Official statistics through the eyes of students and teachers – the European Statistics Competition

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# Introduction

In an age of fake news, it is of increasing importance to equip particularly young citizens with the necessary statistical tools to interpret official statistics and debunk false reports. But how can we best go about such a colossal task? One look at the European map quickly revealed that Eurostat and many National Statistical Institutes (NSIs) had already started to address this problem. In the framework of the DIGICOM[[4]](#footnote-4) project an inventory of statistical literacy activities was carried out in 2016. Statistical competitions among schools were identified a good practice from INE Spain, similar initiatives were led by statistical societies in countries and a joint project could help support its extension to other countries.

Building on this experience, the first [European Statistics Competition](https://www.eso2018.eu/) (ESC) was launched in October 2017 to stimulate the awareness of sound statistics by promoting statistical literacy and curiosity among students, while encouraging teachers to use new educative materials based on official statistics. As a DIGICOM initiative it involved 11 NSIs[[5]](#footnote-5) from the European Statistical System and was coordinated by Eurostat and INE Spain. Over 11 000 students aged 14-18 and 1000 teachers took part in the competition, in which they had to solve statistical problems, search for data and produce statistical analyses. The top 180 students qualified to represent their countries in the final European round which required them to produce short videos on why official statistics matter.

# Development of the competition

The first ESC was conducted following a two steps approach. In the first step the competition was deployed at national level. Finalists in each country were then qualified to participate in the European round. In both phases, students were grouped into teams of maximum three persons, each team was coordinated by a teachers. Two categories were considered according to the age of the students (14-16 and 16-18 years old).

**National phase**

In the national phase, NSIs had a central role in coordinating the competition. They were responsible for promotion, assignments and the organization of this initiative. Supporting all the participating countries INE Spain, based on its experience, provided a workplan which included a complete set of possible questions and materials for the tests and assignments. Moreover INE built the technical platform to support the registration of the teams and the completion and marking of the tests in an automatic way, as well as a help desk to support all the national organizations. A continuous follow up was agreed in order to minimise any risks in the organization of the competition.

The promotion of the ESC was carried out in many different ways, depending on the sponsors of the national competitions and the available resources: from letters to schools to ad-hoc videos produced and distributed across social media and, in some cases, specific events to engage teachers and students. Targets were maths teachers but also geography and social sciences teachers.

Basic knowledge about statistical concepts and probability were included in the tests. Some of the questions were also focused on showing how easy is to find information on national and European websites and publications. Synergies were developed with other actions of the DIGICOM project, for instance the digital publication "The life of women and men in Europe" was used as a basis of the questionnaire. The multilingual characters of the publication enabled drawing a common set of questions and the publication was promoted to all students. The second round was an in depth assignment, generally an analysis of a dataset.

National champions got prizes and the award ceremonies in each country were an opportunity to show a more open and friendly image of statistical offices.

**European phase**

The European phase of the competition, coordinated by Eurostat and INE Spain, was focused on reflecting about the importance of official statistics with a more creative approach. Teams were set up to produce a two-minutes video conveying this message.

63 teams were competing for the final prizes. To evaluate the videos, the jury of this phase was composed of acclaimed experts in communication, media literacy, fact-checking and data visualization, most of them working outside the statistical organizations. In a first round the jury selected 5 videos as finalists in each category, and videos coming from two Finnish teams, [Toivasnik](https://www.youtube.com/watch?v=gy27hyJj2XQ&list=PLJulBV7cVXifZzBh4qD9-foS8HagImQFo&t=0s&index=20) and [Pakila9D](https://www.youtube.com/watch?v=AWRVPc1EHt4&t=0s&index=12&list=PLJulBV7cVXidJBVPi9Y48talaXXG8htOq) were selected as champions of the ESC.

As the jury members reported, the students' contributions were very fresh and creative. They came up with very good ideas to communicate about the value of official statistics and made use of a wide variety of techniques to express their ideas. Some of them invented stories with interviews with “politicians” that were very often performed by the students, while others presented facts coming from official statistics showing their relevance for citizens. Fake news were also present in some videos…Therefore it is possible to conclude that the ESC reached its main goals.

The ESS Facebook account served as a channel to promote the results of the competition and examples of the questions on statistical literacy were used as a poll.

# Results

The outcome of this joint effort was extremely positive on four levels. First, it motivated students all over Europe to get to know and critically engage with official statistics. Many teams expressed their surprise that numerous datasets were freely available online and immediately used them for their video submissions in the European final. This helps recruit users that will know where to look if they ever question a report they read or hear.

Second, the ESC 2018 gave teachers a good format to get their students excited about statistics. Solving mathematical problems might be fun on its own right for some, but competing against other schools and even against other countries made many teams far more ambitious and keen to learn than teachers had originally anticipated. Furthermore, NSIs supported teachers in this competition and gave them access to new educational material that directly used officials statistics. That way, teachers could rely on NSIs as their partner whenever they had questions or needed help.

Third, NSIs were able work more closely with several partners, including statistical societies, universities and their respective Ministries of Education. Through this collaboration, previous efforts in the area of e-learning or gamification can be communicated more widely to schools and adjusted even closer to their needs.

Fourth, ESS benefited from the close cooperation of 11 NSIs and Eurostat. By working collectively on a joint problem, many colleagues got to know one another and used the opportunity to exchange experiences. Such an exchange has strengthened the cohesion of the ESS and serves as a well of inspiration for future projects.

There were some key factors identified after the experience:

* Flexibility: There are differences among countries that must be taken into account when designing the scheme of competition. School calendars or statistical contents in the national curriculums are just two examples of these differences. Therefore the rules concerning the first phase of the competition should be flexible enough to adapt to these circumstances.
* Partnerships: One success factor was to establish contacts, from the very beginning, with relevant actors like Ministries of Education, professional associations of teachers and statisticians, university departments, etc. They helped not only to spread the voice of this competition in the academic community but also to work on the scientific part of the assignments and to make them well adapted to the situation in each country as it has been referred above.
* Central support: Even when national competitions can be conducted “independently”, to have a central point of coordination and support facilitated the tasks of NSIs, especially for a first time organisation of such contest.

Also, after consultation with participant countries about lessons learned, there were some aspects to improve for future editions in this competition:

* Cultural and legal differences between countries should be in mind from the beginning as they can impact on the development of the competition.
* Privacy issues, are very sensitive as the majority of participants are minors and they require very clear consents from their parents.
* Announcement of the competition well in advance of the start of the school year is vital to give the teachers the opportunity to plan the activities.

# Conclusions

The first European Statistics Competition was a success in terms of the number of young people showing an interest in statistics. It allows NSIs to know more about the statistical knowledge of this age group and to understand teachers' needs. It also paves the way for further collaboration between Eurostat, NSIs and the education sector and possibly new developments to improve statistical literacy.

Given the overall success of the ESC 2018, we are already looking forward to organising the ESC 2019 with a wider coverage of ESS members and an increased number of students. Together we hope to make official statistics more accessible and interesting to young citizens. This can give them the statistical tools they might need amongst other things to form their opinions and take part in society.

1. Eurostat [↑](#footnote-ref-1)
2. Eurostat [↑](#footnote-ref-2)
3. INE Spain [↑](#footnote-ref-3)
4. The project for Digital communication, User analytics and Innovative products ([DIGICOM](http://ec.europa.eu/eurostat/web/ess/digicom)) is one of the eight projects of the [ESS Vision 2020 implementation portfolio](http://ec.europa.eu/eurostat/web/ess/about-us/ess-vision-2020) [↑](#footnote-ref-4)
5. Bulgaria, Croatia, Cyprus, Finland, France, Greece, Italy, Poland, Portugal, Slovenia, Spain [↑](#footnote-ref-5)