Visible Learning,

Tomorrow's Schools,

The Mindsets

that make the difference

in Education

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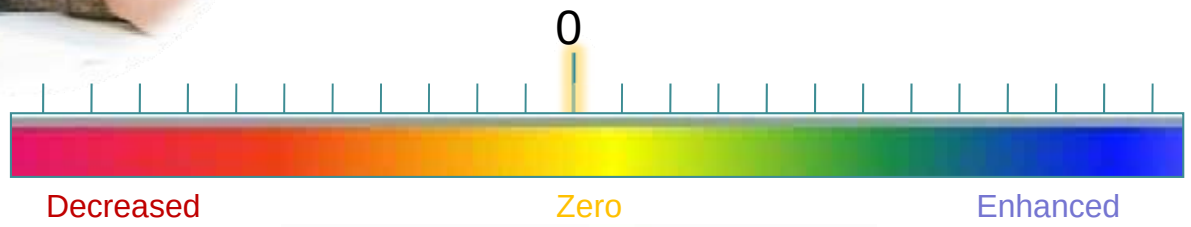
Influences on Achievement ?



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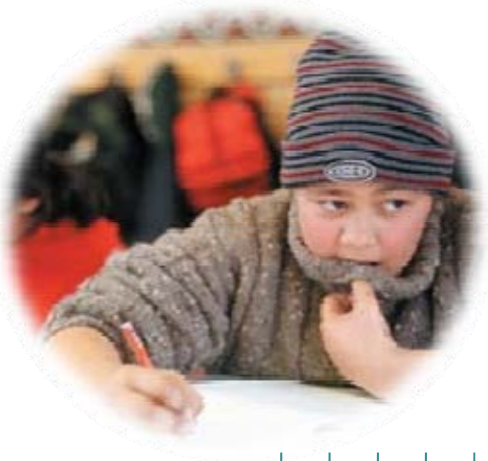
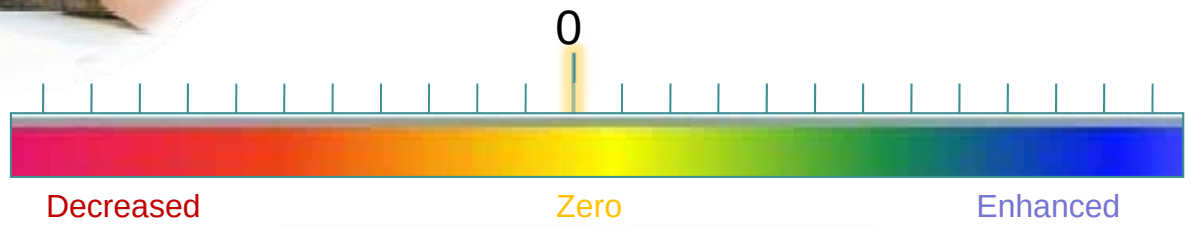
Reducing Class Size on Achievement?



What is the effect of reducing class size

Hundreds of evaluations of reducing class size ….



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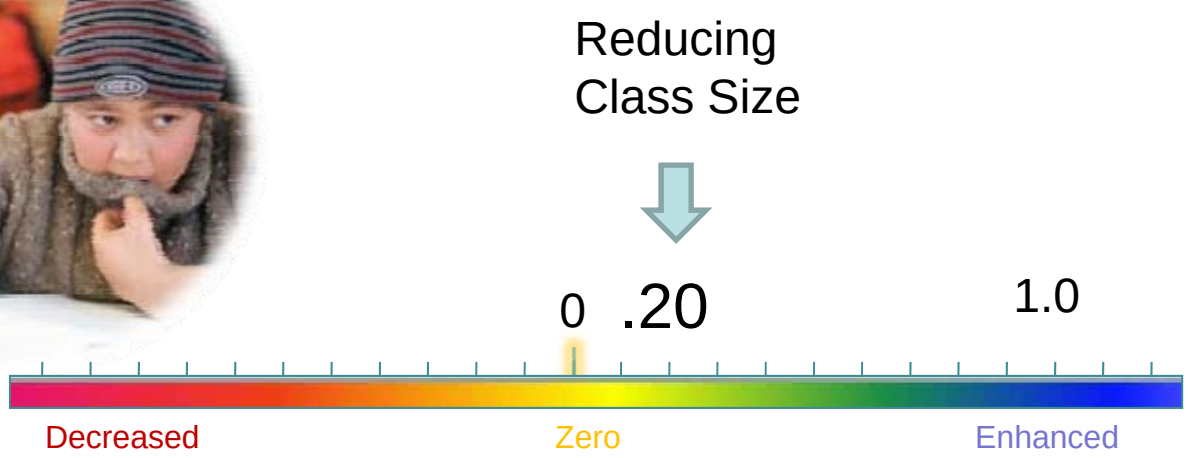
Effect on Achievement over time?



An effect-size of	.20	1.0
advancing achievement	9 mths	3 yrs
% improving rate of learning	10%	45%
r variable & achievement	.10	.45
% of students with treatment exceeding those not treated	8	34

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The typical influence on achievement

So what is the typical effect across

- **800+ meta-analysis**
- **50,000 studies, and**
- **200+ million students**

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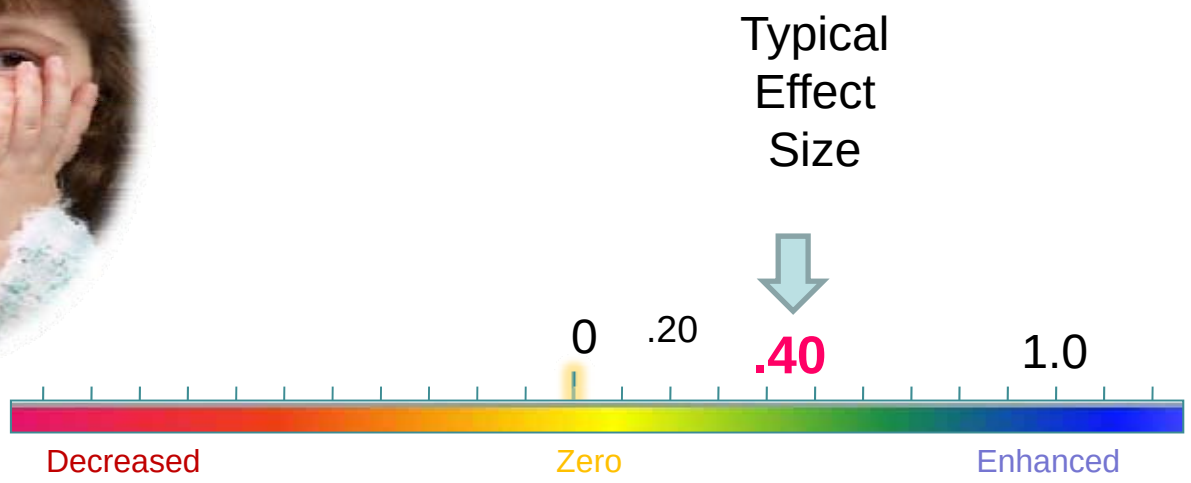
Effect on Achievement over time?



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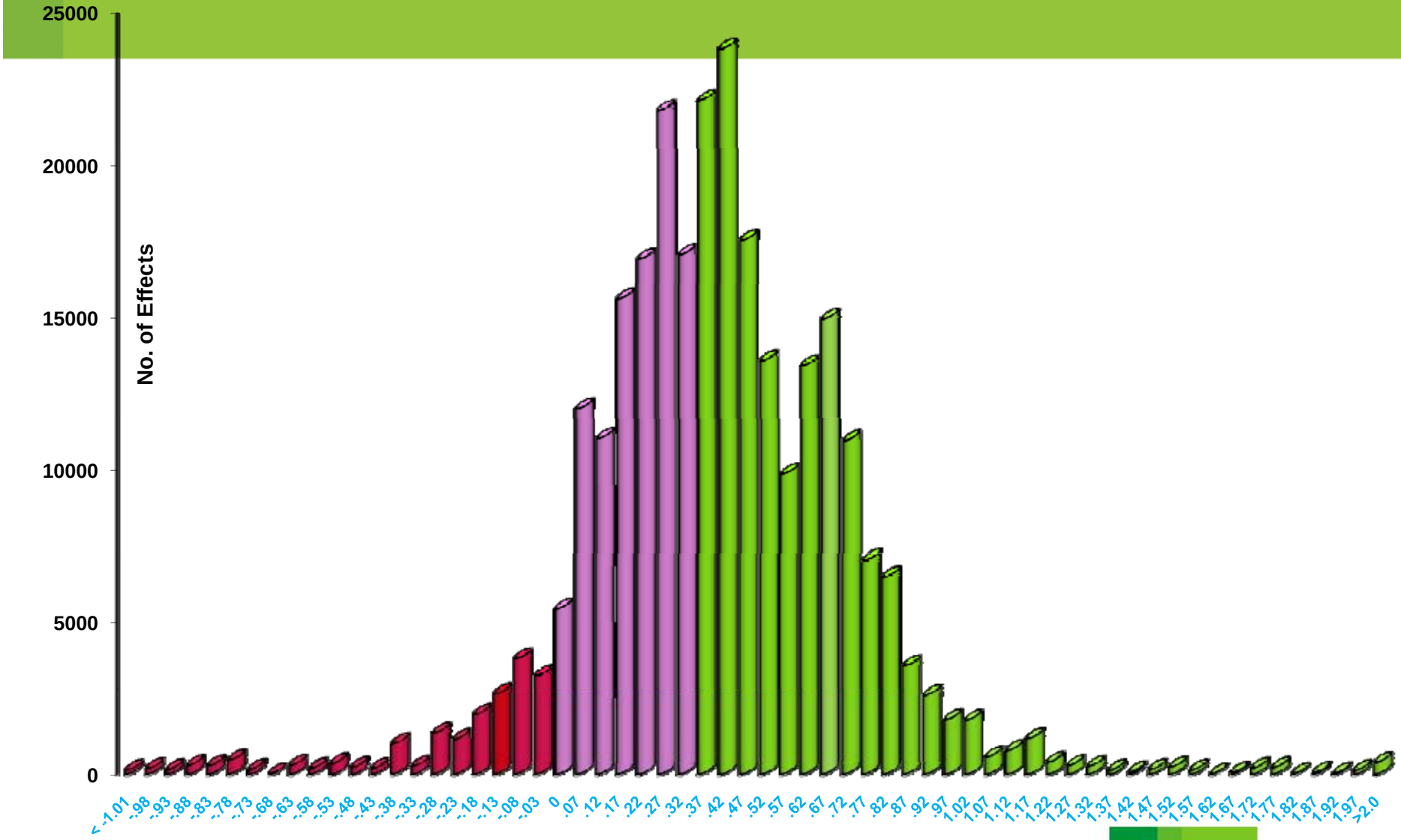
Distribution of effects



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Rank these 12 effects: Answers

1 Acceleration (speed up a year)
2 Feedback
3 Student-teacher relationships
4 Teaching study skills
5 Reading Recovery
6 Cooperative learning
7 Homework
8 Individualized instruction
9 Ability grouping
10 Open vs. traditional classes
11 Retention (hold back a year)
12 Shifting schools

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Rank these 12 effects: Answers

1	Acceleration (speed up a year)	.88
2	Feedback	.73
3	Student-teacher relationships	.72
4	Teaching study skills	.59
5	Reading Recovery	.50
6	Cooperative learning	.41
7	Homework	.29
8	Individualized instruction	.22
9	Ability grouping	.12
10	Open vs. traditional classes	.01
11	Retention (hold back a year)	-.16
12	Shifting schools	-.34

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The Disasters ...

Rank	Influence	Studies	Effects	ES
130	College halls of residence	10	23	.05
131	Multi-grade/age classes	94	72	.04
132	Student control over learning	65	38	.04
133	Open vs. Traditional	315	333	.01
134	Summer vacation	39	62	-.09
135	On Welfare Policies	8	8	-.12
136	Retention	207	2675	-.16
137	Television	37	540	-.18
138	Mobility	181	540	-.34

The Disasters ...

Rank	Influence	Studies	Effects	ES
120	Mentoring	74	74	.15
121	Teacher education	85	391	.12
122	Ability grouping	500	1369	.12
123	Gender	2926	6051	.12
124	Diet	23	125	.12
125	Teacher subject matter knowledge	92	424	.09
126	Distance Education	839	1643	.09
127	Out of school curricula experiences	52	50	.09
128	Perceptual-Motor programs	180	637	.08
129	Whole language	64	197	.06

The Disasters ...

Rank	Influence	Studies	Effects	ES
110	Learning hierarchies	24	24	.19
111	Co- Team teaching	136	47	.19
112	Web based learning	45.3	136	.18
113	Family structure	845	1733	.17
114	Extra-curricula Programs	102	68	.17
115	Teacher Immediacy	16	16	.16
116	Within class grouping	129	181	.16
116	Home-school programs	14	14	.16
118	Problem based learning	285	546	.15
119	Sentence Combining programs	35	40	.15

Not Worth it yet ...

Rank	Influence	Studies	Effects	ES
100	Finances	189	681	.23
101	Illness (Lack of)	13	13	.23
101	Religious Schools	71	71	.23
103	Individualized instruction	638	1185	.22
104	Visual/Audio-visual methods	359	231	.22
105	Comprehensive Teaching Reforms	282	1818	.22
106	Class size	96	785	.21
107	Charter Schools	18	18	.20
108	Aptitude/treatment interactions	61	340	.19
109	Personality	234	1481	.19

Typical “average teacher” territory ...

Rank	Influence	Studies	Effects	ES
90	Exercise/Relaxation programs	227	1971	.28
91	Desegregation	335	723	.28
92	Mainstreaming	150	370	.28
93	Teaching test taking & coaching	275	372	.27
94	Use of calculators	222	1083	.27
95	Values/Moral Education Programs	84	97	.24
96	Competitive vs. individualistic learning	831	203	.24
96	Special College Programs	108	108	.24
98	Programmed instruction	493	391	.23
99	Summer school	105	600	.23

Typical “average teacher” territory …

Rank	Influence	Studies	Effects	ES
80	Decreasing disruptive behavior	165	416	.34
81	Drugs	467	1839	.33
82	Simulations	361	482	.33
83	Inductive teaching	97	103	.33
84	Ethnicity	9	9	.32
85	Teacher effects	18	18	.32
86	Inquiry based teaching	205	420	.31
87	Ability grouping for gifted students	125	202	.30
88	Homework	161	295	.29
89	Home visiting	71	52	.29

Closer to Average …

Rank	Influence	Studies	Effects	ES
70	Time on Task	100	136	.38
71	Computer assisted instruction	4899	8914	.37
72	Adjunct aids	73	258	.37
73	Bilingual Programs	128	727	.37
74	Principals/ School leaders	491	1257	.36
75	Attitude to Mathematics/Science	288	664	.36
76	Exposure to Reading	114	293	.36
77	Drama/Arts Programs	715	728	.35
78	Creativity	21	447	.35
79	Frequent/ Effects of testing	569	1749	.34

Average

Rank	Influence	Studies	Effects	ES
60	Mathematics programs	706	2404	.43
61	Behavioral organizers/Adjunct questions	577	1933	.41
63	Cooperative learning	306	829	.41
64	Science	884	2592	.40
65	Social skills programs	540	2278	.40
66	Reducing anxiety	121	1097	.40
67	Integrated Curricula Programs	61	80	.39
68	Enrichment	214	543	.39
69	Career Interventions	143	243	.38

Average

Rank	Influence	Studies	Effects	ES
51	Motivation	327	979	.48
52	Early Intervention	1704	9369	.47
53	Questioning	211	271	.46
54	Pre school programs	358	1822	.45
55	Quality of Teaching	141	195	.44
56	Writing Programs	262	341	.44
57	Expectations	674	784	.43
58	School size	21	120	.43
59	Self-concept	324	2113	.43

Let's have them ....

Rank	Influence	Studies	Effects	ES
40	Keller's PIS	263	162	.53
41	Peer influences	12	122	.53
42	Classroom management	100	5	.52
43	Outdoor/ Adventure Programs	187	429	.52
44	Interactive video methods	441	3930	.52
45	Parental Involvement	716	1783	.51
46	Play Programs	70	70	.50
47	Second/Third chance programs	52	1395	.50
48	Small group learning	78	155	.49
49	Concentration/Persistence/ Engagement	146	587	.48

Exciting ….

Rank	Influence	Studies	Effects	ES
30	Worked examples	62	151	.57
31	Home environment	35	109	.57
32	Socioeconomic status	499	957	.57
33	Concept mapping	287	332	.57
34	Challenging Goals	604	820	.56
35	Visual-Perception programs	683	5035	.55
36	Peer tutoring	767	1200	.55
37	Cooperative vs. competitive learning	1024	933	.54
38	Pre-term birth weight	46	136	.54
39	Classroom cohesion	88	841	.53

Among the Winners ...

Rank	Influence	Studies	Effects	ES
20	Problem solving teaching	221	719	.61
21	Not labeling students	79	79	.61
22	Teaching strategies	5667	13572	.60
23	Cooperative vs. individualistic learning	774	284	.59
24	Study skills	668	2217	.59
25	Direct Instruction	304	597	.59
26	Tactile stimulation programs	19	103	.58
27	Phonics instruction	447	5990	.58
28	Comprehension programs	415	2653	.58
29	Mastery learning	377	296	.58

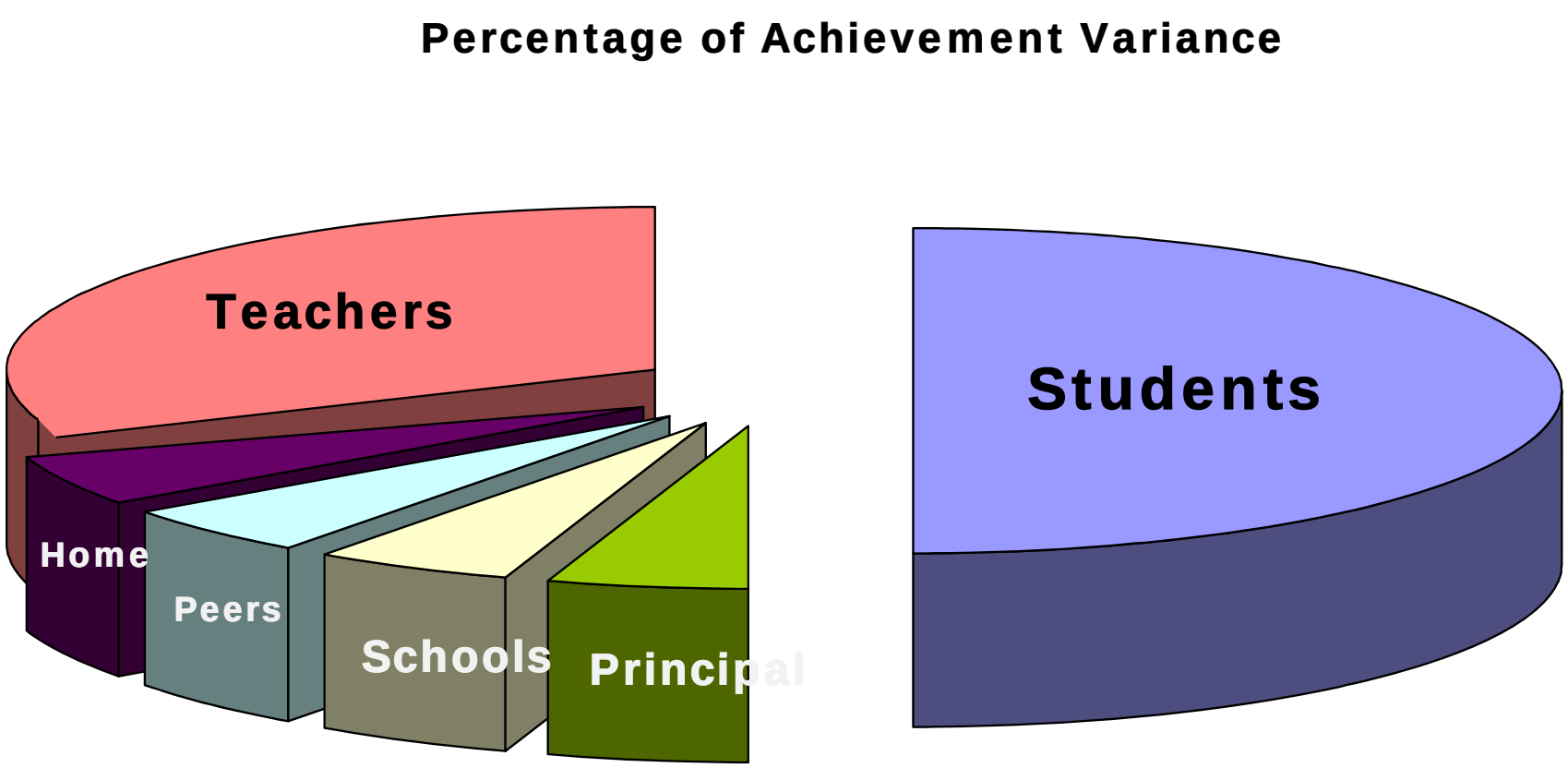
The Winners ...

Rank	Influence	Studies	Effects	ES
11	Teacher-Student relationships	229	1450	.72
12	Spaced vs. Mass Practice	63	112	.71
13	Meta-cognitive strategies	63	143	.69
14	Prior achievement	3607	9209	.67
15	Vocabulary programs	301	800	.67
16	Repeated Reading programs	54	156	.67
17	Creativity Programs	685	837	.65
18	Self-verbalization & Self-questioning	113	1150	.64
19	Professional development	537	1884	.62

The Winners ...

Rank	Influence	Studies	Effects	ES
1	Self-reported grades	209	305	1.44
2	Piagetian programs	51	65	1.28
3	Providing formative evaluation	30	78	.90
4	Micro teaching	402	439	.88
5	Acceleration	37	24	.88
6	Classroom behavioral	160	942	.80
7	Comprehensive interventions for learning disabled students	343	2654	.77
8	Teacher clarity	na	na	.75
9	Reciprocal teaching	38	53	.74
10	Feedback	1287	2050	.73

Identifying what matters



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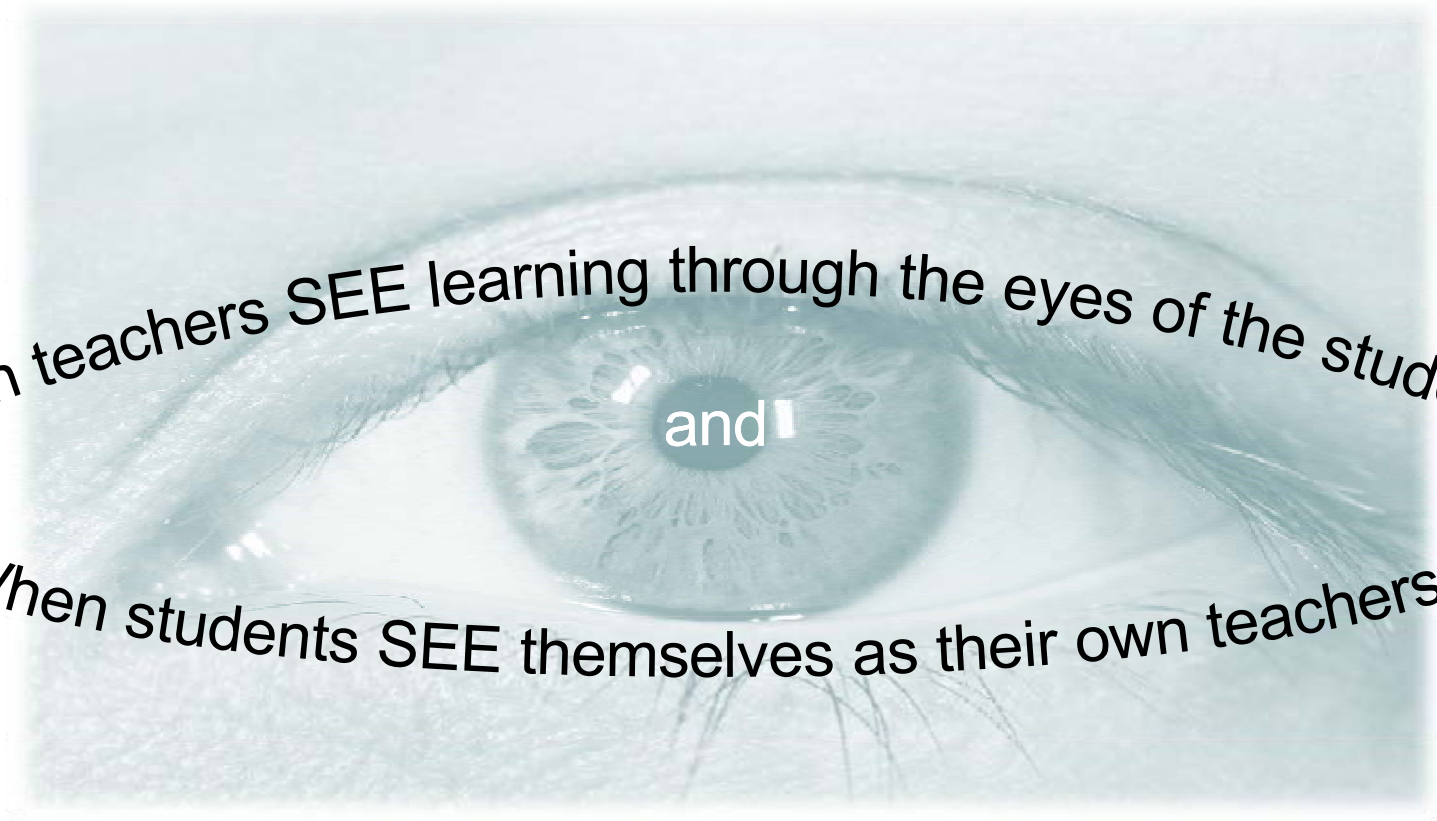
Visible Teaching – Visible Learning



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MINDSETS – 1. Teachers/ Leaders as Evaluators

A disposition to asking …

- **How do I know this is working?**
- **How can I compare 'this' with 'that'?**
- **What is the merit and worth of this influence on learning?**
- **What is the magnitude of the effect?**
- **What evidence would convince you that you are wrong?**
- **Where is the evidence that shows this is superior to other programs?**
- **Where have you seen this practice installed so that it produces effective results?**
- **Do I share a common conception of progress?**

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The use of Effect-sizes

$$\text{Effect-size} = \frac{\text{Average}_{\text{post}} - \text{Average}_{\text{pre}}}{\text{spread (sd)}}$$

or

$$\text{Effect-size} = \frac{\text{Average}_{\text{class1}} - \text{Average}_{\text{class 2}}}{\text{spread (sd)}}$$

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2. It's about the teacher's/leaders mindset, not the kids!

Don't blame the kids

Social class/ prior achievement is surmountable

All students can be challenged

Strategies not styles

Develop high student expectations

Enhance help seeking

Develop assessment capable students

The power of developing peer interactions

The power of critique/error/feedback

Self-regulations and seeing students as teachers

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3. Teachers/Leaders as change agents

Achievement is changeable and enhanceable vs. immutable and fixed

Teaching as an enabler not a barrier

Engage in the total learning and
not break into steps and chunks

The Power of learning intentions

The Power of success criteria

The Contrasts

- **An active teacher, passionate for their subject and for learning, a change agent**

OR

- **A facilitative, inquiry or discovery based provider of engaging activities**

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Activator or Facilitator ?

An Activator

Reciprocal teaching

Feedback

Teaching students self-verbalization

Meta-cognition strategies

Direct Instruction

Mastery learning

Goals - challenging

Frequent/ Effects of testing

Behavioral organizers

A Facilitator

Simulations and gaming

Inquiry based teaching

Smaller class sizes

Individualized instruction

Problem-based learning

Different teaching for boys & girls

Web-based learning

Whole Language Reading

Inductive teaching

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Activator or Facilitator ?

An Activator	*ES*	*A Facilitator*	*ES*
Reciprocal teaching	.74	Simulations and gaming	.32
Feedback	.72	Inquiry based teaching	.31
Teaching students self-verbalization	.67	Smaller class sizes	.21
Meta-cognition strategies	.67	Individualized instruction	.20
Direct Instruction	.59	Problem-based learning	.15
Mastery learning	.57	Different teaching for boys & girls	.12
Goals - challenging	.56	Web-based learning	.09
Frequent/ Effects of testing	.46	Whole Language Reading	.06
Behavioral organizers	.41	Inductive teaching	.06
ACTIVATOR	***.60***	***FACILITATOR***	***.17***

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4. Teachers/Leaders gaining feedback about themselves ...

- Where am I going?
- How am I going?
- Where to next?

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5. Assessment as feedback – to teachers/leaders

- Who did you teach well, who not so well
- What did you teach well, not so well
- Where are the gaps, strengths, achieved, to be achieved
- Levels and Progress
- Developing a common conception of progress

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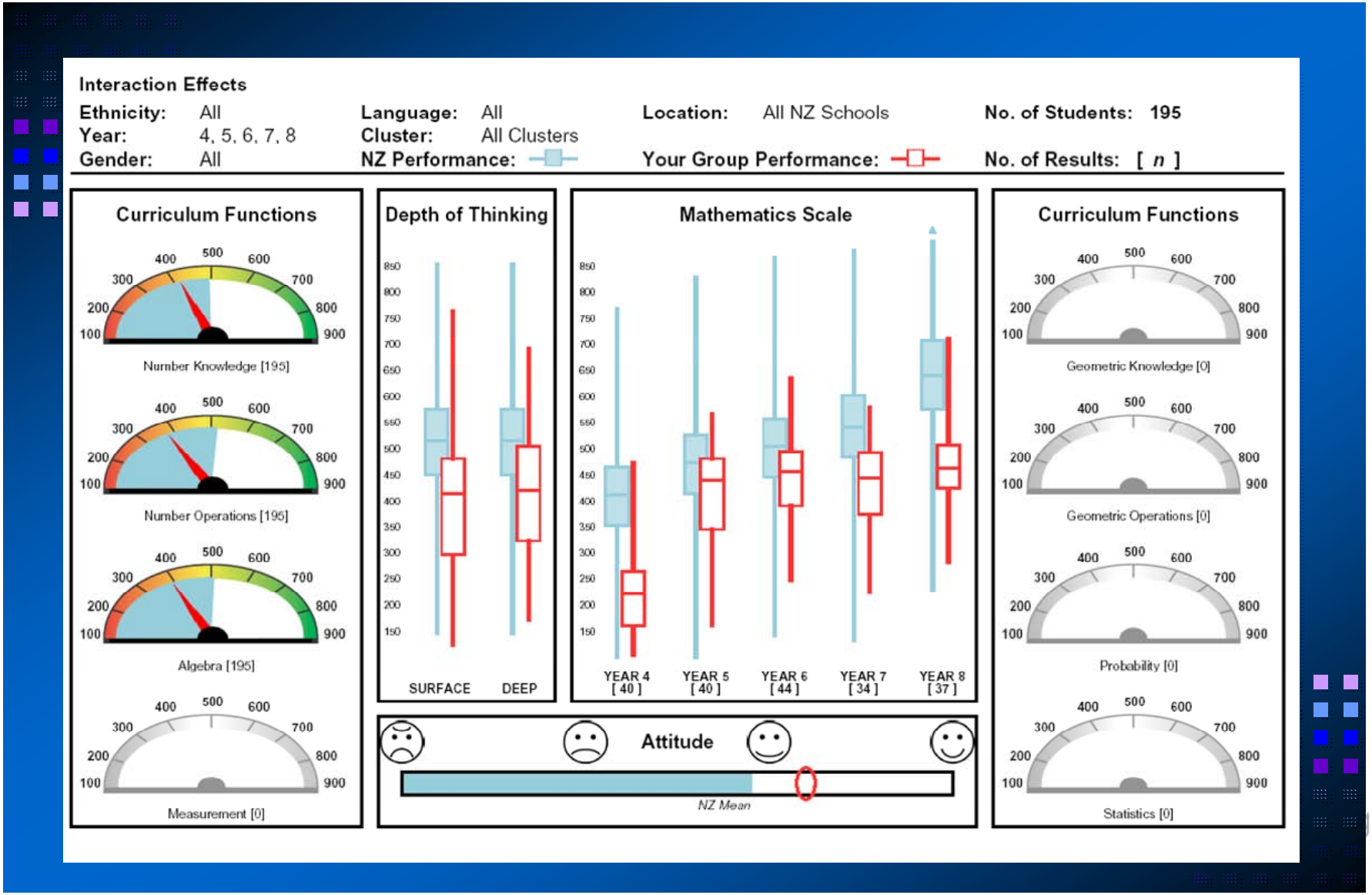
School profiles



Individual Learning Pathways

Learning Pathways Report for Test: Reading U, C, SF
Group: All Test Candidates
Student: Davis Crispeness

Date Tested: 22 October 2003

Correct

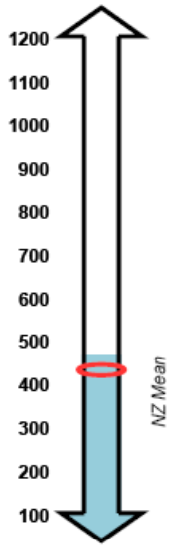
Strengths

- Make inferences: (15, 22, 33)
- Knowledge of vocabulary: (11, 20, 24, 28, 33)
- Respond using understandings & information: (11, 25)
- Skim/scan for information: (19, 25)
- Find, select, & retrieve information: (19, 25)
- Punctuation: (15, 24)
- Make links between aspects of text: (15)
- Make use of prior knowledge: (20)
- Identification and understanding of main ideas: (20)

Achieved

- Respond using understandings & information: (2, 6, 13, 21)
- Skim/scan for information: (2, 21)
- Find, select, & retrieve information: (2, 21)
- Knowledge of vocabulary: (6)
- Knowledge of semantic, syntactic, & visual grapho-phonic cues: (6)
- Identification and understanding of main ideas: (13)
- Understand & organise or sequence material: (2)

aRs Score



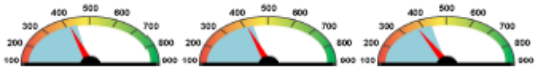
Incorrect

To Be Achieved

- Make links between verbal & visual information: (4, 5, 18)
- Respond using understandings & information: (10, 18, 23, 26, 29)
- Knowledge of poetic & figurative language: (10)
- Knowledge of vocabulary: (5, 7, 10, 31)
- Use grammatically correct structures: (7)
- Knowledge of semantic, syntactic, & visual grapho-phonic cues: (7)
- Make use of prior knowledge: (26)
- Knowledge of publishing/text conventions (e.g., Index, Contents): (26)
- Make links between aspects of text: (27, 29, 32)

Gaps

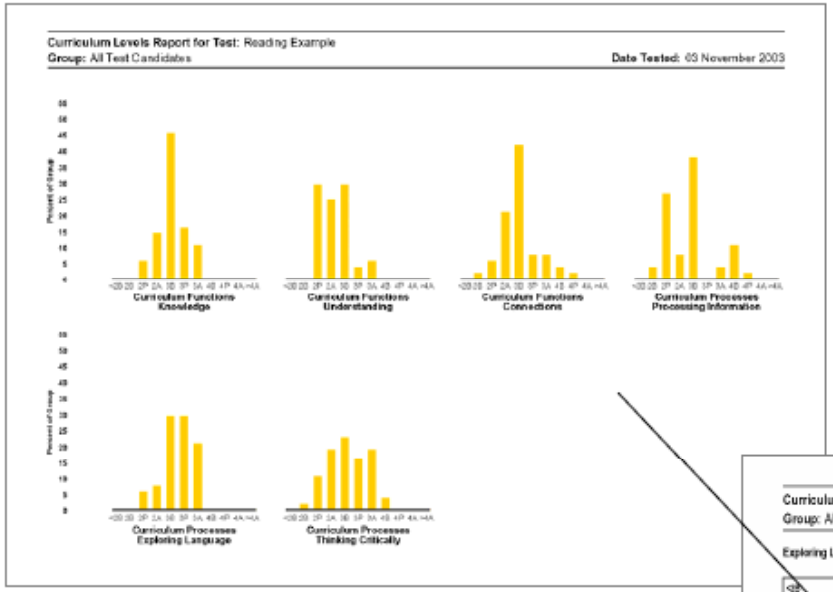
- Respond using understandings & information: (1, 8, 9, 12, 16)
- Identification and understanding of main ideas: (1)
- Find, select, & retrieve information: (1, 3, 16, 17)
- Use grammatically correct structures: (8, 9)
- Knowledge of semantic, syntactic, & visual grapho-phonic cues: (8)
- Knowledge of vocabulary: (8, 9)
- Understand & organise or sequence material: (3)
- Make inferences: (12)
- Make links between verbal & visual information: (12)



	aRs	Surface	Deep	Understanding	Connections	Grammar
This student	430	466	408	419	414	379
Level	2P	2A	2P	2P	2P	2P
Year 5 mean	462	464	446	448	438	440

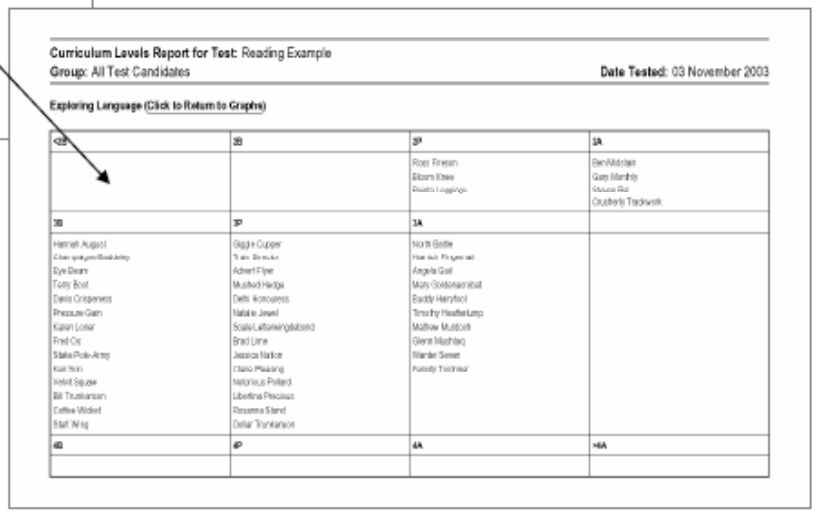
Curriculum Level Report

e-asTTle Curriculum Levels Report

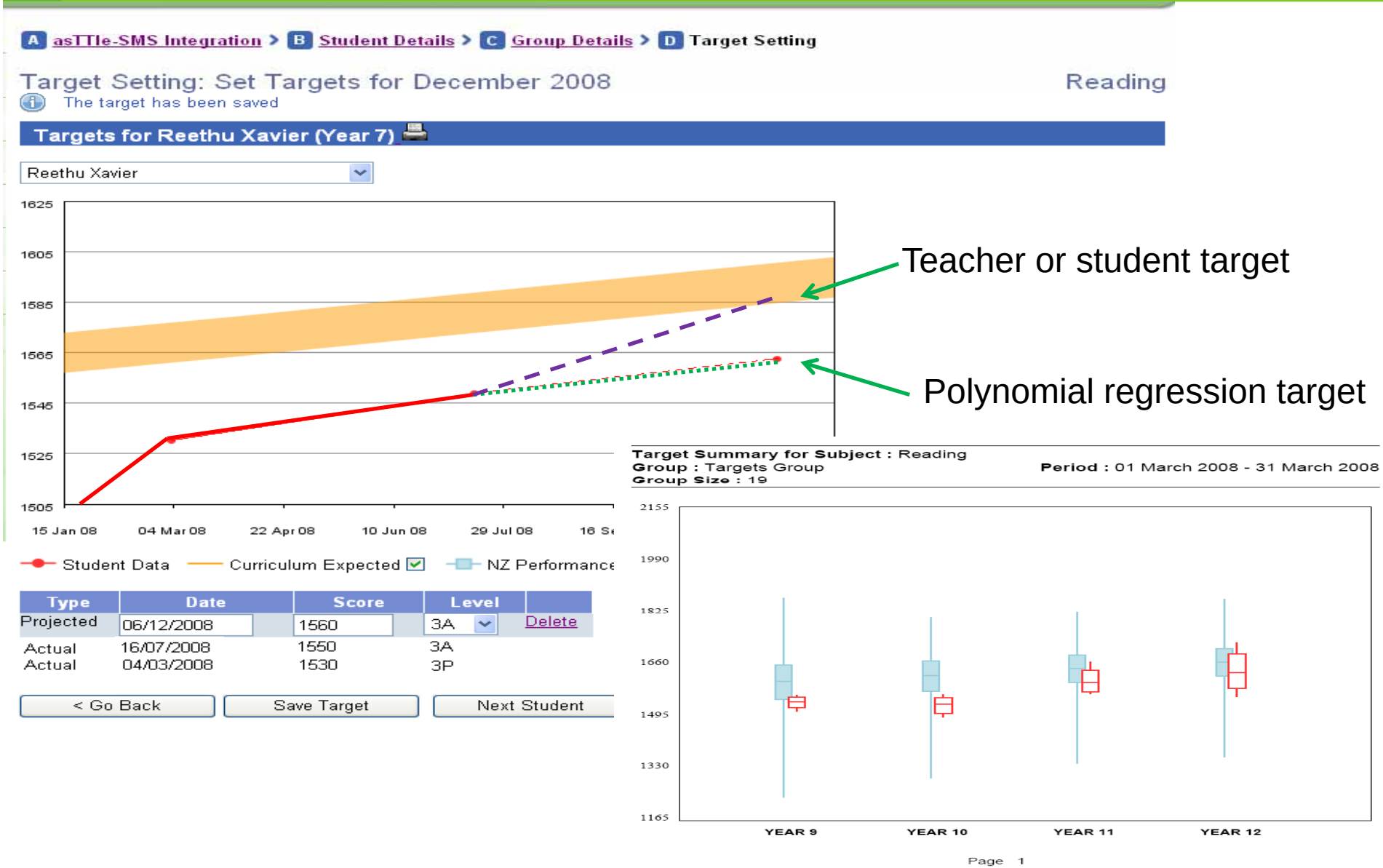


This report is designed to answer the question "Where are students relative to the targets of Curriculum Levels 2 to 6"?

This report enables teachers to monitor the effect of teaching and learning activities on student progress within levels.



Target Setting/ Expectations



6. Challenge or “Do your best”

Maintain the challenge not break it down

Power of learning intentions

Power of success criteria

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7. It's about "not knowing"/error Relationships in classrooms

The importance of error

and not knowing …

Build trust and rapport

Student more than teacher questioning

Teacher clarity, support, and What's next

Peer teaching, assessment, learning

It's more about the learning than the teaching

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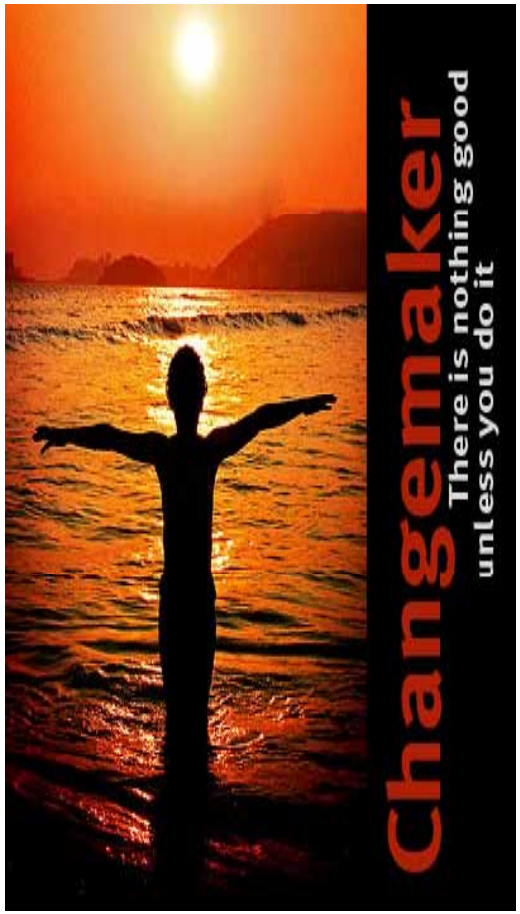
MINDSETS – 1. Teachers as Evaluators



Teachers being responsible; don't blame the kids

Teachers as Change Agents more than facilitators

Teachers gaining feedback about their effectiveness & progress

Teachers need to challenge, more than "do your best"

Teachers who welcome error, and build trust

among peers

in classrooms

Teachers who see assessment as informing them more than kids

Teachers as Evaluators (of themselves more than of students)

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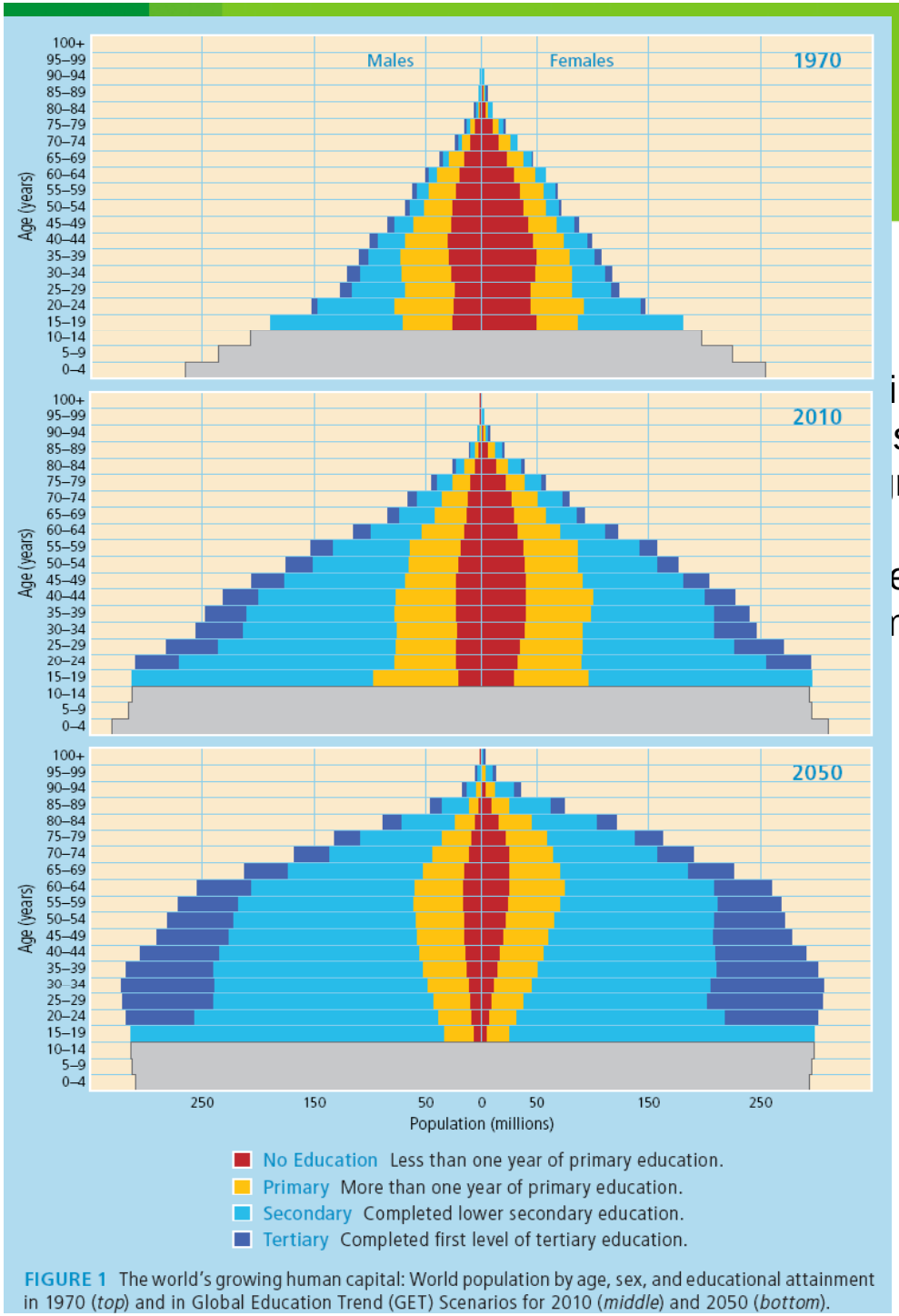

FIGURE 1 The world's growing human capital: World population by age, sex, and educational attainment in 1970 (*top*) and in Global Education Trend (GET) Scenarios for 2010 (*middle*) and 2050 (*bottom*).

ile more income leads to higher individual gains
s evidence it leads to higher economic growth at
regate level.

en age is factored in, it can seen what the longer
n implications of "more schooling"

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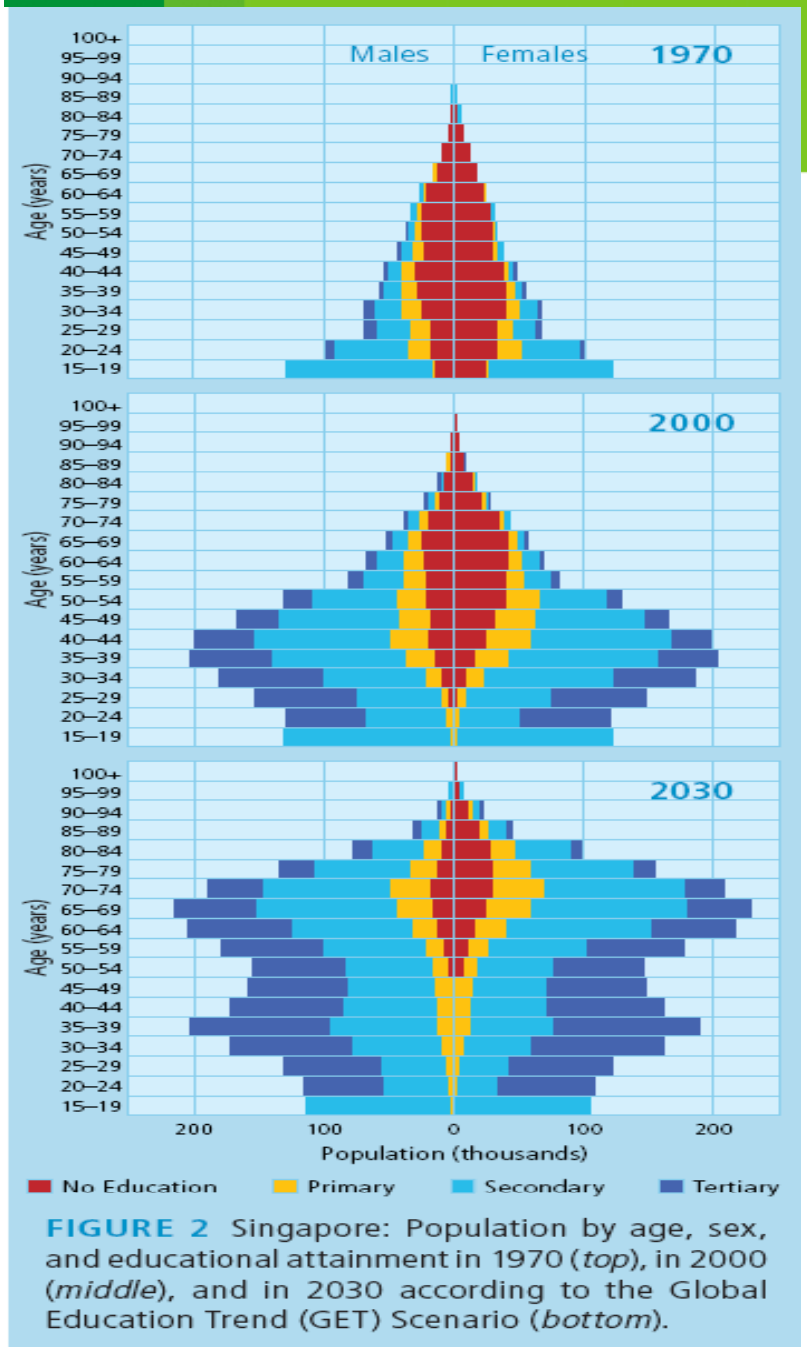

FIGURE 2 Singapore: Population by age, sex, and educational attainment in 1970 (*top*), in 2000 (*middle*), and in 2030 according to the Global Education Trend (GET) Scenario (*bottom*).

Singapore

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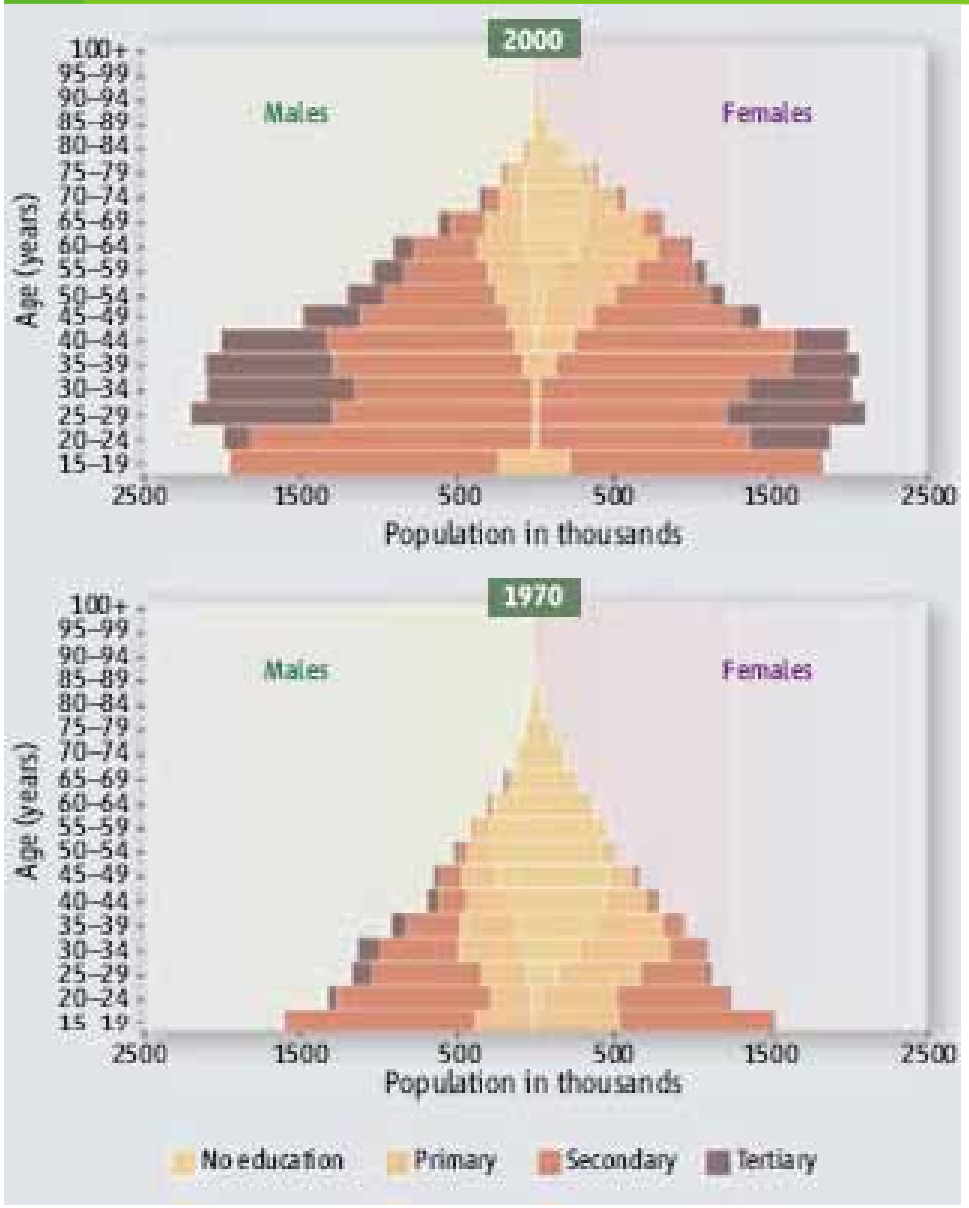

South Korea

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Pakistan under four models

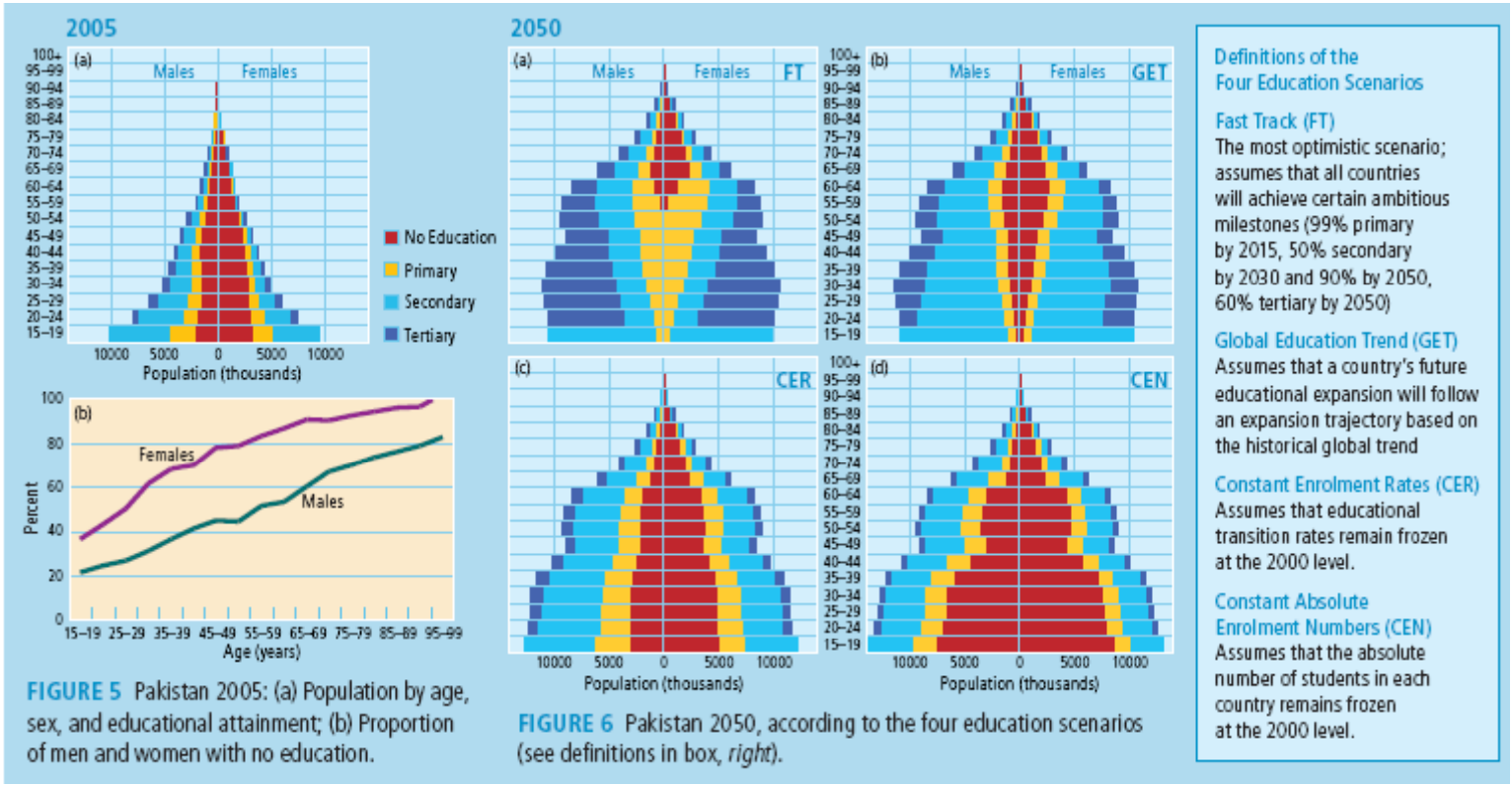

FIGURE 5 Pakistan 2005: (a) Population by age, sex, and educational attainment; (b) Proportion of men and women with no education.

FIGURE 6 Pakistan 2050, according to the four education scenarios (see definitions in box, *right*).

Fast Track – 99% primary (2015), 50% secondary (2030), 60% tertiary (2050)
Global education trend – on historical trend data
Constant Enrolment rates – assumes rates frozen at 2000 level
Constant Absolute rates – the no of students frozen at 2000 level

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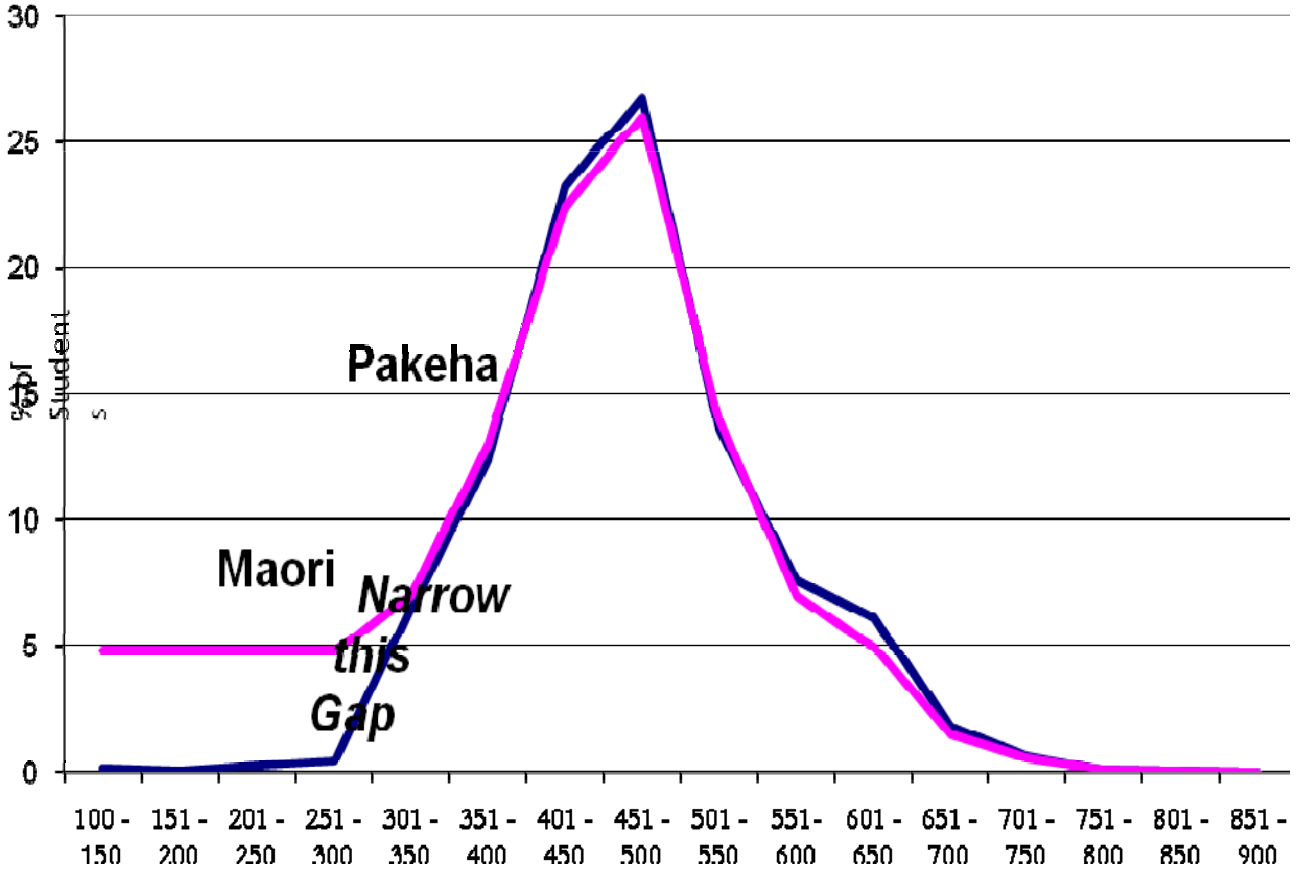
Narrow those gaps



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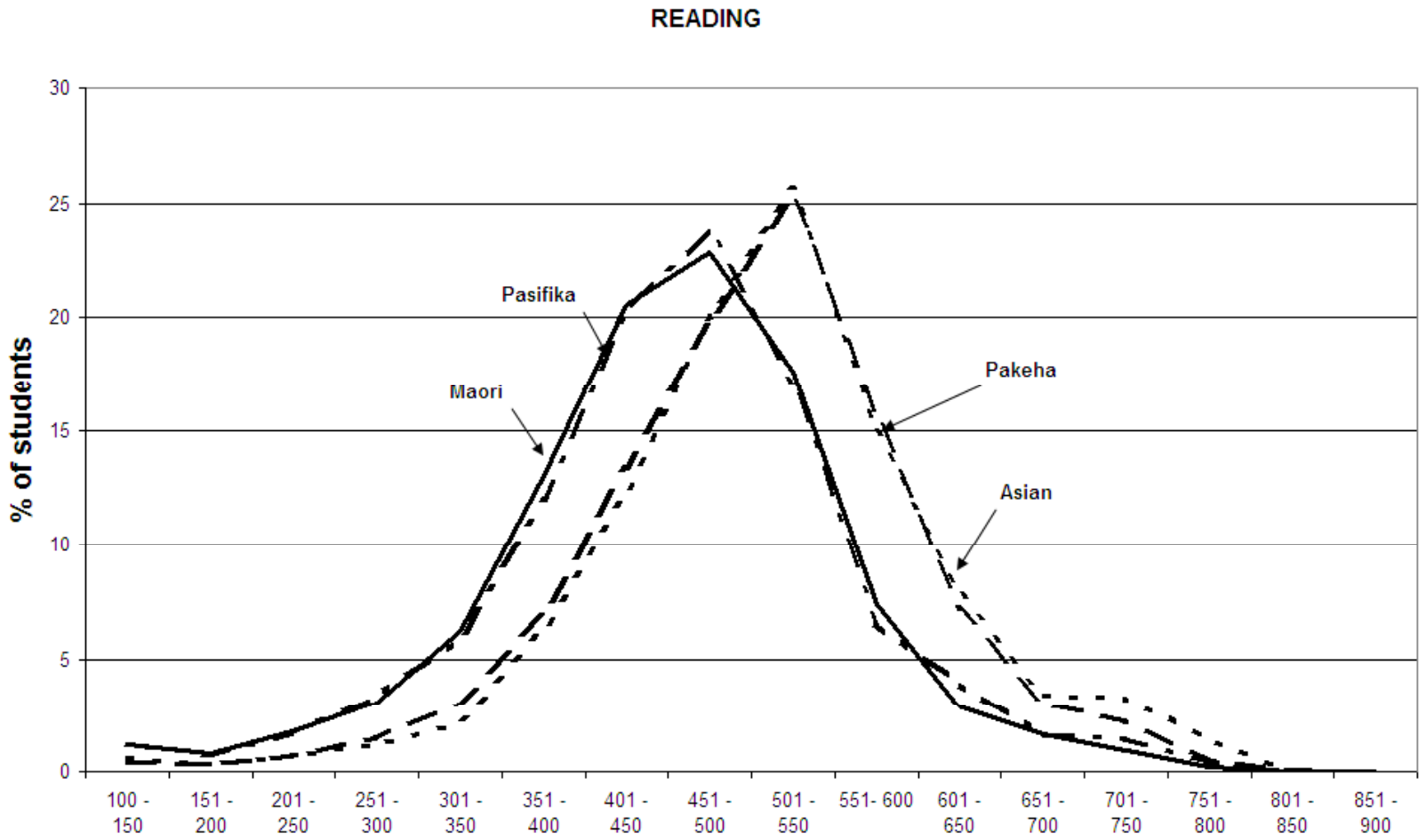
But the gap is not there ...



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Tomorrows' Schools:
Yesterday's News
The quest for a new metaphor

1. ***Adequacy more than Equity.***
2. ***There is no agency responsible for improvement.***
3. ***Schools need to become the unit of evaluation.***
4. ***The need for more independent evaluation of initiatives.***
5. ***Tomorrow's Schools is having a negative effect on the career path of teachers.***
6. ***By empowering 2800 schools to be mini-markets, there is much wastage.***
7. ***Schools need to stop competing with each other.***
8. *The effects on student learning have been minimal.*

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A Royal Commission, or some like process, is needed to devise a new metaphor that will

- allow different more regional/cluster models of schools to develop,
- remove even further any disparities between schools and between ethnicity achievements,
- ensure all have adequate resources and teaching to attain appropriate outcomes,
- further reduce competition between schools and allow more sharing of improvements particularly before schools are deemed to be failing,
- allow schools to become the major units of evaluation,
- create an agency responsible for evaluations of various initiatives,
- dependably assess and esteem quality teaching and teachers,
- determine optimal career paths for teachers and school leaders,
- identify and reduce wastage, and
- measure success more in terms of teaching and learning effects as well as on equity of resources.

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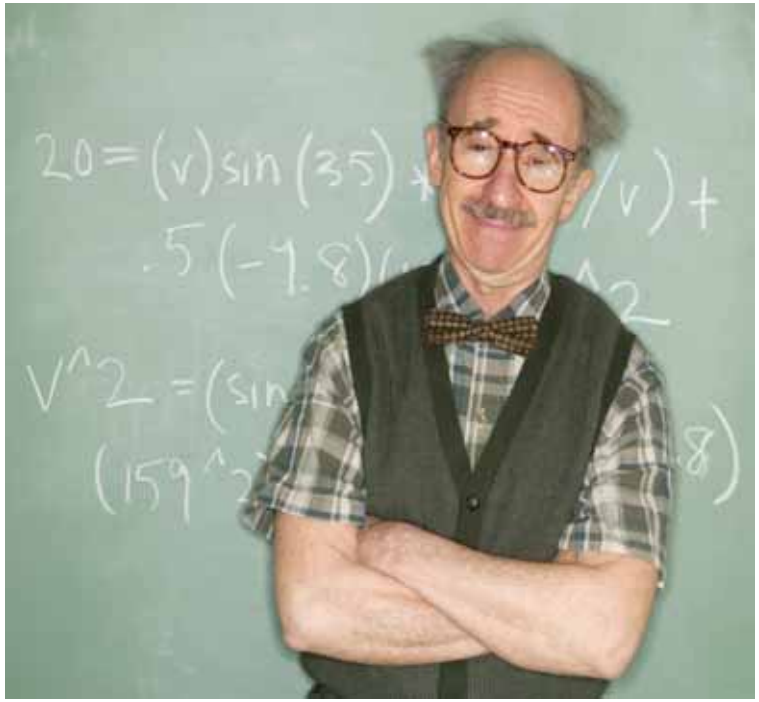
What some teachers/leaders do!

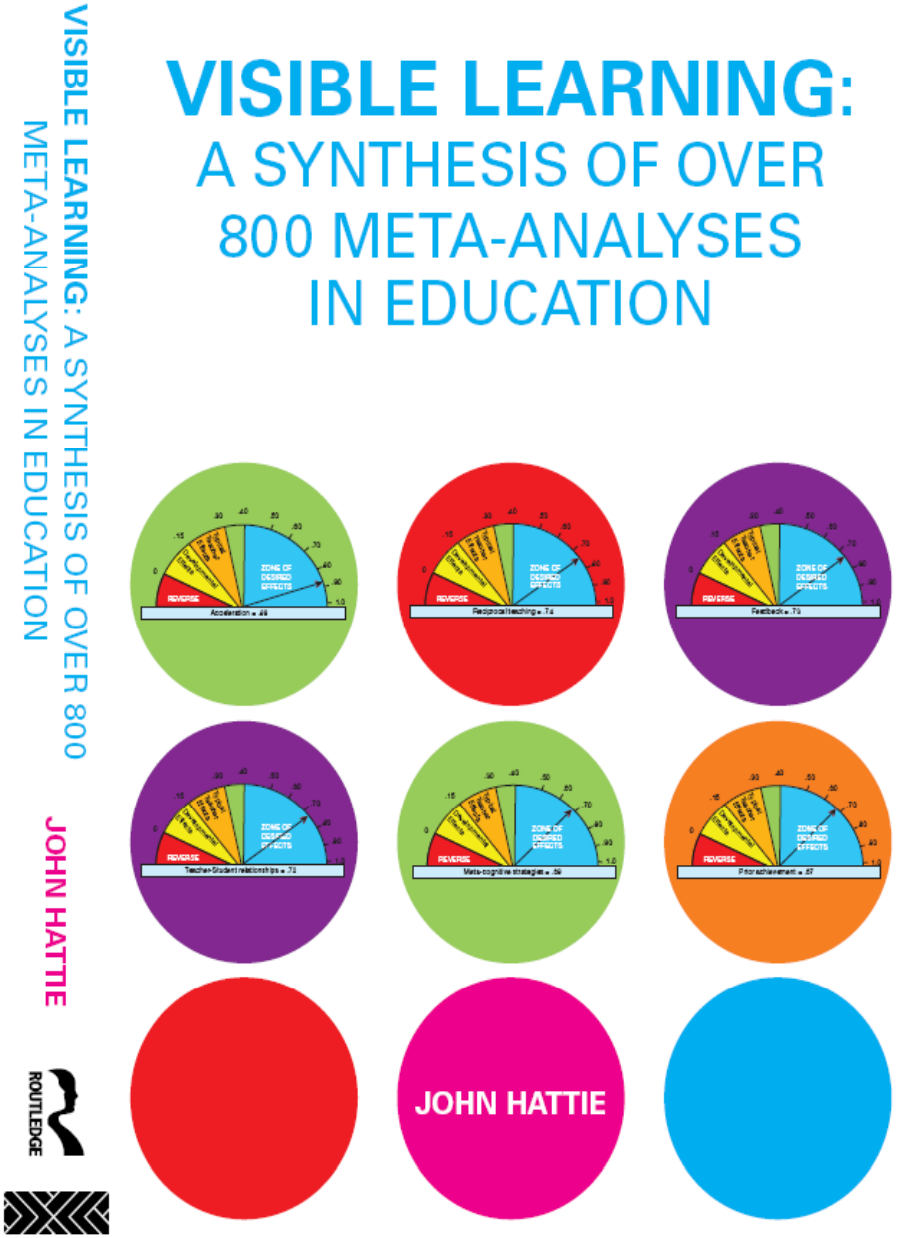
- **Clear learning intentions**
- **Challenging success criteria**
- **Range of learning strategies**
- **Know when students are not progressing**
- **Providing feedback**
- **Visibly learns themselves**



Visible Learning Laboratories

Such that students …

- **Understand learning intentions**
- **Are challenged by success criteria**
- **Develop a range of learning strategies**
- **Know when they are not progressing**
- **Seek feedback**
- **Visibly teach themselves**



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