

Hi everyone,

there are so many questions when it comes to science communication via moving images. Do TV formats still work on YouTube? Can we change people's behaviours by showing them how humanity destroys its environment and triggers climate change? Two studies by communication scientists answered some of our questions.

We are also looking at two German science channels on YouTube. »Clixoom« – a very prototypical YouTube channel – is trying to make its way into the English world. While »Urknall, Weltall und das Leben«, quite atypically, manages the rare feat of attracting hundreds of thousands of viewers to watch popular science lectures.

Finally we're happy to present a three-dimensional polyphony of nature: »Dusk Chorus«, recently announced to be the »Best European Science Film 2017/18«!

Feel free to share the newsletter. If your friends and colleagues would like their very own version they can sign up [here](#).

Thilo Körkel, Kerstin Hoppenhaus and Sibylle Grunze

What's going on

Fast Forward Science awards

It was Luisa Linkersdörfer's video [»Aliens unter dem Mikroskop« \(engl.: Aliens under the microscope\)](#) that stood out at the Fast Forward Science awards ceremony and placed first in the category »Super Fast«. Videos in this category must be produced within 48 hours, so hers was not perfect, but visually very enticing. Luisa took us for a dive into the microscopic world of algae, letting us share her enthusiasm of the amazingly different types of these organisms. Finally a video placed first that does not fit into the usual categories of presenter or animation videos, that have been dominating the competition for years. Refreshing.

Mai Thi Nguyen-Kim (YouTube channel: [mailab](#)) and Klaus Russell-Wells (YouTube channel: [Joul](#)), both excellent presenters, took home more than one award.

Mai Thi, a doctor of chemistry, wasn't exactly a surprise winner. Shortly before, she was [announced](#) to be one of the successors of Ranga Yogeshwar, moderator for 25 years of the science format »Quarks & Co.«, which is produced by the German public broadcaster WDR.

The Fast Forward Science awards were awarded on November 8th at the »Forum Wissenschaftskommunikation« in Bonn. See here for all [laureates and their videos](#). (sg)

»Believe me, I am an expert!«

One of the many reasons why film makers engage in science communication is the wish to change their audience's behaviors. Reduce your carbon footprint! Save our

environment! Use smart technologies to support a sustainable economy!

But do films really change the behavior of their viewers? Sarah K. Yeo from the University of Utah, together with a team of other U.S. communication scientists, put the famous documentary on climate change »An Inconvenient Truth« to the test.

347 participants in their study answered questions about what they intended to do after having watched one of four video clips. The first clip featured former U.S. vice president Al Gore as a speaker, taken from the original film. In the second, Al Gore was replaced by an actor, who was introduced to the viewers as a climate scientist. The third clip faked a one-on-one-interview with the supposed scientist and in the fourth, an anonymous narrator commented the animations that were part of Al Gore's lecture. The spoken words were identical in all four videos.

»The traditional approach of presenting information in science documentaries with an anonymous narrator appears to be the least effective way to engage audiences with information«, the researchers found. More surprising was their finding, that the participants didn't differentiate between hearing a message from a politician or a scientist. Yeo's team speculates that »Al Gore's celebrity status and his position on climate change may have caused viewers to perceive him as an expert on the issue.« And finally: »... greater negative feelings of anxiety, fear, anger [...] regarding the information from the film might increase the likelihood that a viewer will share the information with others.«

The study's research questions, experimental design and reflections about behavioral intentions of viewers are quite instructive. However, its main results are not far from common sense. Animations commented by an anonymous speaker aren't as persuasive as Al Gore speaking in a lecture hall? Al Gore is widely perceived as an expert on climate change?

Therefore, in one respect, we are in complete agreement with the authors: More research about the impact of science documentaries is needed. Meanwhile, let's stick to the – at least empirically – well confirmed wisdom that communication is most effective when the communicator is most trusted. (tk)

Original source:

[Sara K. Yeo et al.: An inconvenient source? Attributes of science documentaries and their effects on information-related behavioral intentions.](#) Journal of Science Communication 17 (02), A07. June 20, 2018

Made to be watched

Do popular science web videos which were explicitly made for the web attract more views than formats made for TV? And, do they generate more comments and more interactions? Yes, they do. To a very high degree, for views as well as comments, according to a publication in the Journal of Science Communication.

For their study, Alicia de Lara González who teaches journalistic writing at the Universidad Miguel Hernández in Elche, Spain, and her coauthors have analyzed 300 videos on climate change.

While the team's main goal was to establish »a classification of the main current formats of online science videos«, it yielded additional interesting results. 41% of the samples, taken in 2015, were videos produced by general media outlets like The Guardian or Associated Press. Television channels comprised 8% of the samples. Scientific institutions were responsible for ten percent of the samples, non-governmental institutions like the World Wildlife Fund for 12%. User generated content only represented 6.6% of the samples.

Astonishingly only 3% of videos had an »educational aim«, meaning the videos

would give suggestions to actions which might contribute to slowing down climate change.

Equally surprising: The »majority of the videos on climate change, including those published on the Internet, whether web formats (89%) or television formats (94%), do not include scientific terminology.« This is quite alarming since use of scientific terminology is »directly related to scientific rigor«, as the paper states.

Since online videos shape especially young people's perspectives on the world, in our view these results point to general deficits in science communication. First, TV formats are losing influence on what people think about a specific subject. Second, YouTube consumers do not really get in touch with the scientific background of what we know about climate change. They may not even perceive climate change as a scientific topic. So, they may also miss the message that scientific work is a way to tackle global problems.

And third: Videos that teach people how they can individually contribute to protecting the climate are almost missing on YouTube. This latter issue is not as surprising as one might first think: videos warning of disastrous climate developments surely attract more viewers than videos who want to keep us from eating meat, driving cars and taking the plane to the Caribbean. (tk)

Original source:

[Alicia De Lara et al.: Online video on climate change: a comparison between television and web formats.](#) Journal of Science Communication 16 (01), A04. Published March 28, 2017

Going global: German science channel Clixoom

The success of his YouTube science channel, [Clixoom](#) – 498.000 subscribers, more than 160 million views, as of November, 28th – isn't enough for its presenter Christoph Krachten. After having addressed the German language market only, a few weeks ago he went online with [a new channel](#), also called Clixoom, presenting the same topics, but in English language.

Will his experiment work? After ten weeks we count 24 videos, 9.700 subscribers, more than 100.000 views. This is more than the vast majority of YouTube channels will ever achieve. A large proportion of the commentaries are in German, many of them discussing Krachtens German accent. 40% of the views, Krachten says, are counted in English speaking countries.

Some YouTube experts speculate that a subscriber base of 10.000 is the magic threshold: According to them, the YouTube algorithm then starts to show a channel in the recommendations, meaning that Clixoom might be presented to users next to extremely successful English science channels like Veritasium or CrashCourse. (tk)

Not exactly viral stuff: How to be successful with popular lectures

Duration: 14 minutes 41 seconds. 1 hour 3 minutes. 27 minutes 48 seconds. These numbers do probably not refer to successful YouTube clips. Or do they? In the [first clip](#) a scientist is fact-checking comments on nuclear energy posted by YouTube users. It received 11.000 views in 24 hours. The [second one](#), a public lecture on emergence and evolution, had more than 70.000 views within a week. [A video](#) from the channels' playlist »Von Aristoteles zur Stringtheorie« (English: From Aristotle to string theory) surpassed 100.000 views within two years. Or take [this one about quantum mechanics](#), also 1 hour 3 minutes long: more than 1 million views!

By mid of October 2018 the German YouTube channel »Urknall, Weltall und das Leben« (Big Bang, Cosmos and Life), where these videos were published, welcomed its 100.000th subscriber. Until recently jointly operated by the Munich book publisher Komplett-Media and the astronomer and mathematician Josef Gaßner, the latter being editorially responsible, the channel is now owned by Gaßner alone.

»Since we passed a critical threshold of subscribers«, Gaßner says, »universities and institutes approach us asking whether they may publish some of their popular science lectures on our channel.« At the same time he observes, that his own popular lectures all over Germany now also attract a younger audience, many of them probably motivated by Gaßners appearances on YouTube.

Gaßner works as a freelance researcher at the University Observatory in Munich and as a lecturer at the Landshut University of Applied Sciences. His doctor father was Harald Lesch, famous astrophysicist in Munich, who is also known for many TV appearances. In the early days of the channel, Lesch had significantly contributed to the success of »Urknall, Weltall und das Leben«, which came to life as a marketing campaign accompanying the publication of Lesch's and Gaßner's book with the same title.

Now Gaßner uses the channel to reach a higher goal: »It is really a pity«, he says, »that all the public lectures that are held every day by experienced and knowledgeable people in front of maybe just a hundred people, are lost for the rest of the world.« On his channel some of these treasures are now available for everybody. (tk)

The Best European Science Film: A three-dimensional polyphony of nature

November 7th, Nijmegen: »Don't just watch the film, listen to it. If you feel it, close your eyes and get immersed.« That's how Italian film maker Alessandro D'Emilia, together with Nika Šaravanja one of the directors of the documentary »Dusk Chorus«, invited the audience of the Dutch [InScience film festival](#) to a very special experience. The film, first screened in 2016, accompanies the eco-acoustics researcher and sound artist David Monacchi into the tropical forest of the Amazon. There Monacchi records 3-dimensional sonic portraits of one of the most threatened biological hotspots in the world.

As of July 2018, »Dusk Chorus« ([watch the trailer](#)) had already gathered many prestigious awards. Now, the 62 minutes long documentary has also been selected as [Best European Science Film 2017/18](#) by the European Academy for Science Film (EURASF).

Monacchi, writer and narrator of »Dusk Chorus«, is famous for his [»Fragments of Extinction«](#). He started this non-profit audio project, supported by Greenpeace and other collaborators, in 2001, when he became aware of »the most silent catastrophe of our times: what has been defined as the Sixth Mass Extinction.« (tk)

[»Dusk Chorus«](#): Trailer and film information

Videos only look good if you watch them

When engineering meets baking



3D modeling and 3D printing the cherry cake By Dinara Kasko

So here is our first exception to the rule: I am not even going to start writing about the video as such, because frankly it is not worth it. But, what is worth it is the content! Dinara Kasko really gets creative with the 3D printer. And if you are still looking for a Christmas present for a mathematician that just loves to bake, you may want to check out those cake molds. (sg)

YouTube Channel: [Dinara Kasko](#)

Treasures from the archive



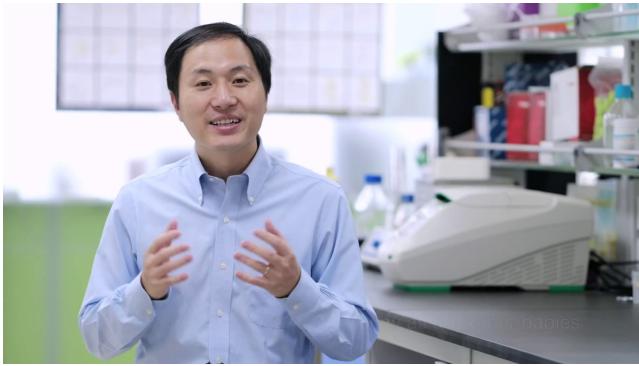
Experimentals: Nautilus By Tom McNamarra

An upside down dead horse drifting in water attracting a shark. What? Wow, where to start!

This video blew me, because it is so out of sync with the usual YouTube videos and has fantastic archive footage of the first film shot under water: an upside down dead horse attracting a shark.

The connection of the three chapters of the video did not really add up for me, but since each chapter has its unique visual style and interesting content, I was happy to ignore it and go for the deep dive into the world of Nautilus. (sg)

Blame the editor in chief! (Has anyone seen him lately?)



About Lulu and Nana: Twin Girls Born Healthy After Gene Surgery As Single-Cell Embryos **By The He Lab**

What if scientists do bad science and, as soon as they get first results, communicate them on their own initiative – targeting not less than the global public? Chinese scientist He Jiankui, who had edited several embryos' genomes, reminds us that far-reaching social media platforms have no editorial teams at work that might prevent major calamities.

By uploading this video on YouTube He became an objectionable celebrity. He even succeeded in bypassing his own university, the Chinese Ministry of Science and Technology and the whole scientific publication system which is in place to ensure that publications meet quality standards as well as ethical requirements. Luckily, the geneticist from the Southern University of Science and Technology of China in Shenzhen caused an outrage from many people and institutions.

What can we learn from that? Web platforms distribute messages to billions of people without taking into consideration that these might trigger unwanted consequences. His video is just another example – we've already seen, among other things, the influencing of election campaigns via Facebook or the spreading of hate speech. The discussion about the malpractices of YouTube, Facebook and Co. has just begun. (tk)

Science & Video is a newsletter for science communicators. Here [Thilo Körkel](#) (tk), [Kerstin Hoppenhaus](#) (kh) und [Sibylle Grunze](#) (sg) pool their long-standing expertise in the field of science communication and moving images. We joyfully welcome the effects of digital disruption, are committed to defend high quality standards, and grasp to be part of a future in which science communication via digital media has an increasingly powerful impact on society. Contact us at koerkel@spektrum.de, hoppenhaus@hgmedien.com, grunze@hgmedien.com.

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