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### 37. Emerging models of engaging children in science

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The following short paper outlines recent innovation of models for directly engaging young people with science and scientists. An outline of our approach to employ new technologies in a multifaceted approach including portable satellite technology, videoconferencing, social media and free-to-use online applications such as Skype and Coveritlive is described. Feedback regarding this work has so far been encouraging but the authors are of the view that this is a fertile area for further research into the effectiveness of this model of science communication and its impact on young people and scientists.

The Natural History Museum (NHM) has a world-class scientific collection and over 300 scientific staff dedicated to furthering our understanding of the natural world and our place within it. As a major visitor attraction the Museum facilitates a wide range of opportunities for young people to learn through active engagement with scientific research and collections. Visitors are able to take part in a variety of face-to-face science communication initiatives including *Nature Live*<sup>1</sup>, our flagship platform for dialogue and discussion. These facilitated scientist encounters have involved over 250,000 participants in the past 10 years and evolved to employ a variety of methodologies for engagement with adults and young people.

We are committed to providing opportunities for young people to meet scientist role models and engage with real science in context as a way of raising aspirations and developing awareness of the relevance and application of science knowledge, understanding and skills. A recent innovation in the past 12 months has been the expansion of the Museum's videoconferencing programme, which centres round facilitated discussion between and Museum scientist and school students. Students of all ages and in any location have the chance to speak directly to world leading scientists and to put their questions to those working at the cutting edge of science. The programme provides an opportunity to meet inspiring scientist role models, and the Museum's learning team facilitate the discussion around the relevance and application of the scientists' work.

This expansion has combined the effective use of a number of approaches with satellite communication, videoconferencing and web based technologies (e.g. Skype<sup>2</sup> and CoverItLive<sup>3</sup>) to bring young people to the very edge of scientific discovery. Work in this area in the last 12 months (May 2011-April 2012) has involved over 2,000 interactions with young people, including through seven live video conferences and online fora, and has linked to two field projects (Costa Rica and Bahamas) and the collections. This combined approach appears to have enabled wider engagement sustained over a longer period than typical video-conferences.

School students also have the opportunity to see some of the incredible specimens housed at

the museum and find out how they are used in research. For example, in a recent videoconference, a palaeontologist used a real plate from a stegosaurus to elicit ideas from students on why these animals had evolved these spectacular features. For our scientists, the events have been a chance to share not only their knowledge and expertise but also their passion for the natural world with an audience they do not normally come into contact with. We also note that videoconferencing allowed for more precious specimens to be used as risks were reduced. Our scientists have been exposed to the enthusiasm and inquisitive nature of young people and have all been impressed by the questions they have been asked.

Additionally we have also been able to apply this stream of work to programmes for young people as part of a family group. A highlight from this work was that, as part of a two-channel live link to a field site in the Bahamas, a 12-year old was able to ask questions of a local marine biologist about the view from a mROV (mini Remote Operated Vehicle<sup>4</sup>) while also directing the operator in where the mROV should go next. From conversations with the family following the event it was clear that the experience made an impression.

Another key element of this multifaceted approach has been the use of social media to further and deepen engagement. As well as raising awareness through well-established platforms such as Facebook<sup>5</sup> and Twitter<sup>6</sup> participants were also able to take part in discussions on the Museum's online forum, Nature Plus<sup>7</sup>. A dedicated schools area, accessed through a restricted log-in system, was created to enable discussion between students and researchers and for students to upload their own images from local experiments. For example, students were able to upload images of lichens from their local park as the lichenologist they had been speaking with though videoconferencing was uploading images of lichens as they were being discovered in a remote field site in Costa Rica. It caused the lichenologist great excitement to see that students were uploading photos of UK species of genera they were seeing in quite a different form half-way across the planet. A further benefit of this (given the time differences often encountered with this kind of science) was that comments and questions posted by students could be responded to overnight so that there were daily developments during the whole field project.

Feedback from the work has indicated positive response from young people involved. A quote from a 13-year-old boy supports this: "It made me think about what a career in science would entail. It really improved my confidence in asking questions to scientists and I'm really glad I got to take part." More broadly this work has raised many questions in the minds of science communication practitioners involved. These questions range from basic questions around the impact of meeting scientists in this way (Seakins, 2011<sup>8</sup>) through to more complex questions around the integration of multiple media for engagement with science. In the spirit of the PCST conference the authors welcome interest from researchers in coming together to explore and further our understanding of these emerging models of science communication with young people.

<sup>1</sup> [www.nhm.ac.uk/nature-live](http://www.nhm.ac.uk/nature-live)

<sup>2</sup> [www.skype.com](http://www.skype.com)

<sup>3</sup> <http://www.coveritlive.com/> (the coveritlive plug-in was used for the NHM website)



<sup>4</sup> <http://www.nhm.ac.uk/about-us/news/2012/march/underwater-tropical-twilight-zone-explored-with-museums-rov108768.html>

<sup>5</sup> [www.facebook.com](http://www.facebook.com)

<sup>6</sup> [www.twitter.com](http://www.twitter.com)

<sup>7</sup> [www.nhm.ac.uk/natureplus](http://www.nhm.ac.uk/natureplus)

<sup>8</sup> A. Seakins, 2011, unpublished doctorate research presented at NHM seminar November 2011

<sup>9</sup> [www.ja.net](http://www.ja.net)

*The videoconferencing network Jenet<sup>9</sup> provided invaluable support to all parties. Key to the success of these programmes, beyond the work and dedication of many staff of the Natural History Museum and our scientific/technology partners has been the support of proactive teachers whose role in enabling students to engage so effectively has been critical. Of course this exciting work would not have been possible without the willing participation of the young people themselves.*

