A Step-by-step Primer for using the Internet for Medical Education

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This article intends to handhold individuals in exploring the Web judiciously, for educational and / or research purposes, by following some simple steps.

There are certain ways to tackle the "information explosion" in the cyberspace. There are lots of excellent tutorials available on the Internet and just by going to Google, adding "tutorial" at the end of the query phrase retrieves very useful resources.

A simple way of finding any definition (on any subject) is to use the word "define:" before the term in question, e.g., "define: Internet" in the Google search bar. This will retrieve all the definitions of "Internet" available on the World Wide Web.

Another quick start is to go to Wikipedia and in the page on the queried topic; all the relevant terms are hyperlinked. Also, there is a Section of "References" towards the end, and also a host of useful "External links" is listed at the end.

Next is to retrieve useful resources from "Open Access" journals and repositories.

Finally, confident users can become experts in interacting actively through Wikis and Blogs.

However, there are certain areas of concern in uploading materials in the wikis and blogs – that is the Copyright of the material. A cultural change in the mindset is required to adopt the new technologies usefully in our setup. Training and awareness in "Netiquette" is of utmost necessity to have fruitful social interactions and useful learning. Access, training (raising awareness) and support to appropriate information and communication technology (ICT) are essential.

Keywords: World Wide Web; Tutorials; Open Access; Medical education and research;

Introduction

Often the Internet and the World Wide Web (WWW) are alluded to as rich sources of resource materials for anything, including information pertaining to medical education and research. However, we are not able to harness the resources optimally because of being overawed by the technology and easily getting lost in the plethora of information provided! This short communication intends to sensitize individuals in exploring the Web judiciously by following some simple steps.

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Some Applications

The rapid technological advent, reduction in web hosting charges and the steady and incremental access to the entire Internet have paved the way (Sarbadhikari, 2007) for various "Open Access Journals" (Suber, 2004). Therefore up to date research findings are available free of cost at the click of a mouse.

There are also common Web-based interactive tools (so called Web 2.0 applications) like,

(a) Wikis (collaborative writing of high-quality – the best example is Wikipedia [http://en.wikipedia.org])

(b) Blogs (individual sites containing writings and uploaded materials – one such example is [http://clinicalcases.blogspot.com/]),

(c) Podcasts (multimedia materials transmitted through the electronic media).

All these are excellent platforms for collaborative and organized learning (Boulos *et al.,* 2006).

Another useful application is eGroups for discussion on various topics of interest within the domain of the users.

However, an important area of concern is the "Copyright" issue for the multimedia materials which can be uploaded in the various web spaces. Albeit most of the Open Access publications allow free distribution with attribution to the author(s), it is of utmost importance to check the copyright notice before uploading or downloading any resource from the Web.

How to Start?

There are loads of excellent tutorials available on the Net. Simply by going to Google, adding "tutorial" at the end of the "query phrase" within half an hour anyone can become much wiser on any topic!

One of the useful ways of finding any definition (on any subject) is to use the word "define:" before the term in question, e.g., "define: Internet" in the Google search bar. This will retrieve all the definitions of "Internet" available on the World Wide Web.

Another quick start is to go to Wikipedia and type in the search bar "Internet" and that will take us to the page [http://en.wikipedia.org/wiki/Internet]. From there all the relevant terms are hyperlinked, there is a Section of "References" towards the end, and also a host of useful "External links" are listed at the end.

What Next?

We have to ensure that we create high-quality (research and education) content and also upload them in Open Access sites (Sarbadhikari, 2004).

A cultural change in the mindset is required to adopt the new technologies usefully in our setup (Wyatt & Sullivan, 2005).

Access, training (raising awareness) and support to appropriate information and communication technology (ICT) are essential.

Often we tend to take "online transactions" very casually and that can be rather detrimental. Training and awareness in "Netiquette" is of utmost necessity to have fruitful social interactions and engage in useful learning.

In the case of educators, while planning to develop online curricula, the students' needs and preferences (time, place and pace) should not be forgotten in the lure of widely available and useful technology. Definition of learning objectives should precede development of new educational content. The end users (students) should be involved in design and development of the content.

Two Practical Examples

Let us discuss the role of processing information (informatics!), before starting the actual search in cyberspace, with a couple of examples.

I.   A 70-year-old man, presenting to the casualty at late night, complains of loss of energy, trouble concentrating, decreased appetite, and insomnia. He has lost considerable weight since his last visit and appears dishevelled. How would you approach this case?

On reviewing this scenario, you can easily see the age group of the man ("geriatric" or "elderly") and also that he has symptoms suggestive of some form of "depression" (may be primary or secondary which has to be determined later). Here, the best way to find evidence will be to frame a search phrase like "geriatric depression differential diagnosis" and search through popular online resources like Google or e-Medicine. On the other hand, if you try to find answers to each of the symptoms randomly in the World Wide Web, you may not get the answer to the question of exactly how to approach such a case – what are the emergency precautions to be taken? If you go through the first 3 or 4 pages retrieved with the above search phrase from popular resources such as Google or e-Medicine, you come to know the increased risk of suicide in such a case and exactly what

questions should be asked to get a hint about his suicidal ideation and state of mind. Also, the importance of the drug and alcohol history, medication history and family history would become readily apparent.

II. A person from South Africa appears to be suffering from lethal encephalitis. What could be the causative agents?

In this particular case, the key words are "lethal encephalitis" and "Africa". Therefore the search phrase should include these terms. Google will return with "West Nile Fever", "Trypanosomiasis" and "Mokola virus" right on the first page. Now you can try your hand at eMedicine, PubMed or any other trustworthy sites like that of the CDC and WHO to find more about these conditions.

Conclusions

The test of the pudding is in eating! Once we overcome the initial hurdle of "framing clear-cut (unambiguous) queries" for

searching, half the job is done. Then we have to locate appropriate answers – suitable to our conditions. Happy surfing!

If any reader is curious to know more, or any of the tricks mentioned above do not work, please do not hesitate to contact me (electronically) at the email identities mentioned along with my affiliation!

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