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Wouldn't you like to know?

A wealth of information is available online, in useful encyclopaedic form. But how much of it is to be trusted?

"Heavy metal umlaut", was the reply of Jimmy Wales when asked what was his favourite page in Wikipedia, the free online encyclopaedia he launched in 2001 with Larry Sanger. A peculiar choice perhaps, but one that gives a good idea of the breadth of material that now exists on the site. If you can read — at some length, and in nine languages — about "the gratuitous use of an umlaut over letters in the name of a heavy metal band, such as Mötley Crüe or Motörhead" (also, you will learn, known as "rock dots")[1], then what topic could possibly have been missed in more than 10 million Wikipedia articles, written in more than 250 languages?

Wikipedia has become a vital information resource for anyone with a computer to hand. It is a forum, according to the wiki principle, in which everyone may contribute. But this then begs the question, how accurate and balanced are individual entries? The information is readily available, but can it be trusted? This issue is now driving the development of a new generation of online encyclopaedias, which, through restricted authorship and peer review, seeks to guarantee that kind of 'gold standard'.

This is no slight on Wikipedia, which fares well against more traditional reference works: a survey[2] performed using expert reviewers on articles about science that appear in Wikipedia and in the *Encyclopaedia Britannica* found a comparable degree of accuracy (although on average the *Encyclopaedia Britannica* had the edge). Comprehensive lists of references and external links are also a boon on Wikipedia pages. However, the structure of some entries in Wikipedia can mean it is a little tricky to find and understand the relevant information. But, in terms of their content alone, Wikipedia articles typically provide, if not the best treatise on a topic, then one that is a 'good enough' overview to satisfy most readers.

Sometimes 'good enough' is not good enough — for instance, when more specialized or technical information is sought, especially by students. Many Wikipedia pages carry detailed entries that certainly look the part (try the impressive page on "Maxwell's equations", for example). But, particularly for academic material that seems expert-written, wouldn't it be good to have some guarantee that the information is accurate, reliable and fair?

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Among the new wave of online encyclopaedias is Citizendium[3], which has been launched by Larry Sanger as a collaboration between experts and the public. Authors use their real names, and 'everyday contributors' are guided by experts. Experts also review the articles before they are marked 'approved'. In contrast, Scholarpedia[4] focuses, as the name suggests, on scholars: all articles are written by experts and anonymously peer reviewed. (Approved entries are archived in a journal that carries an International Standard Serial Number, and hence can be cited exactly as articles in other peer-reviewed journals can.) Scholarpedia currently counts three Fields medallists and twelve Noble laureates, five of them physicists, among its authors. Once online, each article has a curator responsible for its content, which can be constantly and speedily amended and, if needs be, updated to stay abreast of new developments in the field.

It is a laudable but daunting undertaking. Will the small band of experts be able to keep it up? Being a steward of truth is a potent aspiration, but those at the top of their field are often the busiest, and may find themselves lacking the time or the inclination to follow through. The success of Scholarpedia will depend on it becoming an intrinsic part of the academic landscape, just as the arXiv preprint server (a resource with much lower overheads) has.

At present, Scholarpedia focuses on astrophysics, dynamical systems, computational intelligence and computational neuroscience, but a broadening of the scope is planned, according to editor-in-chief Eugene M. Izhikevich, provided there is enough interest and support from the public. Contributors, at this stage, are invited (by the chief-in-editor or other curators), but there are plans for them to be elected by public vote, not least to help in identifying the original inventors or discoverers.

Meanwhile, Wikipedia itself is also experimenting with the 'expert approval' model. Since May 2008 on the German-language Wikipedia site, articles have been marked 'seen' once a regular Wikipedia author has confirmed that the page hasn't been vandalized. At a later stage of the experiment, an article will also be certified as 'checked' if an expert has verified that it contains no factual errors or important omissions.

Expert authorship and curatorship of free online information are indeed welcome. If scientists embrace Scholarpedia, then perhaps the opportunity to make sure that their own favourite area is well represented in its pages — as well as the possibility of citations — will prove sufficient incentive to the hard-pressed experts. The potential is huge, and so is the challenge.

References

1. http://en.wikipedia.org/wiki/Heavy_metal_umlaut
2. *Nature* **438,** 900–901 (2005).
3. http://en.citizendium.org/wiki/Main_Page
4. http://www.scholarpedia.org