

Synthesis of the EduData Hackathon

10 citizens passionate in education and/or data analysis gathered during a week - end to see what they can discover by manipulating publicly available open data around education.



(More pictures at:

<https://onedrive.live.com/?authkey=%21AJ46JRC49s6k%5FEg&id=344D8F3F767BF120%2162267&cid=344D8F3F767BF120>)

We used mainly data from the OECD , since its great organization enabled us to easily get useful tables.

Here are some links to the actual data we used:

<http://www.oecd.org/pisa/>

<http://www.oecd.org/education/database.htm>

Whole OECD database: <http://stats.oecd.org/>

Here are some visualization links we started with:

<http://gpseducation.oecd.org/>

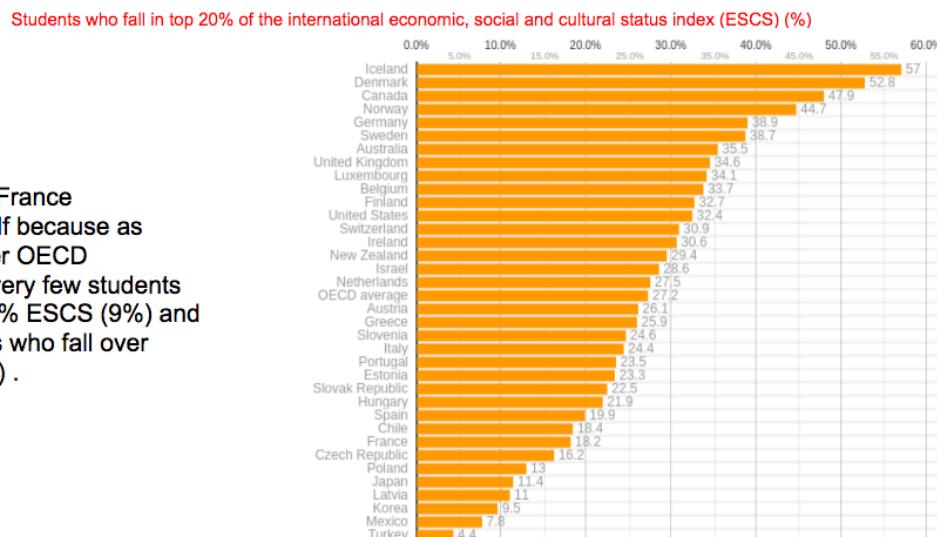
<https://data.oecd.org/>

<http://www.oecd.org/pisa/>

The subjects we worked on:

- 1) Inequalities due to parents' background. It is the indicator where French have the worst performance on PISA tests.

France: Repartition of population wrt to ESCS



We observe that France distinguishes itself because as compared to other OECD countries, it has very few students who fall under 20% ESCS (9%) and the least students who fall over 20% ESCS (18%).

France has the specificity of having the most students in the 3 middle quantiles.

France: How do the “poorest” 9% perform ?

Science performance of students who fall between 10% to 20% of ESCS



The sample of students who fall under 10% of ESCS is not sufficient in France

- 2) When compared to the “poorest” of other OECD countries in reading/math/science, french poorest are average.

France: How do the “richest” 18% perform ?

Science performance of students who fall between 80% to 90% of ESCS



The same can be observed for students who fall above 90% of ESCS

When compared to the “richest” of other OECD countries in reading/math/science, french “richest” excel.

France: How do the middle ESCS scores perform ?

Science performance of students who fall in the middle of ESCS index



When compared to the “middle” of other OECD countries in reading/math/science, french “middle” are average.

More information:

<https://docs.google.com/presentation/d/1W8tsObRgMfgnx13lqlDq5jmkBsvZTcmOSZDbj-Zm0dk/edit?ts=588df8d5#slide=id.p>

Conclusions:

The high correlation between ESCS and PISA performances in France is not the fruit of very low performances of the “poorest”. Because France’s “poorest” 9% and “middle” 73% have average performances, while the “richest” 18% have high scores.

To further understand the high “Difference in science performance associated with a one-unit increase in ESCS” individual data are necessary.

A common conception is that in France some schools are left on the road side, but the datasets at school granularity are not available. Whilst they have been computed for other countries. Why ?

2) Teacher questionnaire TALIS : most meaningful questions direct PCA axes.

Second axis strongly correlated with PISA score. Its analysis:

Second axis of the PCA of teacher-related variables

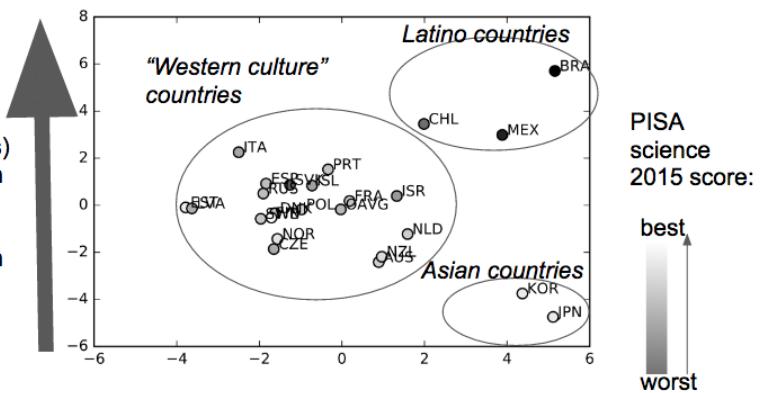
explains 16% of the variance

Positive correlation:

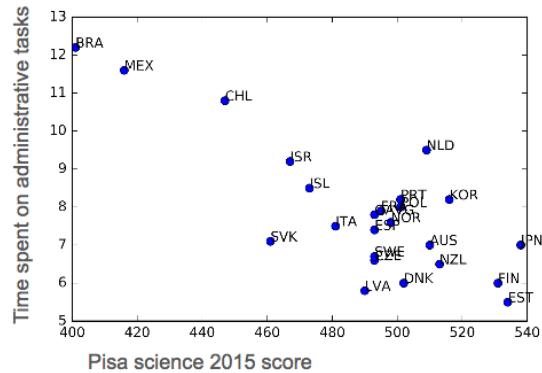
- Teaching time per week (hours)
 - Teachers who believe they can help their students to think critically
 - Teachers who believe they can help their students to value learning

Negative correlation:

- Age of principals
 - Teachers who are mentors to another colleague
 - Completion of teacher education or training programme



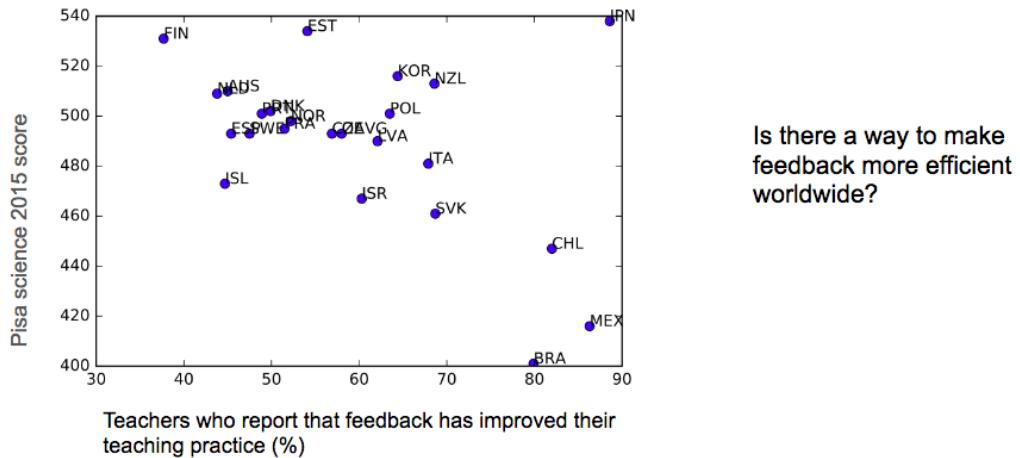
Administrative tasks: most anti-correlated to performance



Does it mean we should minimise administrative tasks?

Does it mean we should "flatten" hierarchy?

Variables related to feedback aren't correlated with performance



Is there a way to make feedback more efficient worldwide?

More information:

https://docs.google.com/presentation/d/1B-SEYgL5SKLqr8PWXvPrf0FL_brR_QRv5aJsGuwkggA/edit#slide=id.g20bd20fce1_0_0

3) Innovation in education

4) Discussion with a passionate teacher

What data we would have loved to have?

- inequalities in France: **A common conception is that in France some schools are left on the road side, but the datasets at school granularity are not available for France, whilst they have been computed for other countries. Why ?**
-
- **Research on education:** From readings and discussions, it seems as though there are great differences in how education is evaluated and studied across countries. Nevertheless, no data is available on expenditure in research in education, on how this research is being made (in the classroom, by teachers? by researchers?), and how many changes in policies are made based on research results.
- **Career advice and study choice:** How much information do the students have about all the possibilities of higher education? How much support do they get for choosing (hours spent)? What type of support do they get (How personalized is it? Using computer tools or by experimenting/internships/observing? Using paper information?...) Is there a way to measure the bias of advice given to children coming from different social classes?
- There is no data at all about **parents'** engagement in the child's education, faith in education...
- We did not find information about some **PISA indicators**. A crucial one is equality. How is it exactly measured? How are the "poor" / "rich" background students defined? Is it a continuous measure? Or are only the n% poorest/richest compared?
- By talking within the international background participants, it seemed that **the number of big reforms** varies largely from country to country. Has anybody studied the impact of the number of reforms on the quality of education?
- In an ideal world, analysis capacities would be greatly improved if we could have access to anonymised data but on a micro-economic level, for a specific school/region for instance. Nevertheless, we do understand ethical concerns around these issues. Thus, we would appreciate having as precise data as possible without crossing the ethical limits.

