**Theoretical Framework**

I have decided to create an composite indicator to measure and compare education systems between countries.

From my research, I found the following:

* Higher spending per student is associated with better outcomes for student later in life, especially for those from low-income families. This gives access to school resources the potential to reduce intergenerational-poverty. (Jackson et al. 2015)
* Building on this, it has been found that a lack of qualified teachers is a sign of staffing problems (Ingersoll 2001), which leads to poorer student performance.
* Exposure to high staff turnover leads to worse educational outcomes by students, although the effects of this disruption can be reduced through proper management. (Gibbons et al. 2021)
* Gender equality within education is one of the most consistent factors in improving student outcomes. (Campbell 2021)

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**Data Selection**

**Imputation of Missing Data**

Every variable I selected, with the exception of compulsary schooling had at least one missing value. I addressed them as follows:

* For all variables gathered from the UNESCO Institute of Statistics, the World Bank and the Kaggle dataset, if a country had data for a particular variable for any year from 2011 to 2020, but not for 2021, I took an average of the years available instead, as while it would likely not be completely accurate, it would serve as good approximation.
* For the variables related to free schooling, I assumed that no data meant that the respective country had none. I felt this was a reasonable solution as less than 25 countries were missing this information and mostly occured with countries with no formal schooling.
* I decided to drop the variables related to teacher attrition, due to a lack of data. Less than 1/3 of courtries had this data available for any of the previos 10 years.
* For the ratio between qualified teachers to pupils and the percentage of current teachers who are currently qualified, I replaced missing values with the global average.

**Multivariate Analysis**

**Normalisation**

**Weighting and Aggregation**

**Links to other Indicators**

**Visualisation of Data**

**References**

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