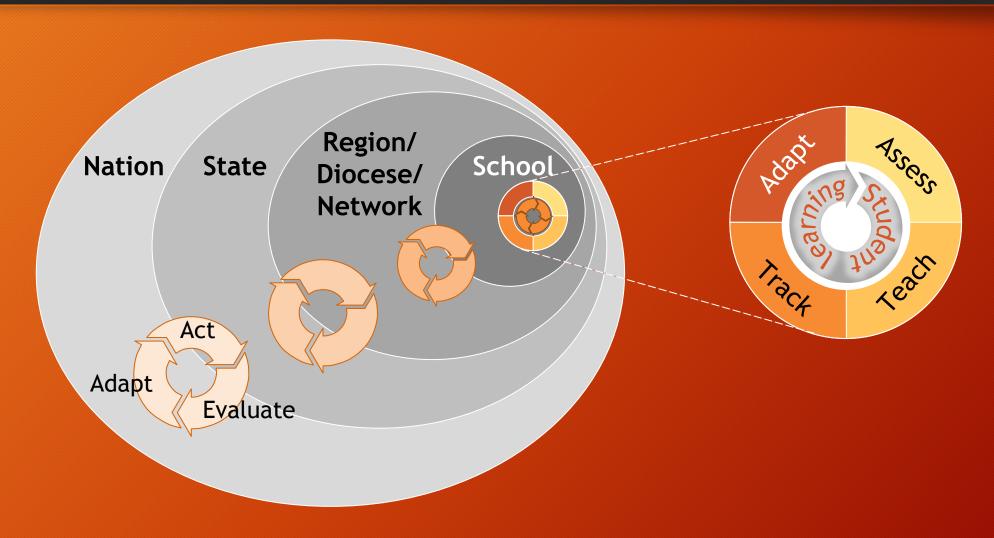
Adaptive reform incorporates all steps

Inputs Data & evidence ('Act') Where is the variation in practice? Learning **Process** ('Adapt') Where is the variation in **Outcomes** impact? ('Evaluate') Data & evidence

Data & evidence

Where is the variation in learning processes (e.g. PLC's)?

System learning must occur at multiple levels



Adaptive system improvement relies on multiple levels of capability

Adaptive improvement (i.e. good local decisions)

Central view on effective practice and desired outcomes

Regional support to spread and implement effective practice

Strong local capabilities in schools to identify and spread good teaching

Data is more rigorous

Data is more relevant

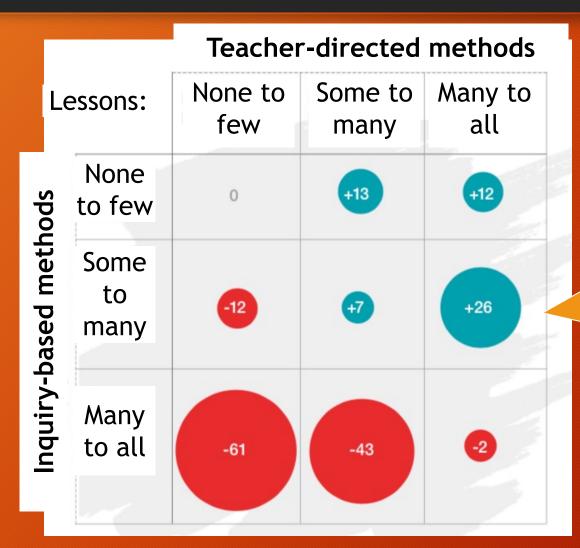
Reflection and table discussion (5 minutes)

What existing piece of data could your school make much better use of?

If you had a magic wand, what piece of data would you want to have for every student, teacher or school?

2: Using data to improve learning

Big data is powerful



PISA 2015 Science:



Average score increase

Or decrease

"Sweet spot": teacherdirected learning in most to all classes, inquiry-based learning in some

... but small data drives learning







Year 4 students

Year 3 students

Year 2 students

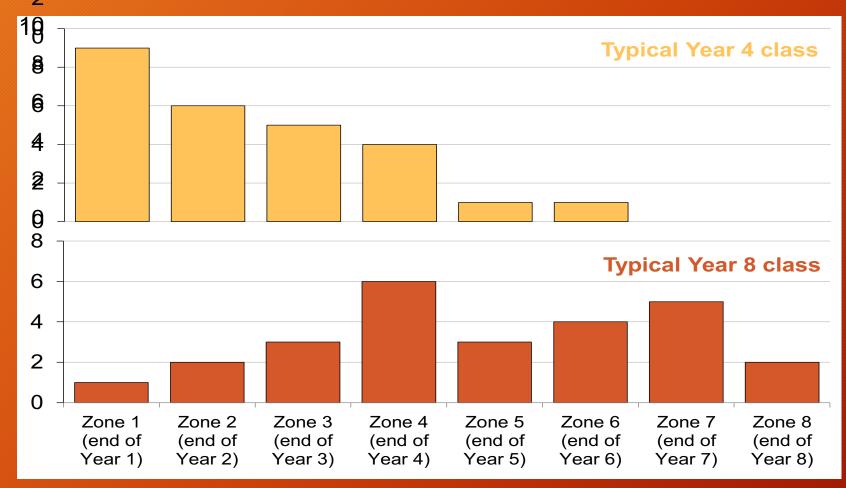
Year 1 students

Prep students

Source: Grattan Institute, *Targeted teaching* (2015)

There is a huge spread of achievement in our classrooms

Number of students in a typical class at different achievement levels



Source: Grattan Institute, Targeted teaching (2015)

Yet learning needs are individual

"If I had to reduce all of educational psychology to just one principle, I would say this: The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly."

- David Paul Ausubel, American Psychologist, 1968

Practice has not caught up to theory & policy

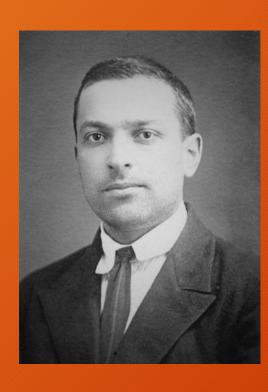
Theory



Policy



Practice









Targeted teaching is a feedback loop

4. Adapt our teaching practices to improve next time round

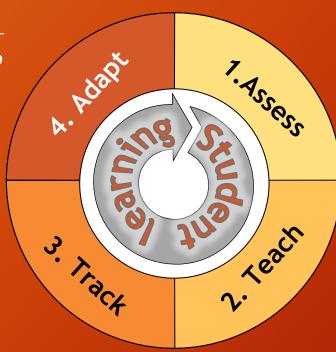
Analyse *progress* and outcome data to select and refine teaching practice:

- Keep doing what works best
- Improve or stop what doesn't

3. Rigorously track the progress of all our students

Monitor *progress* of every student to:

- Re-assess their understanding
- Analyse progress vs learning goals
- Support any student who is stalled
- Provide individualised feedback



1. Assess what each of our students knows already

Identify a *baseline* for every student on an agreed learning progression to:

- Assess current understanding
- Agree appropriate learning goals
 - 2. Target teaching to meet each student's learning needs

Use current achievement data to:

- Plan how to cover the next topic
- Target teaching to address what each student is ready to learn next
- Refine teaching using frequent formative assessment

Targeted teaching has two timescales

1. Daily targeted teaching

Focus: how to teach the next lesson/unit

Example questions:

- What do students know now?
- What do they need to learn next?
- Has any student stalled? And if so, what should we do to support them?



2. Improve future teaching practice

Focus: effectiveness of teaching practice

Example questions:

- How much did students learn?
- What teaching practices were linked with stronger (or weaker) student progress?
- What should we do differently next time?

Builds collective teacher efficacy



Bright Vale: the NSW literacy continuum



Prior to school

End of prep

End of Year 1

Reading

Involves recognising words automatically, reading in a phrased and fluent way and navigating texts to create meaning.

"Texts" include oral, aural, written, visual, electronic and multimodal texts. Recognises own name Engages in shared reading of familiar texts with repeated language

Spends time looking at books and other print material

Tells a story based on pictures or names pictures

Attempts to read words in the environment

Cluster

Reads one or two words in environmental print/texts

Reads some words in a sentence correctly.

Holds a book the right

way up

Differentiates between writing and pictures

Points to words using one-to-one correspondence when 'reading

Cluster 3

Reads one or more sentences correctly in environmental print/texts

Reads one or more sentences correctly in a simple book

Uses context to predict meaning in texts and supplement decoding attempts

Reads words using known letter/sound relationships

Cluster 4

Reads all or most of a more challenging story

Maintains fluency when reading texts with varied and irregular text and image placement

book

Pauses or hesitates when meaning is disrupted when reading

Reads aloud with increasingly appropriate pitch, intonation and fluency

ster 5

Reads texts with varied sentence patterns and several lines of text per page.

Demonstrates increased fluency by recognising and decoding words automatically when reading familiar texts.

Recognises when meaning is disrupted and attempts to selfcorrect when reading.

Reads fluently and accurately with attention to punctuation.

Cluster 6

Understands that pathways for reading literary and factual, print and screen texts can be navigated in different ways.

Self-corrects when meaning is disrupted, e.g. by pausing, repeating words and phrases, rereading and reading on.

Reads aloud with fluency and phrasing, adjusting pace, volume, pitch and pronunciation to enhance meaning and expression (RR level 16–18).

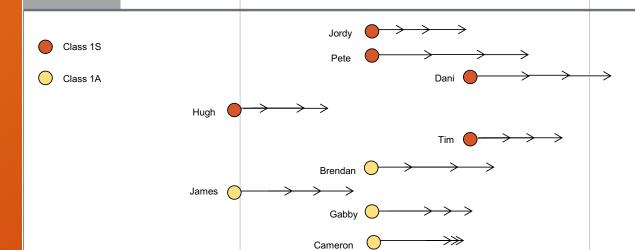
Cluster :

Understands text features such as illustrations, diagrams, tables, maps and graphs to enhance meaning

Automatically integrates a range of information, e.g. meaning, grammar and letter/sound relationships to read in a phrased and fluent way.

Knows that literary, factual and screen texts need to be 'read' in differing ways.

Responds to punctuation and adjusts expression to enhance meaning when reading aloud.



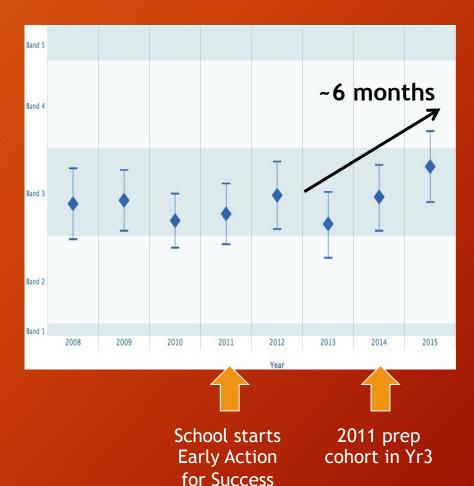
Bright Vale - NAPLAN results

Year 3 Reading



School starts Early Action for Success 2011 prep cohort in Yr3

Year 3 Numeracy



System support for Bright Vale

Dep't requirements

- Use literacy and numeracy continuums to assess learning
- Plot every student's progress every 5 weeks; report data to DEC every 10 weeks
- Use specified pedagogical approaches e.g. Targeted Early Numeracy (TEN)

Changing context changes behaviour

Dep't support

- Instructional leaders
- Funding for training
- Additional funding for intensive targeted interventions for struggling students

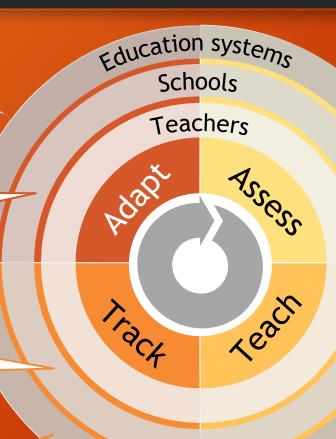
School and system support is vital

Systems to capture & spread best practice

Culture of continuous improvement

Ability to track student progress over time

Learning progressions linked to curriculum



Assessments linked to teaching resources

Common formative assessment tasks

Timetable enables regular discussions between teachers

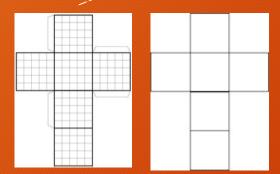
Expert support and instructional coaches

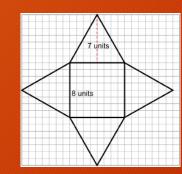
Data isn't always the answer: Big Sky College - middle years mathematics

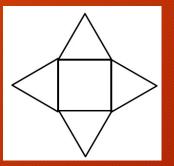
Fortnightly schedule -four fifty-minute maths periods per week

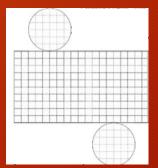
	Lesson 1	Lesson 2	Lesson 3	Lesson 4
Week 1	Scaffolding numeracy	Differentiated lesson	Differentiated lesson	Reciprocal teaching
Week 2	Scaffolding numeracy	Differentiated lesson	Differentiated lesson	ICT

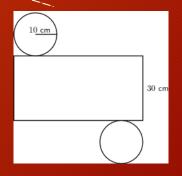
Each differentiated lesson uses pre-prepared materials that cover ~6 grade levels











Some other tips and tricks

	Who?	What?	How might it help you?
Build your own learning continua	Start-From-Scratch Primary* (Vic)	Spend two years creating literacy and numeracy continua 'to build ownership'	Use what is already there then make it your own
"The Toby test"	Camberwell South Primary (Vic)	Grade a pre-moderated piece of writing across whole primary school	Value of collective teacher judgement
Maths Assessment Interview	St Aspire* (NSW)	1-on-1 tests at the start of a year - using all the educators at hand	Share the data load
Dedicated writing classes	Samford State School (Qld)	Rearrange the timetable to get a 5:1 teacher ratio once per week	Personalised attention without 'data' per se
On-demand tests	Big Sky College* (Vic)	Cross-check their analysis of student progress against a standardized test	Confirm where to focus
Tell them from me survey	NSW Department	Link outcomes to teaching practice as perceived by students	Close the feedback loop
"Show me how you taught that"	Ballarat Clarendon College (Vic)	Item analysis of common assessment tasks THEN immediate playback	Close the feedback loop

^{*} Names changed

Reflection and table discussion (5 minutes)

What recent improvement effort has been the most successful in your school?

How did practice, outcomes, or learning change?

3: Making it stick

Improvement is a journey, not a destination



Each cycle should build teacher capability and improve student outcomes

Each successful cycle builds professional responsibility and makes jobs easier

Over time, success builds the adaptive capacity of your whole school

Choosing strategically

Identifying a high-potential area to focus on:

- Are we performing better/worse than expected?
- Are we adding more value than we used to?
- Is there high variation in practice?
- Are we using evidence-based practice?
- Is there high variation in outcomes?

Goal is to maximise near-term impact on student learning

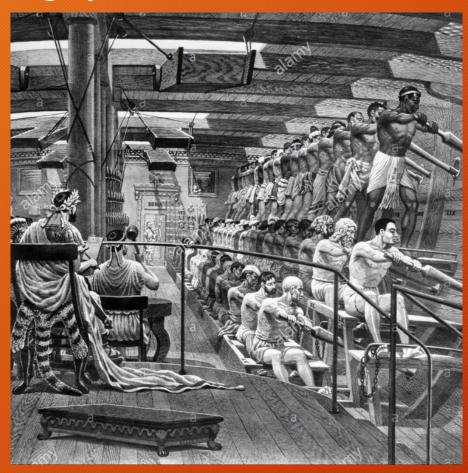
Identifying a good strategic choice:

- Is it big enough to care?
- Can we robustly measure our impact?
- Are teachers open to change in this area?
- Could a change make teachers jobs easier?
- Can we access deep expertise in this area?

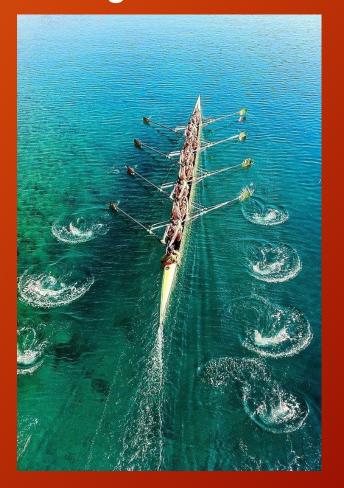
Goal is to get key staff to experience the journey of continuous improvement by design, and build professional responsibility

High-potential versus strategic choices

High potential:

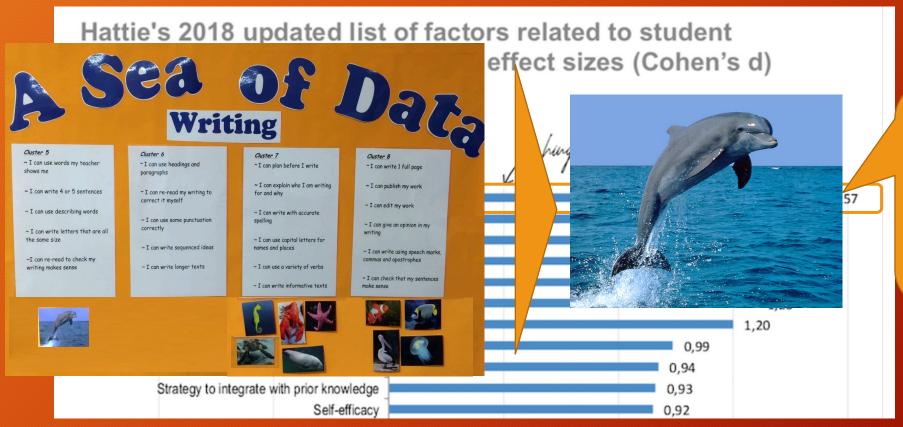


Strategic:



What I would measure with my magic wand: collective teacher efficacy

Collective Teacher Efficacy is the collective belief of teachers in their ability to positively affect students.



Bright Vale teachers:

"For the first time ever we can measure our impact on our students"

"We feel more accountable...
to our students, their
parents, and each other"

Source: www.visible-learning.org

Building collective teacher efficacy

Collective efficacy is easy to sell: "When teachers believe, students achieve"

But *beliefs* in collective abilities are not sufficient



Collective efficacy: toward a new narrative of its development and role in achievement

T.J. Hoogsteen¹*



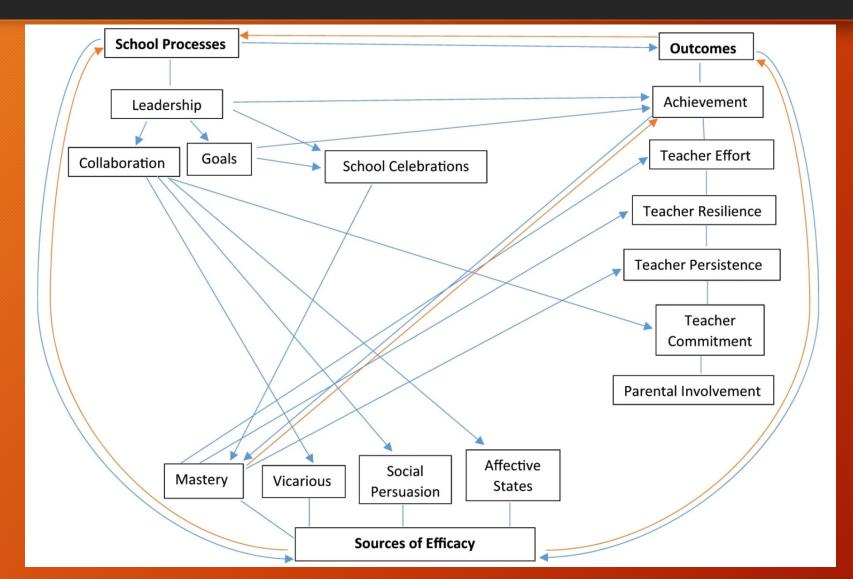
Mastery experiences (engaging in the work)

Vicarious experiences (seeing others)

Social persuasion (shared conviction)

Affective states ('emotional tone of the organisation')

It's not about 'building collective efficacy'; do the right things and reap the benefit



Source: Hoogsteen (2020) Figure 2

Goal setting + Collaboration + Goal monitoring + Celebration = Mastery = Collective efficacy

Reflection and table discussion (5 minutes)

How is the collective efficacy in your school?

Be honest! What is your evidence?

- Low? Tread gently
- Medium? Share vicarious experience
- High? Hit the gas!

Given this, is your current focus around data the best strategic choice?

Questions