Visualizing Factors Influencing Student Exam Performance

Dataset

- Source: Kaggle – Students Performance in Exams (https://www.kaggle.com/datasets/spscientist/students-performance-in-exams)
- Size: 1,000 students
- Variables: gender, race/ethnicity, parental education, lunch, test prep, math/reading/writing scores

Objective

To explore how demographic and support factors (parental education, lunch, test preparation) influence student exam performance, and to present findings in an interactive Excel dashboard.

Key Insights

1. Test Preparation Matters

- Students who completed test prep scored ~8–10 points higher in all subjects.

Row Labels	Math Score (Avg)	Reading Score (Avg)	Writing Score (Avg)
completed	63.04580153	69.87022901	70.35114504
none	56.50892857	61.60267857	58.73660714
Grand Total	**58.92112676**	**64.65352113**	**63.02253521**

2. Lunch Program Effects

- Standard lunch students consistently outperformed free/reduced lunch students.

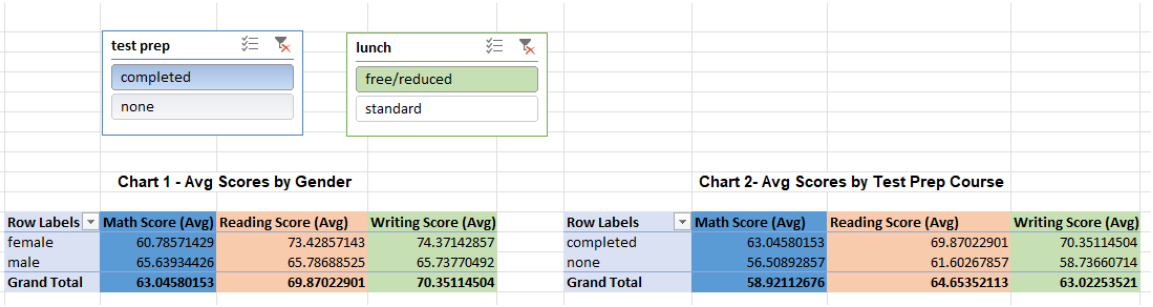
Row Labels	Math Score (Avg)	Reading Score (Avg)	Writing Score (Avg)
free/reduced	63.04580153	69.87022901	70.35114504
standard	73.53303965	76.21585903	76.76651982
Grand Total	**69.69553073**	**73.89385475**	**74.41899441**

3. Parental Education Influence

- Higher parental education levels are associated with higher average scores.

Row Labels	Math Score (Avg)	Reading Score (Avg)	Writing Score (Avg)
associate's degree	68.48275862	73.31034483	73.31034483
bachelor's degree	66.76470588	73.82352941	75.70588235
high school	60	65.45833333	65.54166667
master's degree	65.66666667	74.16666667	76.5
some college	60.73076923	68.96153846	69.38461538
some high school	57.86956522	66	65.56521739
Grand Total	**63.04580153**	**69.87022901**	**70.35114504**

Dashboard Preview



Row Labels	Math Score (Avg)	Reading Score (Avg)	Writing Score (Avg)
female	60.78571429	73.42857143	74.37142857
male	65.63934426	65.78688525	65.73770492
Grand Total	**63.04580153**	**69.87022901**	**70.35114504**

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completed	63.04580153	69.87022901	70.35114504
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Conclusion

Educational support programs (like test prep and meal access) can make a measurable difference in academic performance. Interactive dashboards in Excel allow quick exploration of these factors.

Created by Ridvan Bircicek | Tool: Microsoft Excel | Portfolio Project