The School and After Hours

- Kartik Nanduri

Visualisations:

1. Pre-feedback: PISA_2012
2. Final: PISA_2012

Summary:

This series of visualization explores the various questions that can impact a child's growth during the school hours, and once he/she is back from school. There is a high correlation between the following variables 1. Math Avg. 2. Science Avg. 3. Read Avg. 4. Study Hours. We used this correlation as our base for drawing conclusions for the entire story.

A child's growth is affected by the average number of study hours and the presence of family members. On an average about 9 to 10 hours are spent studying in the presence of grandparents, aunts and uncles, but this averages to 8 when either of the parents are at home and this eventually affects the average score. At school, having a strong and communicative Student-Teacher Relationship, adds to the growth.

Design:

The following are the design elements used for the creating the story.

- Bar charts were used to represent categorical data and show comparisons among discrete categories.
- Pie charts were used to represent proportional data with proportions being less than 3 unit.
- Bubble charts were used to understand the relationships between objects in three numeric dimensions, most importantly the size of the bubble.
- Simple scatter plots were used to establish the trend/correlation factors for the above mentioned dimensions.

Feedback:

S. No.	Friend/Expert	Feedback
1	Peer	Change the story line.
2	Expert	Use pie chart instead of bubble chart, for the dashboard – "better than men", as there are only two variables of interest (male and female).
3	Peer	Explore more on the student teacher relationship and attitude toward school.
4	Expert	Use "Nuriel Stone" and "Seattle Grays" as colour choices.
5	Expert	Use side-by-side bar chart for the dashboard "A normal child's life".

Feedback - Actions:

S. No.	Feedback	Action
1	Change the story line.	Agreed, initially the story spoke about study hours and the about the school, which was a misalignment with the title of the story.
2	Use pie chart instead of bubble chart, for the dashboard – "better than men", as there are only two variables of interest (male and female).	Agreed, initially the comparison was done using bubble chart, which was inaccurate representation of the data
3	Explore more on the student teacher relationship and attitude toward school.	Agreed, luckily the dataset included questionnaire about student teacher relationship and a child's attituded toward school, these are explored in the viz.
4	Use "Nuriel Stone" and "Seattle Grays" as colour choices.	Agreed, initially all bright colours were used to represent data.
5	Use side-by-side bar chart for the dashboard "A normal child's life" and for "Never… ever…".	Agreed, initially they were stacked which didn't clearly convey the message.

Resources:

- PISA http://www.oecd.org/pisa/
- PISA in Practice: Cognitive Activation in Maths How to use it in the classroom https://www.nfer.ac.uk/media/2090/pquk04.pdf

Data files:

1. pisa2012.csv – uncompressed data file
2. cleaned_pisa.csv – wrangled PISA dataset
3. pisadict2012.csv – data dictionary of PISA dataset
4. pisa_wrangle.ipynb – python code used for cleaning the pisa2012.csv dataset.