**STAT WARS**

**May the Force Be with You!**

**Statistical Competition for Secondary School Students**

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**Abstract**

*The Hungarian Central Statistical Office (HCSO) has been organizing a national competition on statistics for secondary school students entitled STAT WARS, for four years. Teams of 4 students and their teachers may enter. In 2017, 154 teams applied from the country’s various secondary schools, and the best twelve were chosen for the national final, which was held at the Headquarters of HCSO. The tasks of the STATWARS are built around a central topic every year. This year the focus was on the 150th anniversary of the establishment of the Hungarian official statistical service. In the finals, the 12 teams competed at 12 stations, and in each station, a theoretical and a practical task had to be completed in time, for which they could also prepare from the predefined recommended literature. The tasks consisted of calculating variance, a questionnaire about the subjective well-being of HCSO colleagues and a look into significant statistical figures of recent centuries, among others. In addition to the specific tasks, they got acquainted with the history of the 120-year-old building and make a short film for the promotion of the 150 years of the HCSO. The success of the statistical competition is indicated by the fact that some teams are re-entering year after year. With the participation of 154 teams, we have reached more than 600 secondary school students who are interested in statistics, as well as the event has been included in the program ‘TalentGate (Tehetségkapu)’ of the Office of Education.*

*May the force be with you!*

**Keywords: statistical literacy, communication, statistical competition**

**1. Introduction**

Four years ago, the Hungarian NSO realized that investing in the future means engaging the younger target audience. Based on the Hungarian Central Statistical Office’s (HCSO) external communication strategy, one of the main goals is widening our target audience. Secondary school students were selected as a target group, as they could be influenced to choose statistics as their main subject of study at the university level. HCSO decided to engage the 14-18 years age group, and started a statistical competition for them.

**2. Background**

The HCSO’s communication strategy focuses, among others, on broadening the target audience which is needed to enhance statistical literacy and being part of the public debate. Secondary students (X, Y and Z generations) are decisive players of the digital era, shaping the communication methods, platforms and data usage of the future. Generational attributes are: having fun, world is fast, everything is fast, short attention span, and hard to get their attention.

NSOs have to adjust their products to the needs of children, and as a first step, the target group has to be well known.

HCSO’s external communication elements:

**3. Goals**

The primary goals of this project are to 1) enhance NSO’s image via media coverage, 2) involve more and more students and teachers year-over-year and 3) engaging the NSO’s staff to participate in project—simultaneously realizing external and internal communication goals.

*3.1 Communication objectives at two levels*

* **External communication objectives**
	+ Reaching one of our target groups (secondary school students)
	+ Contact with schools, teachers, students directly
	+ Widening our target audience
	+ Media coverage
* **Internal communication objectives**
	+ Involving NSO staff
	+ Teambuilding – working in groups for one goal

*3.2 Communication messages*

* STAT WARS is fun, statistics is cool
* Having fun with the staff of the official statistics office
* Spend a fun day with friends and win a prize
* Live activity instead of online tests

**4. Execution**

*4.1 Aims of the competition*

Instead of having the students solve statistical problems, our goal is to teach statistics concepts via fun experiences. Most importantly, we wanted the participants to have basic insights into everyday life at the NSO, the history of statistics, the phases and process of statistical data/information production, and have a basic understanding of what the numbers mean.

*4.2 Preparation*

Five NSO colleagues prepare the competition from May through September. At the final competition 32 employees work on the execution. Two to 3 colleagues man each station, for a total of 24 -28 colleagues. The rest of the employees are the event organizers, photographer, camera man and other miscellaneous staff.

*4.3 Preliminary round*

Teams of 4 students and their teachers can apply for the competition. To enter the competition, the teams have to complete a test of theoretical questions, sent out via e-mail in a simple Microsoft Word document. The tasks of STAT WARS are always build around a central topic. Last year the focus was on the 150th anniversary of the establishment of the Hungarian official statistical service. The applicants can find all the answers on the NSO’s website. The test was evaluated on the number of correct answers and speed of response. The final deadline to submit the responses was 3 weeks.

In 2017, 154 teams applied from the country’s various secondary schools, and the best twelve were chosen for the national final, which was held at the Headquarters of HCSO.

*4.4 Finals*

In the finals, the 12 teams competed at 12 stations, and in each station, a theoretical and a practical task had to be completed in time, for which they could also prepare from the predefined recommended literature. The tasks consisted of calculating variance, a questionnaire about the subjective well-being of HCSO colleagues and a look into significant statistical figures of recent centuries, among others. In addition to the specific tasks, they got acquainted with the history of the 120-year-old building and make a short film for the promotion of the 150 years of the HCSO.

The competition takes place from 10:00am until 3:00pm. When the team arrives they get an introduction about the 120-year-old building of HCSO, and the rules of the competition. The actual competition lasts 2 hours, as follows: A single stage takes 8 minutes and participants have 2 minutes to get to the next stage. The competition is followed by a lunch break, after which they make a poster about how they felt during this day. The HCSO also has traditions in folk dance, so the folk-dance group of the office performs a dance with participation by one of the deputy presidents.

Stage topics address the full statistical workflow, from data collection, through analysis and dissemination. A few example topics:

1. **Data collection – subjective well-being survey**

This task focuses on data collection, creating and filling out a questionnaire.

1. **Time use research**

The time use research method, developed by an international research group in 1965, led by a Hungarian statistician Alexander Szalai, has become the classic methodology of time use research worldwide. Since then, HCSO has been an outstanding player of time use research in international comparison.

1. **Table tennis and fencing for improved knowledge of sport statistics about Olympic games**

The HCSO has a 25-time National Table Tennis Champion team called ‘Statisztika’, which is why this sport is emblematic among the Hungarian statisticians. Fencing is related to the founder of the HCSO, Károly Keleti, who challenged a journalist for a duel because of an incorrect article about the NSO numbers.

1. **Targeting/dispersion with shooter practice**

Karoly Keleti, the founder of the HCSO, was also well known for his hunting habit. The students shoot a target and count dispersion.

1. **Media interview about the main topic**

This task is focusing on the dissemination part of the statistics data producing.

*4.5 Timing*

**Table 1. Time table of the competition**

|  |  |
| --- | --- |
| **Task** | **Schedule** |
| Calls for entry | End of May |
| Preliminary round starts | 1st week of September |
| Submission deadline | 3rd week of September |
| Finals | November |

*4.6 Communication activities*

* Website
* DM - Direct contact with the schools
* Press Release reaching the media and the public
* Sharing student’s film on Social Media sites (YouTube, Facebook)
* Internal promotion (intranet)

*4.7 Cost*

The cost of the competition is around 1700 euros, which includes the lunch break and the accessories for the games. We award prized to the first three teams, which are simple promotional gifts (sports bag, pen, notepad etc.).

**4. Conclusions**

The success of the statistical competition is indicated by the fact that some teams are re-entering year after year. With the participation of 154 teams, we have reached more than 600 secondary school students who are interested in statistics, as well as the event has been included in the program ‘TalentGate (Tehetségkapu)’ of the Office of Education.

The competition has been considered a success, and will be continued and developed further in the future. This project can be a basis of other collaboration among the secondary schools and NSO.

In the future we are looking to improve on the following:

* Planning to organize press events to promote the competition
* Increasing media coverage to enhance the NSO’s image
* Agreements for media cooperation
* Improving the games and introduce new ones
* Involving more and more colleagues to be part of the event