Opinion

Peer review of scholarly communication in health: Perspectives in the Internet age

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The opinion expressed by the author is his own and OJHAS, or its editorial board or the reviewers may not necessarily subscribe to the same.

Note: **The author publishes and owns Health Library Online on the MedLib – Medical library Gateway web site http://www.medlib.netfirms.com/**

Abstract

Peer review is an established form of trust-marking and ensuring quality of scholarly communications. The advent of Internet has had its impact on peer review also. This paper examines the existing approaches of peer review utilizing the Internet. Future approaches, challenges and proposal of a framework for open peer review of directly published scholarly communication on the Internet is also discussed.
Keywords: Peer-review, Internet, approaches, utilities

Introduction:

The advent of Internet is perhaps the most imperative technology that left its mark in the publication of scholarly communication. The avenues opened up by the nascent and rapidly evolving Internet technologies brought to light the plausibility of a rapid, efficient and cost-effective process of peer review.

The avenues opened up by the Internet were made to use by many biomedical journals. Some journals even have gone further establishing their entire operation online including peer review and publication.

Existing approaches to online peer review in health journals:

E-Mail:

Many Journals have already created a system of operation, which is entirely e-mail based. The major disadvantage of distribution of papers via e-mail is that the size of the paper need to be highly optimized and compressed, often stripping pictures, animations etc,

Discussion approach

Many Journals employ a discussion-based approach in peer review. Medical journal of Australia (MJA)(1) employs this model to ensure open peer review of papers submitted. This is a promising approach and ensures that there is better interaction between the authors and the reviewers as well as the editorial body.

Post review responses

This is a widely practiced approach. The paper goes through the traditional peer review process and is published Online, where readers could post their reviews and responses on the paper. The Rapid response utility in Journals published through HighWire is perhaps the most popular.

Promising new approaches:

Netprints:
Netprints are good frameworks to facilitate peer review. In fact proposals for plausible peer review and publication of papers archived in Clinical medicine Netprints have been formulated (2)

Journals could also incorporate and implement their peer review process through the Netprints. Consensus should emerge among publishers to link back to the archive. Cross-referencing utilizing standards developed by the open citation project (3) may be valuable in ensuring the threading of the draft and responses are kept intact.

Discussion board approach:
The discussion board approach can be utilized for peer review. Anybody could post their opinion beside the paper/article thus facilitating peer review. Reviewers could also have their opinion posted anonymously, thus eliminating bias of any sort.(4)

The major disadvantage of this approach is that there are no uniform standards to ensure interoperability and cross-referencing.

Standards should evolve between journals utilizing this approach to ensure interoperability and interlinking of citations.

Mailing Lists and Discussion Forums:
Mailing lists offers immense potential to ensure speedy review. Mailing lists, unlike other modalities has the potential to take the paper to multiple individuals, instantly.

Wikis:
Wiki technology holds immense potential to conduct peer review. Posting and leaving one's review using wiki technology does not need any prior experience. Though this technology is new to the Internet, wiki websites have been growing steadily (5) from the first wiki site in 1995 created by Ward Cunningham (6)

One major advantage is that wiki and swiki softwares are entirely free and have automatic controls and versioning for every page it generates.
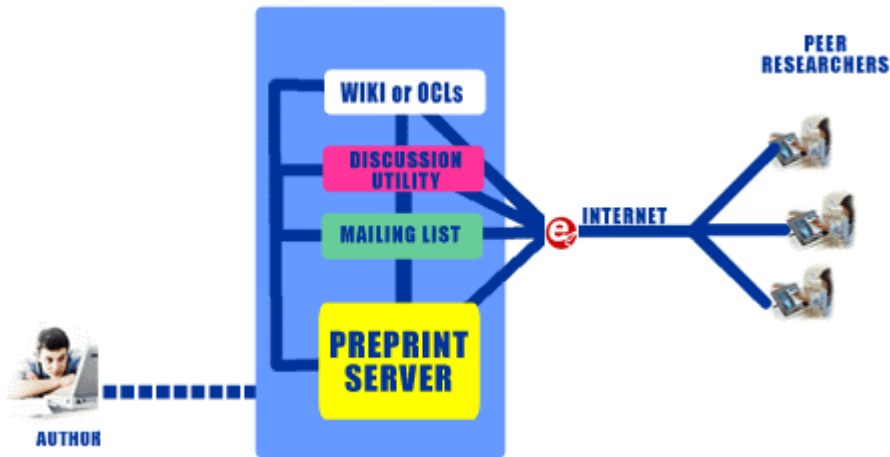
Groupwares
Groupwares are a set of programs that facilitate the working of groups to achieve common sets of goals. It enables group working through its ability to:

Groupwares are a new promise as they are much fitting to the current requirements of scholarly publication where the author, peer reviewers and the editorial staff need to work together.

Using multiple approaches to ensure peer review:
No one single approach to online peer review is infallible. Thus comes in the concept of utilizing multiple approaches. The Health Library Online employs multiple approaches to ensure peer review.


Figure (1): Employing multiple approaches to peer review.

'Scholarly skywriting':
Scholarly skywriting- a term introduced by Harnad (8) and popularized through his journal 'Psycholoquoy' employs a new approach to scholarly communication on the Internet and peer review (9). In 'Psycholoquoy', an article once posted on the server employs continuous peer review and rewriting. The comments of the peer reviewers are followed by the response of the author, thus promoting a didactic dialogue on the topic.

Proposed peer review approach in an Internet Journal:
Here we discuss the Peer review approach proposed in an Internet Journal Health Library Online (4). Health Library Online is a new generation Internet Journal built on the concepts of open access and peer review. The journal was launched in January 2003 and has a multi approach online peer review policy.
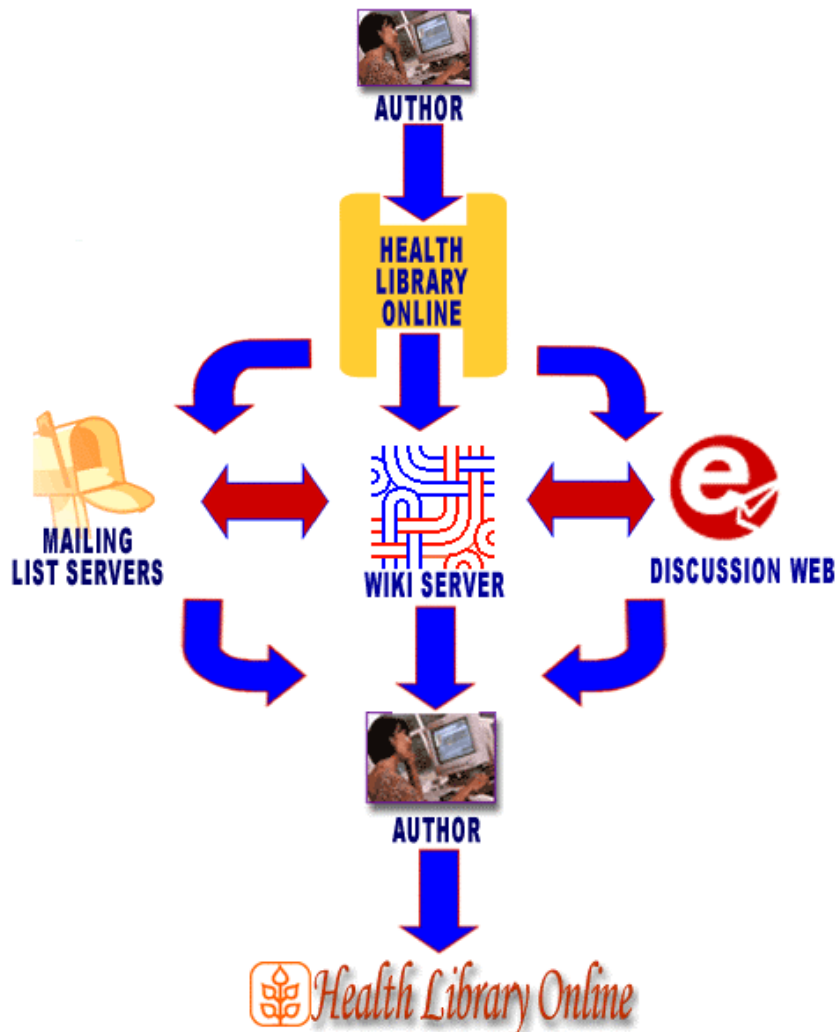
PROPOSED PROTOCOL FOR PUBLICATION IN HEALTH LIBRARY ONLINE

Figure (2): Proposed protocol for peer review and publication in Health Library Online.

According to the proposed protocol the papers/Articles submitted to Health Library Online (HLO) is first evaluated for appropriateness and directly posted on the discussion web, wiki server and multiple mailing lists simultaneously. The responses generated are filtered and send back to the author. The paper is rewritten and submitted to HLO, which makes its way to the permanent archive with links to the original articles and responses (reviews). The archives also has facility for readers to leave their responses, thus the paper published maintains links to all the threads from the submission to final publication.

Thinking Beyond Journals: Peer Review Of Directly Published Scholarly Communication On Internet

Thinking beyond journals is perhaps the need of the hour. With the advent of Internet, many authors found that direct publication of their papers was more efficient in getting their research to a wider sphere. But peer review as a 'trust mark'- to ensure quality is obviously lacking.

Internet itself offers a solution to this problem. A framework of open peer review would enable these articles to be peer reviewed by the collective efforts of individuals who sift the Internet every day. Anybody who would find an assumption baseless and not supported by adequate research could instantly alert by leaving his comment so that others who might be adversely affected by that piece of information would probably be informed.

This concept is altogether not a new one. The MedPICS (10) had visions to trust mark medical information on the Internet, which later paved way for the MedCERTAIN(11)

Proposal for a framework for open peer review of scholarly communication on internet:

Here we propose a framework for open peer review of directly published scholarly communication on Internet, which envisages

i.   Setting up databases on different health specialties, which would archive critical information on the web page that contains the article, and archives review data on the article.

ii.   Submitted websites are reviewed for the compliance with an ethical code of conduct (such as HON Code (12))

iii. Critical data and a cache of web page is archived on database.

iv.   The author is provided with a unique HTML code, which on inclusion to the page will provide with an online interface for open peer review and will exhibit a trust-mark.
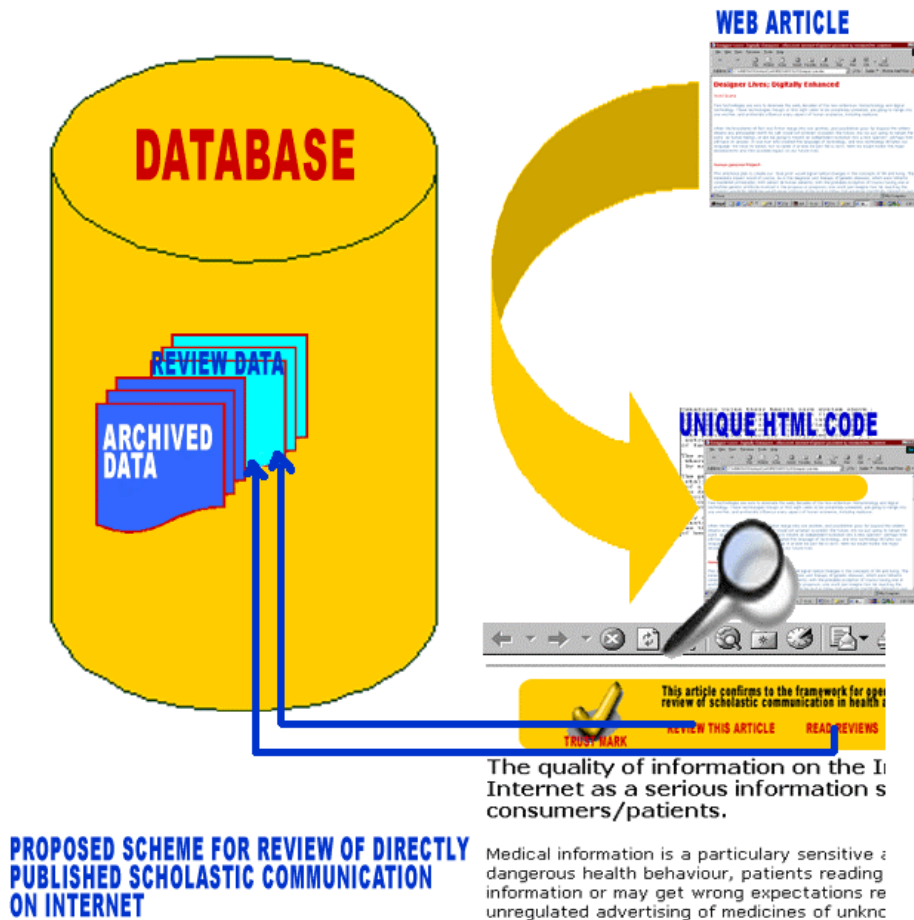

Figure 3: Proposed framework for open peer review and trust-marking of directly published online scholarly communications in Health.

To ensure unbiased, and ethical operation of the system, the following need to be ensured.

i. Review data is exclusively and permanently stored on the server.
ii. Provision of a trust-mark and interface that are dynamic in nature- thus avoiding misuse of the trust-mark
iii. Ensure a transparent policy of de-linking of the web page in case of misconduct. De linking would remove the trust mark and web interface.
iv. Create a transparent evaluation system to collect evidence on misconduct and malpractice.

Discussion:

Peer review on the Internet can be accomplished utilizing different technologies and utilities. It should be emphasized that any single approach would be heavily dependent upon user experiences and moreover the real value of open peer review is in multiple participation (13).

Most of the visitors to a website are through indexing services like search engines, Pubmed links for indexed journals, to name a few. The ranking of websites in search engines are highly dependent on web 'citations' (14)(15), analogous to the Impact in Journal ranking, any peer review policy to take off need to be directly linked to a website which draws maximum web citations and thus maximum number of visitors.

A major hurdle hampering the take off of new technologies is the absence of frameworks for interoperability. There is no framework that would enable automatic harvesting of responses/reviews generated through different platforms and compile and thread them. There is also no common standards and protocols to ensure cross citations and referencing interoperable on all platforms for pre-publication, peer review and final publication. The Open citation project (2) is something very close to realizing this dream.

It is equally important to consider and implement a framework to ensure quality of directly published scholarly communication on Internet. Scholarly Communication in Health, unlike their counterparts in other subjects are highly prone to adversely affect the health and life of people (15).
Alternatives for peer review as a 'trust-mark' have also been suggested given the fact that most of the high quality articles on the net are not peer reviewed. (16)

Open peer review of these communications provides for a plausible solution to this dilemma (17). But before we could implement such a system a uniform consensus on the framework and protocols for inclusion and exclusion of web pages and for ensuring cross-referencing and interoperability needs to be created. I hope this paper would kindle thoughts and research in this direction.

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