

# Udacity Data Analyst Nanodegree Project

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## Summary

PISA is a worldwide study developed by the Organisation for Economic Co-operation and Development (OECD) which examines the skills of 15-year-old school students around the world. The study assesses students' mathematics, science, and reading skills and contains a wealth of information on students' background, their school and the organisation of education systems. The visualizations created in this project show the relation between the scores of the students and their usage of Information and Communication Technologies at School. Does it matter whether students do have access to these new technologies at school?

## Design

### Initial Design

As PISA contains data of a lot of countries around the world I first thought about creating maps. But as I want to show a relationship between Countries and ICT availability, usage and scores I switched to bar charts and scatterplots.

For readability I choosed to use the color palette for color blinded and decided to use grey colors for the first bar charts. In addition I choosed to stay with the default fonts provided by Tableau. The trend lines were colored orange for contrast. The third bar chart does include more categories for the usage of ICT at school so I included more colors of the color blinded palette. As the scatter plots contain all countries there were not enough colors in the palette for this categories. Hence I used an automatic palette. Overall I like to use light colors and white. Hence I used that.

As the countries include OECD and Non-OECD countries I added a filter and a highlighter for these two groups. In addition on the third chart I included a filter for the time categories ICT is used at school.

On all plots I included the averages to better see the message I want to transport.

This first version is available as [Udacity Tableau Story V1.0](#).

### **Changes from Feedback of 3rd of November**

- I decided to rotate the bar charts to get horizontal bars so that the country names are better readable.
- In addition I remove the dual axis to split the plot in two different bar charts. This is to be able to compare the countries even better.

### **Changes after initial version by me**

- I decided to remove the filter about OECD and Non-OECD Countries because this information is not needed for the message I'd like to transport.
- I removed the tick marks on the bar charts because the values of the bars were shown already. Hence I think that this is redundant information.
- I removed the story title from the header to get a higher data ink ratio.
- I changed the size of the Story to **Generic Desktop** to remove the borders around the slide.

The second version is available as [Udacity Tableau Story V1.1](#)

### **Changes from Feedback of 4th of November**

- Added the datasource link and a short sentence about it on the first slide.
- Removed colours of data points in the scatter plots as the points do have a label.

The final version is available as [Udacity Tableau Story V1.2](#)

## **Feedback**

### **Feedback from Daniel B. (3rd November 2018)**

- Slide 1: Great! Always nice to have an intro slide
- Slide 2: You should make this a horizontal bar chart so you can read the country labels more easily. I think making this one graph is a little confusing. I would amend to be either two charts or grouped bar charts.
- Slide 3: Same critique as before. Alternatively, you could display the difference/proportion percentage instead (what is the use rate/availability rate)
- Slide 4: This slide is good (just make it horizontal)
- Slide 5: good

- Slide 6: Excellent
- Slide 7: Great, but I would add an annotation stating your conclusion for slides 6 and 7.
- Slide 8: great
- Slide 9: excellent

### **Feedback from Dilyana B. (3rd November 2018)**

Hi Jörg, nice colors and I like the bar chart. However, I don't really understand the charts 6,7 and 8. Maybe you could add some titles to this charts.

### **Feedback from my flat mate (3rd November 2018)**

Same points as Daniel.

### **Feedback from Dilyana B. (4rd November 2018)**

Nice work, Jörg! I looked through and I noticed two points: First: I don't understand the second slide: You've written: In 2012 almost, every student had access to ICT at home. Actually, I cannot recognise this point on the chart. It would be great if you could add any context (On which period of data do we look at). The second point is: By scatter plot you have different points with the labels. I am not sure if you need the colours by dots, if you have labels. Hope it helps :)

## **Resources**

- [PISA Data Visualisation Contest](#)
- [PISA Data Visualisation Contest Submissions](#)
- [PISA 2012 Technical Report Reader's Guide](#)
- [International Standard Classification of Education - Wikipedia](#)
- [Tableau Desktop and Web Authoring Help](#)