CHAPTER 2

Review of literature

Introduction

The Internet has begun to establish itself as a universal medium for accessing information of all kinds on a global scale. Naturally, a vast majority of these resources can also be employed in an Islamic educational environment. As the Internet is on the verge of becoming the primary source for information of all kinds, one question becomes ever more important: How can we properly handle this highly powerful online medium by finding the MIIRM we need and avoiding the most pressing problem of the Information Age: Information Overload and Abuse?

For various reasons, this question becomes especially important in the field of Islamic education: Let alone the fact that today's generation of students must be educated in a way that they will have no problems whatsoever in handling this new online medium in their future lives, it is important for all levels of education to access to multidimensional Islamic multimedia instructional information. The Internet by its nature promises to meet this need by offering access to information from around the world at our fingertips. However, there are several major problems with regard to this offer: Partly due to the sensitivity and the complexity of this development, today's teachers, lecturers and researchers in the Muslim nations usually have a lack of experience regarding the proper employment of such a medium in class and often have no idea of the broadness of information

accessible via this network. In addition, there are also problems on the side of the students: The lack of the background knowledge necessary to be able to judge the importance of the various source of Islamic information versus non Islamic or irrelevant and mixed information accessible. Thus there arise two major questions:

1. Which resources are available on the Internet for Islamic educational purposes ?; and
2. How can Islamic information on a certain subject best be found?.

Online information resources in Islamic education

Even though Islamic educational material only accounts for a comparatively small part of the overall data on the Internet, there already exists a broad and highly useful variety of online multimedia resources which can be employed in almost every Islamic subject. Though given this broadness and the considerable degree of differences among the numerous sources themselves, it is necessary to present a general classification of their different types, which will in turn, help both teachers and students to gain a better understanding of the various tasks they can be used for.

Types of Islamic multimedia instructional materials resources available in the Internet

There are a considerable number of MIIRM sources accessible in Internet. Islamic information resources can typically be divided into the following six categories:

Islamic Educational WWW Sites is the most popular Internet source and it is the mother of all sources. According to Ryder and Hughes (1998), World Wide Web (WWW) certainly the mass popular Internet service. the WWW gives point -and-click access to the Internet using hypertext to link information together.

There exists a broad variety of electronic online resources for Islamic information of all kinds on present Internet. Some of the Islamic educational institutions that are connected to the Web already have begun to publish their own data, such as additional materials for their classes, student papers, or even entire online courses. And although these are primarily aimed at assisting local students, they can of course, also be accessed by third parties. Obviously, it is impossible here to give a more detailed description of the content of these sites. All the following information resources can be accessed via WWW.

Electronic books. While printed books undoubtedly represent the most common and probably also most important didactic medium for accessing information in today's educational environment, this is rather different from the electronic books available on the Internet are giving the advantages which arise from the possibility of having dynamic rather than static documents. The Internet sites in combination with all kinds of multimedia data such as animation or sound- and video-sequences, it is practically against the nature of this network to offer anything comparable to the genre of fixed-content books. Bearing in mind the fact that no one currently attempts to read long books online, chapters would have to be

printed out anyway. Thus, it is mostly all working papers and electronic periodicals were source their content of which may be modified fairly and quickly and that will be found on the Internet. The variety of online electronic books primarily consists of electronically edited copies of highly well-known books like the Koran or Saheh Al Bokhari or others which are used for various kinds of Islamic educational research and Islamic knowledge.

Electronic periodicals. According to Rademann (1996), there are four major groups of online electronic periodicals, namely electronic newspapers, electronic magazines and journals, and last but not least electronic news and information services. This source of information has shown a considerable expansion over the past two years, and has now become one of the leading sources for online information. As most electronic periodicals are published on the WWW, they are easily accessible and intuitive to use by most of today's Internet users. Electronic periodicals basically cover the same topics as their printed counterparts i.e., news, current events, opinions, values, theories, and similar information. However, due to their lower production and distribution costs in combination with the prospect of reaching an almost unlimited target audience at no extra cost throughout the world, there will soon probably be a considerable number of highly specialized electronic periodicals available. While there is, still the possibility of publishing Islamic-interest newspapers and magazines, it is especially in the field of Islamic education and faith activities that publications can begin to focus on the highly specific needs of an often extremely selective readership, as the

respective target audience now comprises interested readers from around the world and not only from a regionally restricted area.

As far as their overall quality is concerned, electronic periodicals can be subdivided into two groups: The most accessible Islamic electronic periodicals such as Al-Umah Islamic Magazine and Al-Balagh for example are of good quality. On the other hand, however, the smaller electronic periodicals, whose target audience is presumably not yet sufficiently large to justify maintaining sophisticated Web sites, are of a rather lower quality. Often, no more than a handful of articles are published, which hardly contain additional material such as photographs.

Obviously, the majority of those electronic periodicals which are already available are most appropriate for gathering background information about current events (for example, peace in Middle East, Jihad movement in Afghanistan etc.), while it is likely that in the not too distant future, special-purpose magazines like (Islamic Education research) can be employed for gathering the latest information on almost every subject in the Islamic curriculum.

Online databases. There are various forms of electronic online databases, such as, Koran database, special-purpose databases, or address books. However, for educational objectives, it is only the first two which are of primary interest. Although more and more databases are being made available on the Web, most of them are still only accessible via Telnet, which means their layout is much less sophisticated than that of, say, Web-based Islamic information, which appears to make them somewhat harder to handle

for the average user. Library catalogues (as for example the University Malaya Library services) have become increasingly refined and ever more comprehensive, assisting both students and lecturers with their research on a broad variety of topics. Special-purpose databases (such as what is offered in the International Islamic University - Malaysia, Internet site), on the other hand, usually comprise articles of selected (electronic or printed) periodicals. They can be searched and will generate a-hypertext-oriented-output listing those articles that match the user's query. While library catalogues usually offer free access and are suitable for assisting students in gathering information on special tasks such as assignments or research papers, special-purpose databases are often payable access basis only; however, they can be employed for retrieving valuable information on almost every subject.

Encyclopedias Online. While printed encyclopedias belong to one of the most widely-used sources for obtaining background information, their electronic counterparts have only recently begun to emerge. The best-known encyclopedia on line are, the Encyclopedia Britannica Online which has launched its online services in mid-1996; Britannica Online (http://www.eb.com/) is a WWW information service provided by the makers of the Encyclopedia Britannica. It consists of a full possibility of search and browse collection of references, including a latest-article database of items not yet in the print. The content of the online version is still somewhat restricted as compared to that of the printed copies, especially with respect to photographs and other forms of multimedia elements. However, there is no

doubt that this will soon change completely, in fact resulting in online encyclopedias being able to offer much broader and more current in-depth information on any topic (including 3D-animation, sound and video clips, etc.). Another advantage is their hypertext-based layout which makes them easy to navigate. Finally, their highly-advanced search interfaces are of utmost value for any user because they ensure that every article relevant for a given query will be retrieved instantly.

By means of Newsgroups individuals can exchange information with hundreds of fellow users throughout the world. These e-mail-based discussion lists are hierarchically organized on a broad variety of topics. According to Randall et al. (1998), there are over 10,000 special interest discussion groups in the Internet, which every interested user may subscribe to it in order to read messages and post messages to the other members. The study found that there are over 50 Newsgroups in the Internet of many Islamic related subjects. There are both genuine and fake Newsgroups, a fact which might have to be taken into consideration by Muslim teachers and Internet searchers before recommending individual groups to the others.

In an educational environment, Newsgroups can be employed for two major tasks: First of all, they can assist in retrieving information (e.g. simply by reading articles posted to a Newsgroup on a certain subject or by asking for help by posting articles). In addition, Newsgroups can support both religious communication (e.g. in Koran subjects) as well as cooperation between various Islamic students / schools and universities (e.g. in larger projects and assignments).

Retrieving online information

Bearing in mind that there are already more than 100 million pages available on the WWW comprising no less than 50 to 60 billion words in millions of locations in more than a hundred countries (Conte ,1996). As a result, numerous methods for finding a given source on the WWW have been attempted over the past few years, all of which can be categorized into two groups, namely specific and arbitrary methods of finding. The arbitrary methods of finding are usually referred to as surfing. But there are two approaches to the specific methods of finding:

i) A user may systematically follow links that are in one way or the other connected with his/her subject which is call browsing; and

ii) The Internet searcher uses search engines to assist him/her in locating the information which the Internet user seeks.

Various types of search engines exist to assist in different tasks. The search engines can be divided into two major classes namely the traditional search engines (including subject trees and keyword-driven search engines), and the Intelligent Agents which is the more modern search engines.

Though, the capability of the existing search engines are becoming more sophisticated, the fact that there is no perfect search engine leads to important conclusions. In order to gain optimal results when performing a search on today's Internet, it is vital to choose the right type of search engine and to use more than one representative of its type; in this context, it is important to have at least a basic understanding of how these search engines work, their anatomy, the sources they index, including the way of indexing

and which text structure they require. Only when these issues have been sufficiently considered, can the user begin to concentrate on drawing up adequate search strategies for any research assignment. (Rademann, 1996)

Anatomy of search tools

In order to be able to assist the Internet user in retrieving the kind of information the Internet user longs to find on the WWW, search engines must:

i) Have some kind of knowledge of what are the Islamic multimedia instructional materials currently available on the Internet, concerning search engines source-indexing; and

ii) Have some kind of understanding of what the Internet user wants from the search engines, how human-computer interaction (HCI) takes place.

With respect to the traditional search engines, because of the technical procedure of search, all the search engines give a mixed information about Islam and at times only the name seams Islamic but the content is not. This could lead to a serious problem in searching the Internet.

Although the search procedure is identical for every traditional search tool, the major differences between the individual search engines result from the way their robots handle the sources they come across. This process is also known as parsing. There are various ways in which sources may be indexed in the database of a given search engine, depending on the cataloguing issues. Some robots index the entire content of every document they come across, whereas others try to construct summaries; others again

store the first hundred words or the headline(s) or even the HTML title and header only. (Joss & Wszola,1996). As far as the indexing methods of subject trees and directories are concerned, they belong to those search engines that require human intervention: While a robot automatically gathers data, it is humans who classify the individual sources according to their content on the basis of a classification scheme. There are two methods by means of which data is categorized in these trees, namely by subject and by geographical location. The output regularly consists of a systematically arranged tree or map that may then be browsed by the Internet user. Naturally, the different categories become even more specific the deeper the user follows a link, finally leading him/her to the leaves of the tree, the most specific sections, which contain a list of hypertext links to the sources that should be useful for retrieving the information which the Internet users look for. However, quite in contrast to the subject trees and directories, no human intervention is required for building the individual databases; the entire process is fully automated. The output for a given search almost always consists of a hypertext list of Universal Resource Locator (URL), usually complemented by either a short summary or the first few lines of the document.

Quite in contrast to traditional search engines, the modern search engines (Intelligent Agents) do not attempt to index the WWW. Each time they are confronted with a new task, they will search the WWW online in order to retrieve information. For this purpose, Intelligent Agents use sophisticated network technology by means of which they try to spot patterns and interrelationships in natural language and sample Web pages which will

may then be matched with newly-found online sources. (Joss et al.,1996). The output typically consists of a list of rated URLs which may be visited by the Internet user once Internet user has recalled the agent.

The differences in search engines architecture have considerable implications for the suitability of a search tool for a given task. Subject trees and directories are of advantage if the user is looking for a variety of links on a fairly broad subject (such as "educational resources for Imam Al Gazali"), while it is usually too tiresome to use these tools for a highly specific query. Another advantage of subject trees is the fact that the Internet user requires hardly any background knowledge on the way these services work, as the only thing Internet user has to do to retrieve his/her information is follow the respective link by intuition. The procedure required with subject trees and directories often helps researchers by suggesting a variety of related topics and online sources. However, resulting from the time-consuming manual processing of every new link, it is the most important drawback of these engines that their databases only contain a fraction of the WWW resources. The links which can be found in subject trees and directories are always of a subjective nature, since it was humans who classified them in the first place. Although it is said that Intelligent Agents can be used for a broad variety of search tasks, the necessity to train and retrain them and the fact that they have to scan the WWW online makes them suitable for major research projects.

Search strategies

This study found the best results possible for research in the Internet, it is to select the right type of search engine for the individual task and/or to combine the different types for more complex searches. All aspects considered, there are basically two steps involved in doing research in online sources: To start, the Internet user will usually want to get an overview over the Islamic information resources that are available on the Internet and could provide useful material on his/her assignment or work; once these have been located, the Internet user will want to browse the individual sources for specific Islamic information. A typical search strategy for research tasks will have to consider the two structures.

In order to get a general survey of the different Islamic information resources that are available on the WWW, the researcher will have to consult a subject tree or directory. Depending on whether the Internet user wants to gather information on a specific topic like the (Sahih Muslim) or on a specific type of information resource concerned with a specific subject like all available magazines dealing with (Sera), Internet user will either have to browse these trees by the topic of the assignment or by the respective information resource category. At the end of this process, the Internet user will have come up with a more or less comprehensive list of URLs that might be useful for his task. In order to first of all verify the suitability of these sources for the respective task, and for the purpose of retrieving specific information at a later point of time, the teacher and/or the students will have to browse each of them separately in a second step. This process will heavily

depend on the type of information resource that is being investigated: Such sources as Islamic educational WWW sites will usually have no extra search facility implemented on their pages, which means they have to be browsed manually in order to get an idea of the scope of the information they offer, whereas Islamic electronic periodicals, online databases, and encyclopedias tend to have a keyword-driven on-site search engine to scan and access their various archives, Newsgroups may be scanned with the help of some of the major Search engines such as Supernews or DejaNews.

The type of information resource that is to be examined is the principal factor that determines the kind of search engine to be employed during the research, its temporal scope must also be taken into consideration: If Internet users have to conduct a long-term research assignment, there are various additional tools that will help them with high-level goal-driven information retrieval. Especially with all kinds of Islamic electronic periodicals, students might refer to so-called personalized news services. Although there are an increasing number of commercial News Delivery Services (NDS) such as NewsPage. These NDS will automatically deliver abstracts or whole texts that match a user's profile to his e-mail address every new day (Rademann,1996). Most major electronic periodicals have set up personalized newspapers and magazines, where a user may specify the sections and keywords the Internet user is interested in. Once this has been done, a Common Gateway Interface CGI-script will automatically create the user's individual edition of that very newspaper or journal, containing all articles that match his interests.

During a online research project, it might become necessary to locate the URL of a specific source. As the search engines are used for retrieving

highly specific information, they are well-suited for finding out about the existence of a given newspaper, encyclopedia, etc. In order to ensure that the Internet user gets the broadest coverage of the WWW, the user would naturally either consult a multi task search engine such as Webcruiser or submit his/her query to more than one engine. It is not wise to use a subject tree or directory here, because browsing these would take too much time and might lead to non Islamic subjects.

Instructional designing of MIIRM in the Internet.

Bork (1991) indicates the most important critical feature of designing educational material is that of pedagogical design. The most important psychological principles of multimedia materials instructional design are: considering the emotions and motivation of the audience, setting of clear learning objectives, considering the individual differences, planning the rate at which the information will be delivered, organizing the content and organizing the interactive aspect for participation (Salum,1997). Giardina (1992) mentioned five levels of instructional design strategy. The first level is to unify symbols that provide continuity and transitions between the element of instruction. The second level is to reinforce the performance macros like how do I perform, how do I get the job done. The third level is to provide the knowledge of intra and inter-system components and diagnostics for assessing knowledge. The fourth level is how to share knowledge of components, connections, interactions, block diagrams etc. The fifth level is to design activities for each knowledge areas.

There are many ways of presenting interactive multimedia materials, each person has his/her own way of designing and developing those materials. In instruction designing of MIIRM in the Internet the author adapted what Schwier et al., (1993) suggested as three ways of categorizing and standardizing the design of the interactive multimedia materials:

1. Technical standards for design;
2. Instructional standards for design; and
3. Aesthetic standards for design.

Evaluating the Internet information.

Ryder et al., (1998) introduced successfully a framework for evaluating Internet information base on William Katz's criteria of evaluating library references materials. Their framework included the following:

1. Purpose and Audience – What is the intent of this information? Why is it being communicated?;
2. Authority – What are the credentials of the individual(s) or group(s) presenting this information?;
3. Scope – What is the breadth, detail of the information provided?;
4. Format – How is this information presented? Can it be easily interpreted? Can it readily be acquired or reproduced?; and
5. Acceptance of Materials – What is the opinion that others have of this materials.

The author use this criteria in evaluating the MIIRM information in the Internet.