Internet communication at all education levels

Djurdjica Tezak

University of Zagreb, Faculty of Science, Chemistry Department
e-mail: djurdjica.tezak@zg.tel.hr; URL: http://www.chem.pmf.hr/~tezak

INTRODUCTION

There is no doubt that Internet communication technology today is crucial at all the education levels, but also including the traditional media. Meanwhile, comparing the traditional and Internet communication, there are considerable improvements of the communication technology and methods by using Internet as well. This concerns the specific methods and values, sharing and exchanging ideas and resources. Various tools are available using the virtual multimedia, such as e.g., multimedia applied to the interactive learning, online learning, distance learning, long-life learning, training for trainers, etc. In addition, exchanging information using the Internet within the sphere of research presents an unavoidable tool for the access to the world scientific society, as well as creating the good basis for the teaching process.

INTERNET COMMUNICATION

Web as a collaboration tool, and the search tool at every level of education, and useful for the creation of new knowledge as well, can be used at every education level, even for day-care children, for pupils, for students, and for everyone. The communication can be realised either between a user and the computer, or between students and teachers. It is used as a basic tool for the online learning, for the distance learning, and generally for the long-life learning.

Today, for education in Croatia the important questions rise: (1) How to introduce the distance education with an intention to cover the whole country, (2) How to achieve the world level of education, and even, how to improve the quality of it?

EDUCATION' WEB

Some answers to the posed questions will be given in this paper presenting the examples from: (i) special search engines, particularly **EduHound,** and the search engines for schools, families and small children, (ii) special databases, particularly **SciFinder Scholar** from *Chemical Abstracts Service*, and (iii) the *Tutorial* on *"Searching the Information on the Internet"* published in the Croatian language. In addition, a special search engine with tutorial database, **findtutorials**, will be presented.

(i) SPECIAL SEARCH ENGINES

Only two special search engines will be presented among many of them that offer the education' Web.

• **EduHound** <http://www.eduhound.com> is a new search engine for education, families and children, possible in text and HTML format, with different search menues in seven main categories:
(1) "Everything for education" - a prescreened category of more than 20.000 links in over 50 categories, e.g., art, business, educational & general, employment, family, history, lesson planning, library & research, one computer classroom, science, student resources, teacher resources, , worksheets, etc.;
(2) "EduHound HotList" <www.eduhound.com/hotlist> - a dynamic teaching and learning tool for educators, students, parents, or anyone exploring the World Wide Web. it is possible to sign up for free and to create the own unique Web page of educational resources;

(3) "Edumatch" <http://www.eduhound.com/edumatch/main.html> - the educational software matched to the users teaching style and all the features one prefer. It brings thousands of curriculum software titles by over 150 publishers, plus volume pricing, publishers' specials, new products, reviews, and special features;

(4) "Awesomeclipart for kids" – Web pages, colouring pages banners, fonts, lines, worksheets with aliens, animals, creatures, robots, sports and more, all this created by 13-year old webmaster, for teachers, kids and families for all ages;

(5) "Eduhound TeachNow" – proposal for customised electronic teaching materials;

(6) "Eduhound Schools on the Web" – a directory of USA schools and districts on the Web categorised by tha state and type;

(7) "Eduhound classrooms on the Web" - a directory of USA classrooms on the Web categorised by the state and grade level.

Learning in Spanish language is also possible.

An example of searching from the category: "Everything for Education": after the URL is signed in, clicking on hyperlink to open the next page, the number of links from educational area could be open. If we choose the link SCIENCE, and afterwards, "Periodic Tables", we could get 12 hits of sources:

> Keywords: **Science** - Periodic Tables
> Results 1 - 12 shown
>
> From the next results we could choose:
>
> Element Games
> A collection of games based on the Periodic Table of Elements designed to help students learn the names and symbols of the elements.
> Web Address: http://www.jlab.org/services/pced/indexpages/elementgames.html

At the end we could get the Periodic Tables containing map-links for each element; each map-link opens the page with the relevant properties of the element:

> It's Elemental - An interactive Periodic Table of Elements listing basic physical and historical information.

In addition there is "FREE" newsletter for educators, **EduHound Weekly**, which one can get by e-mail query to the URL: <http://www.eduhound.com/eduhoundweekly.cfm>. Besides all the past issues of Eduhound Weekly are archived; therefore if you missed an issue, misplaced an issue, recently subscribed, receive the text version and want to see EduHound Weekly in its colorful HTML format can be found on the revised "Subscriptions & Archives" page.

• **alltheweb** <http://www.alltheweb.com> searches Web pages, pictures, videos, MP3 files and FTP files.

An example of searching for the query: DISTANCE LEARNING, gives us 70 results of thousands pages found. We get links from different areas, e.g., "Distance Learning Portals", "Teaching Resources", etc. Over 789 examples of how the web is being used as a medium for learning, and in addition, the collection of the ways how the web was being used in different disciplines, can be found.

This searchable collection includes the sites that range from courses delivered entirely *via* the web to courses that offer specific activities related to a class assignment or perhaps courses that offer class support materials *via* the web.

An example among many from the link:

> **Teaching & Learning on the Web**
> A large, dyanmic, searchable collection of hundreds of web sites that are used for learning. Use our web forms for adding to the collection!
> http://www.mcli.dist.maricopa.edu/tl

(ii)   DATABASES

Databases of **Chemical Abstracts Service (CAS)** <http://www.cas.org> and **The Scientific & Technical Information Network (STN**, **STNEasy)**
<http://www.fizkarlsruhe.de/stnoweb.html> will be presented.

♦ **CAS** (Columbus, Ohio, USA) is a producer of the biggist and the most comprehensive databases dealing with chemical information, including over 16 millions of documents. The new databases (2001) offer very easy search of chemical information using navigation tools:

♦ **SCIFinder** searches by author, keywords, and chemical structures; besides, analyses, sorts, and visualise results;

♦ **SciFinder Scholar** is suitable for academic needs, and it is not available for commercial and corporate uses. Contains also links to every cited literature source, browses journal contents, and searches MEDLINE.

♦ **ChemPort** enables Web access to the full text and graphics for the chemical journals of the leading editors. It clasiffy searching of the editors and journals, and uses alphabetic links.

An example of searching **SciFinder Scholar 2000** [1]:

No matter where you start your SciFinder Scholar exploration - chemical substance or reaction, research topic, author name, document identifier, company name or organisation - you will see a bibliographic list of hyperlinked citations in your answer set.

To see how citation linking works, start by clicking **Research Topic.**

♠ Searching in the database starts with **Explore** and **Select One.** Enter a research topic. Click **OK**,

♠ Site "***Explore by Research Topic***" opens, enter a query,

♠ Site ***"Topic Candidate"*** opens, the literature citations can be found. Click in the check box to choose the candidate list, then click **Get References** to display the list of bibliographic references.
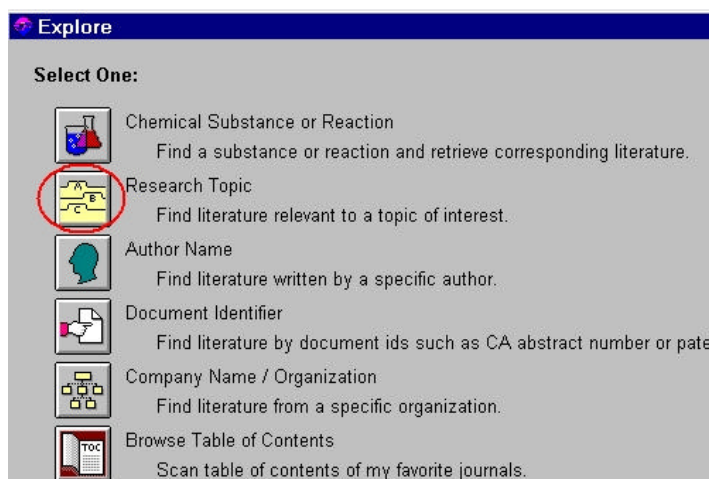

Figure 1. Start of searching in the database **SciFinder Scholar 2000** (CAS)

Then one can view the complete record from the **CAplus** or **MEDLINE** database. Or if one wish to view full text, SciFinder Scholar has the ChemPort ^{SM} Connection option. The full text of patents or electronic journal articles to which the user (academic or organisation subscribes) can be retrieved.

♦ **STN** uses the accsessibility *via* CAS databases or *via* the access ***"STN on the Web".*** The types of documents are the articles in journals, articles in books, books and patents. Subjects in databases are from science, technology, business, and patents in CLUSTER databases, e.g. *BIOSCIENCE (Bioscience Literature Cluster), TOXICOLOGY (Toxicological Information Cluster), COMPUTER (Computer Science Cluster), etc..*

(iii) **TUTORIALS** are very important on the Web, many of them for learning about the Web and learning on the Web.

♥ **tutorialfind**   -   the   search   engine   <http://www.tutorialfind.com>   recommended by **EduHound**.   Launched in July 2000, it is a unique online educational resource devoted to offering the very best tutorials on the Web. Today we are the world's largest online tutorial directory with over 3500 tutorials in over 300 categories; **tutorialfind** links to the highest quality tutorials on the Web today. From the Table of Contents it can be linked to the electronic books and articles.

An example among many from the link CALCULUS that opens the Chapters of the book:

1. Review for Calculus---Click here to go over some essential review topics that are necessary to know before diving straight into Calculus.
2. Limits---Click here to learn about limits and the different properties that they possess.
3. Derivatives---Click here to learn what a derivative is and what it means to calculus.
4. Applications of Derivatives---Click here to learn about the different applications of derivatives.
5. Introduction to Integrals---Click here to review a brief introduction to integrals.

♥ **findtutorials**   <http://www.findtutorials.com> - the tutorials search engine offers over 4.000 tutorials accessible by Web. Searches all words, searches any word, searches Tutorial's description from the categories:

Arts & Humanities (164)
Dancing, Drama, Floral Art, more... Automotive (80)
Business & Economics (176)
Business Plans, Consumer Issues, Economics, more... Career Planning (43)
Positions, Preparing for Interviews, Searching for Jobs, more...
Computer & Internet (2585)
Databases, Game Design, Hardware, more... Crafts & Hobbies (60)
Education (142)
Geography, History, Mathematics, more... Food & Cooking (39)
Health & Fitness (106)
Birds, Cats, Dogs, more... Social Science (154)
Languages, Philosophy, Psychology, more...
Society & Culture (64)
Astrology, Crime and Justice, Family Genealogy, more... Sports (70), etc.

An example: from the link EDUCATION following hits can be found:
Geography (2) History (19)
Mathematics (81) Science (28)
Test Preparation (8)
An example:
from GUIDE TO LEARNING ON THE INTERNET 1142 hits are found. Furthermore, by choosing the link **Guide to Learning**, the steps which help anybody to learn are cited:

- learn stuff on the internet? (read this first)
- decide which resources to learn from?
- learn with reference works?
- find more information about a topic?
- learn with web pages?
- learn with sounds, video and pictures? (multimedia)
- learn about news? (current events)

♥ **Tutorial with Excercises: "Internet i World Wide Web: Pretraživanje informacija na Internetu" ("Internet and World Wide Web: Searching the information on the Internet")** - a printed version of the tutorial in Croatian language (Web version and CD-ROM are in preparation).

The tutorial can be useful guide to the Internet for all classes of students' population, and for everyone, as well. Many literature sources concerning the other tutorials [2-5], glossaries [6-13], and the useful Web addresses [14-16] are given. The contents include: Introductory part (information communication technology, databases, learning on the Internet), Net Sources

(evaluation of Web, citing of net information sources), and sixteen chapters with exercises. The chapters are describing: (1) Web, Internet, Web sites, Web pages, URLs, link, hyperlink, e-mail; (2) Search engines, meta-search engines; (3) CARNet; (4) Croatian search engines; (5) Croatian databases; (6) Croatian and world daatbases; (7) Virtual library; (8) Digital library; (9) Digital bookstore; (10) Croatian chemical society, Croatian libraries and journals; (11) World Chemical Club, ChemWeb; (12) European libraries on the Internet; (13) Publishers on the Internet; (14) Virtual museum; (15) Access to the information in the Information age: how to find the original paper either in the printed form, in the printed form and on the Web or on the Web; how to find numerical data, patent, and impact factor, as well; (16) Near future of the Internet, new projects.

CONCLUSION

Information communication technology (ICT) enabled a fast communication, and it became a condition for information literacy. The basic condition for a development can be considered by using information tools, and developing information literacy at all levels of education, for distance learning, for everyone; concerning schools a great consideration has to be dedicated to training for trainers. Therefore, the great importance is supposed to be given to the implementation of ICT into the education, and to customise the electronic teaching materials, as well. New online tutorials can be found at the Web addresses [17].

Literature sources:

[1] <http://www.cas.org/SCIFINDER/SCHOLAR/schcitation.html> (27.08.2001).

[2] Matisse's Glossary of Internet Terms, Copyright © 1994-2000, zadnja promjena 04.05.2000.
http://www.matisse.net/files/glossary.html (16.07.2001)

[3] About LEARN THE NET: Glossary
http://www.learnthenet.com/english/glossary (26.02.2001)

[4] Grantastic Designs: Glossary of graphic design and web page design terms
http://www.grantasticdesigns.com/glossary.html (19.06.2001)

[5] Effective Web Searching Tutorial by Gillian Westera,
http://lisweb.curtin.edu.au/staff/gwpersonal/searchtut/gloss.html (15.06.2001)

[6] Learn the Net, Copyright © 1996-2000, Michael Lerner Prod.
http://www.learnthenetcom/english/toolbar/company.htm (25.10.2000.)
http://www.learnthenet.com/english/section/www.html (30.03.2001.)

[7] The Ohio State University Libraries, © 1997-2000, Last revision: 7/24/00
http://gateway.lib.ohio-state.edu/tutor.html (19.04.2001.)

[8] Finding Information on the Internet: A TUTORIAL
http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/FindInfo.html (02.03.2001.).

[8] Scot Finnie: How the Net works, 28.08.1997,
http://coverage.cnet.com/Content/Features/Networks/index.html (18.09.2000.).

[9] Effective Web Searching Tutorial by Gillian Westera
http://lisweb.curtin.edu.au/staff/gwpersonal/searchtut/index.html (15.06.2001.).

[10] Life on the Internet: http://www.cochran.com/start/guide (31.07.2001.).

[11] Explore the Internet: http://www.loc.gov/global/explore.html (31.07.2001.).

[12] http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/FindInfo.html (25.01.2001.).

[13] http://gateway.lib.ohio-state.edu/tutor   (25.01.2001.).

[14] http://www.searchenginewatch.com (29.08.2001.)

[15] http://www.searchengineguide.com   (29.08.2001.)

[16] http://berkeley.edu/TeachingLib/Guides/Internet/SearchEngines.html   (31.07.2001.)

[17] http://www.internet4classrooms.com/on-line2.htm   (29.08.2001.)

[18] http://www.kent.wedne t.edu/curriculum/tech/lessons/   (29.08.2001.)

[19] http://www.fgcu.edu/support/offic e2000/   (29.08.2001.)