"..Scientific facts and their public assimilation were not as unproblematic as the deficit modelers assumed. Studies by such workers as Brian Wynne and Alan Irwin showed the importance of social context and lay knowledge as playing a significant part in how science was used by members of the public: interpretation was not an unambiguous process.[17]

Others, such as H. M. Collins and Trevor Pinch and Bruno Latour showed that the scientific process departed markedly from the hypothesis-experiment-falsification/verification method usually put forward in public as the way science progresses.[18] Instead, various social checks and balances came into play before what could be termed "reliable knowledge" could be obtained.[19] It was vital for the public to realize that a lot of the science they came across in acute, and potentially threatening, situations was of a "science-in-the-making" variety that was still being "socialized" by the scientific community; "textbook" scientific certainties rarely hit the headlines to grab the public's attention.[20]

These considerations gave rise to what is termed the "contextual approach" to public understanding of science.[21] This approach sees the generation of new public knowledge about science much more as a dialogue in which, while scientists may have scientific facts at their disposal, the members of the public concerned have local knowledge and an understanding of, and personal interest in, the problems to be solved.

...

A word of warning: the end of the deficit model does not mean there is no knowledge deficit. Government and industry pay out large sums of money to scientific researchers. If there is not a gap between what scientists and members of the general public know about science, then something is very wrong. We do not want a public understanding of science political correctness in which the very idea that scientists are more knowledgeable than ordinary citizens is taboo. Scientists and lay people are not on the same footing where scientific information is concerned, and knowledge, hard won by hours of research, and tried and tested over the years and decades, deserves respect.

Many communications about science will still mainly be about passing on the latest scientific knowledge: Royal Institution Christmas Lectures about string theory, BBC natural history programs on the behavior of chimpanzees will be as popular as ever. Schemes for training scientists to communicate about their work clearly and effectively will still be needed, as will funding to enable them to take part in public understanding of science activities.

What the past decade or so has brought to the fore, however, is that where science is being communicated, communicators need to be much more aware of the nature and existing knowledge of the intended audience. They need to know why the facts being communicated are required by the listeners, what their implications may be for the people on the receiving end, what the receivers might feel about the way those facts were gleaned, and where future research might lead. Communicators might also consider that factual communications—while they may be inspirational—probably have little lasting effect on knowledge levels.

> People will pick up the knowledge they need for the task at hand, use it as required, and then put it down again. It will not be ready to hand when the survey interviewer next asks them if, for example, an electron is bigger than an atom.
>
> This means that the kind of scientific literacy surveys measure will always be of an elusive and mythical nature. But in real-life, stressful situations—as on an adventure holiday, where knowing that boiling water will kill viruses but antibiotics won't, and that this knowledge can be the difference between life and death—humans are very resourceful. Among their resources will be scientific knowledge gained at school and in later life—knowledge often deeply buried through lack of use or day-to-day relevance—or at least the knowledge of how to access such scientific knowledge as they may need."

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