Student Performance Analysis Results and Recommendations

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# Data Cleaning Steps

Gender, Race/Ethnicity, Parental Level of Education, Lunch, Test Preparation Course - All the data was stored and saved in lower case, so we used the Proper Function to capitalise each word.

Example - =Proper(A3)

Checked for any duplications - None were found

Used the Trim() function and Clean() function as well

Created an Average Score Column - Did this by calculating the average using the function Average() and using the math score, reading, and writing scores. =AVERAGE(F2:H2)

Pass/Fail - Utilised an IF statement to determine whether the average score is greater than or equal to 50, resulting in a pass or fail status. Example - =IF(I2>= 50, "Pass", "Fail")

Performance Category - Utilised an IF statement to determine the performance category. Example - =IF(I2>=90,"Excellent",IF(I2>=75,"Good",IF(I2>=50,"Average","Poor")))

# General Analysis

From the created dashboard, firstly, the average Math score is below the target for each student. The target goal is 70; however, the recorded amount is 68.91. The average reading and writing scores are 72.11 and 71.15, respectively. Secondly, the average score for students who have a Free/Standard lunch is 8.64 lower than that of students who have a 70.84.

From the dashboard in the parental level of education with students with a pass/fail the students with the most pass/fail are the students who have a parent with Some College Education, the students with parents with High School experience has the most fails while the lowest amount of fails with one is the parents with a master’s degree.

Out of the 1000 students, 897 passed, while 103 students failed with the pass mark. For test preparation courses, students who completed the study had an average score of 72.67, while those who had not completed the full study got a score of 65.04. The Average Pass score was 90.72, while the average failure score was 42.07.

# Gender Analysis

## 2.1 Male Analysis

From the dashboard, it shows that 418 Males passed, while 64 didn’t. On the dashboard, we can see that for the male gender that the average reading and writing score is lower than the 70 mark goal, while Maths had a positive result with a score of 72.13.

The average pass score for the males was 69.22, while the average failure mark was 43.72. The parental level of education for males with a pass or fail showed that those who passed had some college experience, whereas most failures came from parents with a high school level of education. A master's Degree has the least number of failures.

The average score per the lunch the males were having was that the ones who had a standard were 68.36, while the ones free or reduced were 61.04. The Average Score for those who made complete test preparations was 70.76, and the average score for those who did not was 63.04.

## 2.2 Female Analysis

From the dashboard, 479 Females passed while 39 didn’t. On the dashboard, we can see that for the female gender that the average reading and writing score is higher than the 70 mark goal, while Maths had a negative result with a score of 66.10. The average pass score for the males was 72.03, while the average failure mark was 39.35.

The parental level of education for females with a pass or fail showed that those who passed had some college experience, whereas most failures came from parents with high school-level experience or some high school education, with a master’s degree having no failures.

The average score per the lunch the females were having was that the ones who had standard were 72.22, while the ones free or reduced were 63.22. The average score for those who made complete test preparations was 74.46, and for those with none, it was 66.88.

# Race / Ethnicity Analysis

## 3.1 Group A

From the dashboard, 73 students passed from Group A, while 16 students failed. In terms of the averages of the subjects of reading, writing and math scores, they are below the goal of 70 for each of the respective subjects. The average pass score for group A was 67.22, while the average failure score was 43.69.

The parental level of education for group A, with a pass or fail, showed that those who passed had some high school experience, whereas most failures came from parents with also high school experience. The master’s degree and the bachelor’s degree had no failures.

The average score per the lunch the group was having was that the ones who had standard were 66.62, while the ones free or reduced were 57.66. The average score for those who made complete test preparations was 70.06, and for those with none, it was 59.21.

## 3.2 Group B

From the dashboard, 734 students passed from Group A, while 76 students failed. Group B Average Reading Writing Score was above the goal of 70; however, Average Maths falls short of 69.24. The average pass score for group A was 70.99, while the average failure score was 42.40.

The parental level of education for group B, with a pass or fail, showed that those who passed had some college experience, whereas most failures came from parents with high school experience as well. The least was the parents with a master’s degree had 1 fail.

The average score per the lunch the group was having was that the ones who had standard were 71.49, while the ones free or reduced were 62.49. The average score for those who made complete test preparations was 73.14, and for those with none, it was 65.61.

## 3.3 Group C

From the dashboard, 287 students passed from Group C, while 32 students failed. Group C Average Reading Writing Score was above the goal of 70; however, Average Maths has a score of 67.13. The average pass score for group C was 69.96, while the average failure score was 41.74.

The parental level of education for group C, with a pass or fail, showed that those who passed had parents who had an associate degree, whereas most failures came from parents with also high school experience. Master's Degree had 1 fail.

The average score per the lunch the group was having was that the ones who had standard were 70.87, while the ones free or reduced were 60.41. The average score for those who made complete test preparations was 71.87, and for those with none, it was 64.39.

## 3.4 Group D

From the dashboard, 243 students passed from Group D, while 19 students failed. Group D's average reading and writing score was above the goal of 70; however, the average maths score of 69.21. The average pass score for Group D was 71.22, while the average failure score was 43.09.

The parental level of education for Group D, with a pass or fail, showed that those who passed had parents who had some college, whereas most failures came from parents with high school experience as well. Master's Degree had 0 fails.

The average score per the lunch the Group D was having was that the ones who had standard were 71.75, while the ones free or reduced were 64.67. The average score for those who made complete test preparations was 73.53, and for those with none, it was 67.20.

## 3.5 Group E

From the dashboard, 131 students passed from Group E, while 9 students failed. Group E's average reading, average writing and average math scores were over the goal of 70. The average pass score for group A was 74.93, while the average failure score was 41.04.

The parental level of education for Group E, with a pass or fail, showed that those who passed had parents who had an associate degree, whereas most failures came from parents with also had some high school experience as well as an associate degree. Master's Degrees, and some had 0 failures.

The average score per the lunch the group was having was that the ones who had standard were 74.93, while the ones free or reduced were 67.50. The average score for those who made complete test preparations was 76.69, and for those with none, it was 69.80.

# Performance Category Analysis

## 4.1 Poor Category

The dashboard shows that 103 students have failed. Poor Category has an average reading score of 43.56, an average writing score of 41.13 and an average math score of 41.51. The average failure score was 42.07. The parental level of education with the poorest score is the parents with High school education only, with the master's having the lowest.

The average score per the lunch for the poor performances was those who had standard lunch, 44.46, while the ones free or reduced lunch were 40.28. The average score for those who made complete test preparations was 44.63, and for those with none, it was 41.43.

## 4.2 Average Category

The dashboard shows that 537 students passed. Average Category has an average reading score of 65, an average writing score of 64.01 and an Average math score of 61.88. The Average Pass score was 63.63. The parental level of education with the most Average students is the parents with some college, with the master's being the lowest.

The average score per the lunch for the poor performances was those who had standard lunch, 64.78, while the ones free or reduced lunch were 61.77. The average score for those who made complete test preparations was 65.28, and for those with none, it was 62.88.

## 4.3 Good Category

The dashboard shows that 272 students passed. Good Category has an average reading score of 82.60, an average writing score of 81.58 and an Average math score of 79.21. The Average Pass score was 81.13. The parental level of education with the most Good students is the parents with an associate's degree college with the master's being the lowest.

The average score per the lunch for the good performances was those who had standard lunch, 81.38, while the ones free or reduced lunch were 80.44. The average score for those who made complete test preparations was 81.18, and for those with none, it was 81.01.

## 4.4 Excellent Category

From the dashboard, it shows that 52 students gained this category. Excellent Category has an average reading score of 95.58, an average writing score of 95.23 and an Average math score of 92.46. The excellent pass score was 94.42. The parental level of education with the most Excellent students is the parents with an associate degree from college, with the master's being the lowest.

The average score per the lunch for the Excellent performances was those who had standard lunch, 96.50, while the ones free or reduced were 94.25. The average score for those who made complete test preparations was 94.23, and for those with none, it was 94.82.

# Race / Ethnicity Analysis by Gender

## 5.1 Male Group A

From the dashboard, it shows that 41 Students passed with 12 failing. Male Group A Category has an average reading score of 67.15, an average writing score of 64.24 and an average math score of 68.83The average Pass score was 66.74, while the average failure score was 43.78. The parental level of education that the students’ parents had was some high school experience and a bachelor’s degree, as well as both bachelor’s and master’s degrees, having no failures at all.

The average score per the lunch for the male Group A performances was those who had standard lunch 63.74, while the ones free or reduced were 58.44. The average score for those who made complete test preparations was 67.72, and for those with none, it was 58.09

## 5.2 Male Group B

From the dashboard, it shows that 71 Students passed, with 15 failing. Male Group B Category has an average reading score of 58.09.....9, an average writing score of 64.58 and an average math score of 70.08. The average pass score was 67.22, while the average failure score was 43.04.

The parental level of education that the students’ parents had was some college education while master’s degree had no fails The average score per the lunch for the male Group b performances was those who had standard lunch 66.40, while the ones free or reduced were 56.66 The average score for those who made complete test preparations was 70.75, and for those with none, it was 58.18

## 5.3 Male Group C

From the dashboard, it shows that 121 Students passed, with 18 failing. Male Group C Category has an average reading score of 68.60, an average writing score of 65.80 and an average math score of 70.72. The average pass score was 68.37, while the average failure score was 44.24. The parental level of education that the students’ parents had high school experience while master’s degrees and bachelor’s degrees both had 1 failure.

The average score per the lunch for the male Group C performances was those who had standard lunch 68.44, while the ones free or reduced were 59.92. The average score for those who made complete test preparations was 68.69, and for those with none, it was 63.44

## 5.4 Male Group D

From the dashboard, it shows that 118 Students passed with 15 failing. Male Group D Category has an average reading score of 63.44, an average writing score of 68.32 and an average math score of 72.23. The Average Pass score was 69.81, while the average failure score was 44.76.

The parental level of education was that the students’ parents had some college experience, while master’s degree had no failures. The average score per the lunch for the male Group D performances was those who had standard lunch 68.91, while the ones free or reduced were 63.10. The average score for those who made complete test preparations was 71.63, and for those with none, it was 65.13.

## 5.5 Male Group E

From the dashboard, it shows that 67 Students passed, with 4 failing. Male Group E Category has an average reading score of 72.15, an average writing score of 69.22 and an average math score of 78.72. The average Pass score was 73.36, while the average failure score was 39.92. The parental level of education was that the students’ parents had some college experience, while an associate degree had the most fails, and master’s degree and bachelor’s degree, high school and some college education had no fails.

The average score per the lunch for the male Group E performances was those who had standard lunch 72.06, while the ones free or reduced were 68.55. The average score for those who made complete test preparations was 74.32, and for those with none, it was 68.55

## 5.6 Female Group A

From the dashboard, it shows that 32 Students passed, with 4 failing. Female Group E Category has an average reading scor68.55.....71.78, an average writing score of 70.81 and an Average math score of 60.94. The average Pass score was 67.84, while the average failure score was 43.42. The parental level of education that the students was some college experience and some high school experience.

While Some High school education had the most fails, and master’s degrees and bachelor’s degrees had no fails. The average score per the lunch for the male Group A performances was those who had standard lunch 70.67, while the ones free or reduced were 56.43. The average score for those who made complete test preparations was 73.78, and for those with none, it was 60.80

## 5.7 Female Group B

From the dashboard, it shows that 92 Students passed, with 12 failing. Female Group B Category has an average reading score of 60.80.....4.51, an average writing score of 73.88 and an average math score of 65.60. The Average Pass score was 71.27, while the average failure score was 38.72. The parental level of education that the students’ parents had High School Education.

While Some High school education had the most fails, and master’s degrees and bachelor’s degrees had no fails. The average score per the lunch for the male Group B performances was those who had standard lunch 69.44, while the ones free or reduced were 64.30The average score for those who made complete test preparations was 70.54, and for those with none, it was 65.97.

## 5.8 Female Group C

From the dashboard, it shows that 166 Students passed with 14 failing. Female Group C Category has an average reading score of 74.43, an average writing score of 734.43 and an average math score of 64.52. The average pass score was 71.212, while the average failure score was 38.52. The parental level of education that the students was an associate degree.

While High school education had the most fails, and a master’s degree had no fails. The average score per the lunch for the male Group C performances was those who had standard lunch 72.66, while the ones free or reduced were 60.83. The average score for those who made complete test preparations was 70.84, and for those with none, it was 65.17.

## 5.9 Female Group D

From the dashboard, it shows that 125 Students passed with 4 failing. Female Group D Category has an average reading score of 75.15, an average writing score of 76.12 and an average math score of 66.37. The average pass score was 72.55, while the average failure score was 36.84.

The parental level of education was that the students’ parents had some college experience. While every other level of education had one failure besides the master’s degree had none. The average score per the lunch for the male Group D performances was those who had standard lunch 74.98, while the ones free or reduced were 66.02. The average score for those who made complete test preparations was 75.17, and for those with none, it was 69.51.

## 5.10 Female Group E

From the dashboard, it shows that 64 Students passed with 5 failing. Female Group E Category has an average reading score of 78.28, an average writing score of 78.19 and an Average math score of 73.25. The average pass score was 76.57, while the average failure score was 41.93. The parental level of education that the students was an associate degree.

While parents with high school education or some high school education had the most fails, those with an associate degree, a master’s degree and some college experience had no fails. The average score per the lunch for the male Group E performances was those who had standard lunch 78.23, while the ones free or reduced were 65.72. The average score for those who made complete test preparations was 80.25, and for those with none, it was 70.76.

# Gender by Performance Category

## 6.1 Male Poor

The dashboard shows that 64 students failed. The Male Poor Category has an average reading score of 43.53, an average writing score of 41.17 and an average math score of 46.48. The average failure score was 43.72. The parental level of education that the most failed came from parents with a High School education.

The average score per the lunch for the male poor performances was those who had standard lunch, 45.33, while the ones free or reduced lunch were 42.11. The average score for those who made complete test preparations was 46.05, and for those with none, it was 43.13.

## 6.2 Female Poor

From the dashboard, it shows that 39 students failed, the female poor category has an average reading score of 43.64, an average writing score of 41.05 and an average math score of 44.46. The Average failure score was 39.35. The parental level of education that the most failed came from was parents with High School and some higher education.

The average score per the lunch for the male poor performances was those who had standard lunch, 42.53, while the ones free or reduced lunch were 38.25. The average score for those who made complete test preparations was 40.93, and for those with none, it was 39.12.

## 6.3 Male Average

From the dashboard, it shows that 284 Students passed, the male average category has an average reading score of 62.77, an average writing score of 60.54 and an Average math score of 65.79. The average pass score is 63.03. The parental level of education that the most passed came from parents with a High School education.

The average score per the lunch for the male average performances was those who had standard lunch, 63.95, while the ones free or reduced were 61.46. The average score for those who made complete test preparations was 64.33, and for those with none, it was 62.43.

## 6.4 Female Average

From the dashboard, it shows that 289 Students passed, the male average category has an average reading score of 67.19, an average writing score of 67.42 and an Average math score of 58.05. The Average Pass score is 64.22. The parental level of education that the most passed came from parents with some college education.

The average score per the lunch for the female average performances was those who had standard lunch, 65.63, while the ones free or reduced were 62.04. The average score for those who made complete test preparations was 66.25, and for those with none, it was 63.31.

## 6.5 Male Good

From the dashboard, it shows that 120 Students Passed, male good category has an average reading score of 80.28, an average writing score of 78.34 and an average math score of 84.40. The average Pass score is 81.01. The parental level of education that the most commonly passed came from parents with an associate's degree.

The average score per the lunch for the male average performances was those who had standard lunch, 81.38, while the ones free or reduced lunch were 79.79. The average score for those who made complete test preparations was 81.38, and for those with none, it was 80.65.

## 6.6 Female Good

From the dashboard, it shows that 152 Students Passed, female good category has average reading score of 84.43, an average writing score of 84.14 and an average math score of 75.1. The Average Pass score is 81.21. The parental level of education that the most commonly passed came from parents with an associate's degree and some college education.

The average score per the lunch for the male average performances was those who had standard lunch, 81.38, while the ones free or reduced were 80.86. The average score for those who made complete test preparations was 81.41, and for those with none, it was 81.01.

## 6.7 Male Excellent

From the dashboard, it shows that 14 Students Passed, the male excellent category has an average reading score of 93.71, an average writing score of 92 and an average math score of 95.71. The average Pass score is 93.81. The parental level of education that the most commonly passed came from parents with an associate's degree.

The average score per the lunch for the male average performances was those who had standard lunch, 97.67, while the ones free or reduced were 93.51. The average score for those who made complete test preparations was 93.59, and for those with none, it was 93.34.

## 6.8 Female Excellent

From the dashboard, it is shown that 38 students passed. The female excellent category has an average reading score of 96.26, an average writing score of 96.42, and an average math score of 91.26. The average pass score is 94.65. The parental level of education that the most commonly passed came from parents with an associate's degree.

The average score for lunch, based on the male average performances, was 94.52 for those who had a standard lunch, while it was 96.11 for those who received free or reduced lunches. The average score for those who made complete test preparations was 94.41, and for those with none, it was 95.02.

# Summary

Out of 1000 students, 897 passed, while 103 failed (pass threshold = 50).

**Average scores:**

- Math: 68.91 (just below the target of 70)

- Reading: 72.11

- Writing: 71.15

**Test Preparation Course**

• Students who completed a test prep course averaged 72.67, compared to 65.04 for those who did not.

• Prep completion correlates with better performance.

**Lunch Type**

• Students with standard lunch averaged 70.84.

• Those on free/reduced lunch scored 8.64 points lower, suggesting a link to economic disadvantage.

**Parental Education**

• Students whose parents had a master’s degree had the fewest failures.

• Most failures came from students whose parents had only a high school or some high school education.

**Gender Differences**

•Females outperformed males in reading and writing.

• Males slightly outperformed females in math.

• Females fail rate: 7.5%, Male fail rate: 13.3%.

**Race/Ethnicity Group Performance**

•Group E performed the best in all subjects.

• Group A consistently scored the lowest across all subjects.

**Performance Categories**

• Excellent: Avg. score ~94.4

• Good: Avg. score ~81.1

• Average: Avg. score ~63.6

• Poor: Avg. score ~42.1

# Recommendations

**Expand Test Preparation Access**

• Make test prep courses mandatory.

• Provide online/self-paced options for students with limited resources.

**Support Economically Disadvantaged Students**

• Introduce after-school tutoring or study groups for students on free/reduced lunch.

**Parental Engagement Programs**

• Educate parents, especially those without higher education, on how to support learning at home.

• Host parent-student workshops focused on study habits, literacy, and math support.

**Targeted Subject Support**

• Math is the weakest subject overall; launch math booster programs for struggling students.

• Use diagnostic assessments to personalise learning paths.

**Focus on Group A & C**

• Prioritise intervention programs in Group A and Group C.

• Assign mentors, peer support, or extra academic coaching.

**Gender-Specific Support**

•Create writing and reading interventions tailored for male students.

• Offer math confidence workshops, especially targeted at female students, to boost performance.