

Lines of Enquiry

Using and analysing data

Learning outcomes

- To consider some of the different ways of analysing data
- To be aware of when to use different types of data presentation
- To develop ability to present and manage data effectively

Data types

Quantitative

Qualitative

Quantitative Data

- Think 'quantity' = how much?
- Numbers
- %
- Ratios (e.g. 3 out of 4)



Quantitative Data

- 24% of pupils receive free school meals
- Pupil A's attendance is 87%
- 2 out of 3 members of staff are Welsh speaking
- The school has 687 pupils on roll

Quantitative Data

- Tables and graphs need to be clearly labelled and scales fairly chosen
- You should always question your reason for including a graph or a table – avoid the temptation to put things in merely to fill pages

Qualitative Data

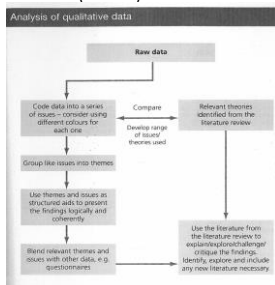
- Descriptive
- Narrative
- Detailed
- Paints a picture



Qualitative Data

- ▶ The catchment area for the school includes rural and urban areas
- ▶ Child A has a large circle of friends in the class
- ▶ The school offers a variety of after school clubs and activities

Coles & McGrath (2010)



Producing graphs

Graphs – Must have

- ▶ Descriptive title
- ▶ Clear labels – on each axis
- ▶ Suitable, clear scale on each axis
- ▶ Distinct colour tones
- ▶ Key (if colour coding is not obvious)

Tables v figures

Tables	Figures
Anything that has rows and columns	Everything else

Demographic data - TAs responding to questionnaire			
Level of role		Setting	
	1	84%	Mainstream
	2	6%	STF
	3	56%	MS + STF
			68%
			14%
			16%
Years of experience as a TA	Range: 1 - 27 Average : 7.7	Years of experience with ALN	Range: 1 - 25 Average : 6.9
Hours worked per week	Range: 10-38 Average : 27	Induction training attended?	Yes: 68% No: 26%
Support provided	To student: 63% To teachers: 2% Both: 31%		

Expectations of the TA		
I am aware of what is expected of me at all times	Agree/Strongly agree	79%
I have knowledge of the children's IEPs/ Targets	Agree/Strongly agree	75%
I feel that the school is aware of my strengths and skills	Agree/Strongly agree	46%
I feel the school uses my strengths and skills well	Agree/Strongly agree	45%
I sometimes feel I have too little responsibility	Disagree/Strongly disagree	42%
I am encouraged to use my initiative within my own area/child	Agree/Strongly agree	68%
I keep a record of the work I carry out	Agree/Strongly agree	60%

How old were you when you first registered for your degree?

Table 12.3 Age distribution of students at initial registration

Age	Number of students
20-29	34
30-39	10
40-49	4
50-59	1
60+	1
Total	50

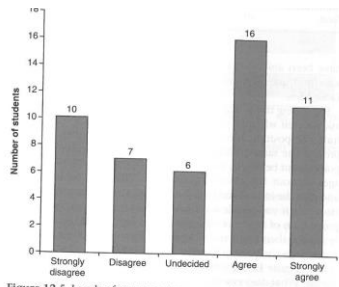


Figure 12.5 Levels of agreement among mature students (n = 50) that chances of success in finals are good

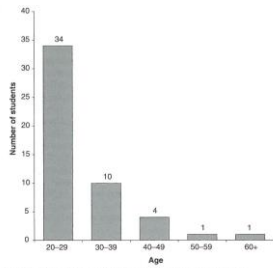


Figure 12.2 Age distribution of mature students at initial registration

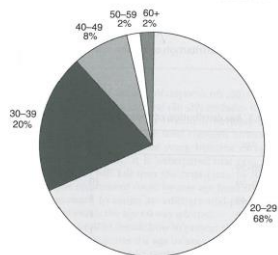
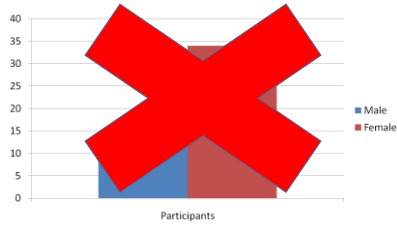
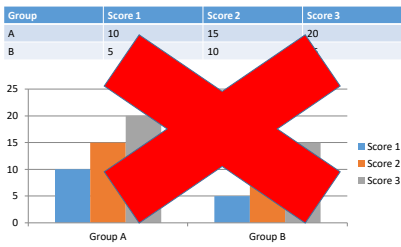


Figure 12.3 Age distribution of students at the start of their course

Not suitable presentation of data...

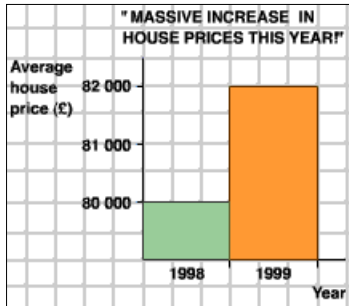


Not suitable presentation of data...

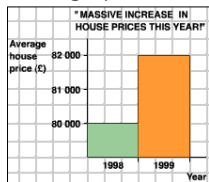


Misleading Graphs and Statistics

Borrowed from:
www.mrhammond.org/math/mathlessons/7-8.ppt



Why is this graph misleading?



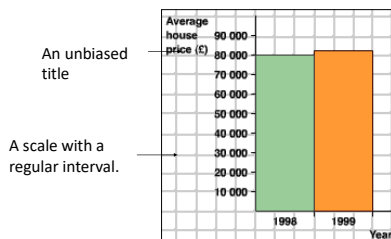
← This title tells the reader what to think (that there are huge increases in price).

The scale moves from 0 to 80,000 in the same amount of space as 80,000 to 81,000.

The actual increase in price is £2,000 - less than a 3% increase.

The graph shows the second bar as being 3 times the size of the first bar, which implies a 300% increase in price.

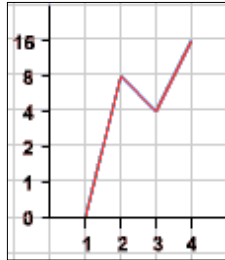
A more accurate graph:



This shows a more accurate picture of the increase.

Why is this graph misleading?

The scale does not have a regular interval.



Reducing qualitative data

- Highlight themes which recur
- Use quotations from responses / data collection to illustrate points you make

Questionnaire to Teaching Assistants

Open-ended items:

Example of qualitative data – supervision of teaching assistants.

Question 6:
Please list the things which your
supervisor does to supervise
you.

D. Present as percentages of total

Organising	22 (41%)
Training / prof'l devel.	15 (28%)
Support	13 (24%)
Other	4 (7%)

Reporting

Example:

Themes which occurred most frequently in response to question 6 were: Organisation, Training/Professional Development, and Support.

Organisation included such tasks as timetabling, cover for absent staff, and assigning work groups. This accounted for 41% of all responses.

Training / Professional Development included such items as... and accounted for 28%...

Table 1

Pupil	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Score	5	9	12	8	8	6	7	8	7	3	11	2	10	4

- Mean
- Median
- Mode
- Range
- P107 Sharp

DESCRIPTIVE STATISTICS

The simplest statistical test is to calculate a mean or average for a series of numbers such as test scores. Here are some test scores:

Table 1

Pupil	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Score	5	9	12	8	8	6	7	8	7	3	11	2	10	4

- Use Table 1 to calculate the mean test result by adding all the scores and dividing by the number of individual scores.
- Determine the median or middle test score by ranking them (put them in ascending order).
- Determine the modal or most common score.
- Determine the range of the scores by subtracting the lowest from the highest.

- Coles, A & McGrath J (2010) *Your Education Research Project Handbook*. London: Pearson
- Sharp J (2012) *Success with your Education Research Project*. London: Learning Matters

With thanks to Dr J Morgan UWTSD for some slides
