

Science Communication in the New Reality

How to organise science festivals after
the coronavirus pandemic?

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Introduction



Anna Budzanowska

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It is hard to imagine science communication today without annual science festivals, which have been organised for many years. They already have a lasting place in the landscape of many Polish cities and became important events, which gather huge numbers of participants. Their function of knowledge and science communication has proven to be priceless. I am glad that apart from the festivals, with their unique character and achievements to date, the Science Festival Forum has also been set up. Its role is to integrate the whole circle of founders and organisers of this outstanding phenomenon.

Until now, total openness and universal availability were the natural attributes of science festivals. These features need to be redefined in the age of COVID-19. We urgently need to discuss and consider how to find ourselves in the new reality and continue to show the beauty of science, its achievements and challenges. It cannot be done without ensuring the safety of all participants and using modern modes of communication. I believe that festival organisers, who have already proven their great innovation and creativity, will find many interesting solutions that will enable them to continue and develop the tradition of science festivals, which is beautiful and so much needed.



Dr. Anna Budzanowska
during the 1st Forum of
Polish Science Festival
Organisers in Katowice
(27-28 January 2020)

Festivals in a State of Emergency

Science has always been threatened by the pride of constructivism and modelling. By questioning the testimony of human senses, which tell us, for example, about the movement of the Sun, fail to see microbes, or do not notice gravity, science exposes our ignorance and triumphantly extracts the hidden order of laws from underneath the surface of things. The higher the degree of scientific cognition, the further we move away from the truth of experience, until we reach the state in which we see mathematical, chemical and IT symbols instead of the real world. Just like the characters in *Matrix*, we do not have to look at the real world: the sequences of algorithms flowing down the screen will be enough for us.

And so it happened. The epidemic, which at this point we are unable to defeat, has expelled us from our previous living places for months, forcing us to move a greater part of our work, research and education into the virtual space. We are leading a remote life hidden behind the computer screens thanks to the algorithms which are invisible, but they almost entirely organise our reality these days. To our surprise, though, we have managed it quite well. It turned out that a significant part of our reality also has a virtual form and can be operated within it without obstacles.

However, after several weeks the virtualised reality began to annoy us. And although we already know that the school or university can become a smartphone app, we do not really want it. This time made us even more aware of the fact that education is a meeting. It is not only about transferring knowledge – equally important, if not more, is the relationship that is formed in the course of education. The possibility of thinking and experiencing reality together. It is no different in the case of thinking about the upcoming science festivals. Working on their concept and organisation answers the question of what their greatest value is. The huge interest that Silesian Science Festival managed to arouse within four years only has proven the need to connect knowledge and science with the human experience of reality. Knowledge and science make sense, which means that they are perceived as highly valuable, when they are embedded into human life: they allow us to understand and improve it.

The upcoming editions of science festivals in Poland and around the world will take place, to a large extent, in the remote form. I am convinced that the current crisis will release our creativity to share scientific knowledge to an extent we have never dreamt of before – to the benefit of thousands of visitors who cannot directly participate in the great feasts of science that we organise.

However, I wish that every virtual science festival was regarded as a festival in a state of emergency, so that in the future we could continue to meet, think and experience the reality together. Because it is the close relationship with every human life that creates the sense of making and communicating science.



Ryszard Koziołek

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Participants of the session entitled 'Different Models of Science Festival Organisation',
1st Forum of Polish Science Festival Organisers,
from the left: Dr. Zuzanna Toeplitz, Ellie Petrie, Justyna Szostek-Aksamit, Jennie Turner





European Perspective

Science Festivals in Times of COVID-19

– Challenges, Opportunities, Obstacles



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Science Festivals in Times of COVID-19 – Challenges

The COVID 19-crisis has created a sense of uncertainty and irritation all across the world. The public engagement community is no exception here. Science festivals as we knew them, with thousands of people enjoying live events on streets and squares, in labs and lecture halls, may not be possible for a very long time. Many events have been cancelled in 2020, others are looking for new ways to create dialogues between scientists and the public. Some organisers are now focusing on innovative digital event formats – while others are simply moving their events to the next year.

In re-designing our festivals we all share similar concerns: How can we keep the ‘look and feel’ of a festival when going digital? How do we keep the engagement of our scientists and citizens alive in a purely digital context? How can we offer interactivity, participation and dialogues when personal meetings are not allowed? How can we create a ‘group feeling’ for our audiences? How do we train our teams to be ready for new formats? How can we deal with social isolation measures during real world interactions? How can we measure participants and engagement in virtual gatherings? How can we reach out to ‘hard to reach’ target groups, if they are not connected to the Internet?

Participants of the session entitled
‘Event promotion – make it visible!’,
1st Forum of Polish Science Festival
Organisers, from the left: Tomasz
Michalski, Martyna Fołta, Katarzyna
Świętochowska, Radosław Aksamit



Science Festivals in Times of COVID-19 – Opportunities

A global pandemic such as COVID-19 unites the public engagement community across the world: since we all experience similar challenges in our professional and private lives, we can also benefit from solutions found in all parts of the world. We all should take this opportunity to work out new solutions for the ‘new normal’ to come. These are some of the opportunities the community sees:

- Across the globe the COVID-19 crisis has shown that scientific literacy is key to addressing and solving major challenges. All over the world citizens, media, policy makers and economy rely on decisions based on scientific evidence. The pandemic has put a strong focus on the need for dialogue-oriented science communication, engaging different publics, enhancing an understanding of the opportunities of scientific discoveries and the complexity of the scientific process.
- Instead of cancelling our planned science festivals, we should use this focus by offering our events as open and inviting access points to scientific knowledge. Online or offline - science festivals invite multiple interactions between science (including social sciences and the humanities) and various publics. They are key in fostering scientific literacy and creating trust in research and innovation.
- Even in digital versions, science festivals can catalyse debates about the role of science in open societies. They can nurture new forms of expression and create bridges between the research community, citizens, civil society organizations and the general public.
- Until today many science festivals put a strong focus on presentations related to STEM (science, technology, engineering and mathematics). While this is still important, the COVID crisis has shown that technology alone cannot answer the multiple challenges which the society is facing. Science festivals can use the time of the pandemic to broaden their approaches by inviting psychologists, sociologists, economists, philosophers, but also artists, writers or performers to inspire new methodologies and creative approaches to communicating and reflecting science in the context of society.
- Since science festivals have been running for many years, there are a lot of resources which can be modified and shared online: educational materials, presentations, pictures, videos, recorded talks. The crisis offers us an opportunity to re-visit these resources and make them accessible online. Making science engagement resources available digitally for schools or interested audiences increases the usability of these materials beyond the timeline of an event. Digital presentations may even allow us to involve our audiences in becoming part of the experiments – shaping them, making them larger, giving their feedback.
- Some elements from our live festival programmes can be conducted online, using the interactive online meeting-places which are accessible by everyone: we can, e.g., conduct workshops online, invite national institutions and companies to create live podcasts, ask scientists to record virtual tours through their labs or institutions, organise competitions and mass experiments. Activities can be shaped in a way that they invite families to do hands-on experiments at home with everyday-materials. The festivals which are strong in using social media to promote their event can now use these audiences to



engage digitally. Live performances can be streamed to reach audiences who would not have travelled to see the event.

■ Since more people than before today use online meeting places for professional and private contacts, science festivals can try to integrate community engagement by co-creating activities together with their community — e.g. with church communities, community kids groups or NGOs.

■ International collaborations are easier in a digital environment. We can make the best of our European and international networks now – exchanging ideas, resources and materials. Online festivals can share materials in different languages and offer them to international audiences, thus reaching out to new communities. In digital versions of our festivals we can be both local and European, even global. We could use our festivals to address together global challenges, such as the Sustainable Development Goals.

■ In these times, when most events are being stopped due to the pandemic, media are excited about live events taking place. Consider that news coverage for science engagement activities may be better than before, think about longer interviews you could suggest to newspapers or radio stations.

■ We can all use a digital version of the festival for a substantial overhaul of our digital strategy, creating on-demand content easier than in live festivals, which need a longer preparation time. Sponsors may like the fact that they can reach more audiences via digital formats.

Science Festivals in Times of COVID-19 – Obstacles

With all the optimism regarding the new ways to collaborate and engage different publics with science, we should be aware that there are some major obstacles when trying to bring a science festival online:

■ As science festival organisers, we are experts in science communication, public engagement and event planning. We are no experts in conducting or facilitating digital events. Most of us still lack key qualifications that are needed now. Some modesty is needed – and a willingness to learn about new tools and techniques. Also, trainings should teach scientists how to use the existing tools in an interactive and participatory way.

■ We should be aware that in these times, when everybody is going online due to social distancing regulations, we are competing with other digital formats on a crowded online marketplace. Since there is an increasing “digital fatigue”, we need a new quality and uniqueness if we want to keep attracting audiences.

■ Science festivals may suffer economic challenges: sponsors who have supported a festival in the past may now be facing challenges due to the global recession. It can be a challenge to cover the costs for shows or performances if they can only be performed online.

Summary

While the COVID pandemic is probably one of the largest challenges we all have seen in our professional and private lives, the community of public engagement professionals is witnessing an exciting time of experimentation and testing.

In times of a global pandemic, science-society dialogues are more important than ever before. In addition to opening research and innovation to citizens of all ages and backgrounds, science festivals can encourage scientists to gain an increased awareness of their own roles and responsibilities in local and regional contexts. By getting actively involved in debates, workshops, lectures and dialogues, scientists can achieve a new understanding of decision-making processes and the specific socio-economic challenges of their communities.

For a long time we may need hybrid models for our festivals, combining digital activities with real-life experiences. But if we keep our focus on a contextualization of science, on two-way dialogues and on experimentation, the pandemic may turn our science festivals into innovative and joyful test beds for participation and engagement with science.

As science festival organisers, we should all see this crisis as an opportunity to develop new ideas together and learn from our national and international networks. The European Science Engagement Association is such a network, and we are happy to welcome all colleagues interested in sharing, learning and developing new pathways to innovative science engagement and swirling science festivals!



Participants of the 1st Forum of Polish Science Festival Organisers



Getting Elements of EdSciFest Online



Amanda Tyndall

Festival and Creative Director
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www.sciencefestival.co.uk

The Edinburgh Science Festival is one of the oldest and best respected Science Festivals in the world. In its 30 years of existence it has been witness to all sorts of weird and wonderful changes, developments and discoveries. A lot has happened in the worlds of science and wider culture – from the sequencing of the human genome to the discovery of gravitational waves, and all sorts of things in between. Having been around the block a few times we thought we'd witnessed most things and considered ourselves quite hard to surprise: how wrong we were!

By early February 2020 it became apparent that something new and different was looming, that something unprecedented was happening on the world stage. COVID-19 was on the rise, and countries around the world were taking steps to reign in its spread.

With one eye on the developing global situation, we launched our 2020 Festival programme on 22 February 2020 with the live Festival scheduled to run from 4-19 April. That was the plan, but global events rapidly took over. On March 11 the WHO declared COVID-19 a pandemic, the next week the UK and Scottish governments banned mass gatherings and venues began to announce their closures, and on 17 March – just over 2 weeks out from what would have been the start of the live Festival – we made the sad but necessary decision to cancel the live event, for the first time in our 30-year history.

Rapid about turn

All that hard work, planning and the excitement that each year takes over EdSciFest HQ, and indeed the wider city, as our campaign rolls out, excitement builds and audiences across the city await the Easter holidays and the arrival of the Festival. Where to now put all that energy? After taking a few days to take stock of the situation, explore various ideas and options and put some plans in place, we decided to throw our efforts and energy at getting some content online. We knew we didn't have much time, that our website wasn't build to house and present the sort of content we were likely to generate, and we could only hope to put a fraction – a flavour – of our Festival online. That's because we are experts in live events and not in digital engagement. But we wanted to do something. Something to keep the SciFest team busy and motivated in the absence of delivering the events they had worked so hard all year to create and curate, and something that would demonstrate to our partners and sponsors our commitment to our mission, and that we could move quickly/pivot to connect with our audiences in some shape or form, albeit very different from the live Festival we had planned. Something we could both be proud of and could learn from for use in whatever future awaits us.

Variations on a theme

EdSciFest chooses a broad theme each year – to help us talk to stakeholders, media and audiences in more meaningful ways and better generate compelling narratives around the Festival content. It just so happens that our 2020 theme was ‘Elemental’: exploring global environmental challenges and opportunities through the lens of earth, air, fire, water and aether. So, hot on the heels of the decision to cancel EdSciFest live events, we announced the creation of ‘Elements of EdSciFest Online’; a selection of digital content aimed at going some way to replacing the cancelled live 2020 Festival. We retained our ‘Elemental’ theme, trawled our archives and reached out to our partners, speakers and the wider web with the aim of creating and curating a selection of content that would give the audience access to science from the comfort of their own homes.

‘Elements of EdSciFest’s’ message was as follows: never has an understanding of science and reason and rational thinking been more important than now. This is why we informed our audience that while you may not be able to get out and about, EdSciFest is here to help connect you to some of the science that matters most and have some fun in the process. See: <https://www.sciencefestival.co.uk/all-fired-up>.

Innovation through collaboration

We couldn’t have gone it alone, and while the in-house team were wrangling with logistics and practicalities, searching our archive, repurposing teacher resources (usually part of our touring education programme) and turning some of our live workshops into suitable digital offerings, our partners really stepped to the mark.

We asked them to share anything they could: from short videos or audio interviews/podcasts, experiments, games blogs, book/

film recommendations etc., and they obliged, delivering us a range of materials that would form the basis of ‘content units’ online.

By the time the ‘live’ dates came along, the country was in full lockdown, parents were struggling to juggle work, home schooling, etc., and the prospect of live events seemed to belong to the distant past/another world. While it was far from perfect, ‘Elements of EdSciFest Online’ has proved to be a valuable test run in the face of a world in turmoil.

Keeping a Festival feel

It wasn’t without its challenges, of course. We may have had a home-bound, potentially captive audience, but we also had to generate this content and manage it from the comfort of our own homes. Our warehouse was out of bounds, our kit, consumables and equipment unreachable, our web developers too busy to help. Given these constraints, plus general lockdown anxiety, timing, budget, website architecture/capability, not to mention that we are predominantly experts at developing and delivering live events NOT digital content, we decided on the following:

- Maintain aspects of the “look and feel” of the Festival: for us this meant keeping the theme, campaign graphics, etc., and maintaining and grouping our content units under our original topics: earth, air, fire, water, aether, etc.
- Putting emphasis on the on-demand content, with select live events/activities if relevant/logistically possible, etc.: people’s schedules were highly unpredictable as lockdown commenced, plus we lacked live skills, so doing too much live would have sorely tested us on the timeline we had.



■ Focus more on content for families vs. adults, as that's what our audiences seemed to be crying out for most: repurpose not only our Festival content, but also relevant aspects of our education work, such as teacher resources for hands-on, homeschooling activities for parents/carers. See: <https://www.sciencefestival.co.uk/event-details/kids-lab>.

■ Rollout/trial of a small number of 'special live events' (to coincide with the original Festival schedule where relevant/possible). See: <https://www.sciencefestival.co.uk/event-details/earth-live-lessons-edscifest-takeoverfpr>.

■ Regular rollout of new items/content to keep it fresh across 'live time'.

■ Partner where possible with organisations with existing online reach/profile etc: e.g. our inclusion in BBC learning-at-home resource round-up.

■ Use social media as a marketing tool but acknowledge its limitations for genuinely 'engaging' audiences.

Perhaps most importantly, we learnt the importance of being realistic – we only had two weeks, which is not our comfort zone - we were not about to become TED or BBC, but rather just to try to play a small part in a live event resilience movement, showing that we may get knocked down, but we can get back up again.

Quite the learning curve

Developing 'Elements of EdSciFest Online' was a valuable opportunity for us to rapidly prototype how online content might look for us as a Festival. It has taught us a lot about what works and doesn't, what people want and how we get it to them in the most useful way, as well as how we can better reach our target audiences. We'll be taking what we've learnt for the future, and building and improving on it for 2021, with an emphasis on how we can better bring our live experience expertise to bear on our digital offerings in 2021.

Was the audience/user experience optimal? No, far from it; I confess we focused more on getting content into people's 'hands' rather than on the 'experience', but it is the latter that's most interesting to us going forward.

Did we engage with audiences in the same way and with similar depth and impact as if they had attended one of our live events? No. We are not experienced in evaluation of engagement on virtual platforms (so need to learn that next!), but we are open about the fact that we struggled to offer genuine interactivity, participation and dialogue opportunities.

Do we intend to become dedicated digital content producers and ditch the live? Most definitely not, but will we do more digitally in future? Yes. Yes; we are interested in better using digital tools, techniques and approaches to explore how we can enhance audience experiences of live events and/or increase the breadth and depth of engagement (the reach and impact) of live events.

Did it reach 'everyone'? Not by a long way however you measure it; we need to get better at reaching audiences online and

to bear in mind that digital tech isn't a given for many underserved audiences and can simply act as yet another barrier to access.

Did we reach new audiences? We think so, but with the team currently furloughed, we have not yet been able to run detailed analytics/audience analysis, etc. That will come as we gather ourselves and plan for the next year.

Does it have the potential to reach new audiences? Yes, most definitely. We've wanted to do more digitally to better reach teen audiences for a long time, for example, and this is an incentive. Rather than being a threat to the existing approaches, digital tools and techniques can help reach out more widely to more diverse audiences.

Did we learn a lot? Oh yes! Would we do it again? Yes and no: not so quickly or under such difficult conditions as we now have time to plan properly. We are, however keen to explore hybrid live-digital models and perhaps more importantly for us – who after all are live event experts – explore how our Festival might adapt and take different live forms that still see us achieve our engagement aims. How this carefully created/curated online companion piece to our real-world activities, complementing or enhancing them via tech, can provide engaging science content with a Festival feel.

Up next for EdSciFest

So what will the next year's EdSciFest look like? That's a very good question and one I don't have a detailed answer to just yet, but we have a lot of ideas. Ordinarily we run for two weeks at Easter, use 30 venues around the city, work with countless partners and supporters, and run nearly 300 events. Venues make

good use of the wider city, including science centres, museums, art galleries, botanic gardens, public plazas and shopping centres (plus many more), and two dedicated festival hubs that house the bulk of our hands-on workshops for children and families and our offerings for young people and adults.

What can we assume about how things will look like in 2021? Not a lot, other than that there will likely be at worst a resurgence and repeat of this year's COVID-19 upheaval, and at best an ongoing effect on consumer attitudes, behaviour and confidence that makes it, we feel, unsafe and unwise for us to assume we can just plan for business as usual.

Instead we have our usual content up our sleeve, but are now working on new ideas that would see us reduce the amount and change the type of events held indoors and up the emphasis on digital companion pieces to live events and to and getting the Festival out and about more. We are a citywide festival anyway, and have a long history of embedding content in city locations, but 2021 will likely see us do more of this. We value it as a way of reaching new audiences, in particular providing opportunities for those with low science capital (including from underserved audiences/communities) to come across Festival content by removing some of their barriers to access and, should social distancing be in place again, it's well suited to it.

EdSciFest is perhaps best known and respected for creating amazing hand-on science workshops for children and young people, plus each year we curate a programme of third-party workshops that allow audiences of all ages to get creative with science and technology and to have a more in-depth experience of a topic. We are exploring what workshops might look like in a socially distanced/constrained world, including how we might provide



'Make-Along at Home' experiences and 'Masterclasses' for more interactive digital experiences.

Each year EdSciFest looks to place high-visibility, impactful science content into public spaces, so that our content is accessed by wide and diverse audiences, including those with low science capital. We like large-scale photography exhibitions and high-impact installations in high-footfall locations around Edinburgh, and we are exploring how digital tools might, for example, use AR to enhance our audience's experience of static works. See: <https://www.sciencefestival.co.uk/event-details/into-the-blue>.

Indoors we're hoping to stage our new 'Pale Blue Dot' exhibition at the National Museum of Scotland, with just a few tweaks and changes to allow for better distancing, etc. This year it appeared in part online, but we can't wait to deliver the real thing. See: <https://www.sciencefestival.co.uk/event-details/pale-blue-dot>.

We're perhaps most excited by two ideas. Firstly, a programme of 'Free-Range Science' that will encourage audiences to get out and about through a new programme of ambulatory/mobile experiences (think tours, trails and challenges of all sorts). From simple lo-fi experiences (in which audiences can download paper maps/resource packs) to more techy versions using audio guides/apps/QR codes, etc., to citywide trails, group events, venue takeovers and live activations. 'Free Range Science' will let audiences embark on exciting physical journeys of scientific discovery on topics of all sorts.

Using the city and surrounds as a science playground, some of these will simply work with existing infrastructures and features while others will temporarily augment and enliven the city with installations, sculpture trails and live 'happenings/activations' etc.'

Secondly, the potential to change the ways in which we present shows and performances. Our 'Science in the Spotlight' programme each year brings together the worlds of science and performance with everything from stand-up comedy, storytelling, music, theatre, live experiments, and demonstrations. We are rethinking our approach to explore how we might do more outdoors or in unusual/non traditional spaces, or even from the back of a truck.

Regardless of the direction we end up taking, reason, rationality and a connection to the science that's so central to our lives have never been more important and, in the spirit of optimism, resilience and hope, the 2021 Edinburgh Science Festival will explore both new ideas and new Festival formats that sees us deliver some of our Festival favourites in new and innovative ways. This new hybrid model will inhabit some of the physical spaces from the past, but also add new venues and formats that respond to changes in wider world circumstances, attitudes and behaviour – where we will continue to ensure the safety of each festivalgoer, scientist and team – and new virtual ones, through which we can together explore our themes and provide unique programming to audiences not just in Scotland, but potentially around the world.

It has been an exceptional year and while there are some daunting challenges, exciting possibilities and opportunities also lie ahead, as we all wrestle with similar issues and questions and look to share ideas and inspiration. Our keywords for the year are sustainability, connectivity, new ideas, innovation, collaboration, disruption, optimism, hope, and resilience, and we look forward to sharing our thoughts and conjuring up wonderful engagement opportunities with our science engagement peers.

Our keywords for the year are sustainability, connectivity, new ideas, innovation, collaboration, disruption, optimism, hope, and resilience, and we look forward to sharing our thoughts and conjuring up wonderful engagement opportunities with our science engagement peers.

Amanda Tyndall



Prof. Ryszard Koziotek during the opening of the 1st Forum of Polish Science Festival Organisers

A Swedish Perspective



Jennie Turner

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Is it possible to move the festivals to a virtual space? What are the pros and cons of such a solution? Is it a good idea to use social media not only as a marketing tool, but also as a tool to transfer knowledge? Will it allow us to have a new formula of a scientific event with a new group of receivers, or should we rather see it as a threat to a more traditional approach? Can we use our „old ways and ideas” to promote science and knowledge solely on the Internet?

As we see it in Gothenburg, we think the future will be both digital and physical. By being digital we have enormous opportunities to do things that are not possible IRL. It will also open doors to people who for a variety of reasons won't be able to come to a festival. It can be physical, geographical or other reasons that may prohibit a visit. In that aspect, a digital festival will be more inclusive – and perhaps more creative, given we take the chance to think outside the box. What we feel is important, though, is not losing the interactive part.

We think certain concepts and content are more desirable live. That in itself might even be a reason for not streaming and spreading those particular meeting places – what happens in Vegas, stays in Vegas... With a well-thought-out mix of digital and physical meeting places, we believe we can reach further, meet new target groups and widen our offer.

Is it possible to move festivals to the city space and make use of its potential? Many businesses and entrepreneurs are already thinking about leaving big areas, galleries and shopping malls and using smaller premises instead. Is it also a good idea for science festivals? How would a science festival look if it was organized within the city? What are the key patterns and models we might use?

In Gothenburg that is very much how we work. Pros are that we turn up where people already are, surprising them, catching them off guard. By staying in a conference centre, you are likely to attract those who are already interested, who have read up about the event and planned their visit – but we want to reach further. With that said, nothing beats the feeling of being in a large event space, feeling the connection with the people around you – we have a common interest! There is a certain powerful energy in that.

By being instead in the city you can turn it around and start with the target groups. Who I want to meet, where I can find them, and then turn up in this place. It could be Youth Recreation Center, a club, café, a football arena or a shopping mall. Depends on what you want to achieve.

If not a virtual or a city space, then what? What are the other possibilities for the science events if the epidemic threat continues and excludes the possibility of larger gatherings?

If we assume that the pandemic is still going on next year, but we can see each other, just not in big gatherings, then we need to think about meeting up in safe spaces with less people – walking tours and talks, for example. I guess everything can be adjusted. If we have more dystopic future where we can't meet even in small gatherings and digital meetings are not allowed, then I believe we are stuck.

What we feel is important, though, is not losing the interactive part.

Jennie Turner



Participants of the session entitled 'Science festival – social function of the university',
1st Forum of Polish Science Festival Organisers, from the left: Prof. Ryszard Koziołek,
Assoc. Prof. Eng. Jacek Soroka, Assoc. Prof. Eng. Ryszard Polechoński,
Dr. Zuzanna Toeplitz, Assoc. Prof. Krzysztof Machaczka, Dr. Agnieszka Motyl





Polish Perspective

From Far and Near



Wiktor Niedzicki

Ambassador of the Silesian Science Festival KATOWICE; radio and TV journalist; lecturer; author of TV programme called 'Laboratorium'

We like the songs that we know. We like the solutions that we know. We like the people that we know. This is more comfortable for our brains. As we all know, one of the most common human features is laziness. Most of us don't like learning. We do not like taking too much effort, unless the situation makes us do so. Experts have spoken about the need to use the achievements of modern technology (computers, the Internet and mobile apps) for a long time. They discussed distance learning and knowledge sharing. However, in practice not much happened. Lectures, talks and discussions that we've all known since the Middle Ages were both familiar and convenient. Things were good. Why change it? Suddenly, from day to day, we were confronted with an unusual situation. It turned out that regular classes with students could not be carried out. No lessons, no workshops, no experiments together, no direct participation in lectures or seminars. No meetings or face-to-face discussions.

This new situation has turned the whole world of education and science communication upside down, changing it, perhaps for a long time. Nobody can guarantee that a similar epidemic or other event will not make it necessary to repeat long-term isolation of a vast part of the society. If something like this happens, we will have to immediately return to the status as of mid March 2020. No good?

Well, what some regard as a disaster, could be an opportunity for others. We will finally be forced to introduce new forms of education. If the majority of teachers and academics implemented distance teaching methods over a couple of days, it means that we are initially prepared for the great educational revolution. Obviously, running lectures through Teams or Zoom, using Skype and electronic grade book is just a replacement. It's good for a start, though. A rough review of what is going school in schools and educational organisations shows that teachers and academics, despite huge obstacles and equipment deficiencies, began to introduce the new forms spontaneously. Remote classes and lessons appeared, including such that allow to activate the audience, who usually sit passively in front of their computer screens. Many science communicators intuitively felt the new market needs. The online race has started. Who can attract a higher number of recipients? The record-holders had hundreds of thousands of website visits. Many organisations prepared real TV studios within just a couple of days. The invited guests recorded their lectures and shows there, and encouraged the audience to be active, in spite of the mandatory lockdown. Online webinars and meetings on exchange of knowledge began to be organised. The Internet got filled with films presenting simple (and sometimes more complex) experiments. The ways to conduct more attractive remote classes started to be shared in social media.

Thus, the new situation forced a qualitative change. This experience will also cause changes in the organisation of huge science communication events, such as the Silesian Science Festival KATOWICE. Most of us enjoy events and meetings in which we take part in person. This is more pleasant and 'normal'. Apart from the information itself, we also receive emotions. We catch the colours, scents and all sounds that surround us. We can touch objects. We can drink coffee in company and listen to a lecturer whom we admire. This cannot be done via online cameras. To make things even worse, the quality of image transmitted via such devices is usually far from perfect. So what can be done and how to do it? In my opinion, moving popular science events, such as the Silesian Science Festival, to the virtual space, although very difficult, seems to be possible: perhaps it is even a chance to gain new mass audience. During the 4th Silesian Science Festival, the International Congress Centre was overall visited by almost 60,000 people. They frequently travelled many kilometres to see this outstanding event. And what if the Festival covered the whole country within its range? You can get virtual access anywhere. Popular science events prepared in this way could attract millions. Admittedly, the universities and institutes participating in the Silesian Science Festival are mainly targeted towards the students from the Silesian region, but a greater reach would also mean promotion in other regions. And there's never enough promotion!

Some of the festival attractions could even work better online and become festival highlights - for example Science Station, which enables unrestrained conversation with interesting guests and ŚFN ambassadors. It is commonly known that many people are so shy that they are unable to ask a question in public. I know from talking to teachers that e.g. students with Asperger syndrome, or other similar problems, can live up and take active part in lessons precisely during virtual classes. Perhaps it is worth using such experience and offering Science Station online.

Similar is the case with questions to lecturers. 'Virtual lecturer' will be less embarrassing for the audience. Many people who will not be visible for him may dare to take part in the discussion. In the case of humanities classes, it is also possible to imagine exercises with virtual participation of students. For many, communication without vision can be less stressful than an exercise watched by others. Also, invisible listeners will not be embarrassed when performing various tasks. More such examples could be found.

A bigger problem is with experiments and getting to know the equipment that is normally presented live during the Festival. However, in my opinion, the Internet enables us to carry out many, even very complex experiments remotely. Several years ago, there was a laboratory at the Faculty of Physics at the Warsaw University of Technology, where some of the classes could be carried out distantly. The camera would show the research set, and the student, using their keyboard, launched the electric actuators, which moved e.g. the spectrometer. Then the results appeared on the screen, and the student could record and analyse them.

I can easily imagine experiments based on Bernoulli's principle, electrical devices, as well as wave motion, pendulums, resonance, etc. conducted remotely. Some universities probably already have such research sets. It should not be difficult to develop more of them. It is also possible to build sets for children, who will be able to perform remotely 'magic' tricks, such as the 'Cartesian diver'. In this way, we will encourage children to experiment on their own. Films could be another highlight. Certain productions have already been awarded at popular science film festivals. It is enough to prepare the relevant thematic packages and offer them in a convenient form to the virtual guests of the Festival. The important thing is that such films should be Polish and made in Polish reality, to make the spectators feel connected with the presented content. Another highlight could be lectures prepared so as to make the audience feel that they are



conducted live. With an appropriate setting, the attendance may be not lower than on stage during ŚFN. We do remember the tales of Michał Sumiński, and the outstanding stories told by Prof. Zin, etc. These programmes attracted millions of viewers.

Virtual contests are another opportunity for a science festival. Not only children, but also adults like to win something. Competition and rivalry are extremely important. The contests should be organised in such a way that virtual participants could watch them remotely, see who takes the lead, who is defeated, etc. Such contests should be commented by sports journalists, who know best how to heat the fans' emotions. Supporting science – this is quite a challenge!

Everything I wrote above is in the conditional tense. The condition is to attract a significantly larger audience than during a 'normal' Festival. How to do it? Direct contact with schools would be necessary. Only teachers can encourage their students to participate in the event. It is the teachers who will comment on the Festival events. Such direct contact with schools could be ensured by employees of the University of Silesia, but... promotion of the event by the Ministry of National Education and regional education authorities could bring a better result. The patronage of these institutions will guarantee a significant extension of the reach and provide support for teachers. There is also a chance that such a virtual festival will be joined by parents, who will then follow different events together with their children. The network operation is an important issue here. Such an event can only be successful if the target audience have high-speed Internet. Perhaps it would be a good idea to organise a campaign for providing students with computers or tablets. Digital exclusion is one of the main threats.

Unfortunately, a virtual event leaves no material traces. Gadgets, brochures and leaflets should reach teachers and schools right before the virtual Festival. It is worth ensuring that the gadgets are intriguing, interesting, encourage experiments and participation in competitions with prizes. The students who receive such trivia will not only re-

member the event better, but also take part in it more willingly. Obviously, it all depends on the financial resources and technical support for the new formula of ŚFN. Probably everyone already knows that distance learning takes much more time for the teachers and science communicators than the traditional forms of education. Apart from mastering technology, it is also necessary to adjust the content to ICT technologies.

I have run a little survey among teachers. Almost all of them (overall more than 30 people) claimed that in the new circumstances they had to work nearly twice longer than before. Not only do they have to prepare classes in a different way, but also to take care of the participants' activity differently and pay more attention to motivating them to work. Extra exercises, additional tests and, very frequently, conversations are clearly something that students need. This is another important clue for science festival organisers. I think that to rely only on enthusiasts and volunteers is a dead-end street. In the nearest future, the family maintenance costs will be growing. In these circumstances, educators and science communicators will also be looking for paid jobs. And festivals need the best people.

It is equally important to choose a convenient e-learning platform, which will also offer a smartboard, modules for running classes and tests, as well as the possibility of permanent visual and eye contact with the class participants. This is because it may provide better results than the moment to stop at the real table of a science presenter or communicator.

And finally, just a couple of additional remarks. Is it worth thinking about moving the Festival into the city space? Yes. Will this, however, not mean fragmentation of the Festival at the same time? Since it is not allowed for people to gather, certain risk will also occur in smaller areas. Similar is the case with events organised in the marketplace. Even if the intentions are good, there may be a problem with an excessive number of spectators and failure to comply with the safety procedures.



Wiktor Niedzicki during the 4th Silesian Science Festival KATOWICE

Regardless of it all, in my opinion, the new situation is an opportunity to change the image of the Festival. To change it for better.

Wiktor Niedzicki

Online or in the Real World?



Jarosław Juskiewicz

Ambassador of the Silesian Science Festival KATOWICE; journalist on Polish Radio Katowice, associated with the Silesian Planetarium; Polish voice of Google Maps

The 4th Silesian Science Festival KATOWICE was a spectacular success. Tens of thousands of people who passed through the International Congress Centre remembered the innovative stations where science was presented in various forms, incredibly interesting presentations and meetings with special guests. Over two festival days, I watched from the Main Stage and café on the scaffold a sea of heads flowing through the Main Hall. And when the coronavirus pandemic broke out, I immediately thought, ‘Thank God it is now, rather than a few weeks ago’. And I obviously wasn’t the only one. Because the Silesian Science Festival is a crowd of organisers and participants.

Can we prepare further editions of events such as ŚFN without thinking about coronavirus? Of course we can’t. Nobody, not even the best epidemiologist knows what the world will look like in April 2021. I’ve recently found myself watching *The Godfather* and thinking, already during the first scene, why so many people have gathered in one place in a garden and none of them had a face mask. Perhaps after a few more weeks of isolation I would no longer know why only one of the women was wearing a white puff sleeve dress. Because I can’t remember when was the last time I saw a wedding live.

OK, no more joking. The pandemic has taught us at least two things:

1. There is no event that could not be cancelled at the very last moment. 2. Modern technologies have enabled us to do a lot for a long time, but until now, paradoxically, we were too comfortable to use them.

I already found out in the second week how quickly you can shift to remote work, as soon as it turned out that I can run, without any problems, a weekly programme about computers, which usually hosts live a number of guests in the studio, with the same people now sitting safely in their home-based sound ‘hollows’. And frankly speaking, I could be sitting at my home recording studio rather than in front of the microphone in the building at ul. Ligonja 29. It’s actually enough to have a couple of microphones (not necessarily top-shelf), a little soundproof foam and a computer application. We obviously lack personal contact and we are already missing one another, but from the technical and content perspective, it is perfectly possible to broadcast a programme.

My second experience is connected with Planetarium Śląskie (Silesian Planetarium), which was not closed during the pandemic, only because it is currently being modernised and has been transformed into a huge construction site. By the end of the next year, Śląski Park Nauki (Silesian Science Park) will have been built here.

Since 2019, a team of teachers have been visiting Silesian schools and conducting classes in the inflatable mobile planetarium. And when the pandemic broke out, we decided to promote astronomy and astrophysics on Facebook. Apparently we did not come up with anything particularly original – in the series entitled “Niebo z balkonu” (Sky from the Balcony), we outline the basic information related to the celestial bodies that are currently seen in the sky. In the subsequent episodes, we present the northern sky constellations, StarLink satellites and current planet alignment. However, the series became a real hit. It turned out that simple information provided in a concise manner may be interesting for thousands of people.

The third surprise and, at the same time, inspiration for me, was the TV programme prepared by the Museum of the History of Computers and Information Technology in Katowice. Within just a few weeks, the Museum managed to move from the form of a simple video conference transmitted live on Facebook to a professionally prepared live programme, which involves guests from different parts of Poland, presents materials recorded earlier, as well as musical intermissions created by enthusiasts of the so-called demo scene. The founders of the Museum had been trying to get the interest of TV stations in the history of computers for many years, with no success. Now it turned out that the idea worked perfectly on the Internet. And the situation was enforced by the coronavirus pandemic and museum closure for visitors. The fourth programme in this series was watched live by 1,000 people. Further 8,000 saw the retransmission. This result is enviable. So can we have the 5th Silesian Science Festival Katowice entirely online? Nothing will replace the buzz, the crowd, the personal contact, and simply speaking – the festival atmosphere. It seems, though, that the experiments with modern technologies gained during the coronavirus pandemic may be used for organisation of the next edition of the event. Moreover, they can also become its integral part.

A series of webinars, presentations, meetings and live transmissions on the Internet could serve as an excellent warm-up before the pro-

per, traditional version of the Festival. Several days/one week before the Festival begins, certain participants and guests could present themselves in the virtual space. This also applies to foreign guests. The festival warm-up could also be carried out in the partner local and regional media, and of course on the Internet Television of the University of Silesia in Katowice. Our previous experience shows that both lecturers and institutions participating in the event usually have a lot more information than they are able to transfer during 15-45 minutes of their festival presentations on stage. The warm-up would be a great opportunity for them to contact their potential audience. Transmissions, audio materials and video materials could be prepared by particular institutions and faculties, as well as other festival participants.

Moreover, a special Katowice Science Station could be created in Katowice. During COP24 (UN Climate Change Conference), there was an ecological building in the city centre, which hosted meetings, for example about science. It seems that this formula could be used again during the festival warm-up. The meetings could also be transmitted online. The festival warm-up, which would be, to a large extent, virtual, would also have another important goal. If the traditional version of the Festival had to be given up, the event organisers would have an ideal plan B at their disposal. The existing technical and organisational infrastructure could be used, within a short time, to transfer the main part of the Festival online.

Apart from Katowice Science Station, located in a temporary building in the city centre and operated for several days/one week before the main edition of the event, I do not see the need to disperse the Festival any further, as the region inhabitants strongly associate it with the International Congress Centre. Like for a majority of companies which have to operate in the new reality, the coronavirus pandemic has created many challenges for the Festival; however, there are also multiple opportunities which we have not taken into consideration yet. It's probably high time to use them.



Science Festival in the 2020s



Arkadiusz Gorzawski

Doctor of Physical Sciences;
ambassador of the Silesian
Science Festival KATOWICE;
particle accelerator physicist;
software engineer in the
European Organisation for
Nuclear Research

The idea behind science festivals was to communicate science and share it with adults and children, students and pensioners, experts and laymen. To transfer it in an accessible and interesting way – so as to arouse their curiosity, answer questions, show the science capacities and overcome any barriers in exploring it. Shortly speaking, festivals are for all those who are interested.

Congress centres are ideal locations for organising such type of events – on the one hand, they are spacious, whereas on the other hand, they are still closed spaces. In the times of coronavirus pandemic we found out that this second aspect is also a source of risk. In such circumstances, online platforms have come to our aid. The Internet is a space where so much already happens that organisation of a science festival does not appear to be anything difficult, especially that access to knowledge has never been easier. The Internet reaches further than we can imagine. It is used by billions of people on a daily basis, which significantly increases the number of recipients. But in the long run, is it possible to keep the above-mentioned range of audience in the virtual space? In the place which already has everything, will the offer of such a festival be as attractive as in the real world?



4th Silesian Science
Festival KATOWICE

Even the most interesting multimedia presentation, film or webinar cannot give justice to what we can feel in reality. Will looking at rain falling on the screen make us feel it on our own skin? The chill of flowing water, the soaked clothes, the smell of wet ground. Even the most colourful screen will not get us warm when displaying a burning bonfire. Festival is not only about the information that can be acquired, the sounds that can be heard, or the images that can be seen. It is also about emotions, which are an inseparable part of every event. When we see the smoke from chemical reactions, mixing with the colours from photographic techniques, it is a completely different sensation than the screening of a film at home. The possibility to see and hear live TV announcers, well-known and renowned personalities, travellers and scientists telling about conquering space may cause joy, excitement, increased heartbeat and emotions, which are hard to achieve through a computer screen. This mix of opportunities is precisely what attracts thousands of science festival participants. The proximity of people, science and related emotions is irreplaceable.

So, in the era of the risk posed by the modern world, do festivals as we have known so far still have a place in the future? The question is relevant, because many organisers of various events that involve and connect a lot of people at the same time and in the same place are now considering to move their meetings to the virtual world. The online solutions that have appeared at the time of pandemic either on Facebook or YouTube undeniably provided the opportunity to keep in touch with the audience in many fields. Series of webinars attracted anyone interested not only from the places where they were organised, but practically from around the world – from any location with Internet access. Anyone who had the appropriate link could join such an event. Without any doubt, it has certain advantages, because it opens up possibilities for all those who could not participate in the real event for different reasons, whether due to material, geographical, health, time or any other aspects.



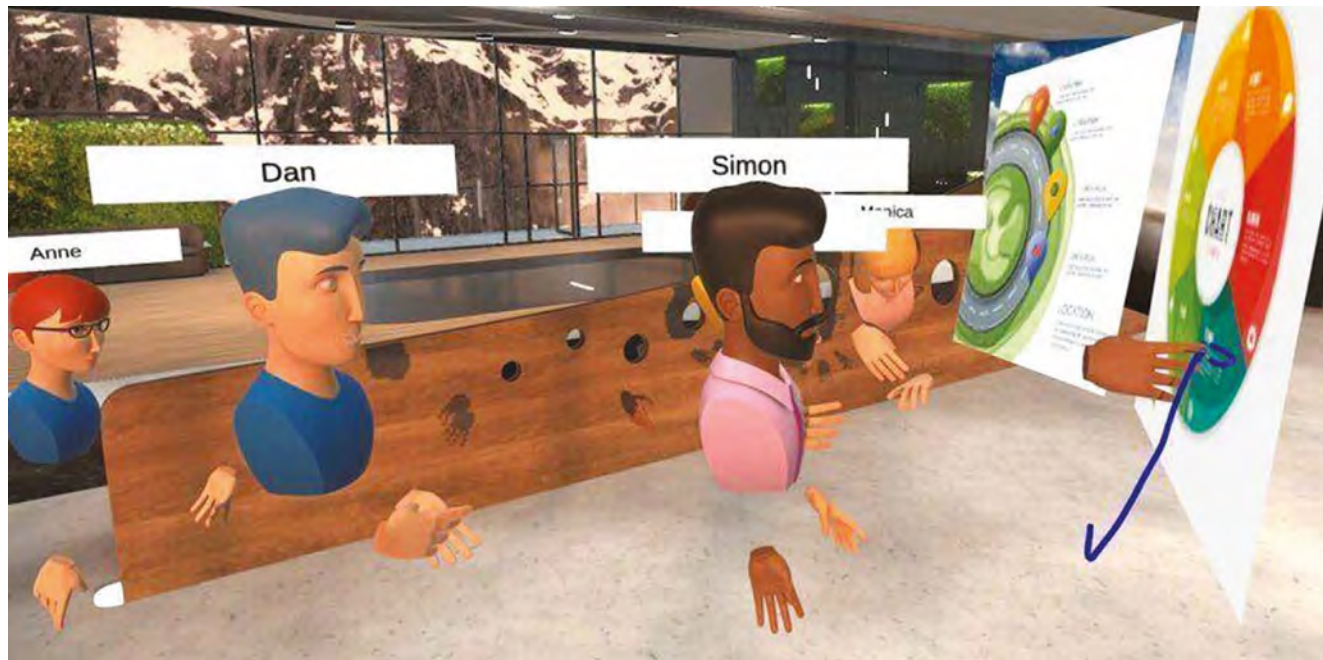
'Meetings with Physics' webinar. Author's own archive

In the case of webinars, everybody can take part in the events on the terms that are suitable for them. This is an obvious benefit of such solutions. On the other hand, however, it is not certain that the same individuals who would come to a science festival and listen to a particular presentation, would also choose its virtual equivalent. The Internet cannot replace everything.

We are facing here a similar situation as in the case of the concert of your favourite band. Even the best recording with perfect sound quality does not reflect what you feel during a live performance at a stadium. When all senses are involved, shivers are sent down your spine and you feel a sense of community with hundreds or thousands of people around you. You rediscover every song, even though you know them by heart, singing together with the artists and all fans. This cannot be felt when you are listening to an album, even with the best recorded song. The power behind direct meetings is their energy, something that can't be sent (at all or to a similar extent) via a sequence of bits and electric impulses. Something that makes us stop instantly or walk faster when we see the speaker, because it always works both ways. You can't achieve it on the Internet, at least not in the form of a simple webinar.



Presentations, demonstrations and discussions could take place in such a form, in one place and time – this is already possible, for example via *Virtual reality (VR) Meeting room platform*.



<https://www.vostokvr.com/vr-meeting-room-platform-oil-gas>

In the reality of information excess, when we are looking both at the content and form, we simply often do not manage to focus on material which is longer than five or eight minutes. A separate issue is the time that we have at our disposal at home, in the car or park. The event recipients in the virtual world are not always able to give their whole attention to the content they receive. Surely you can connect and disconnect immediately, but it does not guarantee the ideal conditions for acquiring knowledge. Of course, things can be different at festivals, but most frequently we are affected by the atmosphere of the event. What is more, on the Internet we have to navigate between links and websites. Every event requires a separate connection and dedicated link. This can be exhaustive even for enthusiastic Internet users, and particularly for the recipients who are less familiar with the technology.

What is left if we decide to give up both on closed spaces of conference halls and on the Internet? The city. Of course, the urban space also has its certain limitations. Various forms of presentation are offered in different places. In the case of conference centres and exhibition

halls, which are most often concentrated in a single location, all these aspects of proximity, associated feelings, visual and auditory stimuli are cumulated and available at your fingertips. Potential dispersion in the urban space also leads to dispersion in time, because we must remember that space is always combined with time. In reality, walking around the very city centre takes significantly more time than walking even through the largest hall. Apart from that, there are also factors that distract us and take away the immediate sensations. The content-related aspects obviously remain, because if the recipients are interested, they will acquire knowledge to the same extent in a park under the tree as in a dedicated lecture hall, but the sense of meeting with science may disappear somewhere between the bench in a park and the café in the marketplace. Naturally, all these aspects mainly concern the event itself, because promotional campaigns and potential pilot projects could take place in any space, since their purpose is a different type of interaction. Encouraging a recipient to come to the festival requires completely different actions.

So, is the idea of science proximity in the times of pandemic and ban on public gatherings condemned to failure? Technology may come to aid, and it is not about sci-fi movies, but about what already exists. Imagine, for example, the use of possibilities offered by the gaming platforms. Sounds ridiculous? Let us take a closer look at the so-called MMO (massively multiplayer online). In such a world, navigating in a group (or by yourself) is already absorbing in itself. The possibility of interaction with other players brings a completely different kind of sensations than those offered by a film or webinar. Searching for content such as lecture, multimedia presentation or experiment demonstration in the virtual space should be as intriguing and captivating as walking through an exhibition hall in the real world. Moving your character among a variety of presentations or experiments could be emphasized with dynamic sound and visual effects.

The solutions are already in place – we have the above-mentioned multiplayer games. Obviously, this form would require modification. On the one hand, in the advanced version it would be necessary to adapt it to VR devices, whereas on the other hand, it would be required to prepare a version that could be switched on a standard mobile phone and attached to the presentation in a simplified way. Not to mention partial synergy with the classic form, in which the presenter would perform on a traditional stage, but the stage in the virtual reality or as part of transmission would be moved to the game world, and the participants could visit the presentation area, listen, react and respond to the speakers, for example by clapping their hands. In this form, presentations, demonstrations and discussions could be held in one place (and time). This would be an ideal combination of science and entertainment, which actually forms the basis of science festivals.

The world is moving fast, and at the beginning of 2020s we already have the technology that allows us to take up such a futuristic challenge. In the context of science festivals, to take up this challenge would be a giant leap into the future and undeniable contribution to the world progress.

**As science festival organisers,
we should all see this crisis as an
opportunity to develop new ideas
together and learn from our national
and international networks.**

Dr. Annette Klinkert



Is the New Era Coming for Science Festivals?



Mikołaj Marcela

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We live in an uncertain and fast changing world, and the coronavirus pandemic has made it more difficult to predict even the nearest future. It is also uncertain to foresee the shape of science festivals in the years to come. It's probably high time to get used to the thought that we will most likely face further epidemiological crises, which may turn our reality upside down again. However, if we look at the etymology of both *crisis* and *disaster*, it will turn out that we should as much be afraid of them as use them wisely. The Greek etymology of the first word does not indicate any pejorative meaning. *krinein* means 'to divide', 'to resolve', 'to select', 'to decide', 'to judge', whereas the derived noun *krisis* means 'selection' or 'solution'. The same applies to *disaster*: the Greek noun *katastrophe* is derived from the verb *katastrephein*, which means 'to reverse, turn to the other side' and is formed from two words: *kata* 'downwards, completely' and *strephein* – 'turn around'. Therefore, *disaster* is a change and opportunity to look at a particular issue from a different side, whereas *crisis* is a possibility to make a choice again.

In 2011, a bestselling novel entitled *Ready Player One* by Ernest Cline was published in USA. It was turned into a film by Steven Spielberg in 2018. In 2045, when the novel is set, almost the entire humanity has moved into the virtual reality as a result of climate disaster, economic crises and wars for resources. In OASIS virtual system, young people go to school, whereas their parents do what they used to do in the 'real world' a few dozen years before. It is 2020, but it may seem that we have travelled in time to 2045 from Cline's novel, especially when it comes to school and academic education. The distance learning experience makes us rethink all our notions of how we operate and how we can operate in our reality, also with regard to knowledge transfer and science communication. Until now, science festivals have been mass events which gathered for a few days tens of thousands of specialists, researchers, but mostly science enthusiasts. The flow of people and ideas, the possibility to experience the uniqueness of science at demonstration booths, listen to lectures and debates which threw new light on the issues that interest us, and thereby changed our notion of the world where we live on a daily basis – all of this may return, but not necessarily. Obviously, at this moment probably none of the organisers can imagine their festival without these elements. But let me ask you a provocative question: can't we come up with something even better? Especially that nothing can help us think

about bold changes and concepts that we would otherwise never opt for better than the signals of an upcoming crisis.

So, what have the recent months of ‘remote life’ shown us?

■ Social media, and in particular Facebook, have proven to be a great space for organising informed meetings, debates, webinars and lectures, which frequently reach tens, if not hundreds of thousands of recipients.

■ During such meetings, the interaction between recipients intensifies, there are often lively discussions, and listeners feel more free to ask questions.

■ The recordings ‘live’ online for many days after the premiere, thanks to which a lot more people can use them to extend their knowledge.

■ Virtual meetings significantly reduce the costs of various projects: you don’t have to travel to distant cities, rent a hotel room or space where the specific scientific activity is taking place.

Of course, there are also quite a lot of negative aspects of moving knowledge and science communication to the virtual world. What is favourable for humanities and social sciences (which traditionally present the results of their research in the form of a lecture or workshop), significantly reduces the attractiveness of natural and exact sciences (which more frequently and willingly use experiments and science shows). It also appears problematic to deprive the recipients of direct contact with representatives of the world of science – one of the charms behind science festivals is the possibility to see it all with your own eyes...

However, whether we want it or not, it is good to start thinking about the future innovative solutions already today. Surely, on the one hand we may be afraid of ‘technological exclusion’, which will make it impossible for some people to take part in a

virtual science festival, but on the one hand, we can no longer fear the ‘geographical exclusion’, as the former ‘real’ festival formula also excluded a big group of recipients for financial reasons (such as the costs of travel, accommodation and food). On the one hand, it is the abandonment of the unique festival atmosphere – this constant flow of people who are eager to have contact with all shades of science – that makes us scared; on the other hand, the ‘inability to bilocate’, which was the main concern for many science festival participants, is no longer an issue. The festival programmes, packed to capacity, frequently prevented those who wanted to participate from taking part in all activities that they found interesting. This ceases to be a problem in the perspective of virtual events.

Where do we draw our inspiration from? In what categories should we think about the new formulas for science festivals?

1. The producers of video game consoles and computer game makers have been showing for years how to organise events that attract hundreds of thousands of spectators. In recent years, many science festivals have been increasingly turning into great science shows, and the upcoming years seem to be an excellent opportunity to enter another level in this way of thinking, and create events that resemble the above-mentioned premieres of video game consoles.

2. The success of Krystyna Janda’s monodrama *Danuta W.* at Teatr Polonia during the coronavirus pandemic, which was transmitted on Facebook and attracted tens of thousands of spectators to the computer screens, thus achieving something that would not be possible in any theatre around the world (unless we turned the largest stadiums in the world to theatres), gives an idea of how powerful (and still not fully used) tools are at the disposal of science festival organisers.



3. We should learn from the best science communicators, and the organisers of TED conferences around the world should definitely be regarded as such. Despite the passing of time, the formula adopted by them, which consists in less than 20-minute long speeches filled with knowledge provided in an accessible manner, should still serve as a reference point for us. The starting point for thinking about potential virtual science festivals.

Could such a virtual science festival replace the stationary one, which takes place in a specific place and time? It is probably hard for us to imagine it at the moment. Still. Let us remember, though, that as people of science and those who care for science communication, we are particularly qualified not only for teaching (learning), but also for unteaching (unlearning). Alvin Toffler wrote in *Future*

Shock that the illiterates of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn. In the context of the fast-changing reality, mainly due to technological progress, these words are extremely up-to-date these days. Kurt Lewin in his change management model also emphasized the significant role of unlearning, which is a starting point for introducing any change. Unlearning means nothing else but ‘unfreezing’ our habits and customs – what we found to be natural, although we simply learnt it at a particular moment in our life, and used it to replace our behaviours or ways of thinking back then. Importantly, it is crises that are most favourable for unlearning. And it is only once we have ‘unfrozen’ ourselves that it will be possible to think about changing and ‘refreezing’, i.e. maintaining the change.



However, according to the specialists in unlearning, it is quite difficult. In order for unlearning to be successful, we should change three things: our attitude, habits and organisation in which we operate. Marga Biller from Learning Innovations Laboratory at the Harvard University encourages to ask four questions in this regard; and in our current situation, probably all of us should ask them:

- 1. Should we think, behave or perceive the world in a new way today?**
- 2. Are our previous ways of thinking, behaviour or perception an obstacle in the new approach to the challenges that we face?**
- 3. Could these new ways of thinking, behaviour and perception be a threat to who we are and how we perceive ourselves and the world?**
- 4. Would more intense action to achieve new results help us succeed, or give us even more stress?**

It seems that the second risk which casts a shadow on our daily operation – the risk of climate disaster and related global warming – should favour the ‘unfreezing’ of our previous ways of perceiving the world. It will not be an easy task, because every change raises anxiety in us, and we prefer to stick with the proven ways and operating models which brought us success before. We also know, as representatives of the world of science – and let us not forget about it – that nothing stimulates development and learning better than experimenting in the light of new challenges, searching for innovative solutions and testing what we have never tried before.

Olga Tokarczuk declared in the recently published essay that ‘new times will come’. The tone of her message is optimistic, and this is something for us to follow. On the other hand, we should start preparing for the new era already today and develop new operating models that correspond to the upcoming challenges, also when it comes to organising science festivals. This is an opportunity to see what they could look like in the near future, as well as to decide again on the direction that we want to take as their organisers.



Prof. Andrzej Kowalczyk (Rector of the University of Silesia in Katowice) during the 1st Forum of Polish Science Festival Organiser



Participants of the 1st Forum of Polish Science Festival Organisers





Report

on the 1st Forum of Polish Science Festival Organisers

Report on the 1st Forum of Polish Science Festival Organisers



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The success of Silesian Science Festival KATOWICE and activity of the University of Silesia in Katowice as the leader of this project have been noticed and appreciated by the Ministry of Science and Higher Education, which chose our university as the host of the 1st Forum of Polish Science Festival Organisers – an event organised in Katowice on the occasion of the fourth edition of ŚFN.

The Forum, which took place on 27-28 January 2020, was attended by almost 90 people, including representatives of the biggest and best known Polish science festivals, as well as organisers of smaller-scale events. The meeting was also attended by foreign guests: Ellie Petrie (Festival Programme Manager at the Cheltenham Science Festival) and Jennie Turner (Operations Manager at the Vetenskapsfestivalen (International Science Festival) in Göteborg). The Ministry of Science and Higher Education was represented by Dr. Anna Budzanowska (Undersecretary of State).

On the first day of the Forum, its participants were in the International Congress Centre in Katowice, where they could see closely what the Silesian Science Festival looked like. In the evening there was a discussion panel on the subject of social mission of the university fulfilled by science festivals. The discussion was moderated by Prof. Ryszard Koziółek (General Director of ŚFN and Vice-Rector for Education and Student Affairs), and his interlocutors included Dr. Agnieszka Motyl (Director of Poznań Science and Art Festival), Dr. Zuzanna Toeplitz (Director of Warsaw Festival of Science), Assoc. Prof. Krzysztof Machaczka (representative of Kraków Science and Art Festival), Assoc. Prof. Eng. Ryszard Polechoński (Community Coordinator at the Lower Silesian Science Festival) and Assoc. Prof. Eng. Jacek Soroka (Professor Emeritus of the West Pomeranian University of Technology, President of Szczecin Scientific Society).

Prof. Koziółek asked the panel participants about the benefits of science communication units for the society and about the needs (other than money) that organisers of such events have.

‘In Poland we have a very low rate of individuals who study anything after graduating from school: this should definitely be changed and science festivals are a good way to do it!’ claimed Dr. Zuzanna Toeplitz, whereas Prof. Krzysztof Machaczka added: ‘Let us not deceive ourselves, some of the young

people come to our festivals only because they came there as part of school classes, and they are not interested in what they hear and see. But I'm convinced that in the remaining part of young audience we sow the seed of knowledge, which may bring great results in the future.'

Prof. Machaczka also expressed his admiration for the good cooperation between ŚFN KATOWICE organisers and self-government units, which perfectly understood the importance of such initiatives for the region development. According to him, what would help the organisers of science festivals is, on the one hand, less bureaucracy, and on the other hand, appreciation of the activity of specific science communicators within the existing evaluation system of scientific achievements.

Monday, 27 January also marked the signature of the letter of intent on establishing the cooperation network under the name of Agreement of Science Festival Organisers in Poland. The founding members were 25 entities, which formed the network council. Its work will be initially led by the University of Silesia in Katowice. The open formula of the agreement makes it possible to add further projects in the future, whereas cooperation within the network is intended to facilitate the exchange of experience and initiate nationwide activities.

The meeting on Tuesday, 28 January took place at the Krzysztof Kiesłowski Film School and included three thematic panels. The first panel was hosted by Prof. Ryszard Koziółek, and although the discussion was to concern the social effects of science festivals, the moderator shifted its focus more towards citizen science. 'More less since 1970s, this category has described the relationship between professional academic science and amateur science, whose role grows consistently, as can be probably best seen in astronomy: numerous astronomy amateurs monitor the outer space at the request of prestigious scientific institutions', said the General Director of ŚFN. 'Science festivals could generate such

events and projects, at the same time changing the way of thinking about the festival participants.

What currently dominates is a rather patronising approach towards people who come to our events: here is me, the scientist, and I will teach you something. But maybe we should assume that it is you will teach me something instead?

Assoc. Prof. Edyta Sierka (Professor of the University of Silesia, science communicator and organiser of Biologists' Night at the Faculty of Natural Sciences at the University of Silesia) paid attention to the fact that cooperation with enthusiasts helps verify the scientists' attitude – usually very emotional – to their own research activity, and such feedback is very valuable, because the research community is basically closed and convinced about the high quality of their research.

Piotr Ziółkowski (Director of the Bureau for the Programmes and Initiatives of the Minister of Science and Higher Education) claimed that the popularity of children's universities is the best evidence that the youngest ones want to get to know the world, also by participating in classes that are slightly more difficult than a lesson at school. He also admitted that the education system cannot keep pace with the changes occurring in the society.

'These days, children are subject to so many stimuli that it is hard for them to focus on education. Therefore, we definitely have to search for new methods of showing the beauty of science', explained Assoc. Prof. Aleksandra Ziemińska-Buczyńska (Director of the Science Popularization Center at the Silesian University of Technology). However, she emphasized that there was a significant difference between the kids from children's universities and classic citizen scientists coming 'straight from the street'.

Prof. Koziółek told the anecdote which he'd heard the previous day at one of the biology demonstration booths – an 8-year-





Participants of the session entitled 'Citizen scientists – a social effect of science festivals',
1st Forum of Polish Science Festival Organisers, from the left: Piotr Ziółkowski,
Dr. Mikołaj Marcela, Assoc. Prof. Aleksandra Ziemińska-Buczyńska

old girl, when asked to remove the sample ‘with this device’, answered, ‘You mean the Pasteur pipette?’

‘I’m afraid that this girl, by the time she’s in the high school, will no longer know that this is a Pasteur pipette, because she will get bored to death with learning biology. Let us remember that at the beginning of their education children are guided by their internal motivation, which for the next several years is consistently killed by the external motivation mechanisms’, claimed Dr. Mikołaj Marcela (writer and pop culture researcher from the Faculty of Humanities at the University of Silesia in Katowice). ‘Science festivals show that we can teach in a different way. So why do we return to the lecture mode afterwards?’, he wondered aloud.

‘Of course some children do know what Pasteur pipette is, but in my opinion, the role of science communicators is similar to the role of a mountain guide, who has to adjust the walking pace of the group to the slowest person, said Assoc. Prof. Ziembińska-Buczyńska. ‘This is an important question: at a science festival - do we want to pick the best, or rather reach out to those who have no idea right now, but want to become interested?’

So what should we do?

‘We should take into account what neuroscience teaching tells us about the learning process and redesign the university education accordingly. We are still stuck in the Prussian education model using the external motivation mechanisms, whereas in fact we really memorise things only when emotions and curiosity appear. I think that science festivals should also, to a large extent, be addressed to teachers, to make them aware that there are completely different options of knowledge transfer’, claimed Dr. Marcela, whereas Director Ziółkowski concluded that it is necessary to take care of outstanding individuals at the early education stages, because without this, we will have to wait for a Polish Nobel prize in a field different than literature for a long time.

‘Knowledge, including specialist knowledge, has been incredi-

bly disseminated these days, and it is no longer available only at the university. From my perspective, science festival expands the walls of a university, which no longer waits for somebody to visit, but rather covers its surroundings with a proactive move. Thus, festival is a place for testing the inclusive capacities of a university’, concluded Prof. Ryszard Koziółek.

The audience also took part in the panel, and came up with some contrary opinions: ‘Let us not create a myth that learning is easy and pleasant. To really learn, you have to work and it is not always very interesting. Of course, there is the American model, with one joke every 20 minutes of a lecture, but we should be careful, or else the student will only remember the jokes’, warned Dr. Zuzanna Toeplitz, who also attended the second panel on different models of science festival organisation, alongside Justyna Szostek-Aksamit (Executive Director of ŚFN), Ellie Petrie and Jennie Turner. The host, Jarosław Juszkiewicz (journalist of Polish Radio Katowice and one of ŚFN ambassadors), asked how organisers of different festivals handle the excess of activities, what date is best for a science festival and which model is better – a concentrated or dispersed festival?

‘An ideal solution would be to combine both options. An event such as ŚFN, which occurs in one place and indoor, gives the sense of creating a certain community, but sometimes it is necessary to go out to people, even those who are not interested, and try to attract them, which is why in Göteborg we organise festival events in a shopping centre’, said Jennie Turner.

In the third panel, Radosław Aksamit (Press Officer of ŚFN) and Martyna Folta (Promotion Coordinator of ŚFN) shared certain good practices in the field of promotional activities and making events visible and recognisable in the public space.

The Forum participants were also invited to take part in the delegate programme organised as part of the 4th Silesian Science Festival KATOWICE. It was attended by over 40 people.





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