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Science Battles

DELIVERABLE 2.12
MONTH 12

D2.12 – Science Battles

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1. EC2U Science Battle: A glimpse into researchers' culture and science

A. Objectives of the event

The event "Science Battle" was created by the University of Turku in 2016, as part of the European Researchers' Night program. The goal was to give the broad public a glimpse into the world of research and science: What might a researcher do when faced with a new dilemma? How can a group of scientists tackle an odd question? And... maybe even awaken the desire of the participating audience to become part of a team of researchers. The Science Battle was developed as a game like event and was, initially, organized locally by the University of Turku. Within the first year, the Science Battle showed promising success and was seen as an innovative way to help promote researchers' culture and science.

This success led the University of Turku to integrate the Science Battle concept into the European Campuses of City Universities' (EC2U) initiatives and work closely with the universities of the alliance to adapt this event accordingly. The global objectives of this joint-campus event were simple: increase cooperation between collaborating universities, promote researchers' culture and science across Europe, and increase the visibility of the EC2U alliance among students, staff, and citizens alike.

To ensure these objectives are met the decision was made to organise three Science Battles between 2021 and 2023.

1. The first round took place on the 24th of September 2021, on the European Researchers' Night, between three universities of the alliance: the University of Pavia (Italy), the University of Poitiers (France), and the University of Turku (Finland). The competing partners were selected via a lottery held during the EC2U Forum in Turku, in May 2021. The first EC2U Science Battle was conducted online and, when sanitary regulations allowed, also took place on-site. The University of Turku, for example, did not have an in-person audience.

2. In 2022, the Science Battle will be organised by the Universities of Coimbra (Portugal), Iasi (Romania), Jena (Germany) and Salamanca (Spain). This event will take place online and in-person. Student and researcher mobility will be allowed, when possible, to ensure networking opportunities and increase European cooperation.

3. In 2023, the third round will see the winners of the two previous years compete. This Science Battle will be organised as a live event to celebrate the final competition. A lottery will determine in which city the 2023 Science Battle will take place. Student and researcher mobility will be strongly encouraged.

As a scientific and cultural joint-campus event, the Science Battle is a clearly stated deliverable of the Work Package 2 (WP2) "Culture and campus life". This initiative contributes to an inter-university campus life hence the need to measure impact and success via key indicators, such as

student participation and satisfaction rates (see section 'Indicators and feedback from the Science Battle' for more information).



Figure 1: screenshot of the online Zoom Science Battle – Team University of Turku

The recording of the EC2U Science Battle can be found on the event's website:

<https://youtu.be/kcrcaXf5aaQ>

Summary of the video: <https://youtu.be/e0boF5S2qj4>

B. The 2021 Science Battle – a description

The Science Battle is a game life event to promote researchers' culture and science. In 2021, it became a joint-campus event in which three EC2U universities competed. The event was attended in-person at two of the three competing venues, online via Zoom as an interactive platform for the public, and broadcast on YouTube.

Three competing teams

Each university was represented by a team of six multidisciplinary researchers. The teams were composed of people in different career stages (e.g. professor, university lecturer/teacher, PhD student etc.), from different faculties, different genders and ages. The diversity of each team was important, to increase cross-faculty collaboration and European cooperation. As one ambition was to foster a participative environment, the teams also met prior the Science Battle thanks to team-building and conversational activities. This approach contributed to the EC2U Alliance becoming recognized among the university community and beyond.

Collaborating to tackle societal questions

The aim of the Science Battle is to show how researchers collaborate. Each team was placed in a closed environment, for three hours, and were given a certain number of questions to tackle. The duration of the event was crucial for the teams and public to get used to the atmosphere and allow the competing teams to relax and get creative. The questions asked were gathered beforehand in each university and corresponding city, via local newspaper ads, radio appearances, social media, and high schools. On-site public also had the opportunity to suggest questions.

Competing in a fun environment

The competing teams had up to fifteen minutes to answer a given question, depending on the scope of the question. Questions represented a wide range of disciplines and teams were able to challenge and solve them in a playful manner. A panel of four judges selected from non-competing partners, gave scores to each team per question. Points were given from 1 to 10 (10 being the highest), according to the answer but more importantly on how the team presented their explanation.

Audience, online and onsite, could also give their opinion, ranking the teams from 1 to 3 (3 being the highest). The aim was to award the teams for their enthusiasm and playfulness, while involving the audience.

Each team could also use each lifeline, twice during the event, whether it be phone to a friend, enable the web for the duration of one question or ask help from the audience. Only two lifelines were used during this Science Battle (Turku and Pavia).

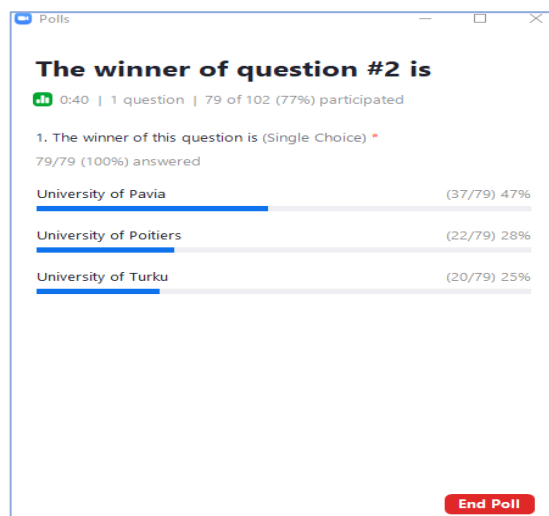
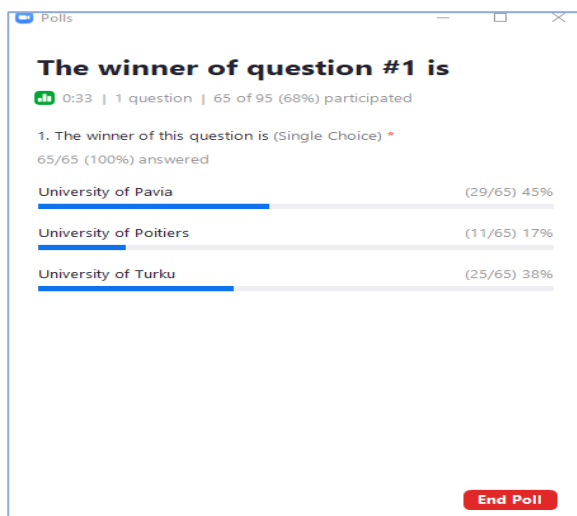


Figure 2: screenshots of the online polls from the audience

Online and onsite joint event

The 2021 Science Battle was a constructed balance between online and onsite, therefore providing an adapted solution for the competing venues and various audiences. This double-faceted format gave each university the freedom of hosting an event in their venue, and in their local language as well as the advantage of online visibility and concrete collaboration with participating partners.

Each competing team was filmed during the event and broadcast online. To ensure fluidity and understanding of the event, each competition venue had a host, that followed a carefully drafted transcript. Note also that Turku provided an external vendor responsible for the online Zoom platform and broadcast.

C. Organisation of the 2021 Science Battle

The Science Battle, co-organised by the partners of the EC2U alliance, is a cross-cultural, joint-campus event. As this event is part of the Work Package 2 annual objectives, the WP2 Board members were actively involved in the organisation of the 2021 event. Bi-weekly meetings (from July onwards) were held to ensure each party had up-to-date elements and could succinctly communicate overall progress.

The University of Turku, due to their prior experience, guided the other universities and had a main role in the overall organisation. For example, the University of Turku hired a professional audio company to take care of the technical matters of the event, notably due to the inherent complexities of an online event.

It is to be highlighted here that organising teams included local EC2U Coordinators and staff members from the University Communications and International Offices. Local technical teams were equally incorporated in the organisational meetings as their skillsets were crucial for the

success of the event. Notable feedback from the 2021 Science Battle was the positive collaboration across universities' staff between different fields of expertise.

For the first EC2U Science Battle, it seemed important that all alliance partners participate in the event. The panel of judges was the opportunity to represent the non-competing partners. For the 2021 event, there were four judges one from each of the following universities, Coimbra, Iasi, Jena, and Salamanca.

The 2021 Science Battle was a unique experience which enhanced collaboration between the students and staff. Internal and external feedback confirmed the event to be a success. To contribute to the upcoming Science Battles, the University of Turku is putting together a Science Battle Handbook, a benchmark. Future organisers will have access to key material, guidelines, and communication elements based on the different teams' experience of the 2021 event. These tools will ensure transparency between partners as well as visual and content continuity throughout these events. The audience's feedback will be highly considered in the organisation of the 2022 Science Battle.

EC2U funding and mobilities

Each partner has a total budget of 5000 euros, for the three years (2020 to 2023) for this initiative. Note here that two partners will organise their second and final event in 2023. This funding corresponds to the category "Equipment". Organising partners may be required to use additional financial resources. The University of Turku, for example, hired an external vendor from their internal university funding.

Each partner also has 30 mobilities i.e. five days mobility each, per partner over the three years. These mobilities are not restricted to the Science Battle but are also for the student events organised during the annual EC2U Forums. Therefore, the WP2 Board will be required to divide these mobilities between the two events. No mobilities were used for the Science Battle 2021 due to Covid-19.

D. Indicators and feedback from the Science Battle

Over the three-hour Science Battle, there was a total of 395 users that connected online on Zoom, 79 people that watched the broadcast on YouTube, and 72 people that assisted the event onsite (37 people in Poitiers and 45 people in Pavia).

There were two indicators to meet for the 2021 Science Battle:

- Satisfaction rates about the EC2U events dedicated to the common activities. Target: at least 75% of "satisfied" responses
- Student participation rates in EC2U events. Target: at least 10% of students among all participants

The organisational team put in place two means of measuring the success of the event: paper surveys available at the competing partners' onsite venues (Pavia and Poitiers) and online polls during the Zoom broadcast.

The paper surveys and polls were constructed before the event.

Satisfaction rates in the EC2U Science Battle

Target: at least 75% of “satisfied” responses.

Online polls were sent to participants at three moments during the event, one per hour.

From the online polls, participants answered, in order of total replies, ‘enthusiastic’ and ‘happy’, hence the overall satisfaction rate was on average 76,33%. See the three polls below.

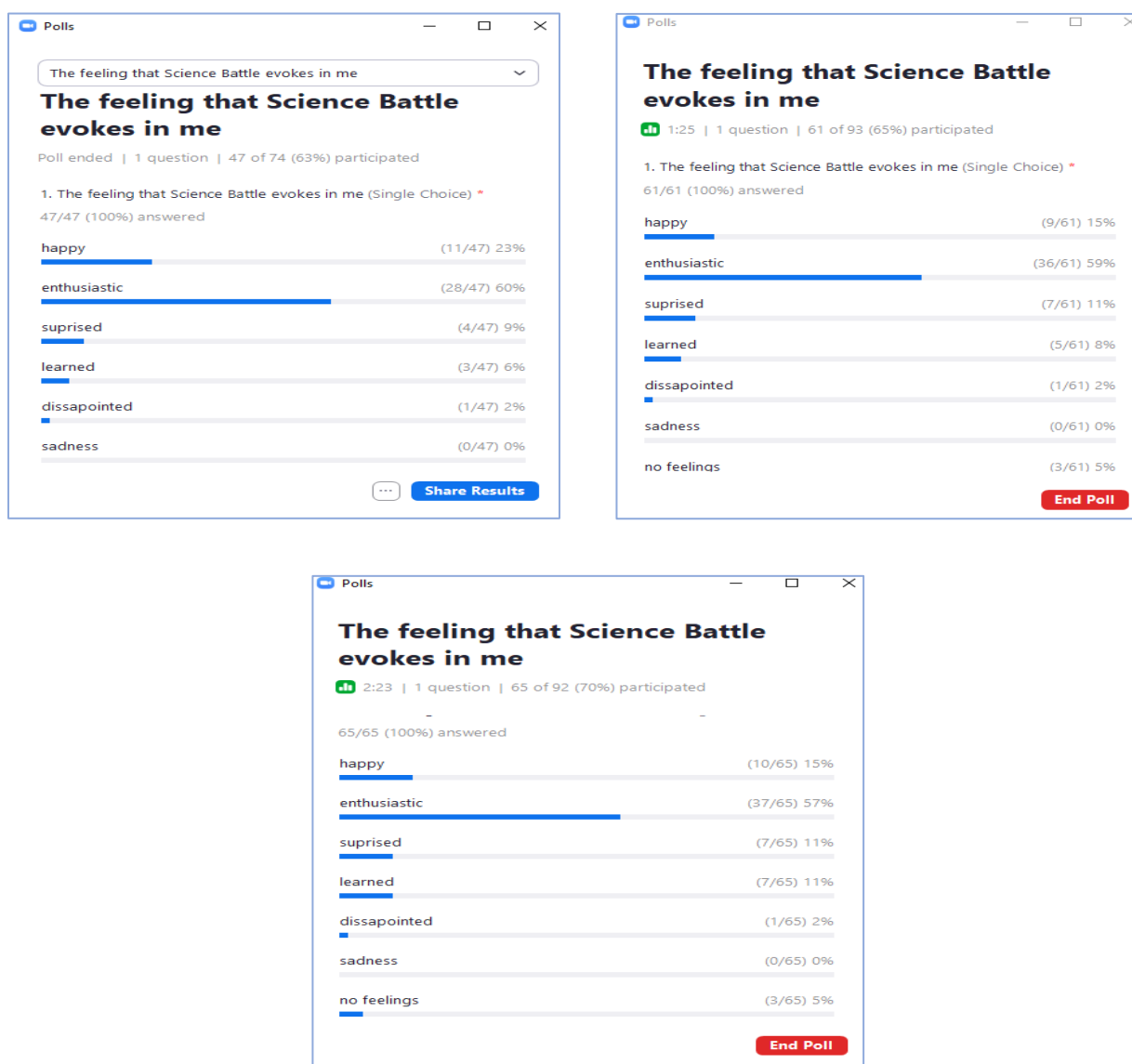


Figure 3: screenshots of the satisfaction polls sent during the event on Zoom (online audience)

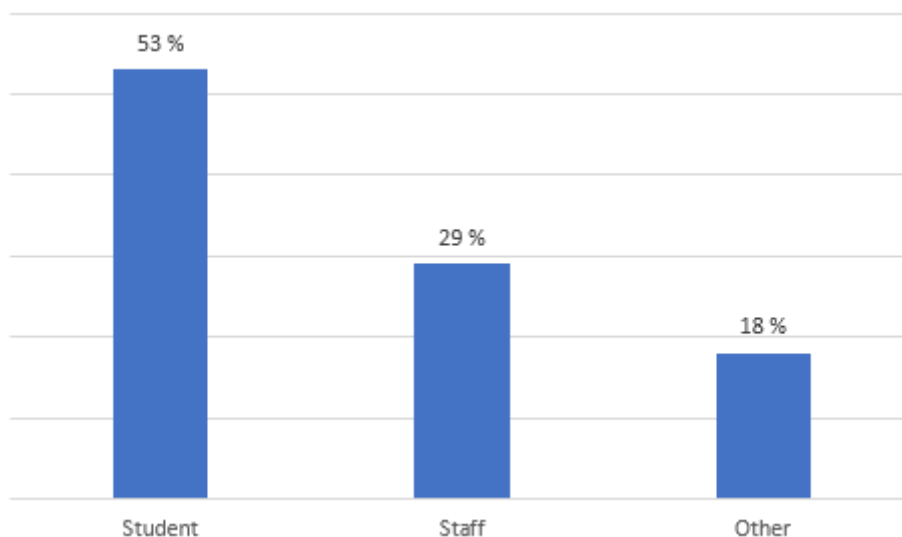
The paper surveys conducted in the competing venues also shed light on the overall satisfaction rate of the on-site audience at the University of Pavia and the University of Poitiers. On a scale from 1 to 5 (5 being the highest), the average satisfaction rate was 4,8/5.

Note: There was no live audience at the University of Turku due to Covid-19 regulations.

Student participation in the EC2U Science Battle

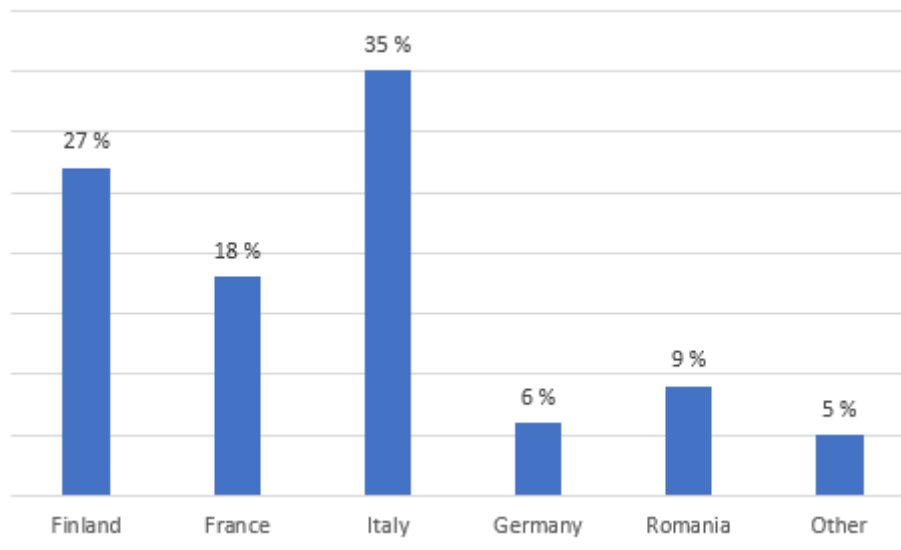
Target: at least 10% of students among all participants.

Online polls were sent to the audience via Zoom, one to gather information about the country of origin and secondly to measure the status of participants and, notably student participation rate. From the graph “Graph1: status of participants and student participation” below, one can see a majority of students participated and replied to the poll.



Graph 1: status of participants and student participation

On the graph “Graph 2: country of origin of online audience”, one can see a large percentage of participants were from the competing partners. However, we know that other EC2U partners were present, also notable on the graph below. For example, in Romania the participants of the EC2U Summer School (about 30 students and some staff) were following EC2U Science Battle together (through the same Zoom link).



Graph 2: country of origin of online audience

In the future, the idea is that partners who are not competing can organise live events for the audience to follow together e.g. from a big screen, cheering for the teams. It will also be possible to use mobilities to reunite students and staff for the event.

The paper surveys also show the on-site audience’s status.

University of Poitiers:

A total of 37 people participated, of which:

- 6 students i.e. 16% of ‘student’
- 27 academic staff i.e. 77% of ‘staff’
- 1 teacher and 3 external visitors i.e. 11% of ‘other’

University of Pavia:

A total of 45 people participated, of which:

- 30 students i.e. 66% of ‘student’
- 8 staff i.e. 17% of ‘staff’
- 7 external visitors i.e. 15% of ‘other’

As a concluding remark about student participation, whether it be onsite or online, the average student participation rate exceeded the 10% initially stated. This is considered a success for the first EC2U Science Battle.

To complement the findings via the online polls and paper surveys, people shared their thoughts online on Zoom and onsite. Below, some quotes and feedback from the audience.

« *It's also so refreshing to hear all the different languages!!* » Piia Björn

« *I really enjoy this, it's such a good way to end a busy week!* » Adriana Zait

« *Our whole family is watching! Go Turku, go Pavia and Poitiers!* » Anna-Maija Katajisto

« *Great Questions and even greater answers. Wonderful afternoon, great science and fun! Thank you all!* » Britta Salheiser

« *Stimulating and not boring at all !* » Salvatore Francesco Falco

« *Great evening!* » Iustinian Bejan

« *Great Science Battle. Congratulations to the organizers and to EC2U ! Great participants, teams, hosts and judges.* » Teresa Baptista

« *What an amazing event! congratulations to everyone involved!* » Dana Strauß

« *Thank u for this event, all the people that make it possible (merci Diana ♡)* » Romane

« *Great evening! We, EC2U Summer School students and professors have very much enjoyed. Congratulations to all three teams!* »

« *Good job everyone !* » Hendrik Eijsberg

« *Congrats to all of participants! brilliant organization and fun ambient* 🙌🙌 » Esteban Perez

« *Thanks to the participants for an enjoyable afternoon. And thanks, too, to the behind-the-scenes organizers--excellent job!* » Melinda Kolb

« *Congratulations to all! In my view, it was probably the first time I really felt the EC2U community..! See you in Salamanca!* » Alberto Forte

« *It was nice to see the teams from Turku, Pavia and Poitiers, and the different approaches they used to try to answer the questions.* »

« *Watching two or more teams in the same place, even as an part of an online audience, would have been much more engaging. Even so, it was very interesting and entertaining. I would have liked little reminders of who the team members were, especially their disciplines. I did not see all the questions, so maybe my observation is inaccurate, but the questions seemed to be limited to the natural sciences – a broader spectrum would have been interesting (Linguistics, History, Theology etc.)* »



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« I liked it very much. Highly entertaining and informative at the same time. Not sure if the time while teams are working on their task could be filled somehow, whereas I think Poitiers had done this very well by simply including the audience present on site. Thanks a lot !»

« Thank you for this exciting event with interesting questions to answer. Great science team spirit ! There were some chaotic slots/lags, when the teams were solving the tasks. But in the meantime I tried to find my own explanation to the question. Maybe more banners (beside the countdown) would be helpful to follow the event, e.g. Current questions, points etc. »

« Super event to promote science, European diversity and unity. 3 hours was a bit long, but time passed because it was great fun. »

We received positive and encouraging feedback and are very pleased of the result despite the challenges of being connected online in seven countries at the same time. This event was a success!

E. Teams

All the partners composed their teams according to given guidelines (e.g. career stages, gender and age). Each team member brought a personal 'good luck' item to the event, that was also used as a prop at the beginning for each person to introduce themselves.

University of Poitiers:

- Paul Dequidt – Doctor in Informatics
- Clément Gondre – PhD student in Chemistry
- Dorota Aleksandra Zygadlo - PhD student in language didactics
- Marie Bernardo – PhD student in Psychology
- Freddie-Jeanne Richard – Teacher researcher in Ecology
- Alexis Avdeef – Teacher researcher in Anthropology

University of Pavia:

- Francesca Sanguineti - Postdoctoral Research Fellow at the Department of Economics and Management.
- Tullio Facchinetti - Computer engineer
- Alessandro Bacchetta - Theoretical physics
- Francesca GUMA - Professor of philosophy
- Rachele di Giuseppe – Postdoctoral in biochemistry and food sciences
- Mattia Gilio – Postdoctoral research scientist at the Department of Earth and Environmental Sciences

University of Turku:

- Kimmo Elo, Senior Researcher at the Centre for Parliamentary Studies
- Aki Koponen – Research Director at the Center for Collaborative Research at the Turku School of Economics
- Teija Koskela – University Research Fellow, Department of Teacher Education
- Johanna Latva, PhD student in Etnology
- Emilia Peuhu, Adjunct Professor at the Institute of Biomedicine
- Veli-Matti Vesterinen, University Lecturer at the Department of Chemistry

All the team members received a special Science Battle t-shirt, a small university gift and a participation diploma.

F. Questions from the Science Battle

Questions were collected prior the event via various channels. The questions were then selected by the organisational teams according to the topic and scope of the question. Onsite audience also had the opportunity to suggest questions and shared between universities on the private chat. Having a large number of questions, the teams did not get to answer all of the below.

1. Is it possible to explain on a scientific basis the existence of cryptids (eg bigfoot, yetis, Loch Ness monster, chupacabra, etc.)? (take away “scientific basis” – 10 min)
2. Do blind people dream in colour?
3. How many mirrors do I need as a minimum and how should they be placed to see my reflected image more than 100 times? (number chosen at random)
4. Why do kids like to play but many adults don't?
5. Why do only some types of food cause allergies and others do not?
6. If time travel would exist, would there be multiple timelines at the slightest change in the past or would there be only one timeline?
7. If 200,000 coronaviruses would be right next to each other, could they be seen?
8. From the audience in Pavia: If the water is transparent, why do clothes get it darker?
9. From the audience in Poitiers: We can see that planets are spherical, yet solar systems, rings, and galaxies are structured horizontally, even if gravity is the main force behind this. Why?

2. Communication and marketing

University Communications Offices collaborated for the success of this event, via internal and external communication channels.

The University of Turku provided an overall communication plan for all partners to follow preceding the event, such as the official graphic chart, social media posts and two key newspaper bulletins (1. To gather questions for the wider public 2. To invite participants to the Science Battle). Each partner could modify the provided material according to their needs (language, communication channels etc.).



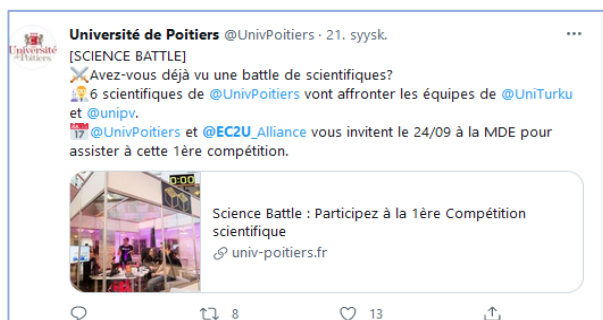


Figure 4: screenshots of the social media posts from the three competing universities

The communication and marketing plan was a success when considering the total number of participants present online and onsite (in Pavia and Poitiers). As shown below, there were approximately 400 total users, with a maximum number of views at 116. We can also assume that the total number of viewers was in fact higher (more than one person can be behind a computer screen (e.g. we know that the EC2U Summer School in Romania was connected via one account)).

Unique Viewers ⓘ	Total Users ⓘ	Max Concurrent Views ⓘ
243	395	116

Figure 5: total number of users on the Zoom account

In addition, 108 viewers watched the live broadcast on YouTube at the time of the event. By 18.10.21, the YouTube video had a total number of 321 views.

3		EC2U Science Battle 24.9.2021	8:11 (4,4 %)	429
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Figure 6: total number of viewers on YouTube video

The recording of the EC2U Science Battle can be found on the website of this event:

<https://youtu.be/kcrcaXf5aaQ>

Summary of the video: <https://youtu.be/e0boF5S2qj4>

Published news by the University of Turku:

<https://www.utu.fi/en/ec2u-science-battle>

- Science Battle palaa – lähetä kysymyksiä tutkijoille
<https://www.utu.fi/fi/ajankohtaista/mediatiedote/science-battle-palaa-laheta-kysymyksiä-tutkijoille> ja Join us to the Science Battle on Researchers' Night – send a questions to the researchers <https://www.utu.fi/en/news/press-release/join-us-to-the-science-battle-on-researchers-night-send-a-questions-to-the>
- Tule seuraamaan leikkimielistä tiedekilpaa Science Battlea
<https://www.utu.fi/fi/ajankohtaista/mediatiedote/tule-seuraamaan-leikkimielistä-tiedekilpaa-science-battlea> ja Come Follow the Fun Science-Themed Contest Science Battle <https://www.utu.fi/en/ajankohtaista/mediatiedote/tule-seuraamaan-leikkimielistä-tiedekilpaa-science-battlea>
- Tutkijat heittäytyivät leikkiin Science Battle -tiedekilpailussa
<https://www.utu.fi/fi/ajankohtaista/uutinen/tutkijat-heittäytyivät-leikkiin-science-battle-tiedekilpailussa> ja Researchers Got Playful in the Science Battle Competition <https://www.utu.fi/en/news/news/researchers-got-playful-in-the-science-battle-competition>

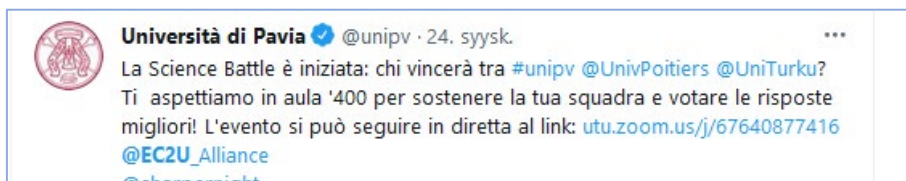


Published news by the University of Pavia:

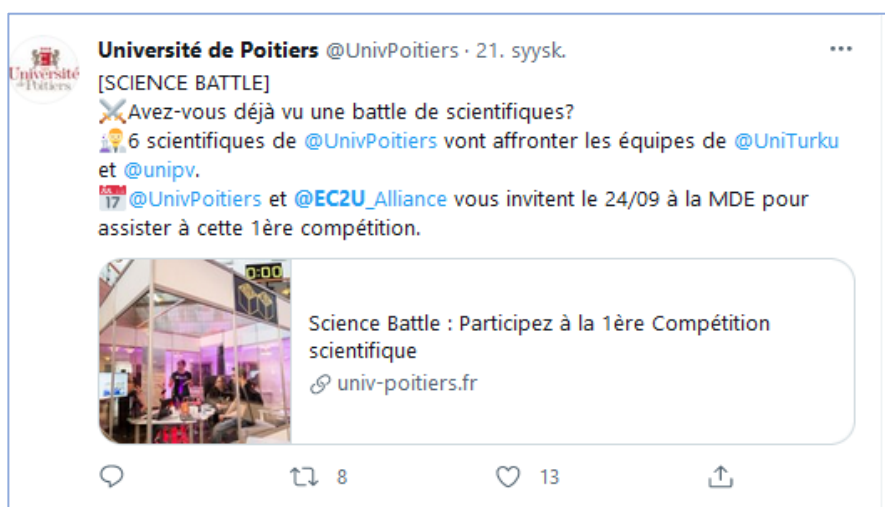
- 24 settembre – Science Battle <http://news.unipv.it/?p=60292>
- Dal 19 al 25 settembre – La lunga notte delle ricercatrici e dei ricercatori a Pavia: un'intera settimana di esperimenti incredibili grazie alle meraviglie della scienza <http://news.unipv.it/?p=60302>
- Contribuisci alla "EC2U Science Battle" <http://news.unipv.it/?p=59754>

- Come and follow the Science Battle!
<https://www.comune.pv.it/site/home/notizie/articolo2847.html>
- Science Battle Pavia, una sfida tra ricercatori <https://radiogold.it/vivere-pavese/290454-science-battle-pavia-sfida-ricercatori/>
- Come and follow the Science Battle!
<http://www.vivipavia.it/site/home/eventi/articolo36270.html>
- 24 settembre Pavia "Science Battle" una sfida tra ricercatori. Duello a colpi di scienza tra Università di Pavia, Poitiers (Francia) e Turku (Finlandia) <https://udite-udite.it/2021/09/24-settembre-pavia-science-battle-una-sfida-tra-ricercatori-duello-a-colpi-di-scienza-tra-universita-di-pavia-poitiers-francia-e-turku-finlandia/>
- Science Battle Pavia, una sfida tra ricercatori <https://radiogold.it/vivere-pavese/290454-science-battle-pavia-sfida-ricercatori/?fbclid=IwAR2adOO7kOUx0iK1UDQQArrJcq0jS8pGgo1gQa8VSsnv16Z0ZUdcCBKSI#.YUylg1F2nyM.facebook>





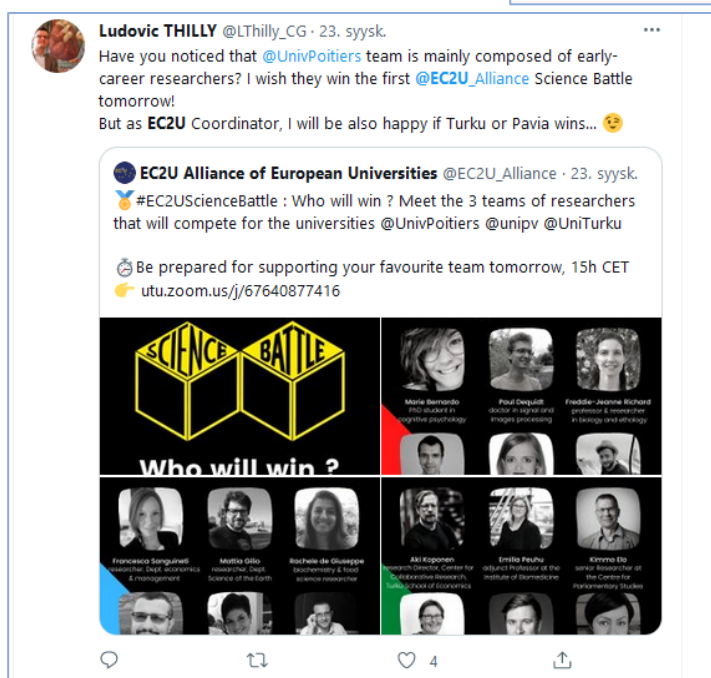
Published news by the University of Poitiers:





Published news by the EC2U Alliance and others:









A publication after the event put forth the success of the event:

<https://ec2u.eu/researchers-got-playful-in-the-science-battle-competition/>

In addition, there were publications on other forms of social media e.g. Facebook, Instagram and LinkedIn.

IMPORTANT REMARKS / CONCLUSION

- The first EC2U Science Battle was organised online between 3 partners.
- The main goals of the event were successfully achieved.
- Online participation set restrictions on how to facilitate and coordinate the event in seven different countries but through collaboration the event was a success.
- This event presented opportunities for researchers to meet over the faculty borders, and underlined the importance of such an event.
- Despite certain challenges, this event succeeded in facilitating a dialogue between partners, and in reflecting their different campus cultures and experiences.