GPA VS SCREEN TIME

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RESEARCH Q. : DOES SCREEN TIME EFFECT HIGH SCHOOL STUDENTS GPA?

INTRODUCTION

The widespread use of digital devices raises concerns about their impact on the academic performance of students. Screen time is defined as non-educational hours spent on devices. We surveyed a sample of 50 high school students, gathering self-reported data to compare the average daily screen time against their current GPA, to determine if screen time does have an impact on students GPA.

AIM

To investigate whether the amount of screen time high school students engage in has an effect on their GPA.

HYPOTHESIS

The higher the screen time is, the lower the GPA will be.

DATA COLLECTION

Method: Primary data collection via an anonymous survey

Justification: Primary data allows us to collect two specific pieces of information (screen time and self-reported GPA) from the same student at the same time, ensuring the data is appropriate for our question. The use of an anonymous survey encourages honest reporting of both variables.

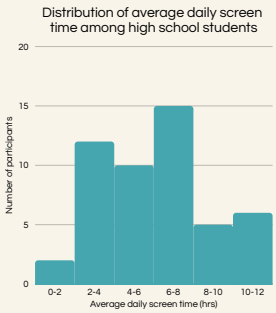
Reliability and Bias: The data may suffer from response bias as students might overestimate or underestimate their screen time. The use of self-reported GPA may also introduce error compared to official records. To improve reliability, we used a large, diverse sample (50).

Data Source Reference: Survey distributed to students at Rossmoyne Senior High School from the 20th of Oct - 31st of Oct

Paired data: A selection of 10 participants

Participants	Avg daily screen time	GPA
1	5hrs	4.2
2	6hrs	4.1
3	7hrs	3.6
4	3hrs	4.8
5	3hrs	4.7
6	6hrs	4
7	5hrs	4
8	8hrs	3.8
9	10hrs	2.1

FIRST DATA SET



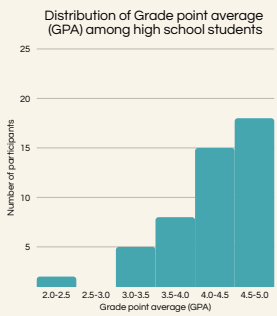
ANALYSIS OF FIRST DATA SET:

The distribution of avg daily screen time is unimodal and negatively skewed. This skewness is confirmed because the mean (5.5hrs) is slightly lower than the median (6hrs), indicating the data clusters toward the higher time values (6-8). The peak of the data falls within the 6-8 bin. There are no extreme outliers observed in the data range (1 to 10 hrs). Therefore, this graph indicates that most students screen time are around the median of 6hrs.

MEASURES OF CENTRE & SPREAD: FIRST DATA SET

Mean: 5hrs and 30min (5.5)
Median: 6hrs
Mode: 6hrs
Range: 9hrs

SECOND DATA SET

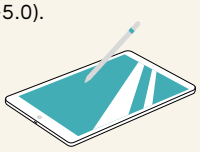


ANALYSIS OF SECOND DATA SET:

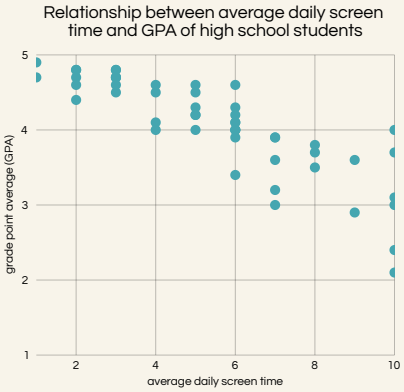
The distribution of GPA, is bimodal, conveying a split within the student population. The concentration of data is heavily weighted toward the high end of the scale, which results in the overall distribution being negatively skewed. This skewness is counter-balanced by the data's bimodal nature, as the mean and median are the same, which suggests a strong balance around the center. The primary feature of the data is its bimodal shape, with two major groupings of students. There are no outliers observed in the data. Indicating a high overall academic achievement among students, with the performance distribution split into two distinct groups (3.5-4.0 and 4.5-5.0).

MEASURES OF CENTRE & SPREAD: SECOND DATA SET

Mean: 4.1
Median: 4.1
Mode: 4.0
Range: 2.8



COMPARISON GRAPH



ANALYSIS OF THE COMPARISON GRAPH:

The scatter plot displays a negative linear relationship between average daily screen time and GPA. The form of the relationship is linear, with the data points sloping downwards from left to right. This observation suggests that, based on the data, increased screen time does appear to negatively affect GPA, as the two variables move in opposite directions. clearly showing that the students with high GPAs are concentrated at the low end of the screen time axis, and students at the high end of the screen time axis have lower GPAs. A significant outlier is present, corresponding to the student with the highest recorded screen time (10hrs) and the lowest GPA (2.1), which exaggerates the idea that the higher your screen time is the lower your GPA will be.

CONCLUSION:

The statistical analysis, supported by the negative linear correlation shown in the scatter plot, determines that screen time does negatively affect the GPA of high school students, our hypothesis was right. The screen time distribution graph is unimodal and negatively skewed), peaking at 6-8 hours. The GPA distribution is bimodal, indicating two distinct high-achieving groups. A limitation is the primarily self-reported data and a small sample size, meaning there is a possibility of some participant slying about their screen time or GPA, making our results less valid and the small sample size isn't big enough to represent all high school students. Future studies should use objective data and larger samples to confirm these findings.