

The Wide World of Wikis

For many, the wiki has been a surprise hit among the up-and-coming online publishing technologies. The radical concept of a website that anyone and everyone can edit was initially greeted by some with scepticism, but has rapidly proved itself to be a winner. The huge success of the online encyclopaedia Wikipedia (<http://www.wikipedia.org>) and the highly-publicised wrangles over its merits have propelled wikis into the media spotlight in recent months.

What's a wiki?

A wiki is an open-access website that all-comers can view and edit, often without needing to register. The essential features are unrestricted editing by users, cumulative revision of articles rather than previous versions being deleted, and rapid quality checking (1). The basic philosophy of wikis involves harnessing the collective brain power of experts from around the world to continuously update and refine their content. Wiki systems encourage users to closely monitor changes, and present a forum for discussing inevitable clashes of opinion as and when they arise.

Some supporters have gone a step further when defining wikis, pointing out similarities with science itself. From this perspective, a wiki can be seen as a collaborative journey of a community of individuals with a shared passion, which self-corrects by peer review, and ultimately aims to explore and explain the world.

Wikis form part of the new generation of Internet technologies sometimes described collectively as 'Web 2.0'. Central to the concept of Web 2.0 is user participation and the 'radical trust' required to entrust the production and control of information to the online community at large. Skeptics would point out that such trust replaces a decline in the traditional markers of credibility: the anonymity of the creators of the content of the new web, and its fluidity, means that verifying the source of the material, the date of its creation and assessing its objectivity become virtually impossible (2).

Box 1: Selected examples of science and technology wikis

♣ Cosmopedia

(http://www.cosmowiki.org/index.php/Main_Page): a physical science resource and encyclopaedia that started in December 2005.

♣ EvoWiki (http://wiki.cotch.net/index.php/Main_Page): a

free reader-built encyclopaedia of evolution, biology and origins, which aims to promote general evolution education, and to provide mainstream scientific responses to the arguments of creationism and other antievolutionists.

♣ Quantiki (http://cam.qubit.org/wiki/index.php/Main_Page): a free-content resource in quantum information science.

♣ Qwiki (http://qwiki.caltech.edu/wiki/Main_Page): a quantum physics wiki devoted to the collective creation of content that is technical and useful to practicing scientists in subjects including, but not limited to, quantum optics, quantum metrology, quantum control, quantum information and quantum computation.

♣ Wikiomics

(http://wikiomics.org/wiki/Main_Page): a wiki for the bioinformatics community.

A brief history of wikis

Since the first wiki appeared in 1995, the technology has inspired an ever-growing body of private and public online knowledge bases (3). Wikipedia, which is probably the largest and best known, has mushroomed since its launch in 2001, and now includes almost 4 million entries in over 200 languages. The English-language version alone has more than 45,000 registered users, and up to 1,500 new articles were added daily during late 2005 (4).

The non-profit Wikimedia Foundation that hosts Wikipedia promotes many other wiki-based projects. These include the collaborative English-language dictionary Wiktionary (http://en.wiktionary.org/wiki/Main_Page), the Wikispecies (http://species.wikipedia.org/wiki/Main_Page) directory of life, and the Wikibooks (http://en.wikibooks.org/wiki/Main_Page) textbook collection. There is even an annual international wiki conference —

with the next session to be held in Cambridge, Massachusetts, on 4–6 August (http://wikimania2006.wikimedia.org/wiki/Main_Page) — focusing on issues surrounding open-source software, free-knowledge initiatives and other wiki projects worldwide. Examples of further science and medicine wikis are listed in Box 1.

Wicked wikis

Despite the advantages of the wiki approach, it is clearly vulnerable to electronic ‘vandalism’ and problems with misleading content. Most wikis focus on the rapid correction of mistakes rather than their prevention, which allows users to introduce errors — albeit transiently — either by mistake or for their own dubious purposes (3).

Fighting wiki vandalism is an ongoing battle, and without adequate protection sites can easily become overwhelmed. In June 2005, the Los Angeles Times launched an innovative new online section, named the Wikitorial project, which allowed readers to rewrite its editorial column (5). The site was flooded with inappropriate material faster than the editors could remove it, and was shut down within days. Likewise, although most vandalism to Wikipedia is reportedly corrected within minutes (3), the site was forced to introduce a registration process for editors in December 2005 after detecting malicious changes to a biography (6) — a move seen by some as at odds with the basic wiki principle. Although new defences against vandalism are constantly evolving, deliberately inserted subtle errors continue to be the most problematic and insidious form of attack.

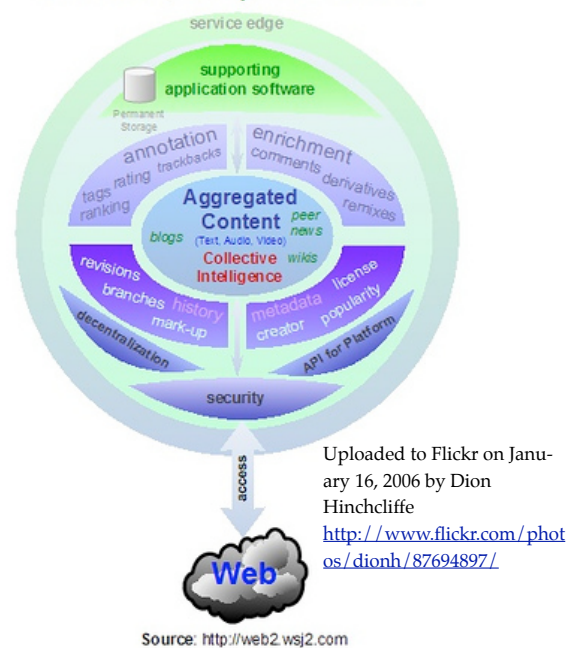
The thorny question of the accuracy of wikis recently hit the headlines when a bitter row erupted between two publishing giants, Nature Publishing Group and Britannica. An investigation carried out by Nature in December 2005 claimed that the scientific accuracy of Wikipedia did not substantially differ from that of the ‘gold standard’ reference work Encyclopaedia Britannica — clearly a great endorsement of the wiki principle (4). However, Britannica dismissed the Nature study as “misleading” and “completely without merit”, and called upon the journal to retract the “fatally flawed” report (7). Despite the surprising vehemence of this rebuttal, Nature has continued to stand by both its data and the conclusions of its report (8).

The issue of accuracy is clearly far from settled, but this clash illuminates the underlying concern that wikis could eventually supersede traditional publishing formats. However, in reality, they are just one of many online technologies that are challenging existing publishing models. The concern over the accuracy of Wikis is also part of a wider debate about the reliability of information on the Internet, an issue that has existed since the inception of the web but that has grown more pressing with the potential for abuse of the radical trust invested in Web 2.0 participants. The Center for the Digital Future, which studies trends in Internet use in the US, has reported declining rates of accuracy in the information available on the web over the last three years, paralleled by an increasing tendency for users to mistrust information available online (10). Case studies of other participatory web technologies have also uncovered significant breaches of reliability: for example, a study of Amazon’s product reviews found that a large number had been copied wholesale between products (11).

This example raises another important issue, that of how participation in the new interactive web is controlled and manipulated. Despite Wikipedia’s open standards, the project is overseen by a number of staff editors who are responsible for removing inaccuracies and inappropriate entries. These editors are not required to identify themselves, and some argue that their control of the project extends beyond removing errors to enforcing ideological control by removing entries that they disagree with or even perpetrating slander against those that oppose them (12). The question of the boundaries between fact and opinion is a difficult one, and one that is bound to occur in some of the scientific wikis listed above: EvoWiki’s statement that it is intended to counter Creationism will no doubt come under fire from those who argue that the latter should be accorded respect as an explanation for the origin of mankind. While information can be accumulated as a collaborative venture, one of the problems of wikis is that they obscure differences of

Elements of Web 2.0-Style Content:

Aggregated information + annotation,
enrichment, history, and metadata



opinion (12). Science is about the cumulative production of information, but it is born from a process of ongoing debate, which can be lost in the homogeneity of the wiki format.

In their favour, wikis are free, have almost unlimited scope, are instantly updatable and carry interactive links to numerous other sources. Yet, at present, traditional books and journals are still perceived by most to be more authoritative and reliable.



Uploaded to Flickr on January 14, 2006

by Ross Mayfield <http://www.flickr.com/photos/ross/86458578/>

A Wiki World?

Wikis clearly have the makings of high-quality global resources if the issues surrounding vandalism and accuracy can be settled. The calibre of the individuals contributing to and monitoring wiki entries will also remain of paramount importance, as recognized in Nature's call for researchers to contribute their expertise in order "to push forward the grand experiment that is Wikipedia, and to see how much it can improve" (9).

The scope of wikis is almost limitless and doubtless much of their potential remains untapped at present. However, during its short history, Wikipedia has achieved massive popularity as an online information resource — ranking 17th among the global top 500 most-visited websites according to the Alexa web-ranking service (http://www.alexa.com/site/ds/top_500) in April 2006. Time will tell whether wikis will co-exist alongside established information resources or whether the future will see a truly wiki world.

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