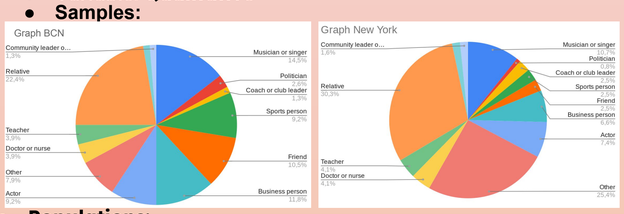
CENSUS AT SCHOOL BCN-NYC

HYPOTHESIS 1

HYPOTHESIS: More than 40% of students look up to a business person. In New York, this percentage is higher.

- Variable: **Qualitative**
- **Samples:**



- **Populations:**
  - Students from BCN Confidence Interval (**Business, 95%CL**): (**4.55-19.05**)
  - Students from NYC Confidence Interval (**Business, 95%CL**): (**2.17-10.95**)

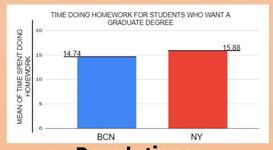
CONCLUSIONS:

- Both confidence intervals for the proportions overlap. Hence, both populations could be considered the same one.
- The hypothesis was wrong.

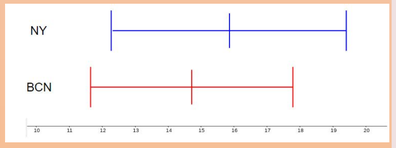
HYPOTHESIS 2

HYPOTHESIS: The BCN students who plan to have a graduate degree spend more time doing homework than NYC students who propose to have a graduate degree.

- Variable: **Quantitative**
- **Samples:**



Confidence intervals for the means:



- **Populations:**
  - Students from BCN Confidence Interval (95% CL): (**11.66 , 17.83**)
  - Students from NYC Confidence Interval (95% CL): (**12.33 , 19.42**)

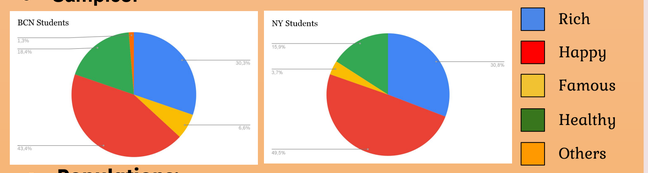
CONCLUSIONS:

- There is no significant difference between populations.
- The hypothesis was wrong.

HYPOTHESIS 3

HYPOTHESIS: Being famous is more important for NYC's students than for BCN's students

- Variable: **Qualitative**
- **Samples:**



- **Populations:**
  - Students from BCN Confidence Interval (**95% CL**): (**0.93, 12.23**)
  - Students from NYC Confidence Interval (**95% CL**): (**-0.6, 8**)

CONCLUSIONS:

- Confidence intervals for the proportions overlap. There is no significant difference between populations.
- The hypothesis was wrong.

INTRODUCTION & GENERAL HYPOTHESIS

Everyone may think that we, urban youngsters living in a globalized world, are pretty similar everywhere. But… is this true? In this project we want to test whether the 15-17 year-old populations of Barcelona and New York City, two large cities in the world, **could be considered the same** for some characteristics included in a more extensive open data survey aimed to middle and high school students, "Census at School".

Objective: Find out whether the North American sample (schools from New York City) and the Salvador Espriu High School sample (Barcelona) could belong to the same population.
Then, the **general hypothesis** of this project is that both populations are similar, because of globalization.

DATA COLLECTION & ANALYSIS

Data collection:
We collected the answers to some questions selected from the questionnaire on the webpage "Census at School". We used two samples:

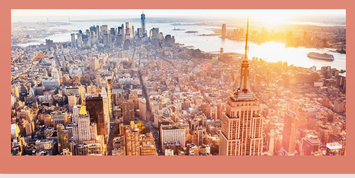
- Students aged 15-17 from Salvador Espriu High School, Barcelona. Answers were collected directly in the school using a Google form. Sample size: 77
- Students from New York City from grades 10 & 11. Answers were collected through the webpage. Sample size: 122

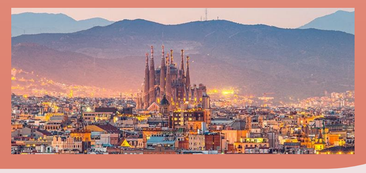
Methodology and data analysis:

1. Formulation of hypotheses for every chosen specific question.
2. Cleaning of data: elimination of outliers outside the domain of variables (mainly misunderstandings of the questions by the students)
3. Study of our samples using graphs (scatter plots, box plots, pie charts,..) and calculations (mean, standard deviation, proportions, quartiles, R^2 for scatter plot models)
4. Study of populations:
   - calculation of confidence intervals for sample means and for proportions to compare both populations.
   - comparison of scatter plot models
5. Conclusions:
   - In case that the confidence intervals overlapped, we considered that the samples could belong to the same population.
   - In case R^2 and equation models were similar enough, we considered that the samples could belong to the same population.

GENERAL CONCLUSIONS

- Most of the conclusions for the specific hypotheses we have studied suggest that **NYC and BCN populations are different**. Nevertheless we have found some similarities. We present here three similarities and three differences to show some of the variations of analysis we have used. Therefore, for the few characteristics studied in our small convenience samples, we must conclude that both populations are more different than equal. Curiously most of our hypotheses were wrong.
- Our work has shown us that previous ideas had to be tested in order to reach unbiased conclusions. Similarities or differences, which must relate to particular characteristics of individuals rather than to the individuals themselves, cannot be taken for granted without research.

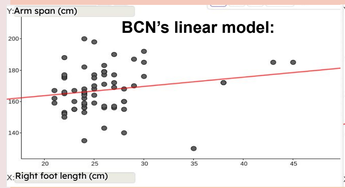


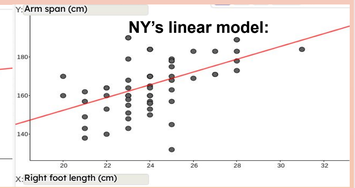


HYPOTHESIS 4

HYPOTHESIS: There exists correlation between the arm span and the length of the right foot, without differences between BCN and NYC students.

- Variables: **Quantitative**
  - **Pearson coefficient BCN:** r= 0.5037
  - **Determination coefficient:** R^2= 0. 2537
  - **Pearson coefficient NY:** r= 0.1953
  - **Determination coefficient:** R^2= 0.0381





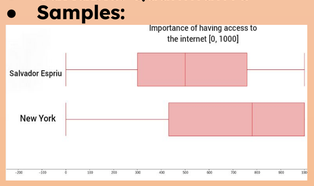
CONCLUSIONS:

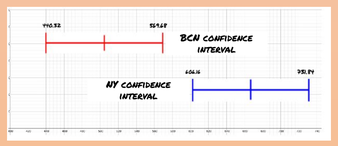
- Both models are different and not reliable because both R^2 are too low.
- The hypothesis was wrong.

HYPOTHESIS 5

HYPOTHESIS: Students rate the importance of having access to the internet above 800 out of 1000.

- **Variable:** Quantitative
- **Samples:**
- **Populations:**





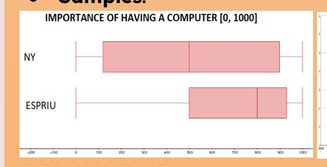
CONCLUSIONS:

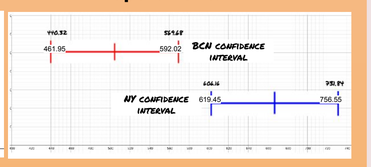
- There is a significant difference between populations
- The hypothesis was wrong

HYPOTHESIS 6

HYPOTHESIS Both BCN and NYC students rate the importance of owning a computer above 700 out of 1000.

- Variable: **Quantitative**
- **Samples:**
- **Populations:**





CONCLUSIONS:

- There is a significant difference between populations. Only one of the populations could be above 700 points
- The hypothesis was wrong.