

Advanced Ideas in Data Analysis

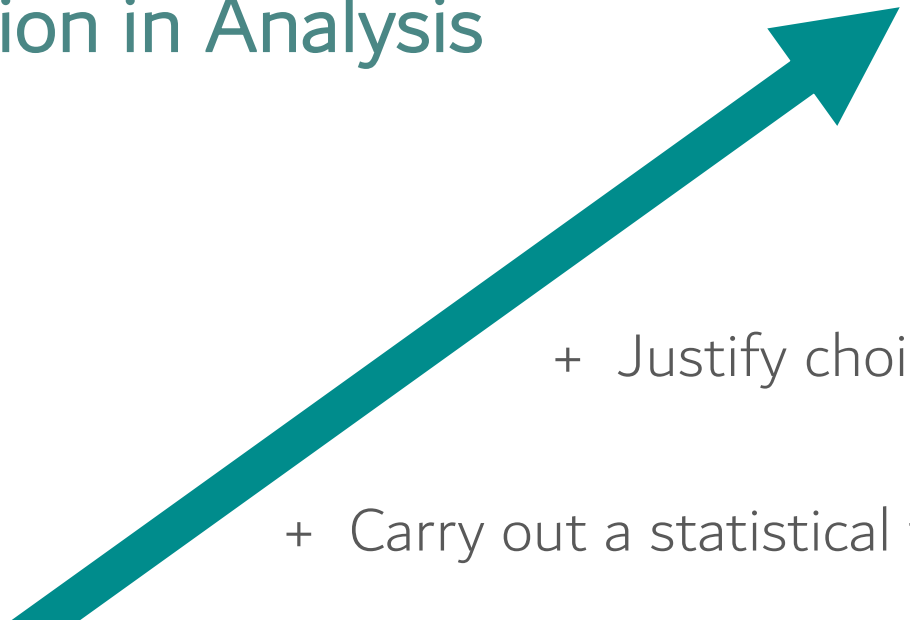
Chloë Searl

Introduction

- Appropriate use of statistical tests
- Analysing qualitative data
- How to deal with anomalies
- Speaking tentatively
- Evaluating holistically

Progression in Analysis

A Level



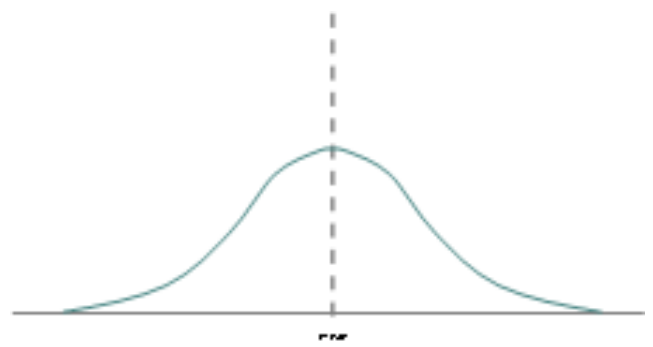
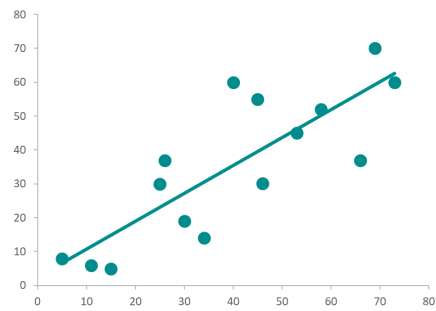
- + Carry out a statistical test / qualitative processing
- + Justify choice of analysis technique

You don't need to be good at maths

You don't need to do a stats test for every set of data

Making analysis 'appropriate'

- Look at the type of data you have or are going to collect
 - a correlation
 - a distribution
 - categorical
 - diversity



	Daily	Weekly	Monthly	Less than monthly
0 - 18 years	0	2	3	2
19 - 40 years	4	7	4	4
41 - 60 years	5	12	8	1
61 years +	9	14	6	4



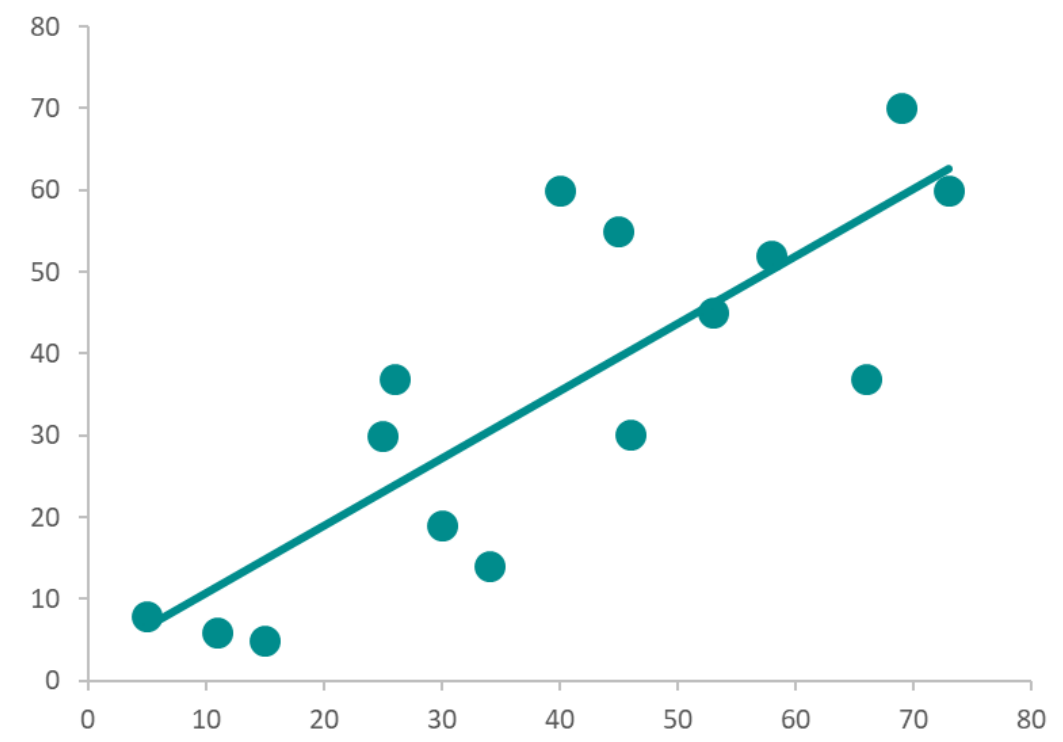
What stats tests are there?

- a correlation

Spearman's Rank Correlation Coefficient

Works if

- at least ten pairs of data
- ordinal data



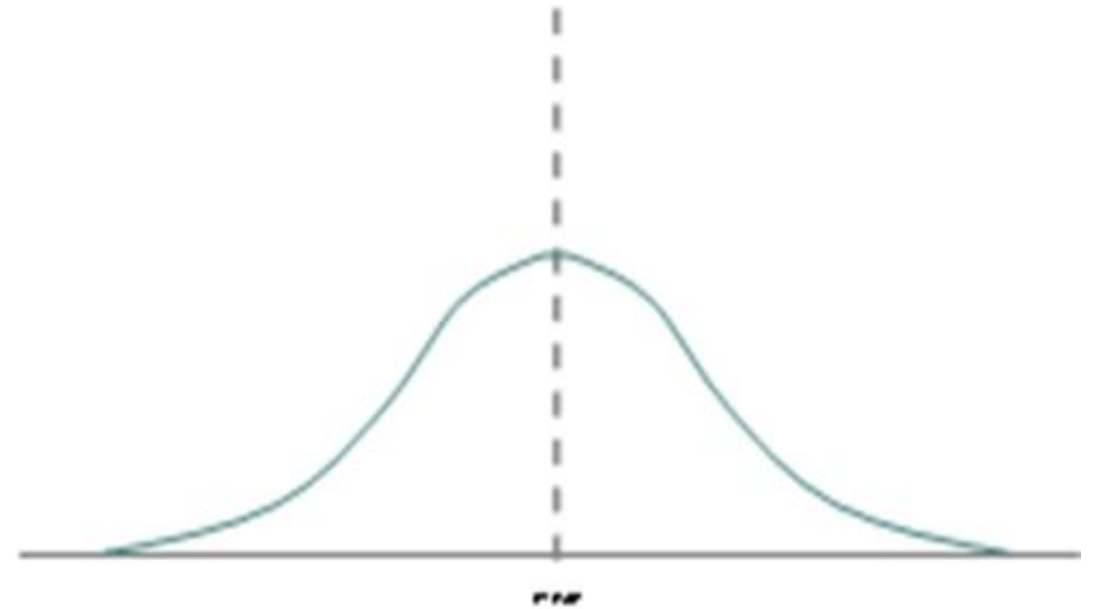
What stats tests are there?

- a distribution

Student's T Test

Works if

- low sample numbers
- normal distribution



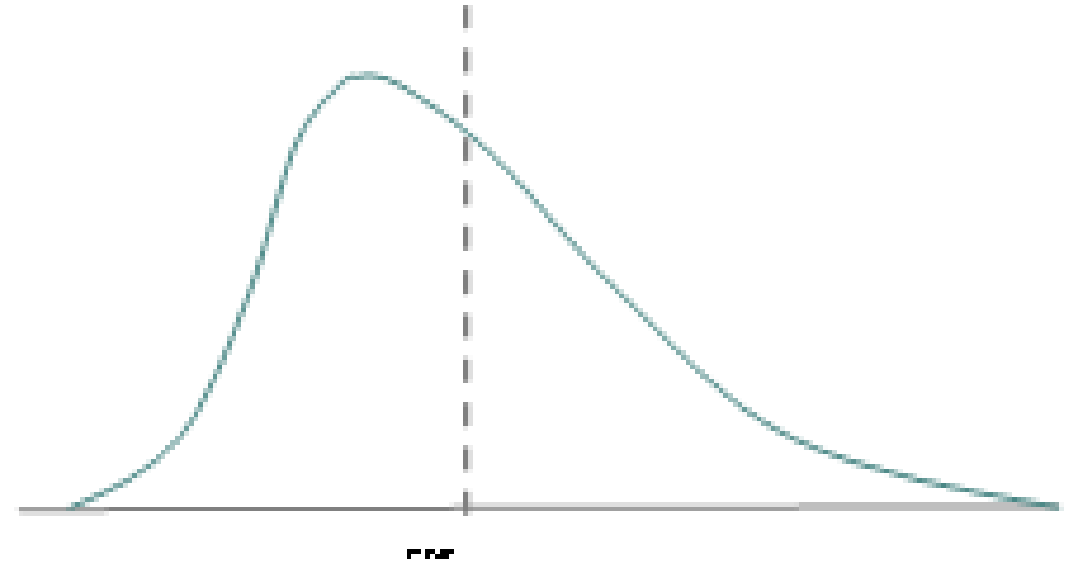
What stats tests are there?

- a distribution

Mann Whitney U Test

Works if

- low sample numbers
- not normal distribution



What stats tests are there?

- categorical

Chi Squared Test

Works if

- two corresponding samples
- frequencies

	Daily	Weekly	Monthly	Less than monthly
0 -18 years	0	2	3	2
19 - 40 years	4	7	4	4
41 - 60 years	5	12	8	1
61 years +	9	14	6	4

What stats tests are there?

- diversity

Simpson's Diversity Index

Works if

- clearly defined individuals
- actual counts



Now what...?

- Choose a data set that will be you would like to see analysed using a stats test
- Run the test
- Does it give you more evidence of something than if you were to just look at the raw data alone?
 - Yes! - you have found and completed your stats test
 - No! - put these calculations to one side and choose a different data set

Analysing qualitative data - Interviews

- Transcribe and clean up the data

“ The plan to build in more seating and planters in the square came about from a recce to another town. We saw how people had reclaimed the space and thought - yeah, we want that. In the end we had to reduce the amount we wanted cos we realised it would cost too much. However, we think the overall look is great.”

Analysing qualitative data - Interviews

- Create an index of key themes (and a code if necessary)

1. elements of plan
2. economic costs
3. social benefits
4. environmental benefits
5. agents of change
6. aesthetics

Analysing qualitative data - Interviews

- Code the interview transcript

1. elements of plan
2. economic costs
3. social benefits
4. environmental benefits
5. agents of change
6. aesthetics

1
"The plan to build more seating and planters in the square came about
from a recce to another town. We saw how 3
people had reclaimed the
space and thought we'd like that. In the end we had to reduce the
amount [of street furniture] we wanted because we realised it would
2
cost too much. However, we think the overall look is great."

Analysing qualitative data – Discourse Analysis

- An in-depth dissection of spoken, designed or written message



What kind of discourses might be available to you during fieldwork?

Analysing qualitative data – Discourse Analysis

- An in-depth dissection of spoken, designed or written message

Background and context:

Narrative and physical structure:

Language:

Non-verbal / Extra-verbal communication:

How is the speaker positioned? How does this affect the way the speaker comes across?

How to deal with anomalies

- Be very clear on the difference between an outlier and an anomaly.

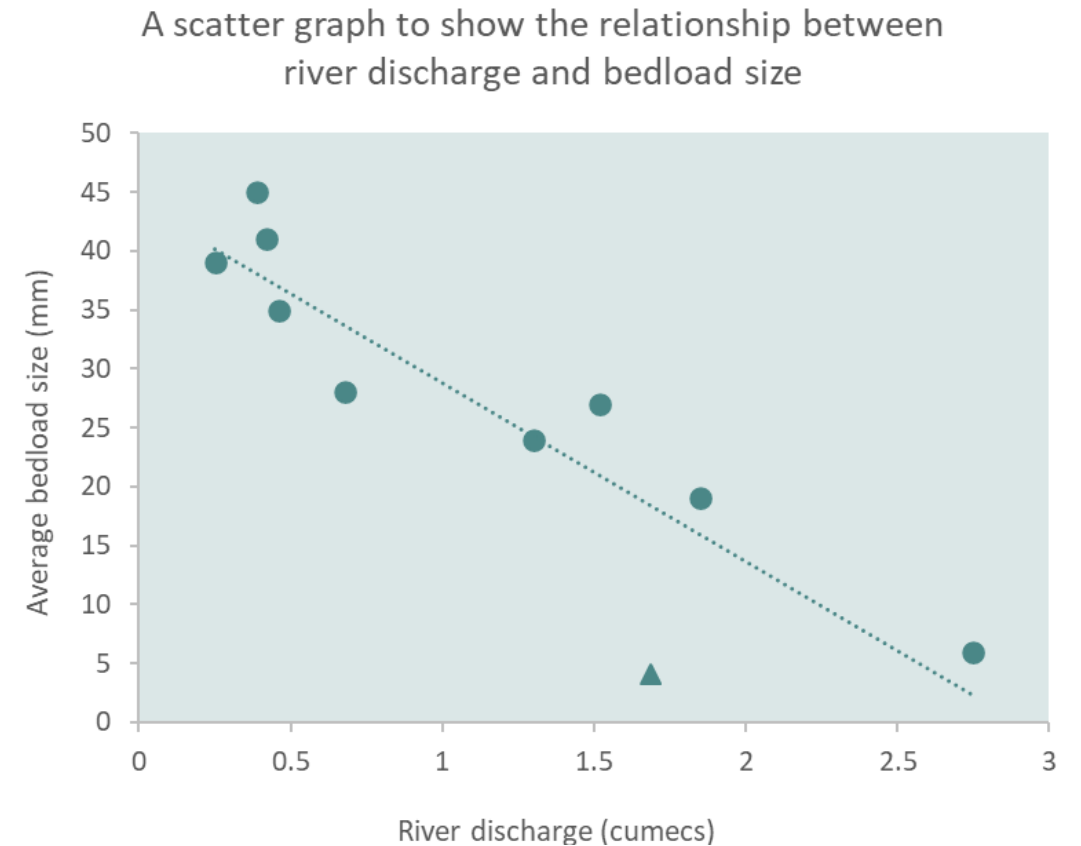


What is the main difference between an outlier and an anomaly?

Where do concepts around bias and human error fit into this?

How to deal with anomalies

- Be very clear on the difference between an outlier and an anomaly.
- Only label a piece of data as a result of human error if there is no geographical reason for it to be as it is.
- Sometimes the 'anomaly' is actually the most interesting piece of data you have!



Conclusions – speaking tentatively

- Avoid claims of grandeur!
- Only conclude what is actually true (be careful of causation v correlation)
- Explore the limits of the investigation
- Inconclusive is as powerful as conclusive!
- This is why we like “To what extent...” titles

Evaluating holistically

- It is tempting to only really evaluate your performance in terms of the data collection phase
- Instead, think more holistically – title, research questions, data presentation techniques, data analysis techniques, scope and scale of the study etc

In your own time...

- Play around with the different statistic calculators found online

[The Island Geographer > Resources > Statistical Calculators](#)

- Audio record a family member talking for one minute about a pertinent issue. Have a go at transcribing, cleaning and coding what they have said.
- Find a peer reviewed journal article and look at the wording of the conclusion. Is the author hedging their bets or drawing big statement conclusions?



An opportunity for questions...