NAVIGATING THE EDUCATIONAL EMERGENCY IN PAKISTAN

THE STATE OF SCHOOLING IN PUNJAB, PAKISTAN

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Date:
15 December 2024

Navigating the Educational Emergency in Pakistan

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Introduction

The educational landscape in Punjab, Pakistan, faces complex challenges related to resource allocation, gender disparities, and infrastructure inadequacies. This report analyzes a comprehensive dataset on schools across Punjab, evaluating infrastructure conditions, enrollment trends, resource distribution, and teacher-to-student ratios. Using interactive visualizations and dynamic filtering, the dashboard developed for this analysis provides actionable insights to address gaps and inform policy interventions. The following sections outline key observations and recommendations derived from the analysis, focusing on co-education, infrastructure, and resource allocation.

Background

On International Literacy Day 2024, the Prime Minister of Pakistan declared an Educational Emergency to address the staggering number of out-of-school children. As part of this initiative, the Ministry of Education tasked a strategic team to analyze the state of schools in Punjab. This analysis leverages the latest data to identify gaps, optimize resource allocation, and propose targeted interventions to improve enrollment and learning outcomes.

Key Focus Areas

1. Trends in School Establishment Over Decades

- **Key Observations**:
    - The number of schools established steadily increased since the 1970s, however, the growth trend receded after the turn of the century.
    - High growth periods often align with government policies or reforms promoting education access.
- **Actionable Insights**:
    - In view of the increasing population and youth bulge, the current emergency offers an opportunity to allocate the required funds to repeat the growth momentum once again.

2. Infrastructure and Building Conditions

- **Key Observations**:

    - A quarter of of school buildings in Punjab are deemed unsatisfactory.
    - Districts like Bahawalpur, Bahawalnagar, Rawalpindi, and Sargodha have the highest proportions of unsatisfactory school buildings.

- **Actionable Insights**:

  - Prioritize infrastructure improvements in high-need districts.
  - Develop a robust monitoring framework to ensure timely completion of projects and maintain quality standards.

3. Resource Distribution Among Districts

- **Key Observations**:

  - Resource availability, such as teacher-to-student ratios and average enrollment, varies widely among districts.
  - Districts like Lahore and Rahimyar Khan have higher resource consolidation compared to underserved regions like Layyah and Chiniot.

- **Actionable Insights**:

  - Reallocate teaching staff from low-demand districts to overburdened ones to balance workloads.
  - Enhance teacher recruitment and training programs for underserved regions.

4. Enrollment and Gender Dynamics

- **Key Observations**:

  - Co-education is a welcome strategy around resource shortage in rural schools, at least at the primary level. This signals a willingness to adopt co-education with suitable social guarantees.
  - Female enrollment remains high in co-educational schools, providing critical access in underserved areas.

- **Actionable Insights**:

  - Expand co-education in underserved areas with community-led, culturally sensitive outreach initiatives.
  - Equip co-educational schools with gender-sensitive infrastructure to enhance inclusivity.

Recommendations

1. **Improve Infrastructure**: Target high-need districts such as Rawalpindi and Bahawalpur for infrastructure upgrades.
2. **Balance Resources**: Redistribute teaching staff and resources to address disparities in teacher-to-student ratios.
3. **Promote Co-Education**: Address cultural sensitivities while promoting co-education to expand female enrollment.

4. **Strengthen Oversight**: Develop frameworks to monitor infrastructure, resource utilization, and enrollment trends.

Conclusion

This report highlights critical areas of intervention in Punjab's education sector. By addressing infrastructure gaps, redistributing resources, and promoting gender-inclusive policies, the government can significantly improve educational outcomes. These insights aim to support the Ministry of Education's efforts in responding to Pakistan's Educational Emergency, fostering sustainable growth and equity in the education system.

Annex 1: Data Cleaning and Preparation

Observations/Issues	Data Cleaning	Justification
Entries in columns "moza", "street_name", and "uc_name" were found to be erroneous upon skimming.	1. Replaced time and dates with N/A. 2. "NAME?" was replaced with N/A in "uc_name". 3. National Assembly constituencies ("na_no") and Punjab Provincial Assembly constituencies ("pp_no") numbered "0" replaced with N/A.	1. "Moza" is geographical data i.e., address in "text" format, so are "street_name" and "uc_name". Time and dates do not belong here. 2. "NAME?" had no mis-entered formula. 3. NA and PP constituencies start from 1.
Missing data was indicated in numerous ways: "nil", "nill", "no," whereas some cells were simply left blank.	1. Replaced all with N/A	1. A single-entry N/A allows for consistency in data, as well as ease of seeing cells with missing/erroneous entries.
Various spellings of one name in columns "tehsil, markaz, moza, permanent_address, street_name, uc_name".	1. None	1. No impact on data analysis was anticipated, so data was left as it is.
In "school_level," H.Sec. and sMosque make it difficult to understand.	1. Replaced H.Sec. with "Higher Secondary" and sMosque with "Mosque School."	1. Unbeknownst to me, sMosque seemed erroneous at first, and only made sense upon a Google search, so making it clearer is better.
In "upgrade_primary_year," "upgrade_middle_year", "upgrade_high_year", and "upgrade_high_sec_year", there are "0" and "NILL".	1. Replaced 0 and NILL with "N/A."	1. Observation suggested that 0 indicates absence of one or more steps in upgradation, whereas NILL shows missing entries. However, for consistency, each is replaced by N/A.
In "electricity," 1 indicates availability, but corresponding cells in "electricity_source" are empty.	1. Entered "N/A" in empty cells.	
In "school_shift," morning accounts for more than 99%, whereas evening and double combined account for less than 1%, making it	1. In a separate column, I used IF statement to club evening and double shifts into a single category "Evening/Double".	1. This makes it easier to visualize the relative proportion of school shifts.

difficult to visualize relative proportions of three shifts on a pie chart.		
In "electricity," zero indicate absence of electricity, however, some corresponding cells in "electricity_source" mentions WAPDA connection or solar.	1. Replaced WAPDA connection and solar with N/A.	1. As only a few cells have this discrepancy, it is plausible to conclude that illogical entries have been logged in by mistake.
In "water" and "electricity," ones indicate availability and zero indicate unavailability, however, this is not helpful when visualizing.	1. Replaced one with "Yes" and zero with "No".	1. This makes it easier to visualize and do analysis.

Appendix 1: Dashboard

The dashboard is available in a dedicated Github repository which may be accessed here.