Problem Statement Worksheet (Hypothesis Formation)

What opportunities exist to increase reading and math proficiencies among students in the United States by identifying and analyzing factors contributing to low scores?

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1 Context

I am seeking to understand why students in the United States struggle with reading and math scores. By analyzing data from national tests and education departments, the project aims to find connections between different factors and students' performance, using statistical analysis and machine learning. It aims to provide practical strategies for improving reading and math scores nationwide, considering stakeholders, policies, and challenges in implementing solutions.

2 Criteria for success

Ultimately, success will be determined by the project's impact on student achievement and its ability to address the pressing issue of low reading and math scores nationwide.

3 Scope of solution space

Analyzing and understanding the factors contributing to low academic performance, identifying actionable strategies for improvement, and implementing data-driven solutions to raise reading and math scores nationwide.

4 Constraints within solution space

-Data Availability: Availability and accessibility of relevant datasets from national assessments, education departments, and other sources may be limited, impacting the depth of analysis.

-Policy and Regulatory Constraints: Existing education policies, regulations, and bureaucratic processes may impose constraints on the feasibility and implementation of proposed solutions.

5 Stakeholders to provide key insight

- Policymakers at the federal, state, and local levels
- educators and administrators in schools and school districts
- researchers and experts in education
- advocacy groups and organizations focused on educational equity.

6 Key data sources

Demographics such as age, gender, race/ethnicity, socio-economic status, and English language proficiency, alongside academic performance indicators like reading and math scores from national assessments and school-based tests.