



SMALL DATA FOR BIG CHANGE

Sydney Catholic Schools
Eastern Region Principals' Meeting
SYDNEY

5th/12th June 2019

 [pasi_sahlberg](#)

The plan of the morning

9.00 Session 1: Big Data and the future of education

11.00 Session 2: Can Big Data make schools smarter and Small Data help school leadership?

12.45 Closing remarks

Session 1:

Big Data and the future of education

Why kids don't like mathematics?

“To PISA,
or not to PISA?”



Home

Analyse by country

Explore data

Review education policies

Education GPS is *the* OECD source for internationally comparable data and analysis on education policies and practices, opportunities and outcomes. Accessible any time, in real time, the Education GPS provides you with the latest information on how countries are working to develop high-quality and equitable education systems.



Analyse by country

Choose from a wide variety of themes and data to create your own, customised country reports.



Explore data

... By topic and by publication. Compare countries' by their success in providing a high-quality education for all.

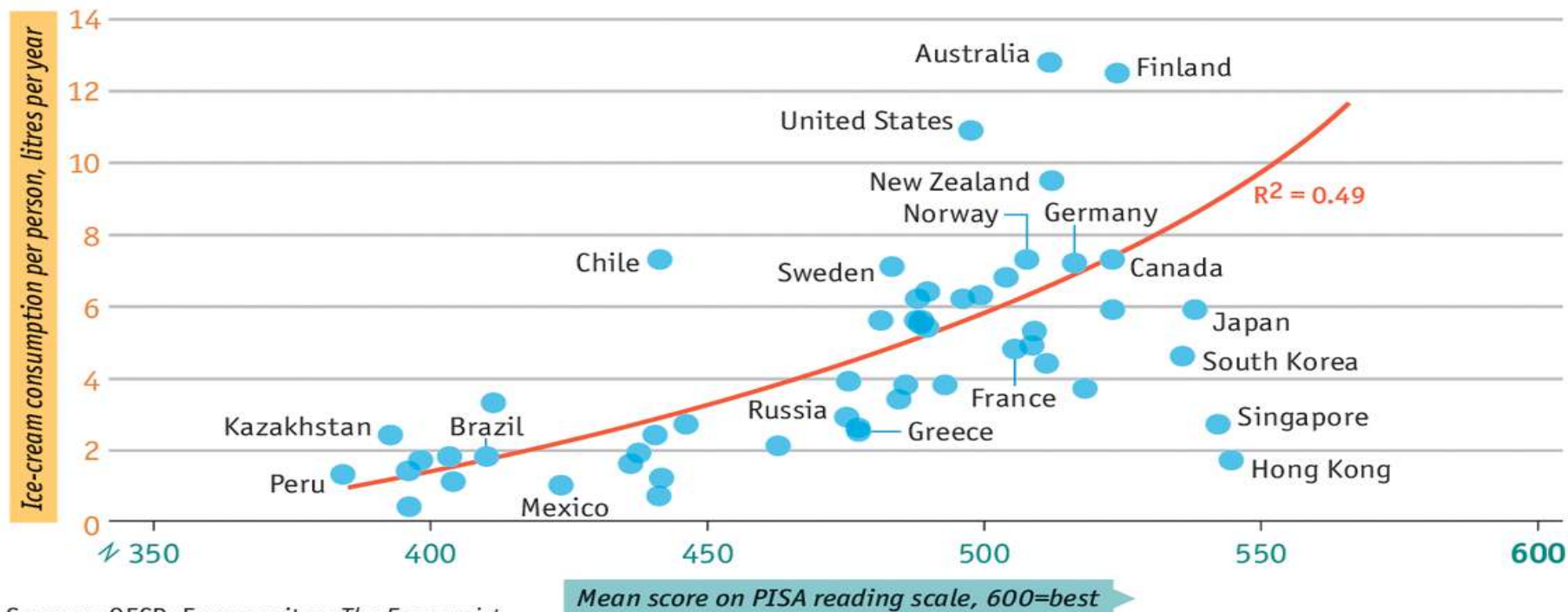


Review education policies

Examine the OECD's extensive research and analysis of education policy around the world.

Ice-cream consumption and PISA educational performance scores

2012



Sources: OECD; Euromonitor; *The Economist*

What is Big Data?



Instagram



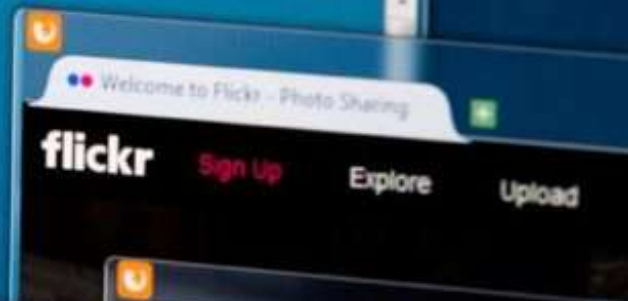
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“BIG DATA is extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions.”

Data mining

“The process of sorting through large data sets to identify patterns and establish relationships to solve problems through data analysis.”

Learning analytics

“The measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.”

Artificial intelligence

“Artificial intelligence (AI) is an area of computer science that explores the creation of intelligent machines that work and react like humans.”

Which one was made by AI?



A



B



C

Session 2:

Can Big Data make schools smarter
and Small Data help school leadership?

“AltSchool is an interdisciplinary team of educators, technologists and entrepreneurs building a network of schools that prepare students for our changing world. Each individual school is able to adapt to the needs of students, families and the surrounding community; the larger network connects everyone together and enables a far greater impact in our efforts to improve education. Underlying it all is a platform and curriculum that is personalized to each individual child.”

SCENARIO:

“Schools will diminish but education will flourish when robots and machines will take the role of the teacher.”

What would your advice to your boss be?

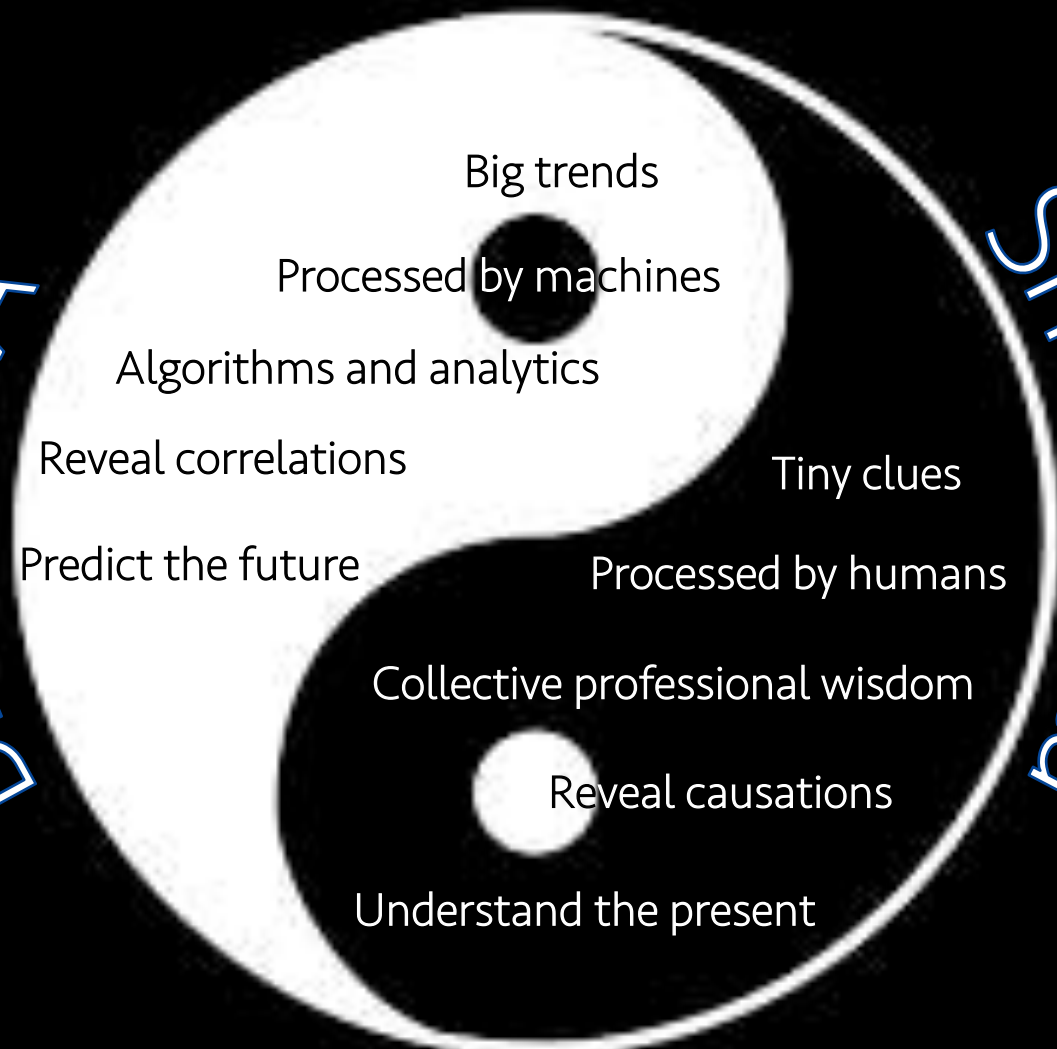
BREAK

Session 2 continues:
Small Data and school leadership

What is small data?

“Tiny clues found in schools that can uncover important relationships between teaching and learning.”

BIG DATA



Big trends

Processed by machines

Algorithms and analytics

Reveal correlations

Predict the future

Tiny clues

Processed by humans

Collective professional wisdom

Reveal causations

Understand the present

small data

Centre for Translational Data Science

THURSDAY, OCTOBER 27, 2016



Digital age 30 projects underway

Small data offers key to revealing the events that define our health

A new research centre hopes to unravel the influences on our existence, writes **Marcus Strom**.



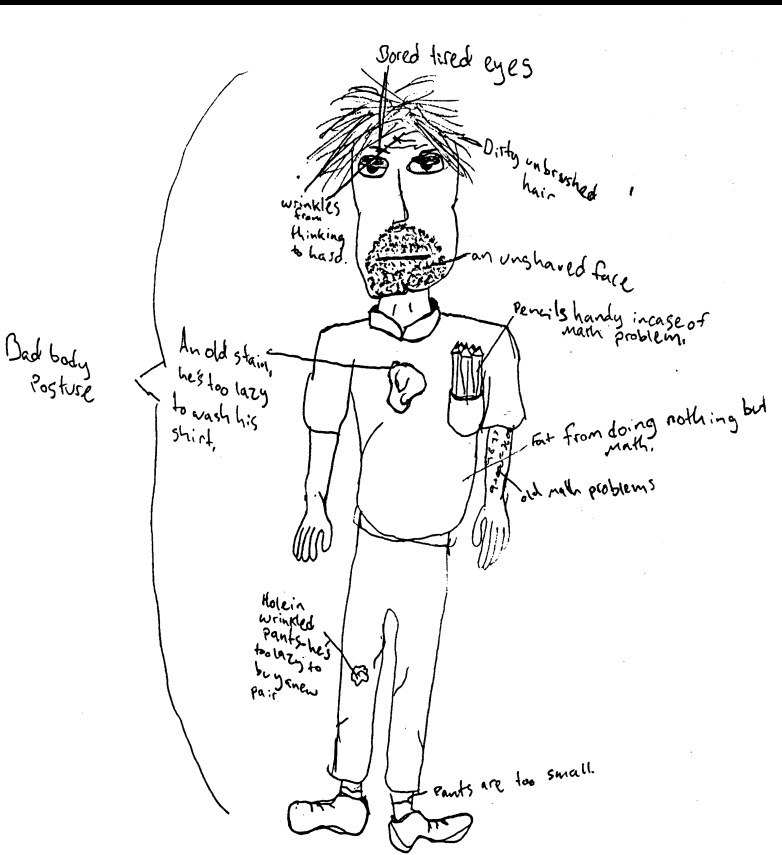
ment and criminology. Traditional data science mines information looking for problems to solve, Professor Durrant-Whyte said.

“What we do is find problems.

Small Data can reveal why
things happen in school.

Why so many kids don't like mathematics?

Research question: “What does a mathematician at work look like?”



Usually fat male

Unstylish

No friends - except other mathematicians

No romantic relationships or social life

Wrinkles in their forehead from thinking so hard

Very short tempers

More small data?

Children's wellbeing and health in Australia:

- 10% don't feel safe at home
- 47% sleep with smartphone every night
- 40% has sleeping problems
- 10% have abnormal social and emotional wellbeing
- 26% are overweight or obese
- 50% feel some or a lot of pressure from schoolwork
- Suicide rate of 15 to 24-year-olds increased from 10.3 per 100,000 in 2007 to 12.7 in 2016

Growing Up Digital

(Alberta Teachers Association &

Harvard Medical School)

DISCONNECTING

Alberta teachers have observed dramatic changes in their student populations over the past three to five years.

EMOTIONAL AND SOCIAL CHALLENGES



of teachers say that the number of students with emotional challenges has increased.



of teachers say that the number of students with social challenges has increased.

85%

of teachers say that the number of students who need behaviour support has increased.



“ Is a student’s increasing online presence decreasing real-world satisfaction and positive peer-to-peer interaction? ”

— Elementary school teacher

MOOD DISORDERS

3 out of 4 teachers say that the number of students with cognitive challenges has increased.



STUDENT CHALLENGES

ANXIETY DISORDER **85%**

DEPRESSION **73%**

High users show less curiosity, self-control, and emotional stability.

- Twenge and Campbell, 2018

Small Data can help to improve
kids' well-being.

Closing remarks:
What to do with this?

Understand big data

Look for small clues

Value professional wisdom

Thank you!