



CBA2 Statistical Investigation: Guessing a Minute

Maths cba 2

Who is best at guessing a minute? Students or Teachers?

An Investigation to see if there is any evidence to show that one group is better than the other at guessing a minute



Poses a question that anticipates variability and seeks generalisation



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Introduction

I chose this cos one day we had a minute silence and me and my friends taught it was too long. When the cba came I taught it was a good topic to see if students are worse than teachers at guessing a minute.

What I did.

I asked everyone in my class to help me with my cba but I didn't tell them what they had to do till we got to a quiet place cos of COVID my teacher gave me her office and I was more then 2m away from the person and we wore masks. Everyone in my class said they would help that was 25 so I taught 30 was a better amount so I got 5 from another class to do it too. For the teachers I asked my maths teacher to ask in the staff room if they would do it with me. 30 teachers signed up to help me which is what I needed for a fair test.

Chosen measuring
strategy will provide
valid and reliable
data



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Here is what I wrote for the teachers in the staffroom

Please help me with my cba in maths

Where? [REDACTED] office

When? Friday from 10-11

It will take about 5 mins and I will explain what is involved when you come to the office. What we are doing is confidential so I can get reliable results.

Please wear a mask and use the hand sanitiser and don't tell anyone the question I asked.

Chosen measuring strategy with provide valid and reliable data



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To keep the fairness I brought the people to the same place used the stopwatch on my fone and in a quiet place I said Go and started the clock and the person had to say stop when they taught a minute was up. I rounded to the nearest minute and wrote down the time.

When I had all the data I put them in tables

Data

Students

53	47	55	56	55
43	62	55	49	60
53	53	53	56	55
53	62	60	55	47
65	55	59	57	48
47	63	54	64	55

Takes account of confounding variables

Incorrectly states minutes when it is clear from the data they meant seconds

Chosen measuring strategy will provide valid and reliable data

Data collected is appropriate for the the question posed



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Teachers

59	56	58	59	61
58	62	59	61	62
57	56	63	56	55
53	62	63	59	59
61	59	59	59	61
59	63	62	59	61



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Analysing the results.

First I did a tally and a frequency table so it would make it easier to draw graphs

Students

53	47	55	56	55
43	62	55	49	60
53	53	53	56	55
53	62	60	55	47
65	55	59	57	48
47	63	54	64	55

43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
/				///	/	/				///	/	///	//	/		/	//		//	/	/	/
1	0	0	0	3	1	1	0	0	0	5	1	7	2	1		1	2	0	2	1	1	1
Total																					30	

Uses appropriate data displays



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Teachers

59	56	58	59	61
58	62	59	61	62
57	56	63	56	55
53	62	63	59	59
61	59	59	59	61
59	63	62	59	61

53	54	55	56	57	58	59	60	61	62	63
/		/	///	/	//	//// ////		///	////	///
1		1	3	1	2	10	0	5	4	3
										30

Uses appropriate data displays



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I drew a back-to-back stem and leaf plot first to see a pattern but it was confusing so I drew line plots instead. I put the stem and leaf plot in here for you to see and the mean guesses.

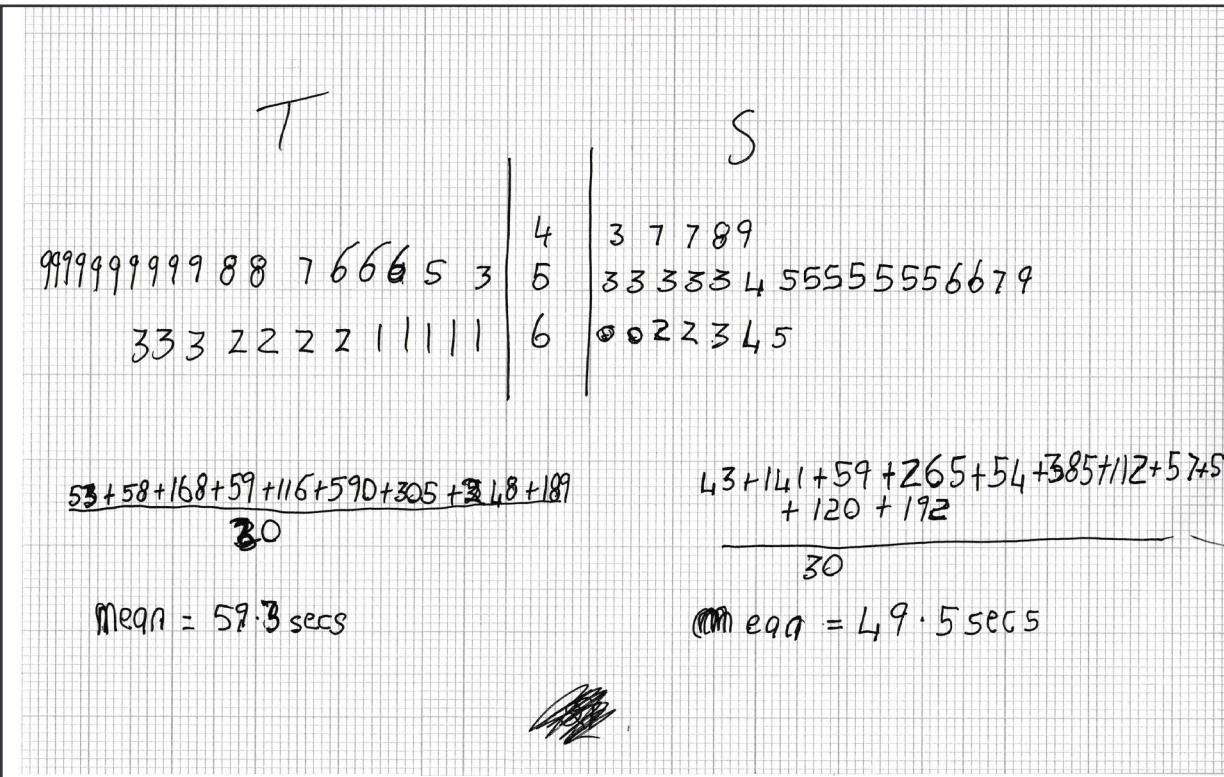
Mean for students 49.5 secs

Mean for teachers 59.3 secs

The line plot let me see patterns and made it easy to get the median guesses and the modes.

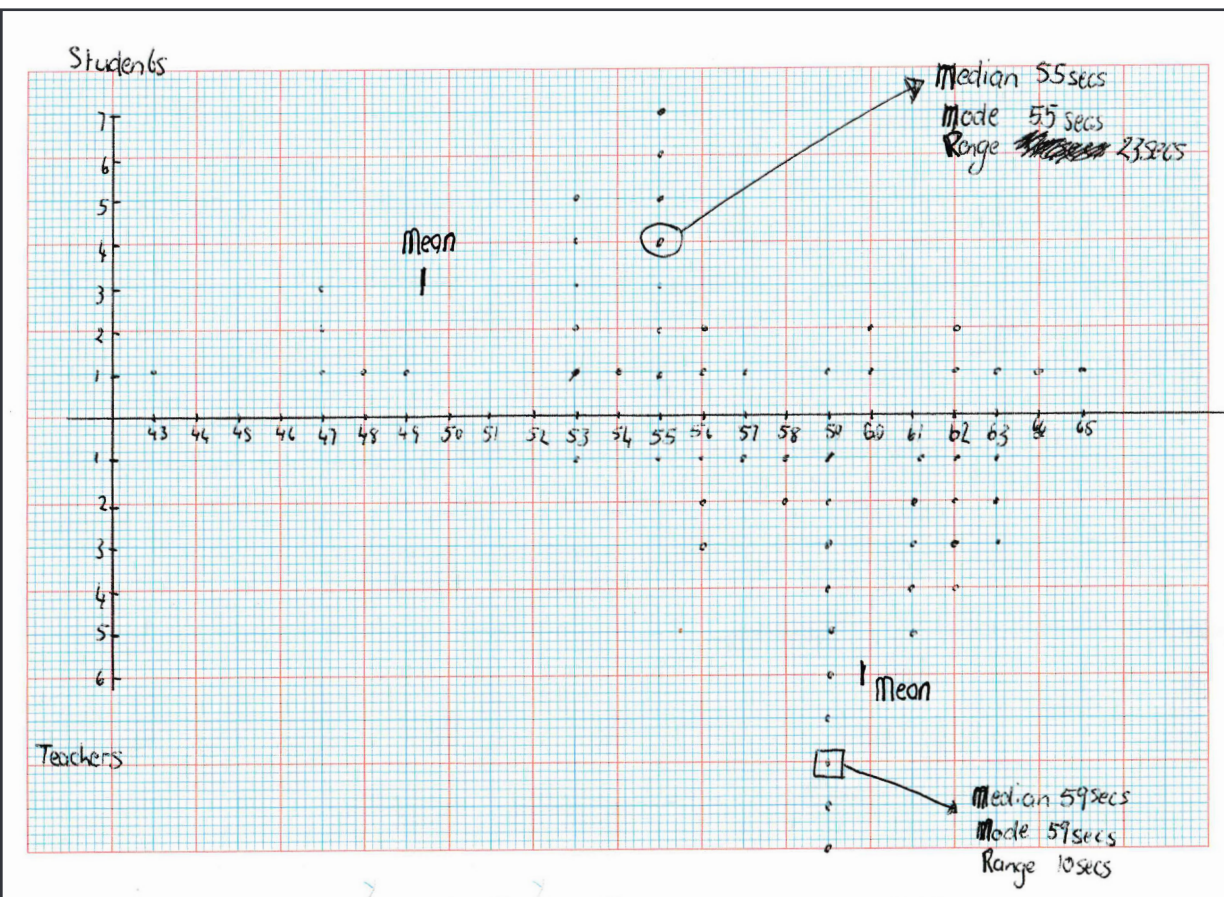


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Uses appropriate data displays

Errors made in calculating the means



Attempts to use the distribution to analyse the data

Data display allow patterns to be identified

Uses appropriate data displays



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I am saying that Teachers are better than students for these reasons

- The range of guesses for teachers was 10 secs much less than for students the range for them was 23 secs you can see the teacher guesses were bunched around 60secs while the students guesses were more spread out
- The median guess for teachers was 59secs which is really close to the right number of seconds but the median for students was 55 secs which was a bit further away from the real value.
- The mean for teachers is 59.3 secs which makes more sense cos the guesses are bunched together and the range is small. For the students the mean is 49.5 secs this isn't really any use cos the range is so big

Describes data in terms of measures of centre and spread justifies measures of centre and spread used to describe the data



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- Even though no teachers actually guessed 60secs and 2 students did I still think that as a group teacher are better than students at guessing a minute.

This test was only for my school and my teachers. I would need to get more evidence if I was to be sureer about saying that teachers are better than students at guessing a minute. I would have to get a sample of the whole country of teachers and of students and maybe even the world I would even need to make sure that there was students from different classes and I would have to have much bigger samples. It would take me ages to get the data and I would probably need to get a computer to help me analysis it so I'm not doing that for my cba cos I only have 3 weeks. For this cba I'm confident to say teachers are better cos my class and teachers are just like other classes and teachers.

Attempts to look beyond the data

Interprets the the data in relation to the original question; conclusion shows awareness of limitations in generalising to the population



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I really liked doing this cba and my teacher asked could I tell if boys are better than girls, I didn't keep a record of what boys said and girls said so for this cba I can't.

Thanks for reading my cba



Overall judgement:  Above expectations