

Exploring data landscapes

Towards more personalised learning journeys

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Y13 stats

Secondary Numeracy Project

TLRI

TKI

AS

HOD

??

MProf Studs

Apply for admission to



Large scale

Ngā kaimahi Staff

Raukura Alumni

Rangahau Research

Te ao ki konei On campus

PhD

STATS 100

SEG

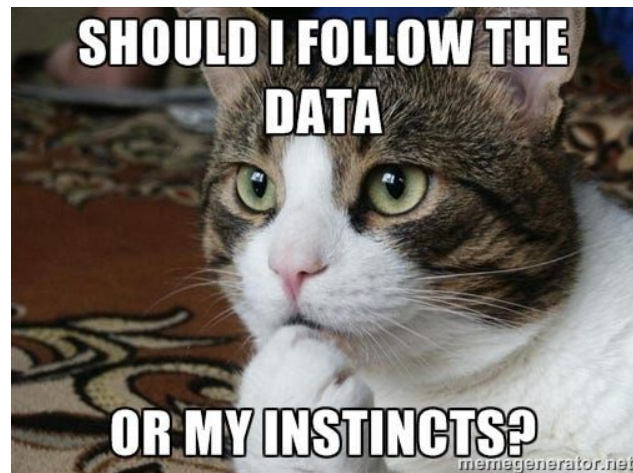
STATS10x rewrite

My personal teaching journey



National Mathematics and Statistics Conference

Te Tai Tokerau 2023



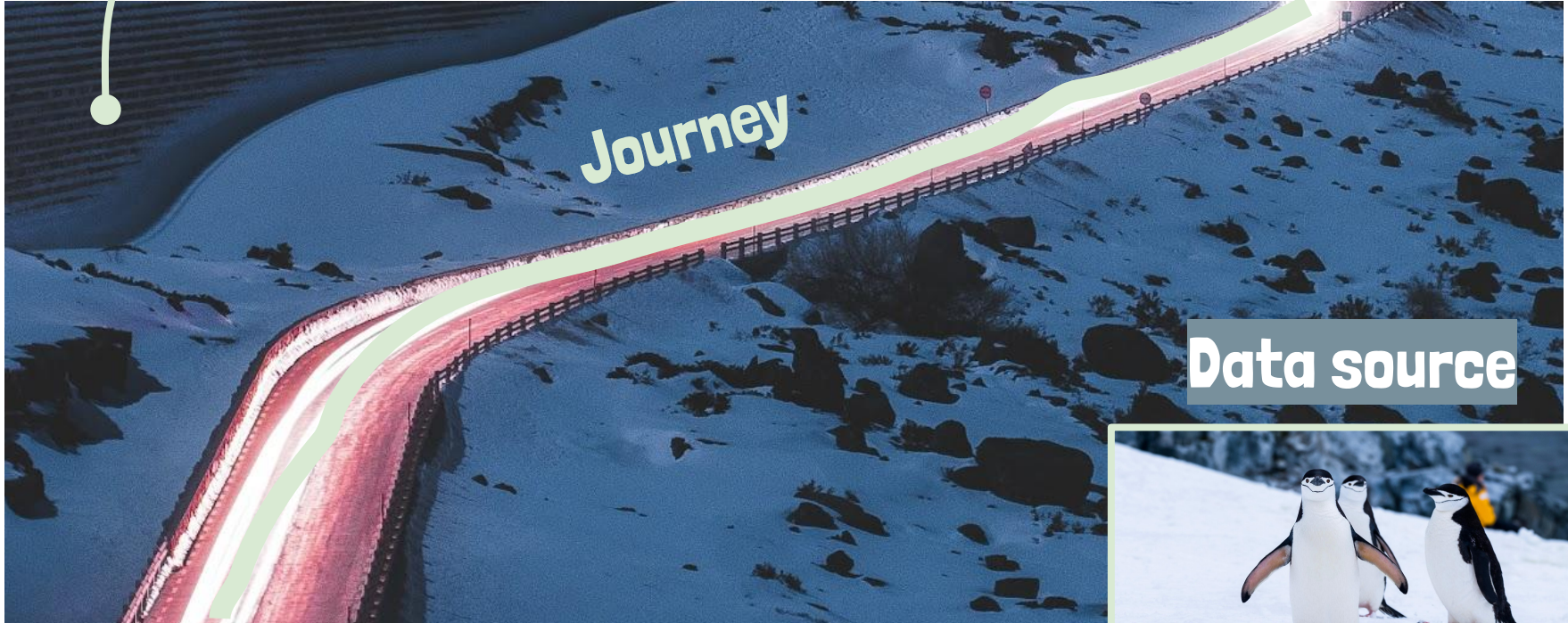
Data landscape

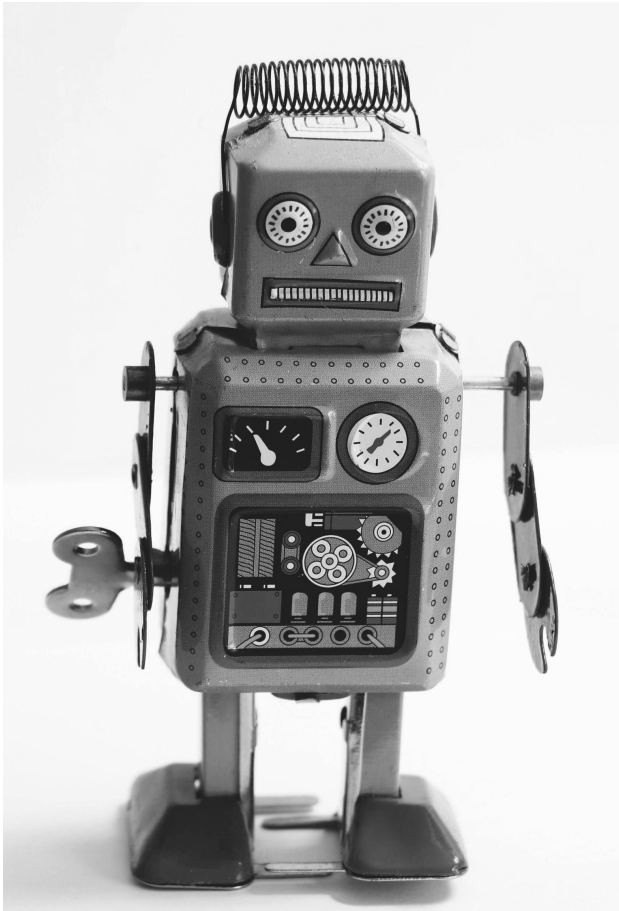
Destination

Journey

Data source

Motivation





You know what the answers are

You can engineer specific learning experiences

Teachers can be given a “well-defined” marking schedule

If the data set has different variables students can choose from, opportunities for different problems

There are really meaningful interesting data sets out there to explore

Students can copy answers from each other, need to change data for assessed tasks each year, etc.

Students can experience a whole year always being told what to investigate, even if the contexts are important



GLOBAL METHODS LOCAL DATA

Activating Māori and Pacific data stories for culturally responsive teaching and learning

PROJECT SUMMARY

First-stage statistics courses all around the world cover a range of key analytical methods. We teach these *global methods* using real-world data wherever possible. It is well established that interesting contexts help students engage with learning statistics, and contexts that allow students to share and apply their own expertise are even more powerful. After noticing the lack of *local data*, especially data with relevance to Māori and Pacific communities, in our own teaching programmes, this project aimed to learn from students in order to assist the planned re-development of first-stage statistics teaching materials during 2019.

THEMES FOR DATA STORIES



What data stories do our students want activated? Check out our videos to hear directly from them! Some of these themes

OUR DATA

We asked a range of Tuākana students, tutors, mentors, and ambassadors to share their experiences with learning statistics and examples of data they connected with. Through an informal hui and one-on-one interviews, we captured their stories to share with teachers.

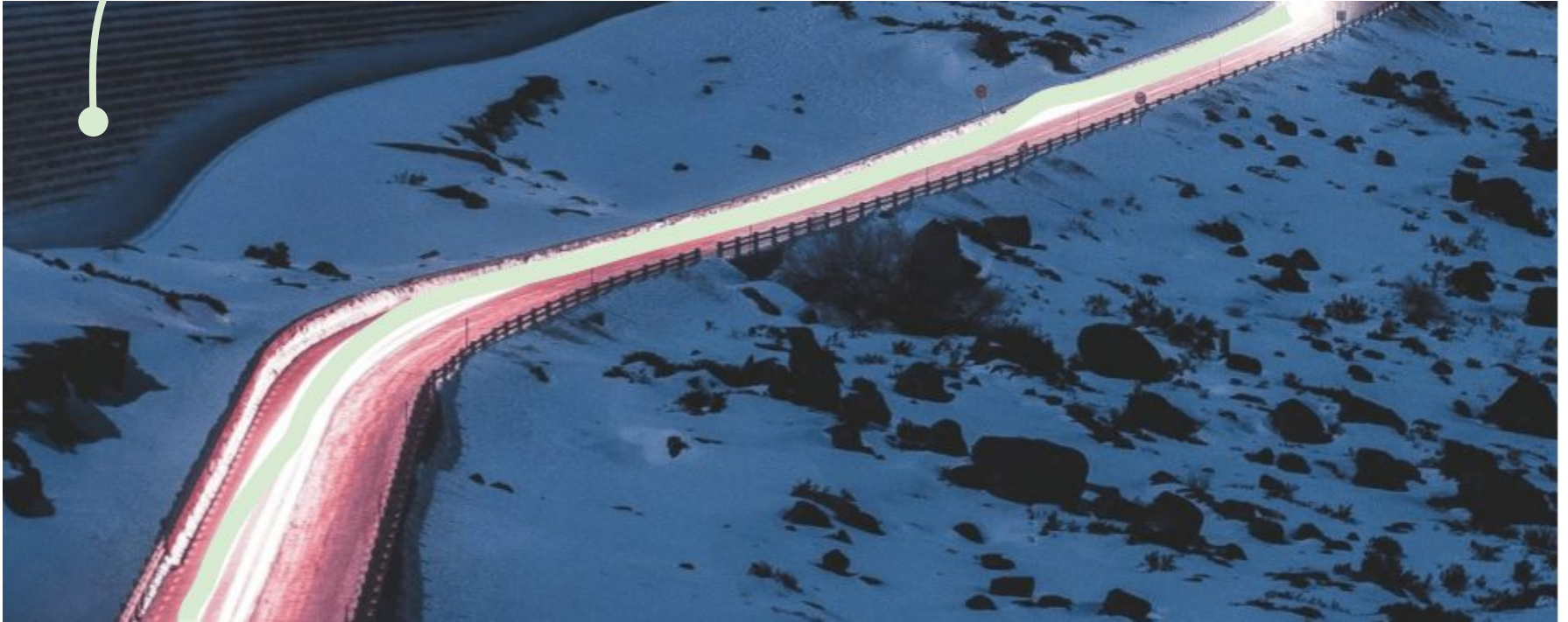


ADDITIONAL BENEFITS

- Increasing engagement with learning
- Improving attraction and retention of Māori and Pacific students to/in statistics programmes
- Building statistical capacity in Māori communities to further data sovereignty goals
- Providing a truly “New Zealand” learning experience for international students

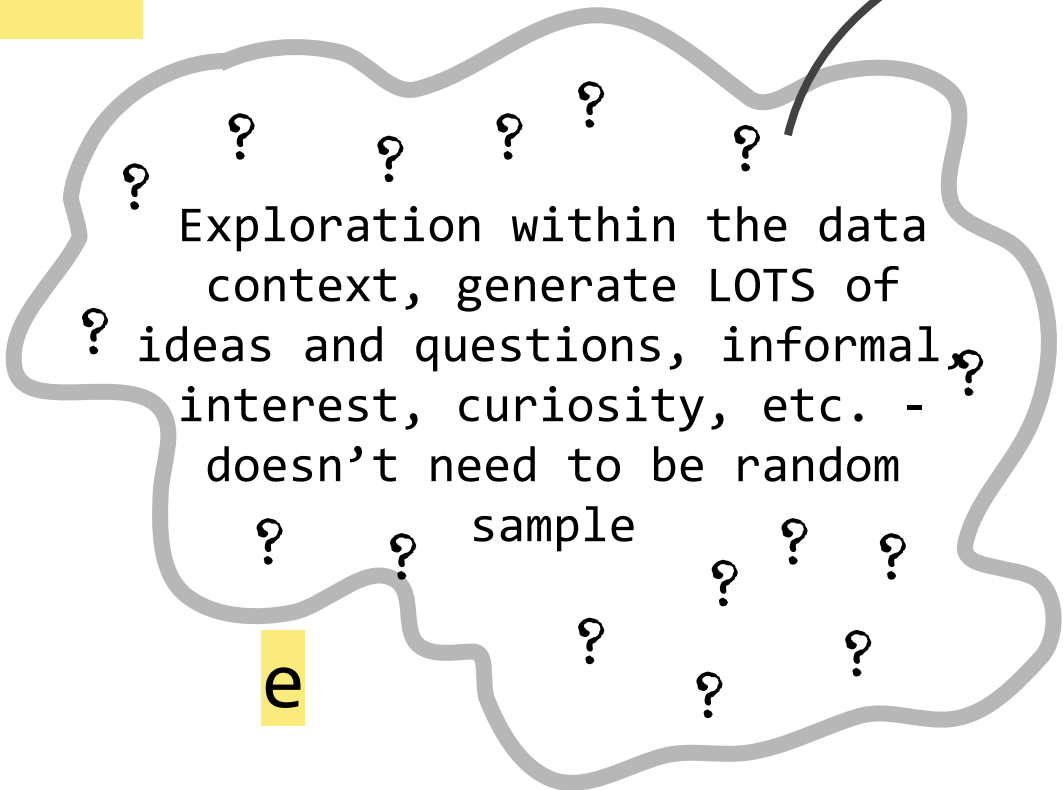
Data landscapes

Destination



Motivation

e-PPDAC



e

Focus

What "slice" of a bigger data set will students use to make it personal to them?

What will students contribute to the data set to make it personal to them?

With a **different set of data** within same context, carry out a specific investigation

?

Your conclusion answers your investigative question

PPDAC

First impressions



AVONDALE
COLLEGE

[Home](#)

[Our School](#)

[News & Events](#)

[Academic](#)

[Co-Curricular](#)

[Enrolment](#)

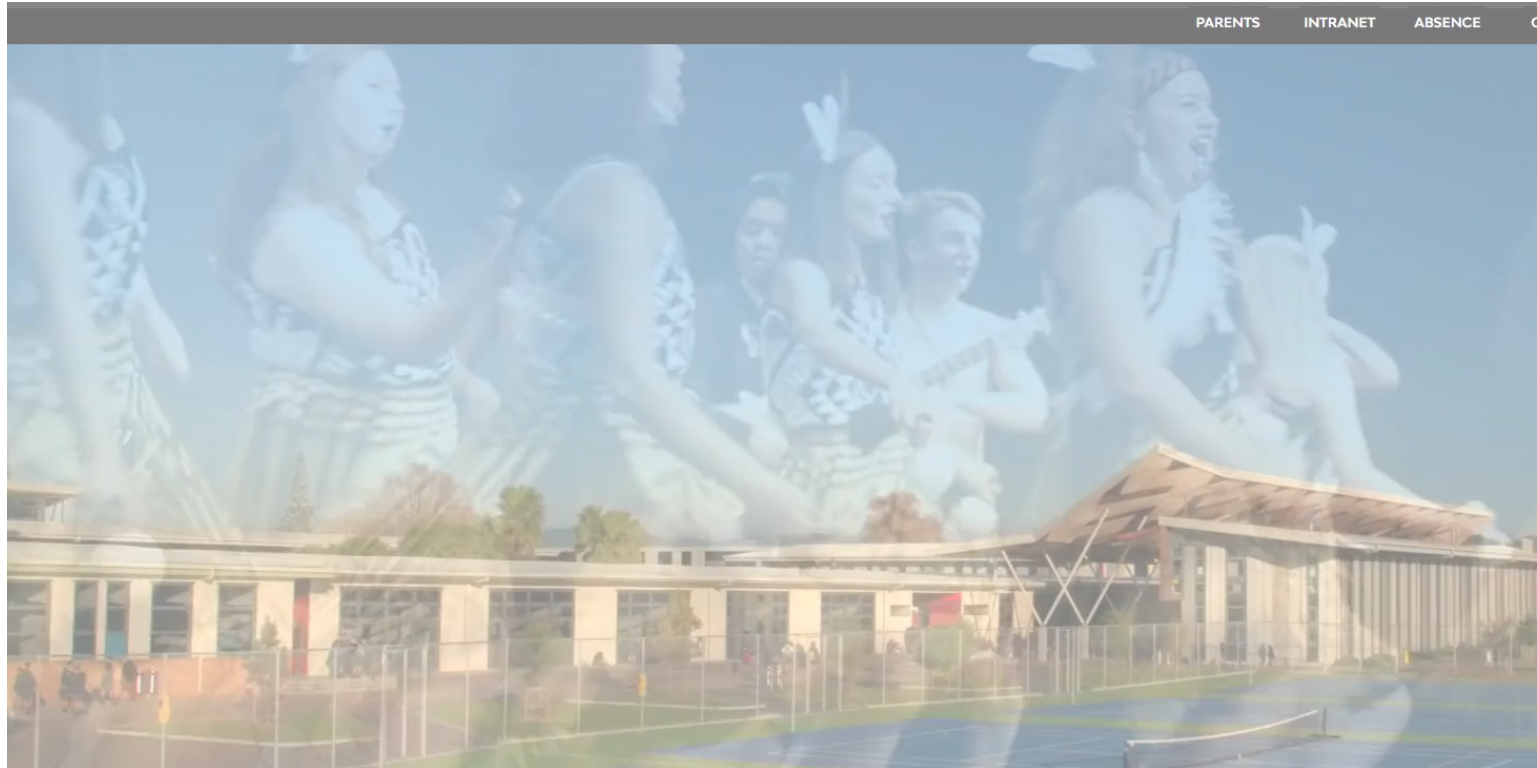
[International](#)

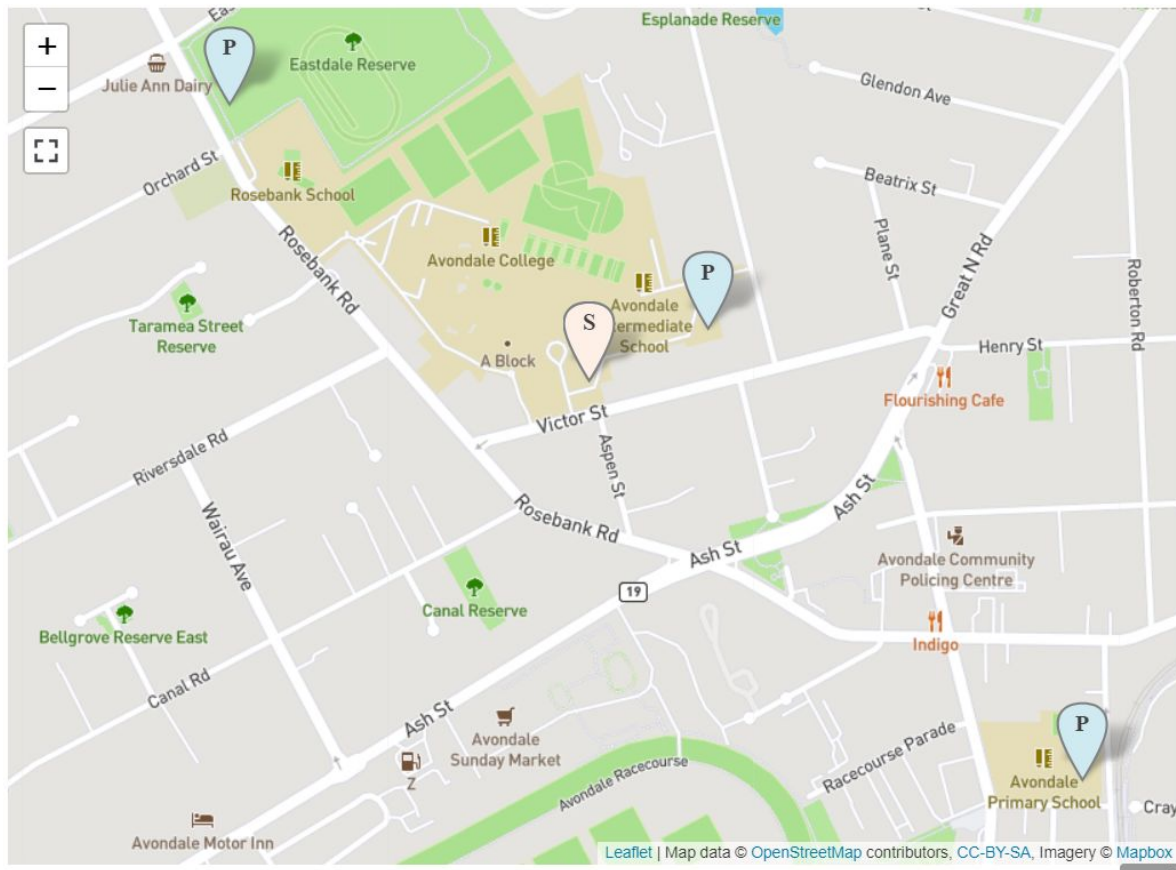
[Contact](#)

[PARENTS](#)

[INTRANET](#)

[ABSENCE](#)





<https://www.educationcounts.govt.nz/find-school>



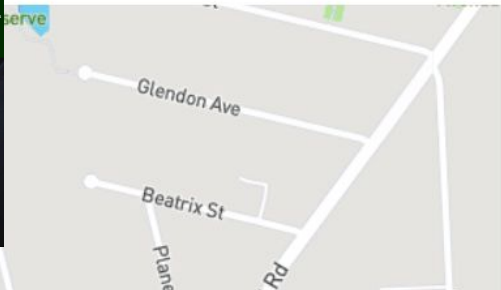
Julie Ann Dairy

Orchard St

Te Kura o Pātiki
Rosebank School

Kāinga | Home | Māori School | Tēngaki | Parents | Ahoanga | Learning | Kōwhiri | Information | Whakapakū | Contact Us

Rosebank School
Kāu māi, piki māi, ki te Kura o Pātiki

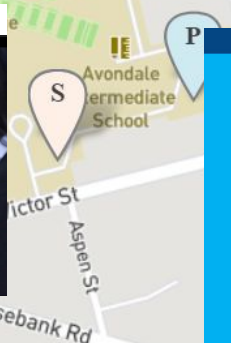


AVONDALE
SCHOOL

Home | Our School | News & Events | Academic | Co-Curricular | Enrichment | International | Contact

Home | News | Events | Academic | Co-Curricular | Enrichment | International | Contact

FINALIST
2021



Home | At School | At Learner | At Enrolment | At Absences | At Camp | At School Stream | At Contact

School Office Hours
Monday - Friday 9.00am - 4.00pm

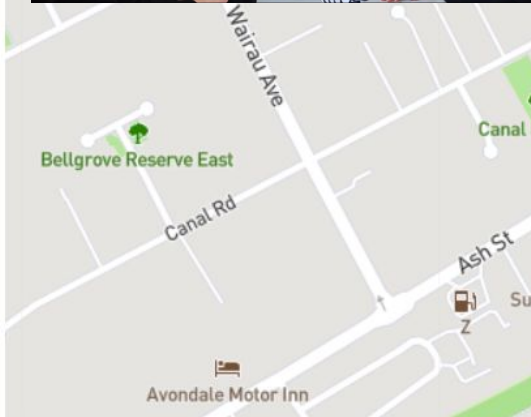
REPORT AN ABSENCE

AT LEARNER

ENROLMENT

OUR SCHOOL

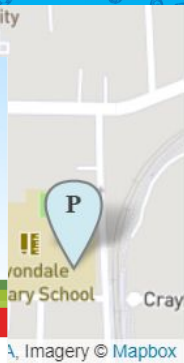
12 Holly Street Avondale New Zealand 1026



AVONDALE
PRIMARY SCHOOL

Connected and Creative learners, thinkers and communicators who can effectively make a difference.

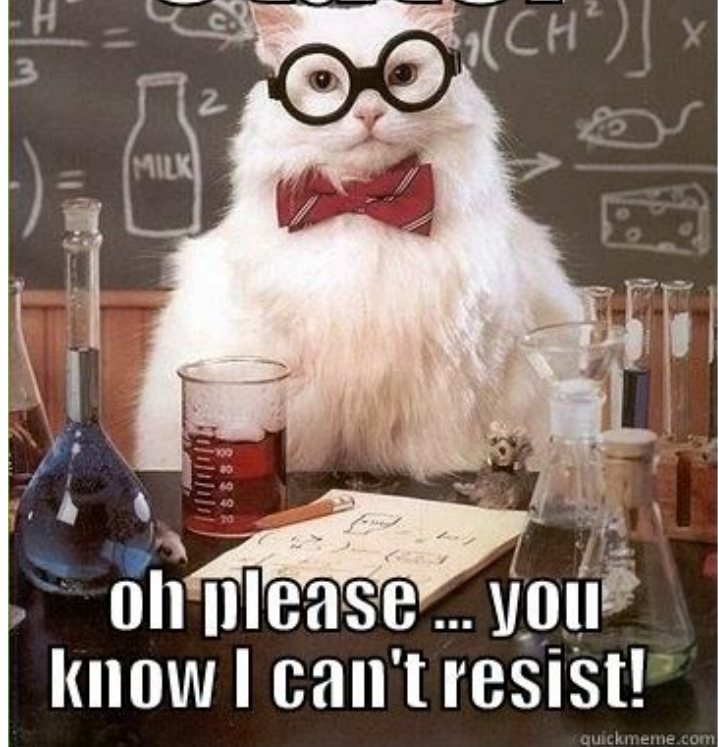
Kia Ora | Our School | Our People | Our Learning | Our Community | Contact Us



Imagery © Mapbox

Refresh app

Stats?

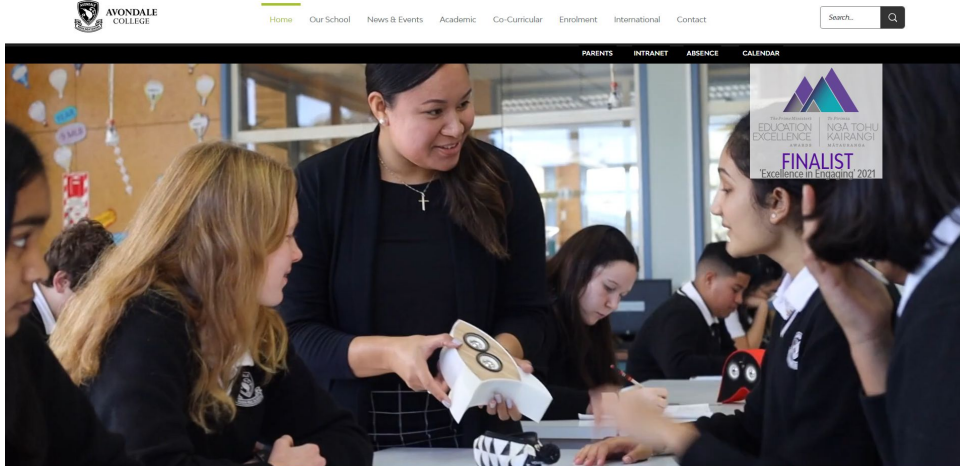
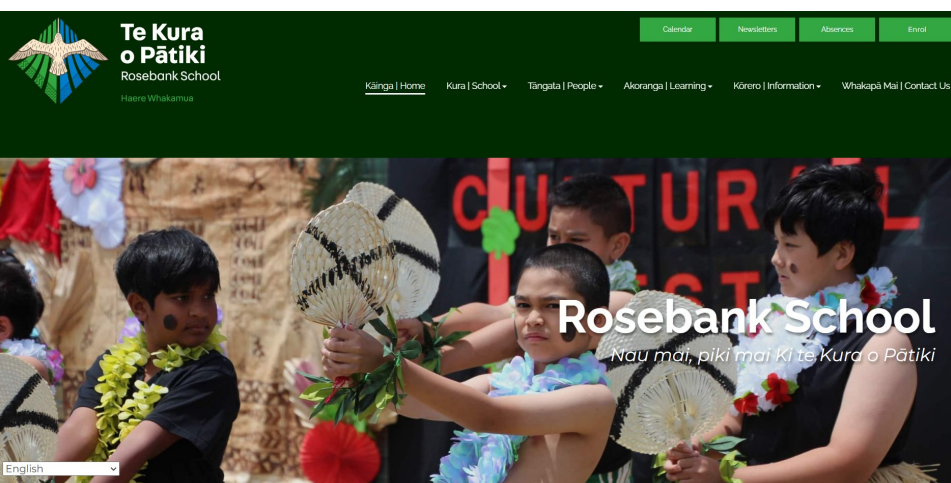


oh please ... you
know I can't resist!

quickmeme.com

bit.ly/slinky_app

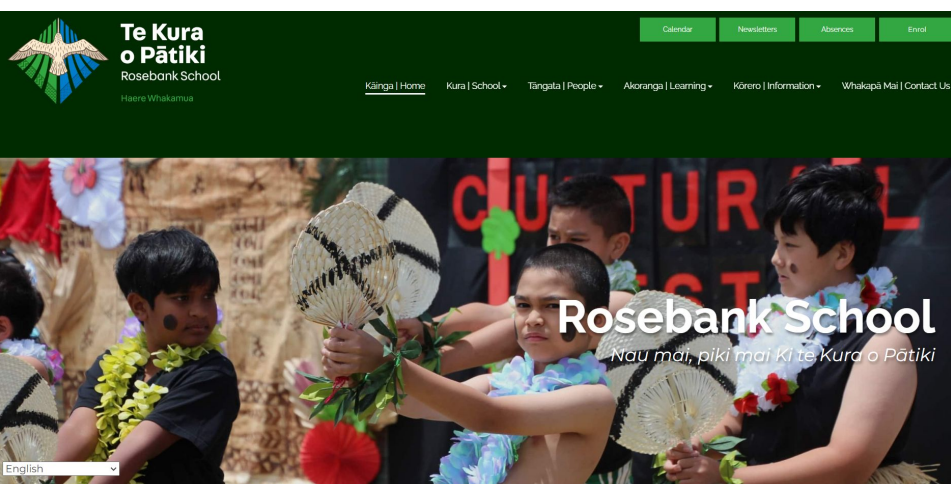




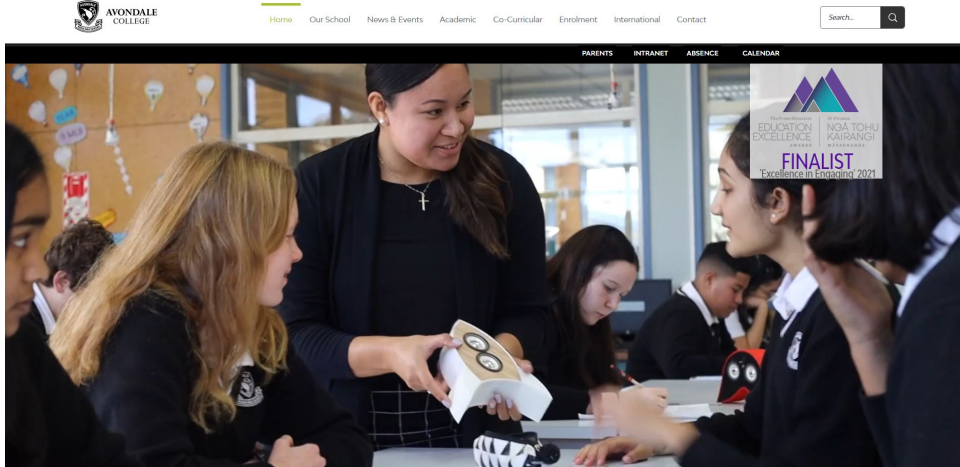
bit.ly/slinky_app

What data/variables could we create from what we see on the home page of school websites?





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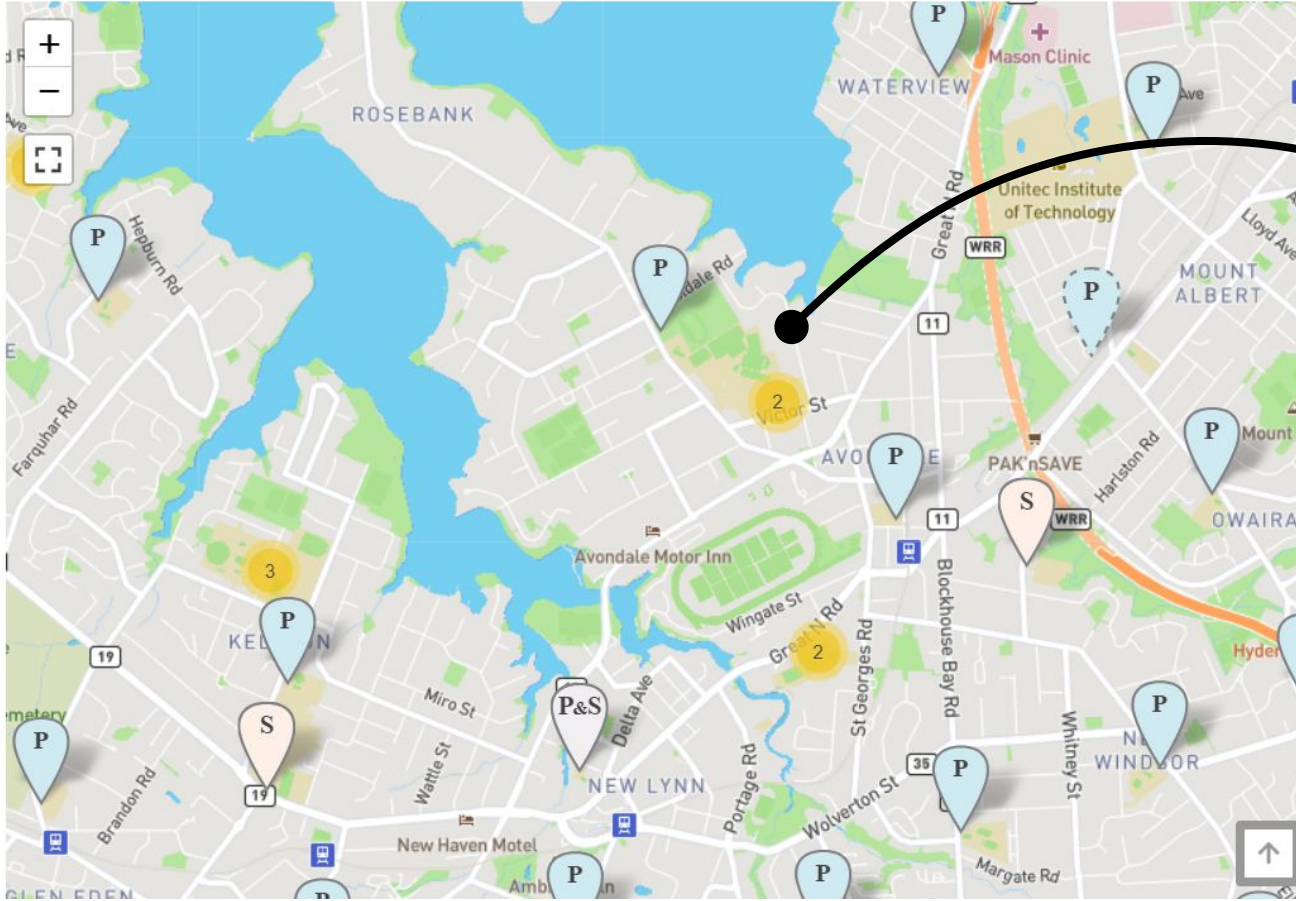


If this wasn't a keynote ...



Google Forms

- Select schools to use for exploration
- Create a Google Form (or similar)
- Co-construct survey questions to ask of each school's website
- Work together as a class to collect data from each of these schools



What schools
will we use for
exploration?

Avondale College
+ 11 closet
schools



Just based on what you see when the landing (home) page opens without scrolling down the page ...

Google Forms

How many words can you see?

What is the name of the school?

What is the main imagery used? (large static photo, large static drawing, large animated photo slideshow, large video, none)

What URL did you access for the school website?

How many total menu options or buttons can you see?

What device are you using to access the website? (laptop, tablet, smartphone)

Are there any Te Reo Māori words on the page (not including the name of the school)?

Choose the school that matches
your birth month

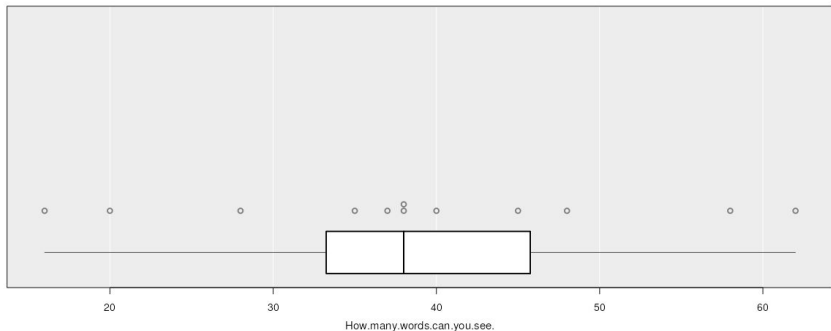


bit.ly/slinky_app

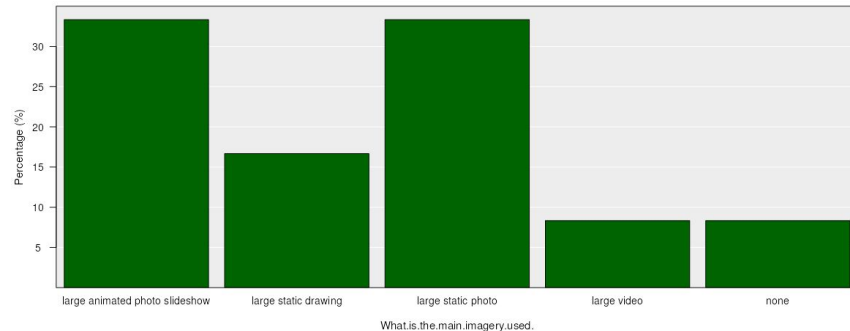
January Avondale Primary	February Rosebank School	March Avondale Intermediate	April Waterview Primary School
May Kelston Girls' College	June Avondale College	July Gladstone Primary School	August Iqra School
September Ōwairaka District School	October St Mary's Catholic School	November Jireh Christian School	December Mount Albert Grammar School

If you had to pick one thing, what feature would you predict a school website has and why?

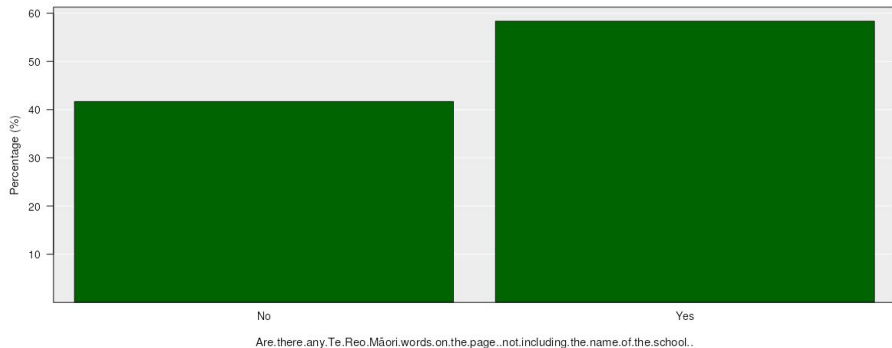
How many words can you see.



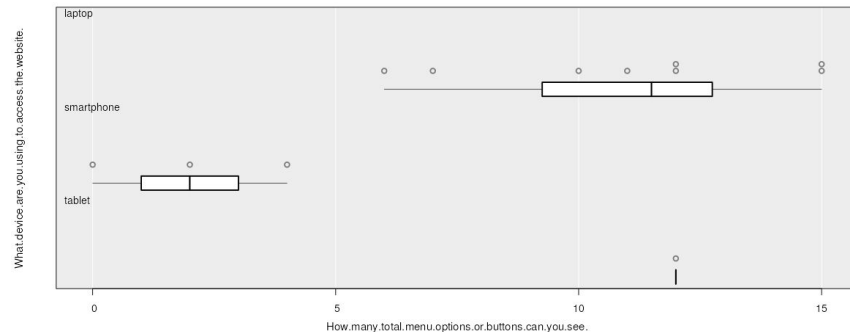
Distribution of What is the main imagery used.



Distribution of Are there any Te Reo Māori words on the page...not including the name of the school..



How many total menu options or buttons can you see, by What device are you using to access the website.



Create a New Zealand Schools sampler

<https://www.educationcounts.govt.nz/directories/list-of-nz-schools>

BYOP

Bring Your Own
Population

Download the whole Directory

Click the “Download the whole Directory” button to load the data to the page. This will take a few seconds, the headings will appear in the viewing pane below to let you know it has happened. Then click the button again to download the directory as a csv file.

- Info: <https://teaching.statistics-is-awesome.org/tools/byop-sampling/>
- Tool: <https://statistics-is-awesome.org/BYOP>



Sampler tool

Sample size =

Select variable

Tai Tokerau

Auckland

Bay of Plenty/Wairariki

Canterbury/Chatham Islands

Waikato

Wellington

Hawke's Bay/Tairarwhiti

Taranaki/Whanganui/Manawatu

Nelson/Marlborough/West Coast

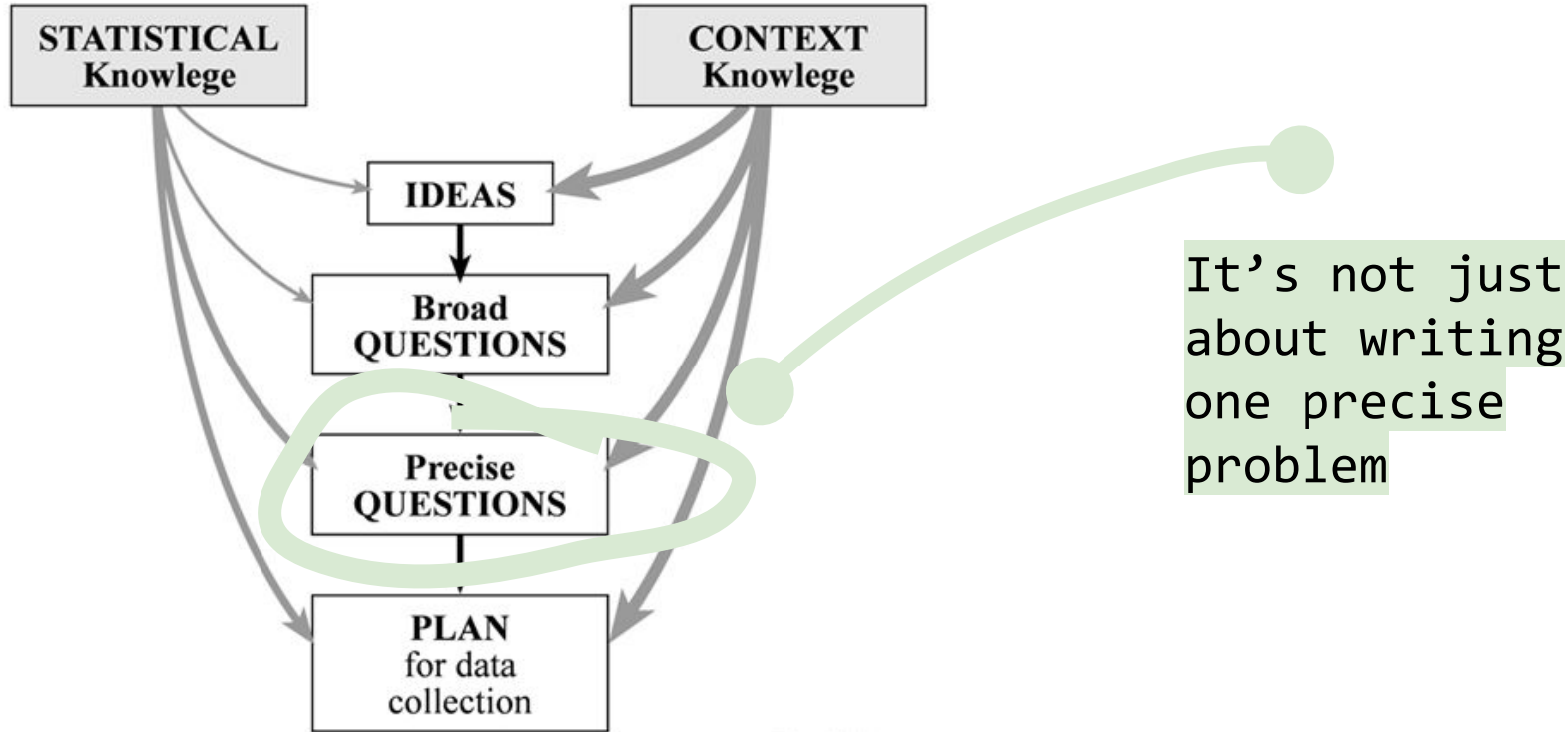
Otago/Southland

Get a random sample

Using at least one variable you create from the website of each school in your sample (plus, if you want, information about each school from the directory)

- What region do you want to focus on and why?
- What do you want to find out?
 - *Write your question naturally*
 - *Pick something you really don't know for sure the answer to*
- Why are you interested in investigating this?
 - *Link to something from our exploration*
 - *Include a personal motivation/interest*
- Is there anything else you need to consider when using data related to this investigation?

From inkling to plan



It's not just about writing one precise problem

My personal
honest question

Do schools that have a higher percentage of Māori students on the school roll care more about using Te Reo prominently on their school website?

An investigative
question I can
answer (with
uncertainty)
using data I can
access/create

For schools in Tai Tokerau, do those who use Te Reo Māori on the landing page for their school website tend to have higher percentage of Māori students than those who do not?

Sampler tool

Sample size =

Select variable

Tai Tokerau

Auckland

Bay of Plenty/Wairariki

Canterbury/Chatham Islands

Waikato

Wellington

Hawke's Bay/Tairarwhiti

Taranaki/Whanganui/Manawatu

Nelson/Marlborough/West Coast

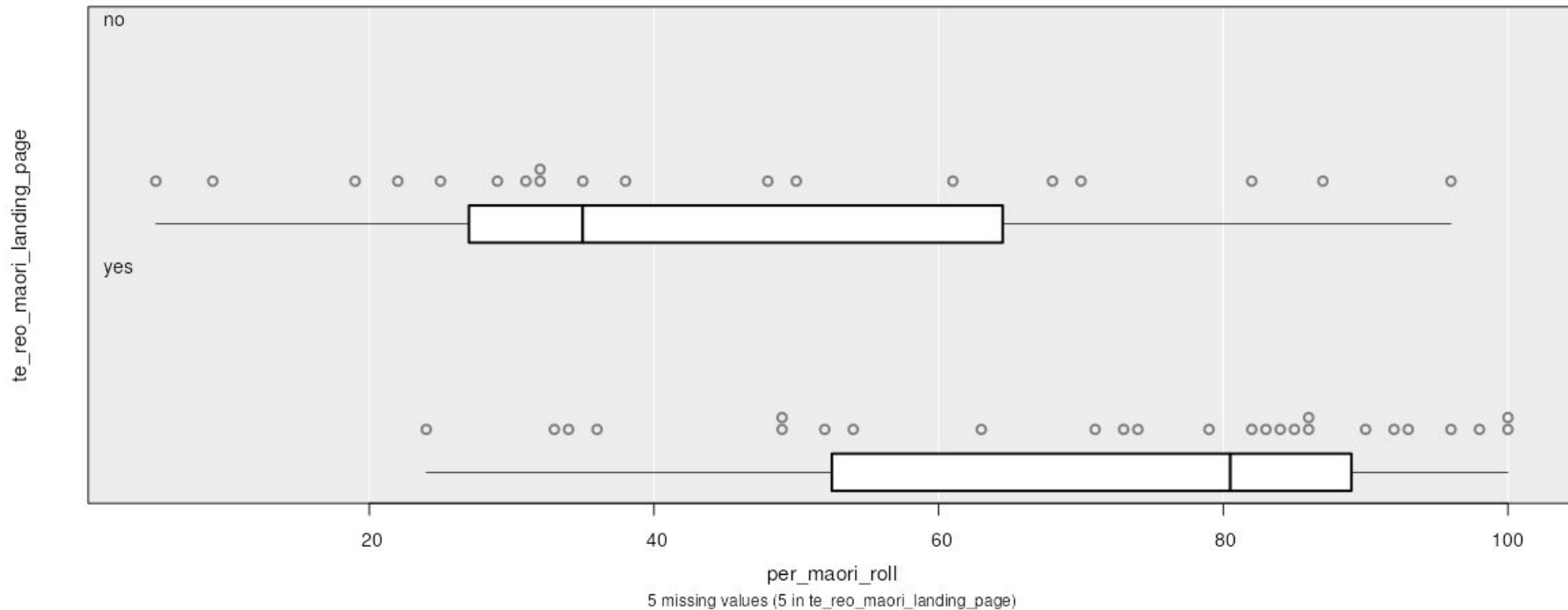
Otago/Southern

Get a random sample

- Took a random sample of the Tai Tokerau schools listed in the directory
- Copied the information from the sampler tool into a Google sheet
- Calculated the percentage of Māori students on the school roll and called this new variable **per_maori_roll**
- Opened the website for the school and recorded if Te Reo is visible on the landing page, only what is visible without scrolling (not including the name of the school but included Te Reo Māori used in logo if there was one), this new variable called **te_reo_maori_landing_page**
- Not all websites were accessible



per_maori_roll by te_reo_maori_landing_page



Ask for travel/trip reviews

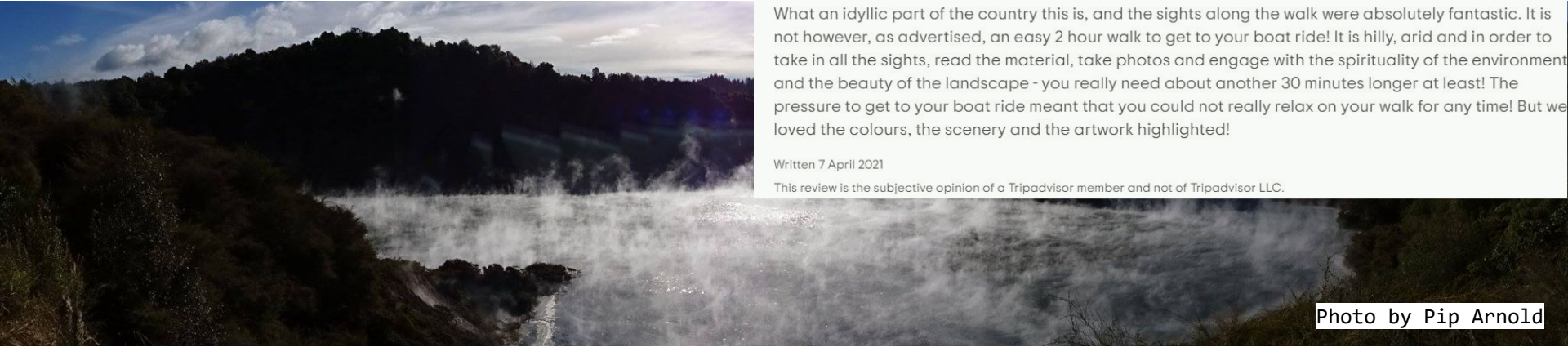


Photo by Pip Arnold

Toronto, Canada • 25 contributions

👍 0



Wonderful Waimangu

Apr 2021

What an idyllic part of the country this is, and the sights along the walk were absolutely fantastic. It is not however, as advertised, an easy 2 hour walk to get to your boat ride! It is hilly, arid and in order to take in all the sights, read the material, take photos and engage with the spirituality of the environment and the beauty of the landscape - you really need about another 30 minutes longer at least! The pressure to get to your boat ride meant that you could not really relax on your walk for any time! But we loved the colours, the scenery and the artwork highlighted!

Written 7 April 2021

This review is the subjective opinion of a Tripadvisor member and not of Tripadvisor LLC.

What is something you found personally interesting about this task?

What is something you learned statistically from this task?

What is something specific you would like to learn more about how to do computationally?

What things about the world, data or models does this task make you curious about exploring further?

- Something I found personally interesting about this lab was the use of different languages. I find it fascinating that so many other languages do not have separate pronouns for “he” and “she”. It’s something I’m always intrigued by, especially being a fluent Te Reo Māori speaker. In Te Reo Māori we don’t have specific pronouns for “he” and “she”, it’s a gender-neutral language.
- Something I learned statistically was that you can create multiple different graphs in one code, I thought you could only do one (if that makes sense, I’m not up with the coding lingo yet lol).
- How to hack (hahaha nah just jokes....unless....;)) For realzies though, I barely know how to use my computer so anything would be helpful I guess.
- This isn’t really to do with like statistics but this lab makes me more curious about the languages of the world and how similar my mother tongue is to other languages around the world. It makes me want to look more into gender ideas in indigenous lands pre-colonisation. It makes me curious about how models such as Google Translate can be trained so well that it can decide what gender to use when reverse translating back to English.

(I’m so sorry my answers are horrible I didn’t even know how to answer the questions.)

Taking the road less travelled

Students feel connected to their learning, particularly with respect to data

Huge diversity in what students select when you give them a choice

Helps with authenticity of work, promotes curiosity and creativity

Makes marking more fun and informative for your teaching

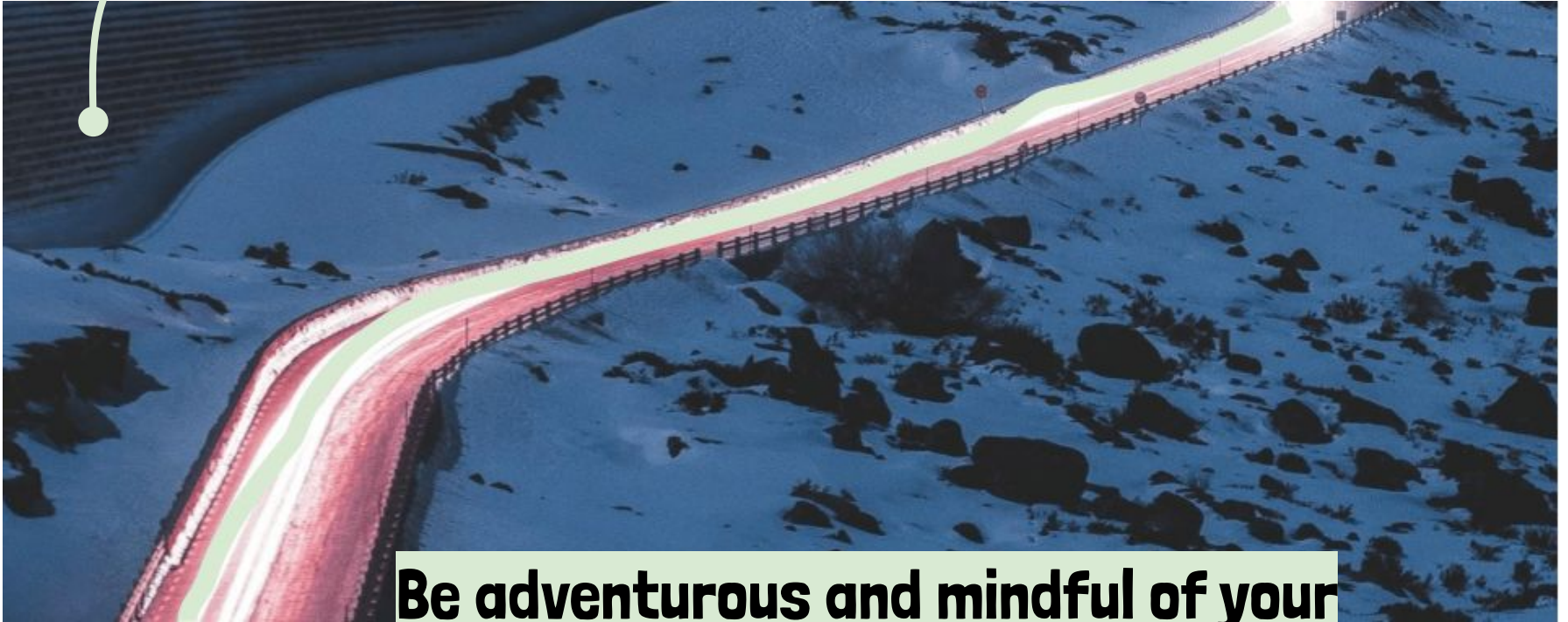
structure + variation is at the core of learning from data

There might be some unexpected breakdowns (but tourists seem to be understanding!)

Need adaptable, supportive, and personable tour guides

Data landscapes

Destination



Motivation

Be adventurous and mindful of your surroundings!

How can we provide more personalised learning journeys?