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REPORT ON LEVERAGING DATA TO IMPROVE EDUCATION IN PUNJAB, PAKISTAN

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INTRODUCTION

The purpose of this report is to analyze the school data from various locations across Punjab, Pakistan, and propose data-driven initiatives to improve the education landscape. As a junior data analyst working with an international ed-tech company, I have been tasked with conducting a marketing feasibility analysis and justifying the allocation of funds worth 3 million US dollars for educational initiatives in Punjab. The ultimate goal is to leverage technology to bridge educational gaps, ensure equal opportunities for all students, and enhance infrastructure and facilities.

DATA SOURCE AND CLEANING

The dataset used for this analysis contains information on schools in Punjab, Pakistan. It includes essential columns such as School ID, School Name, Location, Enrollment, Teachers, School Upgradation Years, School Gender, Gender Studying, School Head Information, School Status, School Medium, Year of Establishment, Genders Studying, and Infrastructure.

Prior to analysis, the dataset was cleaned and manipulated to handle missing values, outliers, and inconsistencies. The data cleaning process ensured the accuracy and reliability of the subsequent analysis.

DATASET ANALYSIS AND KEY INSIGHTS

Total Number of Schools in Punjab, Pakistan is 481,911.
According to dataset there are **11,961,473** total students 6,224,834 of them are female and 5,736,639 are male.

District with the highest enrollment in primary schools is Rahimyar khan with 257,968 students.

District with the highest enrollment in secondary schools is Faisalabad with 362,868 students.

District with the highest enrollment in Higher Secondary schools is Faisalabad with 99,227 students.

No. of schools
481911

No. of students
female: 6224834
Male: 5736639

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Lowest Number of Students by School Level in Schools Established in the 2000s

District	# of schools
Primary	32045
Secondary	6671
Middle	8289
Higher secondary	751
sMosque	435

Urdu Medium Schools: There is a substantial number of Urdu medium schools in rural areas (30,534) compared to urban areas (2,753). This suggests that Urdu is widely used as a primary medium of instruction in rural educational settings.

English Medium Schools: English medium schools are present in both rural (4,274) and urban (1,214) areas, indicating a preference for English education regardless of geographical location.

Bilingual Approach: Schools offering education in both Urdu and English mediums are notable. There are 7,608 such schools in rural areas and 1,808 in urban areas. This reflects an effort to accommodate diverse language preferences and ensure comprehensive access to education.

This pie chart illustrates teacher distribution across schools by level: Primary (141,588), Secondary (133,246), Middle (90,577), Higher Secondary (24,794), and sMosque (1,011).


Number of teachers
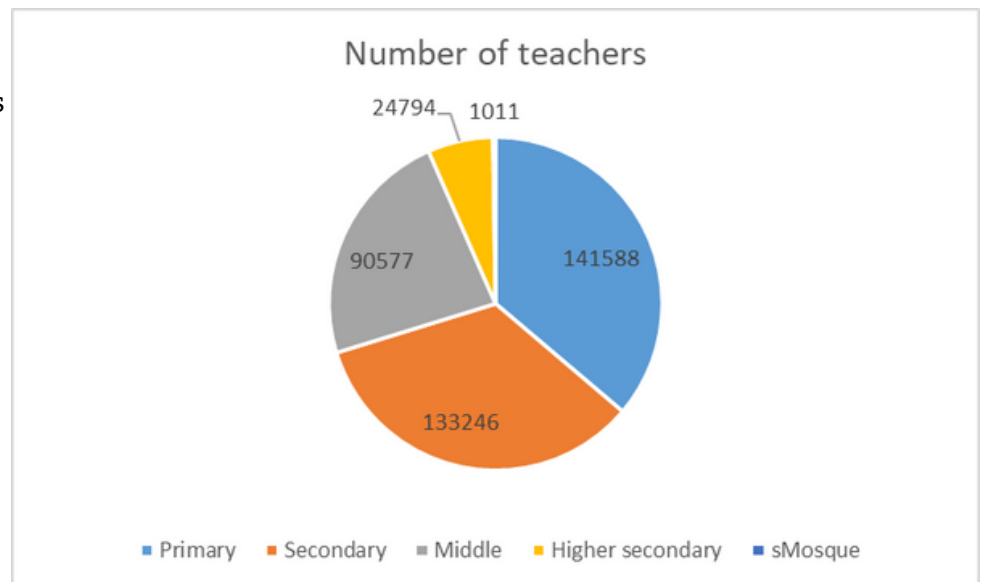
A pie chart depicts school distribution by level: Primary (32,045), Secondary (6,671), Middle (8,289), Higher Secondary (751), and sMosque (435).
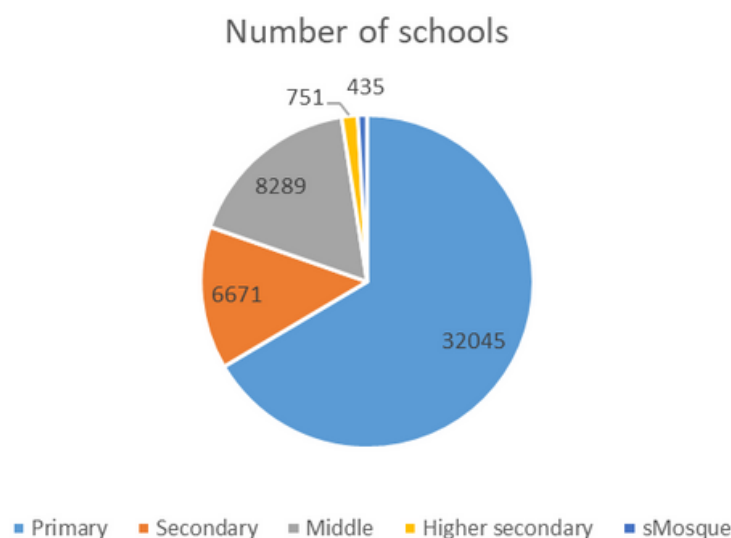
Number of schools

The bar chart below illustrates the distribution of teachers across different school levels, with Primary having the highest number of teachers (141,588), followed by Secondary (133,246), Middle (90,577), Higher Secondary (24,794), and sMosque (1,011). This data provides insights into the allocation of teaching resources in various educational tiers.
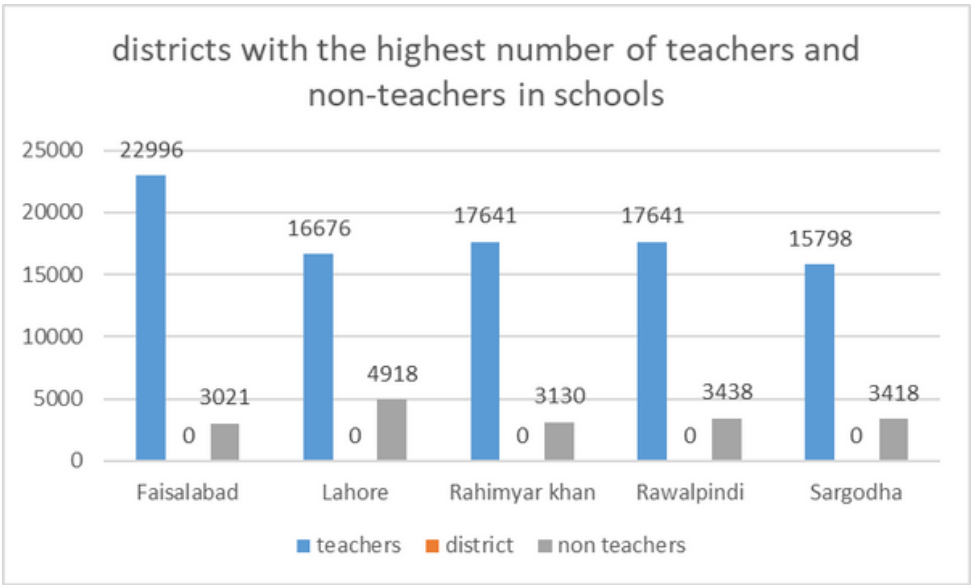
The data shows that Urdu-medium Secondary schools have the lowest number of functional classrooms, with a count of zero functional classrooms in this category.

percentage of schools with satisfactory building conditions: 74.95%

number of schools with satisfactory security measures: 33872

The following table provides an overview of school ownership distribution categorized by different ownership types. The table includes the number of schools under each ownership category, with a breakdown by school level.

School Ownership	Primary	Secondary	Middle	Higher Secondary	sMosque	Total # of schools
Building Provided By Local Residents	813	64	134	0	18	1029
Education Department	30311	6417	7962	744	237	45671
Municipal Building	283	120	133	1	0	537
On Rent	158	12	13	0	1	184
Property of any other institute besides the Municipal institute	78	31	19	4	0	132
Running in the Mosque	80	1	1	0	46	128
School council provided building	69	3	9	0	3	84
Some other govt. school	106	19	17	2	5	149
Unknown	147	4	1	0	125	277

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The data shows the distribution of teachers based on job posts, with 3,133,120 in permanent positions, 21,963 in "Lookafter charege," and 54,048 in "Additional charge" roles.

Job Post	# of Teachers
Permanent	3,133,120
Lookafter Charge	21,963
Additional Charge	54,048

The districts with the lowest availability of drinking water facilities in schools are Chiniot (697), Hafizabad (734), Nankana Sahib (748), Lodhran (755), and Mandi Baha ud Din (778).

The listed districts exhibit the lowest availability of electricity in schools, with Chiniot (696), Hafizabad (730), Nankana Sahib (743), Lodhran (749), and Mandi Baha ud Din (777) facing challenges in this regard.

The provided data reveals districts with minimal boundary wall presence in schools, ranked as follows: Chiniot (690), Hafizabad (720), Nankana Sahib (738), Lodhran (755), and Mandi Baha ud Din (770).

The provided data reveals districts with the lowest availability of toilets in schools: Chiniot (696), Hafizabad (731), Nankana Sahib (745), Lodhran (755), and Mandi Baha ud din (777).

BUDGET PLAN AND RESOURCE UTILIZATION

The following budget plan demonstrates the optimal allocation of resources for each initiative:

1. School Level Upgradation: 10 Million Rs
2. Infrastructure Improvement: 5 Million Rs
3. Facilities Enhancement: 2 Million Rs
4. Establishment of Middle and High Schools: 20 Million Rs
5. Establishment of New Primary Level School: 10 Million Rs

DATA-DRIVEN MARKETING STRATEGIES

- Targeted Social Media Campaigns

- Collaboration with Local Influencers and Educators

- Public Awareness Events and Workshops
- Partnerships with Local Authorities and NGOs

To promote the proposed initiatives effectively, the above data-driven marketing strategies are recommended

SUMMARY

In conclusion, this comprehensive report highlights key insights from the analysis of school data in Punjab, Pakistan. It provide budget plan for the allocation of funds to specific educational initiatives and proposes data-driven marketing strategies to promote these initiatives effectively. The budget plan ensures optimal resource utilization to maximize the impact of the fund. By implementing these initiatives, the ed-tech company can significantly contribute to improving the education landscape in Punjab and ensuring equal opportunities for all students.

SOURCES

The dataset to me is provided by
atomcamp
you can find the dataset here

Thank you for taking the time to review this report.

Contact

about me!