

Surfing, Diving, and Epistemological Pleasure

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In spite of widespread belief that we live in the era of immense scientific expansion, true science is much more uncommon than we would wish. It is especially true when it comes to medicine and medicine-related studies and practices. What is really common in these areas is not science, but scientific method. The difference is not apparent at the first sight, so let us use some examples for illustration.

What characterizes true science is some kind of *l'art pour l'art*, ie, science for science's sake. The main actuator of science defined in this way is curiosity and the main goal of this "true" or "pure" science is knowledge irrespective to its usefulness. Throughout history, mathematics and astronomy have been typical representatives of pure science, as most of mathematical discoveries did not produce many more rewards to their authors than compliments and envy from colleague mathematicians. Some discoveries did not produce any rewards – let us mention only one example: Galilei's troubles with the Roman Inquisition due to his stubbornness in defending the idea of heliocentricism. In other words, pure science is emancipated of purpose. This concept was originally formulated in the 11th century by one of the key figures in developing of scientific method, the Iraqi polymath Ibn al-Haytham (1): "Truth is sought for its own sake. And those who are engaged upon the quest for anything for its own sake are not interested in other things. Finding the truth is difficult, and the road to it is rough."

NO MORE EUREKA

On the contrary, modern medicine and medicine-related areas, like pharmacology and biotechnology, are thoroughly reduced to purposefulness and applicability. The main reasons for engaging in "purposeful" and "applicable" scientific research are quite different from "truth for its own sake." Some people choose science as their profession and design their education to better implement the

scientific method as professional researchers or scientists. Curiosity and searching the truth "for its own sake" is not so desirable in modern scientific settings as Galilei or Ibn al-Haytham would like. This is especially true when it comes to modern clinical research settings. Research protocols are thoroughly standardized; goals determined; hypotheses formulated; evidence made observable, measurable, and reproducible; ethical committee approvals required; timelines respected. Not much space is left for fantasy and curiosity. Modern clinical researcher who adheres to this scientific method can hardly expect the anecdotal joy of Archimedes, who took to the streets crying "Eureka!", so excited by the discovery of his principle of buoyancy that he forgot to dress.

When it comes to the motives of scientific research, a good deal of medical and medicine-related studies are financed by private companies, ie they are profit-driven. As investors are in most cases the owners of results, many researchers do not have the power to publish their own results if the investors oppose publishing for any reason, thus being alienated from their research.

Similarly, many clinical institutions incorporate the scientific method in their routine work, so that the collection of clinical data are a normal part of administrative work, sometimes highly bureaucratized and thus alienated from clinicians.

QUANTITY CONCEALING THE QUALITY

Desktop publishing technology has immensely facilitated the production of books and in the last decades we have witnessed the exponential growth in the number of book titles. However, there is no evidence that the quality of literature is better or that the number of good books is greater than before the desktop publishing era. In some way, the literature is harmed by the overproduction of books,

and it is harder than ever before for the ordinary reader to recognize a valuable one among the overwhelming number of books offered on the market.

Similarly, it is hard to believe that massive application of scientific method could produce more genuinely good science, or that good education in scientific method would produce more scientists driven by genuine pleasure of "Eureka!" for its own sake.

Modern scientific production is highly regulated, professionalized, profit-driven, and efficiently deprived of epistemological pleasure.

Paradoxically, a lot of this pleasure that disappeared from the quest for new biomedical knowledge is relocated to the area of distribution of knowledge. The world's greatest ever repository of knowledge, Wikipedia, is driven primarily by passion of its contributors (2).

Wikipedia is a free, multilingual encyclopedia project with 13 million articles (2.9 million in the English Wikipedia version) written collaboratively by volunteers around the world, and almost all of its articles can be edited by anyone who can access the Wikipedia Web site.

DARWINIAN DATA SELECTION

Critics of Wikipedia accuse it of systemic bias and inconsistencies, and target its policy of favoring consensus over credentials in the editorial process. Wikipedia's reliability and accuracy are also an issue, although Wikipedia officials are quick to point out that the Wikipedia only supplements core articles which will continue to be provided by appropriate experts.

Other point of criticism is centered on Wikipedia's susceptibility to vandalism and the addition of spurious or unverified information (3).

Many Wikipedians collaborating on biomedical wiki-articles have certain expert knowledge, usually being medical students, physicians, or researchers. However, Wikipedians' contributions are more or less anonymous and their expert credentials cannot be formally verified, except by constant and thorough scrutiny of their contributions performed by other Wikipedians collaborating on the same or similar projects. This verification is very efficient, as research suggests that vandalism is generally short-lived, often not more than a few seconds (4). With the enormous

influx of users, an almost Darwinian attitude prevails: only accurate information can survive on Wikipedia (5). Anybody who has spent some time collaborating and contributing to the Wikipedia can witness that the site's policies and guidelines, and Wikipedians' almost-fanaticism in demanding the documented references certainly ensure accuracy. Indeed, all Wikipedia entries must include references, except for "stubs," very short articles in need of expansion.

SURFING AND DIVING

There is another important reason why medical professionals should contribute to Wikipedia, especially in their native language (besides English, there are 265 Wikipedias in other languages). Patients' habit of using the internet as a source of health information is notorious (6), and there is hardly any physician who was not faced with a patient waving a bundle of medical information freshly downloaded from the internet. Web surfing is a great thing: smooth gliding moves you fast and far away across the surface of the data ocean. However, real knowledge and understanding lie deep down, and one has to submerge in order to reach it. Many of our patients can hardly see the difference between surfing and diving for medical information, and sometimes it is wiser to steer their surfing than to try to prove them the worth of clinical pearls we collected in our medical diversings.

The most popular web browser, Google, sorts the results using the special algorithm that evaluates the number of links to a particular web page. As all Wikipedia articles are abundantly interlinked to each other, they are very often the top return given on Google. Wikipedia is among the top-ten most visited Web sites in the world (and the only non-profit one), so there is high probability that the papers in your patient's hand would be the downloaded from Wikipedia. The more data we, health workers, put on Wikipedia and the internet in general, the more we steer our patients' surfing.

As a long-time Wikipedian, I contacted some Wikipedian physicians in order to find out their experiences about contributing to the Wikipedia. Here is what one of them told me: "I enjoy editing Wikipedia very much, and not only medical articles. This is a cool hobby. But the coolest thing was when a patient brought some printings about his medical condition from Wikipedia into my office. I glanced through the papers briefly: 'I know what it is in it. I put it on Wikipedia by myself.'"

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