

Reimagining Science Journalism

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Keynote address, Friday 9 2007

Future Directions in Science Journalism conference

University of British Columbia

I feel honoured to have been chosen to speak at the opening of Future Directions in Science Journalism, a project of the UBC School of Journalism's science initiative.

Given the impact of new media and science on a global world, schools of journalism should lead in the education of critical and informed science journalists and researchers.

This is important because science matters – I am sure everyone in the room will agree with this. And many of you will probably also be frustrated with the way science is covered in the media.

For this talk, and for this conference, we don't want to go over what is wrong with science reporting. We want to look forward – to look at what we can do to improve the way science is covered in the media – both as scientists and as journalists.

I am going to focus on how the Internet offers us new ways of rethinking how science is reported and explained – how the Internet can offer new ways of engaging with the public – how the Internet can make science come alive.

To illustrate this, I am going to tell you a story of two turtles, of leatherback sea turtles to be precise.

The first turtle is here in Vancouver at the University of British Columbia. It is one of the turtles being studied at the university to learn more about this endangered species. The other turtle is one tracked by scientists in the eastern Pacific, nicknamed Billie. The tale of these two turtles provides an illustration of how we can reimagine science journalism for a digital age.

Leatherbacks have been around in some form since the first true sea turtles evolved more than 100 million years ago. These animals survived the extinction of the dinosaurs. But human activity in the past 50 years has led them to the brink of extinction. There are now only 40,000 leatherback turtles swimming in our oceans – and they could be extinct as early as 2015 in the Pacific Ocean.

Clearly then, this is an important issue for the media to focus on. The first example, discussing the research at UBC is from the world of print – a Vancouver Sun story from April this year.

This is a lengthy feature story on a conservation project at UBC. The researchers are raising leatherbacks in captivity in order to learn more about these creatures, called DC-10 and DC-14. The version on the website does not do justice to the story – here is the print version so that you can see how the material was displayed.

The story is well written and researched – inside the paper, the story is spread over two pages, with strong images to complement the text. It reports on how turtle biologist T Todd Jones and his team have raised two healthy turtles from hatchlings since July 2005. It is the first time more than one leatherback has been raised in captivity, providing crucial comparative data for research and conservation.

This is the traditional way of doing science stories – several thousand words, with photos, sometimes with a graphic - in your daily newspaper. Now, I am not saying there is anything wrong with this kind of reporting. But what I want to highlight is how a new medium – the Internet – enables us to take what we have done in the past and create new forms of journalism.

Online opens up a wealth of possibilities for journalism. For a start, we can use multiple media, combining text, images, graphics, video and audio. This is how many newsrooms approach online – journalists look at ways of giving a story, such as that of the leatherbacks, a multimedia treatment.

For example, for the UBC turtles story, you could have video of the leatherbacks, an interactive map of where the turtles are found.

But what I want to show you today goes further than simply giving the story of the leatherback a multimedia treatment.

The online environment provides an opportunity for us to rethink our approach as journalists. We need to adopt, from the start, digital mindset. It is about preserving traditional journalism values of accuracy, fairness... but about reimagining our journalism for a non-linear, interactive, networked environment.

Let me show you an example of this type of journalism in action. The issue is still about leatherback turtles, but what you are about to see is a radical departure from the traditional notion of an in-depth science feature.

Welcome to the Great Turtle Race. From the start, this doesn't look like a traditional piece of journalism – and that is because it isn't. This was a project led by journalist Jane Ellen Stevens – commissioned by non-profit conservation groups – the Leatherback Trust and Conservation International. Stevens is a multimedia journalist, specializing in science and technology, who began her career in journalism 30 years ago, at the Boston Globe as a copy editor

The site tells the story of migration habits of the leatherbacks in the eastern Pacific Ocean. Similarly to the story in the Vancouver Sun, this site also aims to draw attention to the threat of extinction to the turtles.

Often when stories like this are told online, text gives way to a multimedia presentation. But the great turtle race goes further by presenting the story as a real-time, interactive game

It encourages readers to participate in the story by following the journey of the turtles from Costa Rica to their feeding grounds near the Galapagos Islands.

Over two weeks in April, visitors to the site were able to follow 11 turtles fitted with satellite tags. The position of the turtles was updated every 10 minutes, giving people an incentive to come back and check on the progress of their turtle. The winner was a leatherback nicknamed Billie, the grey one that took a rather circuitous route to the feeding grounds.

This might all seem a little bit like a gimmick, especially the idea of giving each of the leatherbacks a name. What is interesting about this example is that the journalism is nowhere near the front page – The journalism is behind the game – this site uses the Internet to engage with readers through a game, and using this to draw them into the journalism.

Giving each turtle an identity is one way of doing this – the site uses the idea of trump cards as a tool to encourage people to learn more about each of the leatherbacks. The team even named one of the animals Stephanie Colbert – in honour of Stephen Colbert. This clever stroke of marketing earned them a couple of mentions on Colbert's show, helping to increase public awareness of the site.

As an aside, some of the turtles were sponsored by companies, such as Travelocity, GTI Tires and Drexel University. They paid US\$25,000 to be associated with the project – the money went to the researchers. Perhaps this might be one funding model for science journalism? The race overall was sponsored by Yahoo.

At this stage you might be thinking, so where is the journalism? The stories about the threats to the leatherback turtles are told via an interactive graphic in the section – leatherback world. Here there is a wealth of content, displayed via an interactive graphic. Readers can explore as much or as little as they like – in a non-linear format – and construct their own story journey.

What this site shows is how the Internet can offer journalists a whole raft of tools to engage with audiences. In the case of the Great Turtle Race, it paid off. The site received three million hits over three weeks, with more than 650,000 visitors.

This site was funded by a non-profit conservation group, rather than a mainstream news organization. It has a campaigning tone to it that you would not expect in a newspaper article.

But there is much we can learn from the great turtle race in terms of how to reach audiences, particularly when we think about the young people of today who will be tomorrow's decision-makers.

Here the story was reimagined as a game. And games are something that resonate with a younger audience. After all this is a generation that grow up with the PlayStation. Games are part of their identity – part of their media diet.

Just to drive this point home, I want to show you a snapshot of a 2005 study that the BBC released last year into the gaming habits of the UK. This graph gives you a breakdown of who plays games. The average age of a gamer is 28 – but look at the bars on the left of the graph – 100% of kids between 6 and 10 play games. 97% of

those between 11 and 15. In other words, just about everyone born in the 1990s does not know life without games. The BBC also found that not only is gaming extremely popular for the under-16s – they rank it as their number one form of entertainment.

This doesn't mean that everything we do in science journalism should be turned into a game. But maybe we should consider how to make science fun by being creative in how we use play to tell better stories.

Some of the big names in the news business such as the BBC are already using the interactive nature of the Internet to bring science stories to life. The BBC created this energy calculator – gives readers the opportunity to choose how they would like the UK's electricity to be generated in 2020. It was published at a time when the UK government was debating energy choices for the future.

This game puts the decision into your hands. Once you have made your choice, the calculator will work out the possible impact in terms of carbon emissions, whether you managed to keep the lights on and how it will affect people's annual bills. The calculator does not give precise forecasts, it is just a guide. But it is based on real data available to the BBC.

It is quite addictive – takes a complex and potentially dry subject – and encourages users to explore it through play. It presents a way of giving audiences an opportunity to learn about energy choices while at the same time playing.

This game creates an educational experience – by making energy choices into a game, users have to think about the issue and consider the impact of their decisions. They are learning through play in a way that they wouldn't by reading a 2,000 word article in a newspaper.

Even simple games like a quiz can help to draw in audiences. This example is from the New York Times published last March - how do you make a story like this, about high-level mathematics, appeal to a broad audience?

The story is about Terence Tao – a 31 year old maths genius at UCLA. As a sidebar, the Times put up the test taken by Tao when he was just 8 years old – inviting the reader to ask, am I smarter than a third-grader? I am no maths genius – and got most of these answers wrong – but that didn't put me off trying the quiz. More importantly, it meant I had a greater appreciation of the story itself.

I want to show one more example of how play can help stimulate interest in science. The National Oceanic and Atmospheric Administration in the US – NOAA – is using the virtual reality world of Second Life to reach out to audiences. It has created a virtual lab in Second Life to showcase its research to new audiences.

It has created immersive environments that enable users to experience, for example, flying thru a virtual hurricane, or understand a tsunami is like. In this simulation of a tsunami, people can learn how these huge waves are created and about their impact.

Strictly speaking these simulations are not games – but they bring to science to life.

I was at a conference earlier this year at USC Annenberg in Los Angeles, where we discussed using Second Life as a way of reporting on climate change – creating different virtual cities reflecting lifestyle choices and their impact on the environment.

What we were trying to get at was a way of highlighting the consequences of policy choices on the environment – the aim was to create a greater understanding of the complexities of climate change. As journalists we were thinking of doing this by creating a way for readers to “experience the news” – to experience climate change in a virtual environment. Now, that was conceptual exercise.

But it clearly shows there are possibilities to be creative in our reporting of science. We have an imperative to change how as journalists we cover science to take account of how audiences are changing. We have already seen how play is forming a key part of the lifestyles of the under-16s. The changes happening are far more widespread – affecting how, where and why people access the news.

Two years ago, the Carnegie Corporation produced a report called *Abandoning the News*. The report was written by Merrill Brown, founding editor in chief of MSNBC.com. In some ways, it was a wake up call to mainstream media. The report highlighted the challenge to the news industry by the changing habits of young people.

Brown wrote: “The future course of the news, including the basic assumptions about how we consume news and information and make decisions in a democratic society are being altered by technology-savvy young people no longer wedded to traditional news outlets or even accessing news in traditional ways.”

I wonder how many young people read the article in the Vancouver Sun on the leatherbacks? By comparison, how many would have been drawn instead to the great turtle race?

The news industry is acutely aware of how the media landscape is changing. Just earlier this month Tom Curley, the CEO of Associated Press, again raised the issue of how news consumption is changing. He was talking about research conducted for the AP on the changing habits of news consumers.

“Young people the world over are hungry for news. They just don’t prefer our traditional platforms and packaging. The irony of the disrupted news economy of the 21st century is that the news is hot, but the news business is not.”

The message is that there is still a need for the professional skills of a journalist – sourcing, researching, story-telling, editing. But the way we use these skills has to change to create new forms of journalism and reach young people. Research tells us that the Internet is becoming particularly important when it comes to science journalism.

A year ago, the Pew Internet & American Life Project released a report entitled “The Internet as Resource for News and Information about Science”. What it found was can be seen as either encouraging or discouraging, depending on your perspective.

It found that 40 million Americans rely on the Internet as their primary source for news and information about science.

Overall 20% of all Americans said they turn to the Internet for most of their science news. This is second only to television, which is cited by 41% of Americans as the place where they get most of their science news and information. Newspapers and magazines are each cited by 14%.

This gets interesting when you break it down by age – as you can see from the graph, the Internet is the most popular source for science news and information the under thirties with a high-speed Internet connection at home. In this group, 44% cited the Internet as their primary source, compared to 32% who cited television. Print is simply not part of the news diet of this group - just 3% who mentioned newspapers.

The shift towards the Internet as a source for science also presents new challenges for the media. Two issues stand out from the Pew report. Firstly, the main reason for going online for science news was convenience, rather than other factors such as the reliability of information. Only 13% of people said they turned to the net because they believe information there is more accurate than other source

And secondly, happenstance appears to play a key role in how people stumble across science news online. Pew found that two-thirds of Internet users encounter science news when they have gone online for other information.

This suggests that the audience, particularly young readers, are not actively searching for news about science. Instead there is an element of chance. So as well as finding ways of drawing in new audiences, science journalists need to find ways of reaching out to these new audiences. Let's go back to our story of two turtles.

In our traditional print model, we expect audiences to come to us – to pick up the Vancouver Sun in the morning and read about the research at UBC into leatherbacks. But in an online world, you cannot simply expect people to come to you out of habit. The emphasis is on reaching out to audiences – to create more opportunities for people to stumble across your content.

This was part of the strategy behind the Great Turtle Race to make their material as widely available as possible for people to e-mail, blog or embed video from the project. Increasingly more and more news organizations are taking this approach – providing their audiences with ways of taking their content and share it with friends via Facebook, YouTube or their own blog.

This is a very different approach to how we have approached news in the past – enticing readers to your product and keeping them. The networked nature of the net changes this – instead of having readers come to you, you have to go to them – make your content available for as wide distribution as possible.

Here the team made it easy by creating widgets that could be easily added to other sites. Widgets are small pieces of code that can be embedded on blogs etc – in this case, they would update with the position of the turtle. The team also created profile

pages on Facebook for the turtles – tapping into emergence of a social media as a way of disseminating their message.

I'm not suggesting that this is exactly what we should be doing – but we should pursue of making our content more widely available, encouraging audiences to share it, put it on their Facebook pages or other social media site.

What I have sought to outline in this talk is how we can revitalize science journalism for a digital age. It is about more than just adding multimedia to a story – it is about adopting a digital mindset – it is about changing the way we conceive of our journalism to capitalize on the interactive and participatory nature of the Internet.

We should be working to create new forms of media, rather than wait for them to be created. We should look beyond the print model – this is a product that goes out once a day and meets the needs of 100 years ago. I firmly believe that we can revitalize journalism by realizing the transformative potential of the Internet and appeal to a younger generation.

After all, this is a generation that is interested in science. But the way they get their news and information, particularly about science, is very different to an older generation. They go online, rather than to the morning newspaper. And what they expect in terms of content is very different.

The Internet offers us a way of conveying what science is about. When I think of science – I think of a world of wonder, exploration, discovery. At its best, science produces a sense of awe. I'm looking forward to our discussions tomorrow, as we consider how to combine our passion for science with the potential of the Internet.

Thank you for listening.