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View Point

Priced literature: a bottleneck to wider applicability of scientific evidence

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Abstract
With the advent of internet, scientific publishing has been less costly. Anyone at any corner of the world can benefit from the recent evidences generated by the scientific community, given that no mechanism to prevent such access exists. In practice, however, this huge potentiality of benefitting from science has been limited by the narrow paywall of academic publishers. This paper talks about the potential inhibitory effects priced literature can have on the applicability of scientific achievements and the latest activities aimed to discourage priced literature. These days, most of the journals are converting them from traditional subscription based model to new OA model, which is just a transformation from 'pay-to-read' to 'pay-to-publish' model. In countries like Nepal, where academic publishing hasn't grown as a business, most of the journals are self-sustained with alternative mechanisms of funding the costs incurred.

Keywords
information dissemination; access to information; literature; academic publishing; Nepal.

Background

Thanks to the internet! No matter whether the paper is dated back to the early 50s or be in its prepublication stage, we can easily track any piece of health science. We have a necessity to gather the existing scientific achievements in the area of interest, that's too easy. We can easily search for the current body of literature and narrow them to a list of papers potentially relevant. However, we will not be able to retrieve most of these papers unless we, or our institution pays for them. Is anything more discouraging for a reader or a researcher or a patient than this?

The pace of progress of the body of science is so rapid these days that a major portion of the knowledge we earn today will be obsolete within a decade. Those in need of health services can access the latest medical evidence, and the developing nations could utilize the most of recent research findings to build the pillars of public health and development. But this potentiality is largely denied by placing a price-tag to science. No doubt, this denial of access curtails the right to health and information. When a medical practitioner or a researcher is denied of full access to fellow researchers' work for being unable to pay, it surely impedes their work and the quality of their service delivery. A student won't be able to complete his/her assignment nor will a referee be able to make a sound review of any manuscript in absence of complete access to the fellow's work. If the access of 'public' is largely limited, can we still call it a 'publication'? Sure, No. But we still do.

Scientists document the evidence they have gathered in journals. This documentation by the journals in scholarly domain serve mainly the interest of registering the ideas of the authors and developing the existing base of knowledge, providing appropriate credit for the discoveries, validating the genuineness of the

work by thorough peer review, and disseminating the study findings. Evidence of higher scientific impact of studies freely available than those covered by paywall is available (1). This supports that in the absence of free access to the existing volume of literature most of the objectives of scientific journals are inadequately met.

Burden of priced literature

In academic publishing, transaction is unique in the sense that scholars are the ones who produce and peer-review the scientific papers for free while they are charged a hefty amount for the privilege of accessing the fellow scholars' work. Pricing the literature has become a big business. English-language STM journal publishing alone produced an estimated revenue of 9.4 billion USD in 2011 (2). The Faculty Advisory Council of Harvard University, one of the well-off universities, in a memorandum quotes that annual cost for subscription to the journals cost library around 3.75 million USD which is in its own term 'fiscally unsustainable' and 'academically restrictive' (3). The price for access to the online content is skyrocketing, exceeding library prices indices and the consumer price index (3). For instance, University of California-Berkeley had increased their journal expenditures in 2001 by 1,300% of the expenditure in 1978 (4).

Most of the school libraries do not have enough resources and have to make a forced decision of discontinuing the subscription. By this, the students must limit their learning on what's available to them rather than what they need. For sure, it isn't how science can progress.

Actions carried out to discourage the system of priced literature

Scientific publication is under the domination of few publishers. Namely, Elsevier, Springer and Wiley together hold the share of 42% of all the journal articles published as of estimates of 2002 (5). With the acceptance for publication in the journals of these publishers, authors have to surrender their copyrights which prevent them from sharing their own content anywhere online, a university repository or a personal website. In January 2012, a British mathematician Timothy Gowers declared in his blog that he would neither submit any papers nor review them for any of the academic journals published by Elsevier (6). A fellow inspired by him set up a website which currently has more than 14,000 signatories who have expressed their commitment to refuse to either, submit, referee or do editorial work for any of the journals published by Elsevier (7) The website claims that the publisher charges unnecessarily high price, sells its journals in bundles with unnecessary journals together with few necessary ones and limits the free exchange of information (7).

Recently, Harvard University has encouraged its faculty members for making their research available freely through OAJs and to resign from publications that keep scientific articles behind paywalls and under the control of publishing companies (3).

Dr. Randy Schekman, a Nobel laureate criticized the 'top-tier' journals of damaging science claiming they artificially limit the number of papers they accept for their self-promotion (8). In his article, Dr. Schekman has argued that OAJ is a superior alternative to traditional scientific journal for the reason that it is not concerned with the sale of subscriptions and can accept all the papers meeting the quality standards (8).

It has been set mandatory for the publishers to make all of the papers arising from projects supported by Research Councils UK to be freely available within a set period - 6 months for most biomedical research (9). USA has a similar provision that mandates the NIH funded research to be open access after an embargo period (10). Ireland has set up a requisite of deposition in an online repository for the publications arising from publicly funded research (11).

To lessen the inhibitory effects 'pay-for-access' model can have on the medical professionals, health researchers, and academics in low- and middle- income countries, WHO has developed HINARI as a part of Research4Life programme with major publishers. It provides access for up to 13,000 journals in 30 different languages and up to 29,000 e-books to the health institutions in more than 100 countries (12).

However, the benefit gained from the initiative Research4Life is doubtful. For instance, Institute of Medicine, which is one of the major institutes in Nepal established with the objective of conducting health researches besides providing health services and production of human resources for health, has stopped providing HINARI access to the students citing that someone used a 'crawler' downloading a huge bulk of papers. Still, this effort by WHO can be considered as a right move in the right direction.

Open Access and experiences from Nepal

After the advent of the facility of internet, concept of OA has bloomed rapidly. The essence of OA is that anyone in any part of the world has free access to the publications (13). There are two distinct types of open accessibility to scientific research: Green OA and Gold OA. Green shade of OA includes the archival of any of the versions of the manuscript by the author himself/herself while the Gold OA covers the costs associated with publication from the author or the institution author is affiliated to (13). Recently, Elsevier launched takedown requests to remove the papers published in their journals from the website of universities and social networking site under the right guaranteed under DMCA (14). This 'huntdown' by the publisher which holds a major share of the scientific research papers is sure to cause a huge setback to the Green OA.

Charging the author, academic institution, professional organization, or government for covering the editorial, copyediting, layout, and hosting costs have generated a new range of challenges. The practice of 'predatory' publishing for profit-generation has been reported (15). Similarly, the need to pay for covering article processing charge and other charges associated with publishing will yield additional burden to research sector, which is already underfunded in developing countries like Nepal. As the price-tag from the scientific literature is still not lifted, Gold OA is rather a transformation from 'pay-to-read' to 'pay-to-publish' model. As waiver for researchers without source to fund the publication charge is limited in number in many of the journals with 'pay-to-publish' model, its inhibitory effect on the parts of the world where studies are already scarce can easily be predicted.

Almost all of the journals in Nepal are managed either by an university or an educational institution, association or society (16). These journals neither charge the authors for publication nor the readers for online access. Publishers in Nepal manage the cost of academic publishing from the fund of universities, educational institutions, association, societies or advertisements. This has been possible as the process of peer-review is unpaid and mostly voluntary and staff related costs are kept minimal possible. This model of fund generation for publication, which is followed by many of the 'local' journals around the world, is appreciable and challenges the prevailing system of charging the authors or readers that many 'mega' journals follow. And yes, these journals are publishing world-class science!

Conclusion

Priced literature has left the potential achievements and the opportunities of wider applicability of science under-explored. Right to information and right to health cannot be fully exploited unless we free science from the price-tag. Placing a price for access to scientific literature is not justifiable from an ethical point of view as it inhibits the optimum utilization and proper utilization of the existing base of scientific knowledge. Promotion of 'local' journals, waivers in article processing charge and alternative funding for covering article processing charge and providing access to scientific literature can help in limiting the effects of priced literature. Though few attempts to remove the price-tag of literature are seen, they are not necessary enough.

Abbreviations

DMCA: Digital Millennium Copyright Act; HINARI: Health Inter Network Access to Research Initiative; NIH: National Institutes of Health; OA: Open Access; OAJ: Open Access Journal; STM: Scientific, Technical and Medical; WHO: World Health Organization.

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