

## **The shift from public science communication to public relations. The *Vaxxed* case**

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### **Abstract**

Social media is restructuring the dynamics of science communication processes inside and outside the scientific world. As concerns science communication addressed to the general public, we are witnessing the advent of communication practices that are more similar to public relations than to the traditional processes of the *Public Understanding of Science*. By analysing the digital communication strategies implemented for the anti-vaccination documentary *Vaxxed*, the paper illustrates these new communication dynamics, that are both social and computational.

### **Keywords**

Public understanding of science and technology; Science and media; Science communication: theory and models

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### **Purpose**

This paper aims to illustrate how science communication is changing as social media strategies are being introduced in the process of shaping public opinion, focusing on the transition from processes typical of the *Public Understanding of Science* to a dynamic belonging more to public relations, especially with processes leading to scientific controversies [Lorenzet, 2013].

The use of social media within science communication processes cannot be regarded simply as the introduction of a novel communication channel. It creates an actual social space [Bennato, 2011] in which to activate a controversy-structuring political dynamic. On the one hand, this is because the very nature of social platforms implies a public debate. Therefore, in the course of a controversy, it is possible to convince the public of the truth of a particular stance, although evidently in contrast to scientific evidence. On the other hand, often the strategies adopted are not logical, but rhetorical.

In practice, a statement in a controversy on social networks usually aims to convince readers, not to clarify the issue.

Quite clearly, this is essentially a political strategy, i.e. it relates to the values professed and not to the specific characteristics of a controversy.

In fact, this is not the first time that players in the scientific arena have adopted a communication dynamic that is more typical of politics in order to support the genuineness of an idea within the public debate [for example Bijker, 1995]. However, in recent years there has been an increasingly systematic use of such processes, which have been creating in a larger number of cases a communication framework with totally unprecedented rules. Should it become the norm, it may undermine the old peer review system in the public legitimisation of science. The stakes are really high: a scientific approach is absolutely required towards ideas that could have harmful consequences on citizenship and democracy should they start to spread. It is also necessary to launch defensive strategies within science itself, so that the ways it approaches the non-expert public can be restructured.

Debating in a new social space (social media), by activating new strategies (convincing), conveying a message that is substantially different (supporting values), using the communication opportunities at disposal: this is not the description of a science communication process; this is the description of a strategy that more closely resembles public relations, and consequently marketing.

The afore-mentioned concept represents a sensitive point: the use of marketing strategies. Obviously, we do not believe that a type of science communication that enhances the opportunities provided by marketing is a bad thing per se. However, this approach implies consequences that should be taken into account. The first consequence is that science communication sectors using a communication dynamic typical of marketing are already thriving, especially those sectors that are closer to applied research, or to industrial manufacturing in any case: computer science, biopharmacology, materials engineering. For that reason, they are more accustomed to the use of such communication dynamics: it is a sort of competitive advantage. The second consequence is that when science communication intends to leverage the so-called digital public relations [Chieffi, 2012], an important element to consider is the funds available to plan and design communication strategies or to be active on social media platforms. Basically, when using marketing, two resources are needed: time and money, which leads to a stark power asymmetry between those who can use such strategies and those who cannot.

We decided to present a case study that we deem emblematic to describe this new battlefield of scientific controversies: the analysis of the film *Vaxxed — From Cover Up to Catastrophe*.

*Vaxxed* is a documentary directed by Andrew Wakefield, produced by Del Bigtree and scripted by Wakefield and Bigtree themselves. By using a whistleblowing type of *storytelling*, they allege that the CDC — *Center for Disease Control* — intentionally hid certain experimental data demonstrating the correlation between vaccines and the onset of autism. This argument is supported by a narrative that combines the forms of investigation reportages — in Italy represented by TV shows such as *Report, Presa Diretta* (RaiTre) and *Le Iene* (Italia 1) — with information disclosed by an anti-vaccine activist, prof. Brian Hooker, mixed with statements unknowingly recorded from a whistleblower, Prof. William Thompson of CDC, who claims that those results were not presented by his research team owing to reasons connected to the poor scientific quality of the results themselves (lack of biological credibility of the model used and a correlation that can be interpreted spuriously). Through

the use of a conspiracy frame, a journalistic approach is mixed with scientific language as well as with an overturn of science communication values (hiding and not disclosing).

The documentary proves to be a typical communication product supporting the conspiracy theory of anti-vaccine activists, but it is notable in that the people behind the production of the film actually are prominent members of the modern anti-vaccine movement.

The first to consider is Andrew Wakefield, the physician who published in the medical journal *Lancet* in 1998 the infamous paper that assumed a connection between vaccines and autism, which earned him an expulsion from the British national healthcare system a few years later. The second is Del Bigtree, an American TV producer already behind *The Doctors*, a TV broadcast critically branded by the *British Medical Journal* as an instrument to spread inaccurate scientific information [Korownyk et al., 2014]. The mere fact that the authors of the documentary are — so to speak — leaders of the global anti-vaccine movement, makes the film not a simple tale, but an instrument to seek the support of the public opinion in reinforcing the anti-vaccine movement. If it is not possible to activate such reinforcement through the traditional channels of science communication, then another territory is chosen, the one of anti-vaccine cinematographic propaganda. This strategy underpins our hypothesis that *Vaxxed* is not merely a documentary, but a communication product that should be interpreted within the stakeholders theory [Freeman, 2010], i.e. the strategies used by influential subjects to steer the communication agenda of a debate.

There is another element making the analysis of *Vaxxed* interesting in the light of the social effects of digital communication: its ability to arouse controversies and elicit statements by the different stakeholders involved, further activating conversations on such themes, which were up to a few years ago confined to digital anti-vaccine communities. In fact, the use of the documentary as an advocacy instrument has allowed other subjects to be involved in the construction of the controversy field, such as actors and directors. The violent controversy that broke out in relation to *Vaxxed* stemmed from the invitation received by Wakefield to present the documentary on the opening night of the *Tribeca Film Festival*, the New York independent cinema festival, founded by Robert de Niro among others, who is the father of an autistic child. This move appeared to be — and actually was — an endorsement of the anti-vaccine thesis supported by the documentary, sparking such bitter controversy that De Niro had to change his mind. But this was only part of the controversy surrounding *Vaxxed*. In Italy, a plan to screen the documentary before the Italian Parliament was harshly opposed by some (including Beatrice Lorenzin, Antonio Tajani, and a number of physicians' associations) and supported by others (Codacons, a consumer association). Another backlash happened when the news spread that the documentary would have been screened before the European Parliament [Corbellini, 2016; ANSA, 2017].

## Methods and analysis

We intended to analyse the case of the *Vaxxed* documentary as a communication strategy aimed at building a framework to start a controversy through advocacy processes according to a dynamic typical of the stakeholders' theory. Therefore, we decided to focus our attention on the digital communication instruments relating to the documentary itself.

By analysing the communication elements involved in the digital debate, our goal was to demonstrate that *Vaxxed* adopted a strategy that is typical of public relations rather than science communication.

In order to analyse such a dynamic, we adopted an approach implying the analysis of the digital characteristics of the communication elements. This research methodology has different names and forms: from Digital Humanities up to Computational Social Science as far the most academic and research-oriented approach is concerned, or even social media analytics or social media listening (or monitoring) when considering a marketing and public relations-oriented approach [Bennato, 2015]. In any case, our aim was quite straightforward: analysing such communication elements through a set of tools able to identify the underlying social dynamic.

Here is an example: from a digital marketing viewpoint, the easiest way to be active in a web communication space is deploying a website. Although in certain environments it is perceived as outdated as it appears to be less dynamic than communication tools more connected to social platforms like Facebook fanpages or Twitter profiles, a website is actually fundamental for a couple of reasons. Firstly, because it makes it possible to aggregate all the communication activities relating to the *Vaxxed* project, which would otherwise be scattered across the various social platforms, thus making it difficult to build a digital form of communication to a potential audience. Secondly, because a website — to be reached by users interested in the documentary — should follow a SEO — Search Engine Optimization — logic. In other words, it is necessary to make specific choices that allow the website to be easily reached from Google, so as to make it as accessible as possible and to provide further information on the documentary itself. SEO is a very interesting strategy as it is a fully social and technical process, i.e. the result of both technological and social choices.

Before moving on to the analysis, a brief explanation of the research methods is required. The research draws on both a scientific approach and a marketing dynamic, and therefore instruments based on diverse approaches could be used to analyse these types of communication. In this study, we decided to focus on accessibility, i.e. we used the tools that were most capable of revealing the social processes for an analysis at both the technological and social levels. However, such results should be considered as actual background research, that is research able to guide our analysis of the *Vaxxed* communication strategies, but one that requires further investigation to distinguish the signal from the noise, as a prominent American data scientists said [Silver, 2012].<sup>1</sup>

<sup>1</sup>Another aspect to consider is that the analysis can change in relation to time, as online communication forms are constantly evolving. The research herein referred to was carried out on 4<sup>th</sup> March 2017.

First of all, the analysis has to focus on the website used to spread news and information on the documentary. In fact, *Vaxxed* is featured on the web through two official websites: one relates to the information on the documentary, and the other is in support of the anti-vaccine cause.

The former — [vaxxedthemovie.com](http://vaxxedthemovie.com) — is an advertising website containing information on the documentary.<sup>2</sup> On the website, it is possible to buy the DVD or watch a streaming of the various digital formats of the film. The website menus offer detailed information on the film and its screenings. Also available is a set of social tools such as the newsletter and the links to the Facebook page and the official Twitter account. The homepage also contains a call to action (“Take action”) to actively participate in the spreading of the film message, with a set of tools typical of activist groups (for example: write to your local politician, send automatic messages to decision makers, etc.). From a digital viewpoint, it can be described as an advertising website with a few digital activism components. In terms of technology, it is possible to identify various components.<sup>3</sup> The website has quite a high score in terms of accessibility and loading speed (8/10): this means it is optimised for desktop and mobile browsing. The content of the website has not been updated since 1<sup>st</sup> February 2016. This is because [vaxxedthemovie.com](http://vaxxedthemovie.com) acts as a landing page, i.e. a webpage meant to collect all the information on the documentary. This is demonstrated by the featured quantity of text (an average of 1017 words per page). This follows the principle that more text favours indexing on Google. The site is also very good in terms of SEO: the URLs are well written and the inbound links help its Google performance. The words that are most used as section titles, another important SEO instrument, spur participation in the movement. This ultimately reveals the nature of the website, which is an instrument to support the anti-vaccine campaign rather than a simple advertising instrument. Two social accounts are associated with the website: a fanpage and an official Twitter account.<sup>4</sup>

On the other hand, the website [vaxxed.com](http://vaxxed.com) is apparently more intended for an awareness-raising campaign against vaccination. The different nature of this website is evident starting from the homepage: the user finds a page divided into three sections. In the left one, it is possible to read reports on the damage caused by vaccines: parents having suffered such damage have the chance to submit their own personal account. In the central section there is an interactive map of the U.S.A., which shows the current location of the documentary coach travelling across the country, as well as a link to the official Youtube channel.<sup>5</sup> Finally, the right section of the homepage features a set of sharing buttons meant to spread the website, and also a button to sign a petition promoted by the documentary producers to review vaccination policies.<sup>6</sup> The other items on the menu all concern activities to organise as an anti-vaccine campaigner: from documentation to download — and possibly to hand out to your contacts — to the documentary

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<sup>2</sup>*Vaxxed: from cover up to catastrophe*: <http://vaxxedthemovie.com/>.

<sup>3</sup>The tool used for the analysis of the websites is Nibbler ([http://nibbler.silktide.com/en\\_US](http://nibbler.silktide.com/en_US)). The complete analysis is available at this URL address: [http://nibbler.silktide.com/en\\_US/reports/vaxxedthemovie.com](http://nibbler.silktide.com/en_US/reports/vaxxedthemovie.com).

<sup>4</sup>Respectively: <http://facebook.com/vaxxedthemovie> and <http://twitter.com/vaxxedthemovie>.

<sup>5</sup>Vaxxed TV: <https://www.youtube.com/channel/UCwZDSEpPvE398OLazdituKQ/>.

<sup>6</sup>It is a petition on the specialised platform Your Voice in The Whitehouse: <https://petitions.whitehouse.gov/petition/take-action-end-autism-epidemic-and-implement-comprehensive-reforms-vaccine-safety-policies>.

merchandising store, as well as an area for donations. Also for this website a web technology-oriented analysis was carried out.<sup>7</sup> As with the previous website, Google indexing was certainly taken into account in the technical design, although in this case the SEO relates to the theme of the stories (the most widely used word in the title of the paragraphs). Interestingly enough, the main social media sections in the website are different.<sup>8</sup> This highlights another strategy used for the website: making it instrumental to the creation of an anti-vaccination community comprising people who believe in the points raised in the documentary. The different purpose of the website is evident in that the latest update of the contents dates back to 1<sup>st</sup> March 2017 (three days prior to our analysis), which shows this web space is up and running.

Another interesting way to understand the controversy-building processes is googling the word <vaxxed> and having a look at the websites that come up. This approach — still in a SEO perspective — allowed us to draw a graph based on the connections created by Google within its search database. This way it is possible to list the websites that have most frequently dealt with the term Vaxxed<sup>9</sup> (Figure 1). As one would expect, the search results list the two official websites, the official Facebook page and the documentary page on IMDb. Interestingly, among other websites there are two newspapers that have covered the subject, i.e. *The Guardian* [Glenza, 2016] and *The Washington Post* [Cha, 2016], both featuring a fact-checking article. In relation to debunking, there are also two websites much active in the study of controversies, i.e. *Science Based Medicine* and *Skeptical Raptor*.<sup>10</sup> This result can be interpreted as follows: searching for the keywords, it is possible to access a number of web contents trying to oppose the spreading of the anti-vaccine information connected with the documentary through a fact-checking operation and investigation based on scientific debunking. Elaborating the concept further, we may say that the keyword <vaxxed> — as the trends in Google searches clearly show — describes a new chapter in the clash between vaccination supporters and anti-vaccine campaigners.

Another way to use Google to check the trends in the public opinion on line is the Google suggest function, which automatically completes the keywords typed in. When you type a query on Google, the engine suggests a set of words related to the searched term. These are based on the searches previously done by other users. Therefore, it is possible to see what terms are most associated with <vaxxed> (Figure 2).<sup>11</sup> Based on that, one can infer that even in Italy people are intrigued by the subject, as all the related terms refer to 'streaming' and 'Italian subtitles'.

So far, we have described a set of tools able to analyse certain features concerning the presence of materials related to *Vaxxed* on the web, thanks to a SEO approach using Google as the main instrument. However, there are other compelling ways to determine why Andrew Wakefield's documentary opened a new chapter in the anti-vaccine controversy.

<sup>7</sup>The analysis is available at: [http://nibbler.silktide.com/en\\_US/reports/www.vaxxed.com](http://nibbler.silktide.com/en_US/reports/www.vaxxed.com).

<sup>8</sup>Fanpage: <https://www.facebook.com/wearevaxxed>, Twitter: <https://twitter.com/teamvaxxed>, as well as the Instagram, Periscope and Snapchat accounts.

<sup>9</sup>The instrument used is TouchGraph SEO Browser and the full interactive analysis is available at: <http://www.touchgraph.com/seo/launch?q=vaxxed>.

<sup>10</sup>Respectively <https://sciencebasedmedicine.org> and <http://www.skepticalraptor.com/>.

<sup>11</sup>The tool used is Webseer to visually represent in a graph the suggestions from Google, available at: <http://hint.fm/seer/#left=vaxxed&right=>. The size of the related words depend on the number of searches including that specific term.

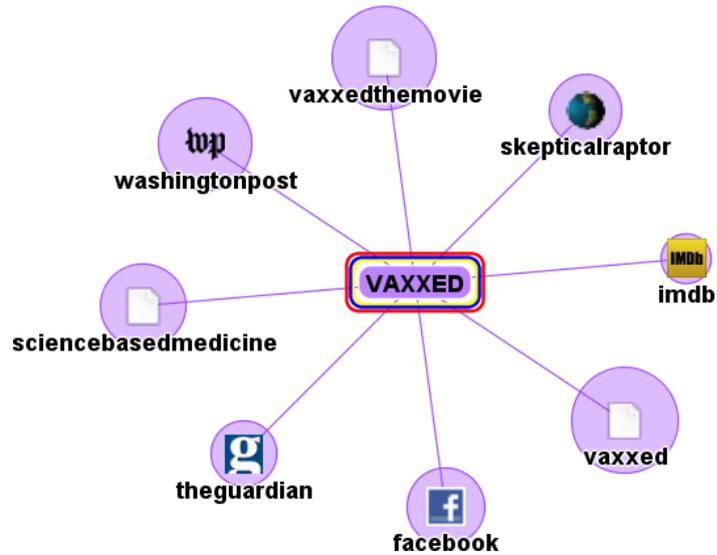


Figure 1. Graph of Google SEO connections for the term <vaxxed> (Touchgraph).

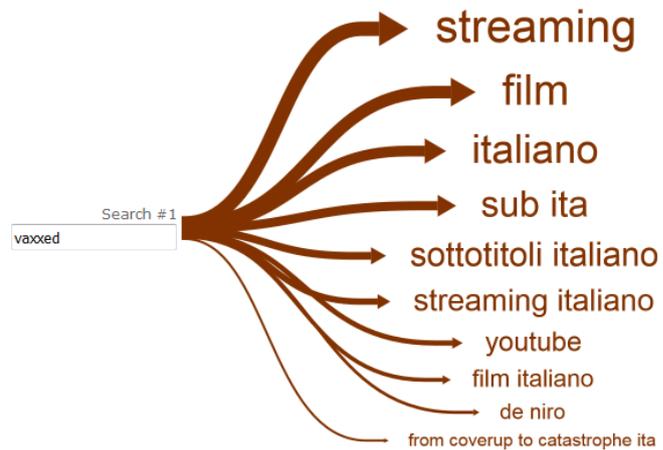
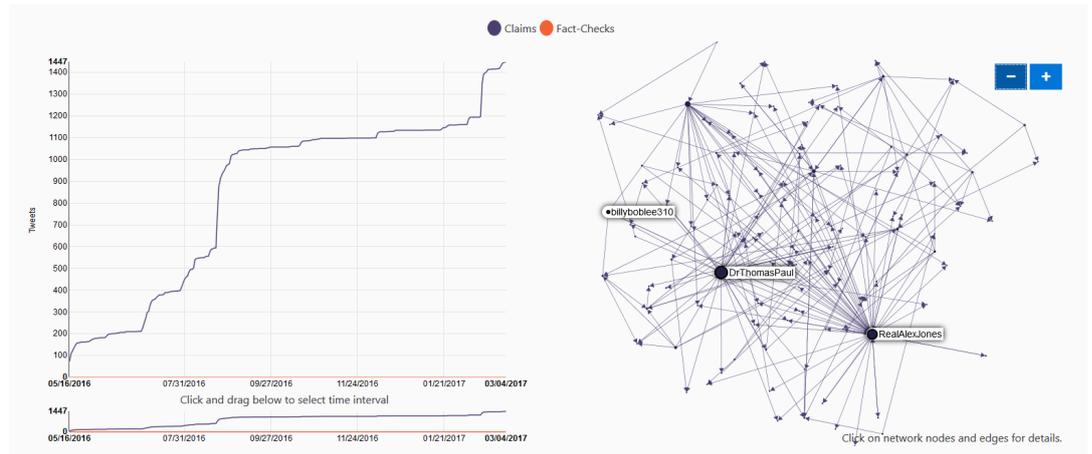


Figure 2. The words most associated with <vaxxed> when searching on Google Italy (Web Seer).

One of such instruments is Hoaxy, a project promoted jointly by the Indiana University Network Science Institute (IUNI) and the Center for Complex Networks and Systems Research. The purpose of the project is to gauge the effect of fact checking online. This is done by tracing the circulation of two types of links across the social media: the ones coming from independent sources specialising in fact checking, and the others coming from sources releasing inaccurate, unverified or satirical information. This way, using a specific search term you can observe the clash between fact checking and misinformation. The analysis that we carried out started from the term <vaxxed> to detect the presence of controversy spreading and debunking processes.<sup>12</sup> In fact, the instrument could not identify any fact checking process. Nevertheless, we were able to single out some of the main sources responsible for the spreading of *Vaxxed*-related misinformation (Figure 3). In particular, the Twitter accounts @DrThomasPaul (belonging to a therapist

<sup>12</sup>The full interactive analysis is available at: <https://hoaxy.iuni.iu.edu/#query=vaxxed&sort=recent>.

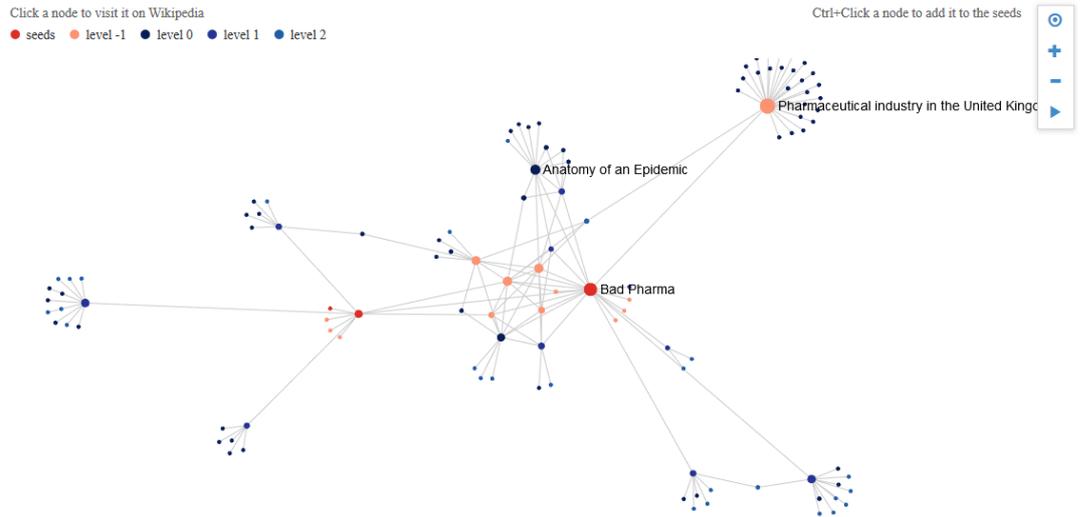


**Figure 3.** Disinformation processes connected with the circulation of <vaxxed> across social platforms (Hoaxy).

specialising in the new age theory of past lives) and @RealAlexJones (a reporter of the disinformation website Infowar), which — together with the Infowar official Twitter account — are the most important hubs for the spreading of contents on Wakefield’s documentary.

Analysing controversies in the digital world may turn out to be an excellent instrument to understand who is actively involved and what the stakes are for the warring factions. There are several approaches in computational social science: one of the most interesting is the analysis of a Wikipedia entry. The entries of the famous wiki encyclopaedia stem from the work of a community that writes according the NPOV principle (Neutral Point of View). This way, it is possible to trace the writing and deletion dynamic — defined as edit wars — which reveals when the content is controversial or in any case a result of the negotiation of the members of the group [Viégas, Wattenberg and Dave, 2004]. Taking the *Vaxxed* Wikipedia entry as a starting point, we looked into the thematic frameworks the documentary was inserted in. Wikipedia entries have a section called “See also” that suggests other pages deemed to be related with the main entry, making it possible to reconstruct its thematic context. To carry out this analysis, we used Sealsology,<sup>13</sup> which is capable of generating a graph based on the links extrapolated from the sections “See also” (Figure 4). Simply using two levels connected to the *Vaxxed* Wikipedia page — i.e. the pages Big Pharma Conspiracy Theory and Bad Pharma — it is possible to analyse the thematic context of Andrew Wakefield’s documentary. *Vaxxed* is related to the long-standing tradition of conspiracy theories that have pharmaceutical companies as their main target. However, there is another thematic area *Vaxxed* belongs to, i.e. the criticism of the commercial interests of pharmaceutical companies epitomised by books such as *Bad Pharma* [Goldacre, 2012] and *Big Pharma* [Law, 2006]. In practice, according to Wikipedia’s editors, *Vaxxed* certainly is a documentary with a strong conspiracy component, but it is indirectly inserted in a wider movement criticising the radicalisation of the commercial purposes of pharmaceutical companies.

<sup>13</sup>Sealsology: <http://tools.medialab.sciences-po.fr/seealsology/>.



**Figure 4.** Graph of the issues related to the Vaxxed Wikipedia page (Seealsology).

## Conclusions

The advent of social media within science communication processes has brought about the creation of a space putting in relation the players in the scientific arena with their audiences. This space is characterised by unprecedented processes that can be included in the theory of public relations. Fundamentally, once there were old models interpreting in a sequential way the transition from specialist communication to popular communication [Cloître and Shinn, 1986], whilst now that transition is much less clearer and much more fragmented, and therefore the specialist and the popular components can mix up.

In order to illustrate this communication dynamic, which is less and less scientific and more and more akin to a marketing strategy, we have decided to analyse the presence on the web of the documentary *Vaxxed*, a new chapter in the anti-vaccine saga started by Andrew Wakefield. As we explained above, the online communication processes concerning the documentary are aimed both at advertising the film and activating community building processes supporting anti-vaccination theories. In practice, the online communication strategy used for the documentary aims to trigger further anti-vaccine dynamics. They reverberate on the web, also thanks to processes that are both computational and social. This is why the analysis of the ways Google catalogues the information relating to *Vaxxed* is a useful way to understand how these new science communication elements exploit all the strategies at their disposal to gain visibility within the public digital space. In addition, thanks to the use of specific tools able to analyse the spreading of disinformation and standardisation of the subjects through Wikipedia, it was possible to investigate how the documentary issues take shape and position themselves across the digital space.

The world of science communication should take note of this new strategic way to use social platforms to avoid being caught off guard by the advent of a new generation of communicators who often — in using the scientific discourse — do not comply with the rules of the game of science.

*Translated by Massimo Caregnato*

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## How to cite

Bennato, D. (2017). 'The shift from public science communication to public relations. The *Vaxxed* case'. *JCOM* 16 (02), C02\_en.



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