

Embracing Videos in Scholarly Publishing: The IOP Publishing Experience

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Abstract: In scholarly publishing video content has emerged in recent years as a way of conveying results beyond the written article. In 2010 *New Journal of Physics* started a pilot project on “video abstracts” as a means to innovate and offer authors opportunities to showcase their work. Today other IOP Publishing journals also offer this option to authors. IOP Publishing’s e-book programme also has adopted video abstracts and includes embedded video and multimedia in the e-books themselves. *Physics World*, the magazine of the Institute of Physics, has been publishing videos since 2009. The magazine has evolved its video outputs to reflect the diverse ways that audiences are consuming video online and in other digital formats. This paper provides a tour of the IOP Publishing video programme, explaining how academics and publishers can benefit from embracing video, and speculating on what the future holds for this content stream.

Keywords: STM publishing, science journalism, video abstracts, ebooks, magazines, journals, video figures.

1. Introduction

IOP Publishing (IOPP) is a wholly owned subsidiary of the Institute of Physics (IOP), a leading scientific society promoting physics and bringing physicists together for the benefit of all. IOPP provides a range of journals, ebooks, magazines, conference proceedings and websites for the scientific community.

Physics is traditionally seen as a field which is considered difficult, inaccessible, only for the experts, but also fascinating and attractive. Video abstracts are helping authors present their work to their peers and a wider audience and stand out in an ever more crowded publishing space; whilst the inclusion of video within the written research article or book enhances the reader experience.

Science journalists and bloggers have embraced web video as a means of keeping audiences engaged and reaching out to new communities. Video offer new opportunities to tell science stories in visual and accessible ways, providing valuable insights into the scientific process and scientists’ working lives.

Communicating physics via video is something that has increased in popularity, not only from a journalistic point of view but as added content directly to the journal article or book. Video (and audio) footage and animations have become increasingly

commonplace. There is obviously a strong appeal for the scientific community to adopt a more interacting, engaging and showcasing approach to science.

2. Videos and Journals

New Journal of Physics (NJP), (co-owned by the Institute of Physics and the German Physical Society) recognised early on the growing demand within the physics community for video opportunities. In 2011 NJP started publishing [1] video abstracts (VAs) [2], short 3-5 minute peer-to-peer video summaries of academic papers offering perhaps one of the first major innovations to the scholarly article in the past century. The idea was born as a pilot to experiment with the possibilities an online, open access journal could offer and was driven by members of the journal's editorial board with a view to support outreach.

Five years on, VAs remain popular among NJP authors and readers, with about 7% of articles (2011-2015) presenting a VA and with those articles being downloaded 2.5 more times and cited 6% more than articles with no video, although citation performance are most likely coincidental. Authors engage with video abstracts as they have the potential to increase the paper's visibility and they can be creative with this content. Most videos have a strong involvement from earlier career researchers, who can add this to their CV, particularly now that outreach activities carry a heavier weight in grant proposals.

Over the years we have seen a variation in styles and with the support of the journals' guidelines [3], increasingly higher quality and more engaging videos, with some being viewed in excess of 27,000 times, see [4] and [5].

One could ask why only 7% of authors take advantage of this opportunity to increase the visibility of their article? Whilst there is a measurable advantage, creating a video requires investment of time and creativity.

The popularity of VAs in *New Journal of Physics* has attracted other journals to do the same and within IOPP alone, nine more journals now publish VAs. IOPP's environmental science journal, *Environmental Research Letters* (ERL) is perhaps the outlet where videos have become most engaging, reflecting the popular interest in this field. ERL articles with videos (12% of total articles published between 2014 and May 2016) also are statistically receive more downloads than papers without, but for this field it is clear that the appeal resides with the natural interest among the general public

and the VAs provide a more accessible overview of the research. Videos offer perhaps an even greater opportunity for authors publishing in the educational journals *Physics Education* and *European Journal of Physics*. Here authors, who are often active teachers, use video abstracts to convey their lesson, to show classroom demonstrations or to explain content more visually for the benefit of a younger or less experienced audience, students and other teachers. About 8% of *Physics Education* papers have a video associated with the article.

3. ebooks

IOPP launched a new book publishing programme in 2013, with the emphasis on electronic formats, publishing titles in various e-formats with print provided using print-on-demand technologies. Creating a new programme based on electronic publishing freed the publisher and authors from the limitations of print based publications. Adopting the epub3 [6] format as the primary edition liberated IOPP from numerous limitations affecting scientific books in electronic formats and allows the incorporation of multimedia and interactive elements.

Following from the success of video abstracts in our journals programme, all ebook authors are offered the opportunity to create a video abstract to accompany their work, with the same aims of presenting the work to potential readers and the wider community in a more informal and engaging manner and as a marketing and promotional tool. The uptake of video abstracts in the books programme is comparable to our journal programme, with perceived difficulty and time needed in creating the video cited as the main reasons for not creating a VA. One particular exception is *Evolutionary Dynamics* [7] where the author created the artwork and composed the music for the video.

In addition to VAs, ebooks have exploited videos within the books as animated inline figures. Unlike video abstracts this is a feature that many of our authors are using in increasing numbers. Videos in books are generally computer generated animated figures [8] showing dynamic systems in action, and are used particularly in textbooks where animation helps convey information in a more easily accessible format than traditional static images or through text. Other examples of media in ebooks include video clips and ‘talking heads’ videos, though these are in the minority, but have allowed authors in some areas to create titles that simply could not work in a traditional print format alone [9]. Authors are now embracing the potential of video in their books, and are now

starting to develop their content around multimedia elements, with video figures not just complementing the written word, but becoming integral to the way the message is being delivered and consumed by the reader

NJP will soon introduce inline videos for authors who are interested in using this content stream.

4. Video in physics journalism and “edutainment”

Video content in physics journalism and “edutainment” (educational entertainment) has evolved over the years in terms of style, tone and formats. Established 25 years ago, *Physics World* is a monthly magazine available in print and digital formats, with a readership of 110,000 IOP members, mainly researchers, students and individuals in industry. The associated website, *physicsworld.com*, has a more global audience with 324,000 unique monthly visitors. *Physics World* published its first videos in 2009 and the evolution of our video content to the present-day reflects both general trends in web video and our growing expertise in the craft of video production. Early videos tended to be based on established television formats such as formal two-person interviews with scientists, vox pops and profiles of research institutions. (For a typical example see <http://ow.ly/InTt302SIMz>).

However, producing these films was a relatively expensive process and we came to realise that traditional formats are not necessarily the best way to tell visual stories in a web environment. We realised that many successful science videos on YouTube take a more DIY approach featuring personable presenters who often address the audience directly. In response, we launched our 100 Second Science series in 2012, which fits into the genre of “explainer” videos – short films describing key ideas in accessible ways. Our 100 Second Science films, which at the time of writing has 84 published films that regularly attract several thousand views on *physicsworld.com* and YouTube. Presenters have up to 100 seconds to answer a big or intriguing question from their field (see <http://ow.ly/UShW302SJyr>) and the resulting films are published in multiple places: alongside relevant articles on *physicsworld.com*; in our digital magazine and across our various social media channels. The popularity of these videos suggests that so long as the audio quality is sufficient, engaging presenters and captivating content are more important than broadcast quality production. While the 100 Second Science series offers quick introductions to topics in physics – often filmed in one continuous

shot – there is also a place for carefully crafted films with stronger narratives. As an official media partner with the International Year of Light and Light-based Technologies (IYL 2015), we commissioned a series of short web documentaries to tie in with this UN-backed initiative (see <http://ow.ly/FYef302SKns>). During the past six months *Physics World* has also experimented with short films aimed at our Facebook following. While there is no hard and fast definition for these “social videos”, they tend to be short-form, highly visual and contain large text so the video can be appreciated on a small screen and without sound. Increasingly, people are accessing news through the filter of their friendship groups on sites such as Facebook. In making short films for social sites such as Facebook, journalists have to ask themselves the age-old question: “why should people care about this?” But they also need to ask themselves: “will people share this?” There is no one-size-fits-all solution for creating highly shareable content, but viral stories often tend to strike an emotional chord. *Physics World* has adopted a similar approach by creating films 1-2 minutes in length that link viewers to feature articles on *physicsworld.com*. Early indications show these videos to be a good way of driving traffic to our website.

5. Conclusions and a view to the future

Have VAs revolutionised scholarly publishing? We do not think so. Our experience with journals and more recently e-books is that VAs provides authors with an alternative, creative way to showcase their work, but the “real science” will remain in written form at least for the near future. What seems certain is that video content is not going away and will provide increasingly additional content that can be accessed by interested users. This may not be within a scholarly article or reside with a publisher, though publishers will provide the guarantee that the content, like the article, is available in perpetuity.

Conversely the incorporation of video features inline is expected to enhance the reader experience and create a greater mind-shift for many academic authors who are able to utilize animation and video content in presenting their scientific findings to their peers and the wider community.

Globally, video traffic will be 82% of all consumer Internet traffic by 2020, up from 70% in 2015 [10]. To capitalize on this trend and meet this growing demand, video journalism is currently rich with innovations as media outlets are embracing new

technologies and platforms. Mobile video in particular is on the rise, making up 48% of all global video views in the first quarter of 2016, up 14% from 2015 and up 129% from 2014 [11]. Audio–visual media may also be in the early stages of a revolution thanks to the explosion of content and devices offering virtual reality, augmented reality and other immersive video experiences. One can imagine, for instance, audiences taking 360-degree tours inside materials that are too small to see with the human eye, or exploring the inner workings of active volcanoes and other perilous natural phenomena. The scope of possibility in this field is vast.

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