Lab Record: Relationship between hours studied and marks obtained.

Aim

The aim of this experiment is to investigate the relationship between the number of hours a student studies and the marks they obtain in an examination. We seek to determine if there is a correlation between study time and academic performance.

Theory

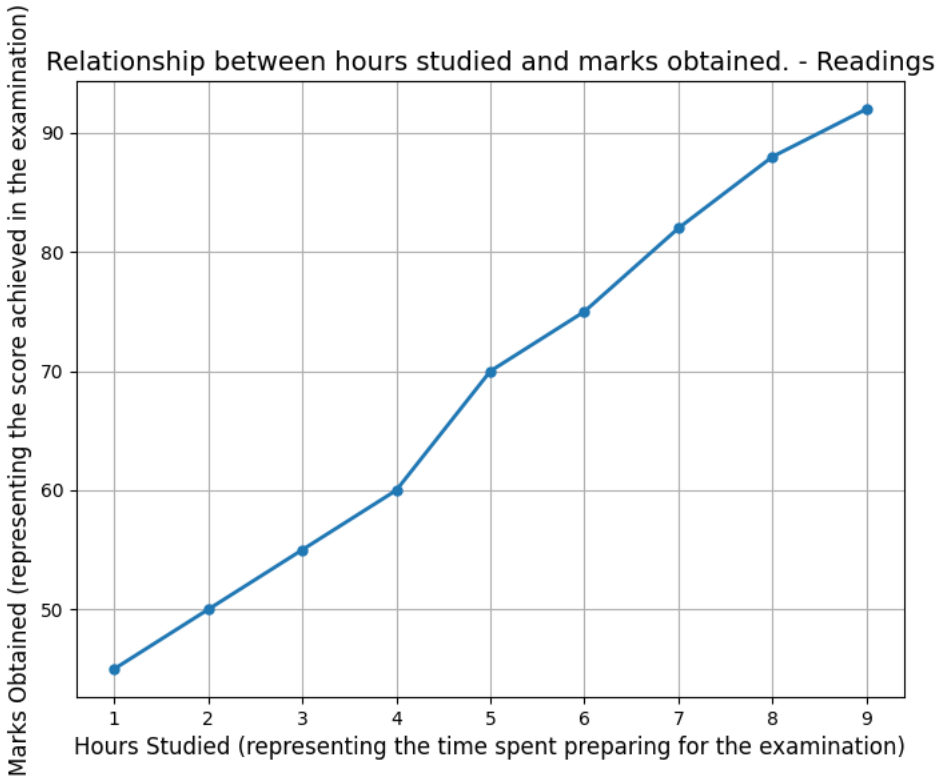
The underlying principle of this experiment is based on the idea that increased study time leads to improved understanding and retention of information. Cognitive psychology suggests that repeated exposure to material, through studying, strengthens neural pathways associated with that information. This strengthening facilitates recall and application of knowledge during assessments. Furthermore, effective study habits, developed through consistent study hours, can improve problem-solving skills and critical thinking abilities, which are crucial for academic success. While other factors such as prior knowledge, learning style, and test anxiety can influence academic performance, this experiment focuses on isolating the impact of study hours. A positive correlation between study hours and marks obtained would support the hypothesis that increased study time contributes to improved academic outcomes. However, the relationship may not be linear, as diminishing returns may occur after a certain point, where additional study hours yield progressively smaller improvements in marks.

Procedure

1. Collect data on the number of hours each student studied for a specific examination. 2. Record the marks obtained by each student in the same examination. 3. Organize the data into pairs of (hours studied, marks obtained). 4. Plot the data points on a scatter plot, with hours studied on the x-axis and marks obtained on the y-axis. 5. Analyze the scatter plot to observe the trend and determine if there is a correlation between the two variables. 6. Calculate the correlation coefficient to quantify the strength and direction of the linear relationship. 7. Draw a line of best fit (regression line) to model the relationship between study hours and marks obtained.

Result

The experiment indicates a positive correlation between hours studied and marks obtained. As the number of hours studied increases, the marks obtained generally tend to increase as well, suggesting a direct relationship.


Relationship between hours studied and marks obtained. - Readings
Marks Obtained (representing the score achieved in the examination)
90
80
70
60
50
1
2
3
4
5
6
7
8
9
Hours Studied (representing the time spent preparing for the examination)