When science and popular culture meet on YouTube: Science in music videos

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On online video-sharing sites such as YouTube or Vimeo one finds a lot of music videos. One tendency that is particularly interesting is that there are also music videos about science, technology and related subjects [1].

Scientific topics and motifs can be found in music videos made by professional artists, for instance about the origins of life [2] or the periodic table [3]. In fact, there is a whole range of music videos dealing with Darwin and the theory of evolution [4]. The band, They Might be Giants, has also created a variety of songs and video clips aimed at children that deal with various basic concepts and ideas in science [5].

Scientific organisations also seem to value the potential of music videos for outreach purposes. For instance, two of the three winning clips of the last Brain Awareness Video Contest organised by the Society for Neuroscience were music videos [6].

Individual scientists and researchers also use music videos in order to gain attention and maybe also to promote a more youthful image. Various institutions and researchers use music videos to promote and advertise their institutions and their research [7-9]. A music video clip from CERN about the Large Hadron Collider [10] has been viewed more than seven million times. This success has led to the production of two further music clips, one about black holes [11] and one about rare isotopes [12]. It is worth noting that the US Fermi National Accelerator Laboratory responded with an own music video [13].

However, it should be stressed that commercial suppliers of scientific and lab equipment also use music videos to advertise their products [14-18]. Another hilarious scientific music video is used to advertise funding opportunities for young researchers by the European Commission [19].

Some educators also encourage their students to share what they have learned in class in form of a music video, for instance in a clip about the “synaptic cleft” in a neuroscience class [20]. This also seems to work with younger children, for example in a clip about water and how it changes its aggregate states [21]. In such instances students are not only forced to learn and digest the content of science classes, but they also have to engage with current media technologies and do some thinking about how the science learned could be presented in an entertaining and understandable way. Interesting sites and blogs in this context are The Rhymebosome [22], The Science Songbook [23] and the website of Mark Rosengarten [24].

Furthermore, lab members and medical staff also use music videos to educate one another about codes of conduct. Or they use them as other hilarious instruction videos. A whole range of music videos have been created to disseminate lab safety rules and general codes of
conduct regarding health, hygiene and other safety instructions [25-30]. Other music videos are made to support silenced scientists speaking out on climate change in Australia [31], advocate theories of climate change [32] and the expertise of climate scientists [33], Darwin’s theory of evolution [34-38], or MMR and other vaccinations [39-41]. A special case is Baba Brinkman who wrote a whole feature-length “rap guide” to Darwin and the theory of evolution and was funded by the UK Wellcome Trust to produce some professional music videos in this context [42].

However, opponents of science are able to create and disseminate music videos too, for instance deniers of climate change [43], creationists [44] opponents of vaccination [45-47] and advocates for esoteric alternative medicine [48] also use music videos to advocate their views. Creationists, for instance, are well aware of the potential of video sharing platforms. They are explicitly recommended as helpful tools for ‘internet evangelism’ [49].

Especially young people and people who do not have great interest in science might encounter topics such as these in media channels like YouTube, and probably less so in carefully edited serious newspapers or magazines. The fact that many of these music videos are very professionally made, often humorous and entertaining make them dangerous propaganda tools from the point of view of science. Social Media such as YouTube, Twitter or Facebook provide arenas for messages and actors that challenge scientific results and that try to confront audiences with anti-science worldviews.

However, music videos made by young scientists and researchers about their research, work environment and working conditions could also be interesting for practical science communication purposes [50-52]. They allow a glimpse into what life in the lab looks like, what it means to be working as a scientist today and what scientific work actually looks like in practice. Some of these music videos are very humorous and entertaining [53-61]. They allow an insight into the settings of lab work even for people who do not have a great interest in science. Sometimes, they also have a subversive edge, especially if they are shown together with overly positive depictions of science [62]. In general these clips offer authentic views from researchers at the bench and could also be seen as a means to empower them and make their voices heard.

Music videos about science are generally quite short and can easily be shared via online video-sharing platforms such as YouTube or Vimeo [63-64]. Many mobile devices now also make it possible to watch music videos on the go. These developments allow popular music video clips to become “viral” if they are done well. In this sense they have the potential to reach a huge number of viewers if they are entertaining and intriguing. However the opponents of science also know how to use this media format to their advantage. In the current scenario it is therefore likely that we will see more music video clips about science, technology and related issues in the future and that social media are used as arenas for promulgating messages for and against science.

The science communication and education communities would in all likelihood do themselves a favour if they already had these kinds of development on their radar and if they looked beyond the obvious routes of communicating science.
References


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[12] Rare Isotope Rap: http://www.youtube.com/watch?v=677ZmPEFIXE


[14] Scientists for better PCR: The PCR song: http://www.youtube.com/watch?v=x5yPkxCLads


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[33] I’m A Climate Scientist (HUNGRY BEAST): http://www.youtube.com/watch?v=LiYZxOICN10
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[51] N3UROCH!P Rap: http://www.youtube.com/watch?v=rjrASzgtr4c
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