Web Enrichment aid for Scientific Training

Ashwini Kumar Sushinam$^1$ and Abhijit Banubakode$^2$

$^1$DKES-School of Computer Science, New Delhi, Affiliated to GGSIPU, New Delhi
$^2$Symbiosis International University, Pune

$^1$aashwini19@hotmail.com and $^2$banu_bak@rediffmail.com

ABSTRACT

The objective of this work is to reveal an integrated approach that addresses important aspects of training and create a support system for technological teaching, in hence, better understanding at the level of scholars or researchers. No doubt, all the approaches, aids and tools after integrated together also are inadequate alternative for a teacher. Researches in the areas of different approaches, methodologies, tools and techniques for education surely aid a support system for knowledge delivery. Intelligent tutoring systems, virtual mentors, and adaptive hypermedia have produced techniques and tools that can provide improved learning outcomes. The prime goal of this system is to provide the users with recommendations and advice concerning teaching aids in education field. Presentation of teaching materials might take place using digital and analog tools, such as whiteboards, chalkboards, overhead projectors, document cameras, microphones, laptops, projectors, and wired or wireless networks. Most large lecture halls are already equipped with some or all of this equipment, and many instructors are well accustomed to their use. Education, in its entirety, is a time independent concept. However, as time goes by, introduction of new requirements and tools can alter its appearance, or create new forms of it. It can be said that the topic of teaching with the help of computers has been around since the emergence of digital computers. The work proposes a model that supports the development of content according to defined learning objectives, delivery of course content in a format customized to an individual’s preferred learning style, assessment of student knowledge to identify misconceptions and the ability to develop and revise course content to close gaps in knowledge. Advantages of proposed work like its worldwide scope, coherency and low cost etc. make it tough to ignore it, especially in the perspective of remote areas of the country like ours with a big population of young people yearning to get into the higher education. Of course, low cost will be achieved after once the setup is established. In addition, beyond the usage of this in formal education, it is an effective and useful tool for re-learning and keeping the work force up-to-date.

KEYWORDS

Technical Teaching, Innovations in education; Technical Training; teaching tools and methodologies; Intelligent Tutoring Systems, Virtual Mentors; Adaptive Hypermedia. Computer Based Learning.

1. INTRODUCTION

Technological advances in information and communication systems have challenged educational institutions to adopt the opportunities of distributed knowledge acquisition and delivery. Among the most recent trends, the availability of wireless communication standards and of mobile devices gives rise for a new landscape of learning as a networked, situated, contextual and life-long activities. In this scenario, new perspectives on learning and teaching processes must be developed and supported, relating learning models, learning methods, didactics, team organization and situational behavior models. For good education providing mechanism, some experts say that edification should occur in context, be active, social, and reflective. Different edification techniques include visual, auditory and computer based courses. Various fundamental teaching modes are formal authority, demonstrator or personal model; facilitator; and delegation. One approach has the teacher dictating what students learn with no concern about creating a relationship between the teacher and students. One more approach has the teacher as a coach guiding the students and creates a relationship between them; it is also instructor-centered. Another approach is student-centered and the teacher facilitates the material and activities, but the learning becomes part of the student responsibility as they collaborate with each other.

The application of computers to learning and teaching has evolved from simple text to audio and visual communications. Computer Assisted Instruction and Computer Based Training began in the early 1960’s and evolved into Intelligent Computer Aided Instruction and Intelligent Tutorial Systems. With the introduction and expansion of the internet, additional components dealing with the human-computer interface were added to the Intelligent Tutorial Systems and new terms, such as web intelligence and Intelligent Learning Environments.

1.1 CLASSROOM PRESENTATION

Presentation of teaching materials might take place using digital and analog tools, such as whiteboards, chalkboards,
overhead projectors, document cameras, microphones, laptops, projectors, and wired or wireless networks. Most large lecture halls are already equipped with some or all of this equipment, and many instructors are well accustomed to their use.

2. SCHEME PROPOSED

Figure at page 1 (figure 1) illustrates the overall architecture of the proposed approach.

![Diagram of proposed scheme]

Fundamental study stuff is in the form of subdivision like chapters which cover both techniques and applications of intelligent system and data mining. Further it may adjoin the same for the other courses like web mining, Internet & web technology and knowledge discovery also. There is a Content Repository unit where contents related to the course are actively maintained. Here is a future scope for the enhancement of the current work that the maintenance can be managed lively by a specific subroutine which will include a web crawler to occasionally crawl particular websites to find more rich content. This will be advantageous in that the contents in the Content Repository Unit will dynamically changing, with new contents added in by the web crawler, and obsolete content will be deleted based on Scholars’ assessments.

Scholars are responsible for assessing the content suggested to them; they provide a user/ratings matrix to support Intersecting Filter unit for content recommendations. In addition to their active assessment of the content, their browsing sequences are used to group them into categories of users with similar interests. It is through the Intelligent Adviser that personalized recommendations are made. Hence, from the Scholars’ perspective, the system is growing to adapt to his/her learning activities and other scholars.

2.1 REQUIREMENTS

One basic requirement is the provision of an adequate technical infrastructure on which to deliver such proposal. Following are the three areas of particular importance in this context:

- course management systems,
- well-equipped classrooms and computer labs, and
- computer access for students.

This requirement entails networks with adequate bandwidth, easy-to-use course management systems, and properly equipped classrooms and computer labs. It will concentrate on the following: Deployment, Composition, Execution Personalization and Interconnection.

2.2 DEPLOYMENT

In an Intranet it would in principle be possible to deploy all applications that can ever be requested on every node, but in an Internet environment this is practically impossible. Consequently, mobile code and hot deployment of applications is an essential objective. The distribution is performed not only by a single application repository but by various, separately maintained repositories. In addition, due to the heterogeneous nature of the Internet, the deployment process can not be individually prepared for each node but it must be designed to be self-manageable without any user intervention.

2.3 COMPOSITION

A major goal in an Internet environment is to avoid transmitting unnecessary data and therefore to reduce the required bandwidth to deploy an application. Internet
applications are typically composed of smaller parts which can be individually selected, downloaded and plugged into a running application. Thus, the goal is to support the appropriate self-managed selection of the required component according to the requested operation and the current hosting environment. In addition, components already downloaded by other applications should be stored and shared in a local cache.

2.4 EXECUTION
An application developer can not address every kind of platform architecture or operating system on which the application will probably be hosted in an Internet environment. In turn, a platform administrator is not able to prepare an application system which can host any application, e.g. by installing all existing libraries. Instead, a self-managing application system should dynamically prepare an appropriate runtime environment according to the application requirements and platform capabilities. Another related issue is the provision of a common interface to interact with the platform and its resources, e.g. how to request components or establish network connections.

2.5 PERSONALIZATION
Users typically customize employed applications according to their personal needs and likings, e.g. picking a certain web proxy server or choosing a particular color scheme. Concerning a cross-platform application environment, an important requirement is the seamless synchronization and application of customized profile settings across the employed platforms without explicit application or user intervention. In particular, this is a non-trivial task in a heterogeneous environment where profile settings may not be directly transferable, e.g. a configured web proxy server could be inaccessible from a different platform and a different proxy has to be determined automatically.

2.6 INTERCONNECTION
For distributed environments like the Internet a further major requirement is the collaboration with remote applications and services. An application can either request remote services and objects or provide access to its business logic, e.g. publishing a web service. However, in heterogeneous environments with changing groups and roles of requestors and providers there is not always only a single but there are often multiple ways for establishing a connection. Consequently, there is a necessity to dynamically select and create an appropriate network link suitable for the current scenario.

As shown in figure 1, this is mainly responsible for updating (including adding, deleting, putting into backup list), collecting, and creating sensible essence from notes. Figure 3 demonstrates its working mechanism.

3. TRENDS AND FUTURE SUPPORT ISSUES IN E-LEARNING
E-learning in higher education is in its infancy. Competitive differentiation between higher education institutions on the basis of e-learning capability is widen dramatically as a result of a larger product marketplace with more tiers. Support for this critical endeavor is also new and is being crafted successfully in ways consistent with support for other major technology applications. While this study anticipates increasing support demands associated with growing faculty experience and the emergence of multiple instructional media, e-learning’s future also suggests some trends and directions that might be discontinuous and for which planning should begin now. These include:

- the evolution of new e-learning support roles and the need to rethink instruction as a team-based activity;
- the emergence of viable online learning object sources and the resulting support issues related to digital rights management, quality assurance, technical standards and integration, and stimulation of a faculty culture of reuse;
- management of course materials’ “afterlives,” in particular, establishing standards for the retention or destruction of online course records and the integration of such records into mainstream institutional practices related to information privacy and access;
- real changes in faculty incentives that recognize the value of effort and outcomes invested and realized in support of e-learning; and
- intensified interest in accounting for learning outcomes in a meaningful way, including the emergence of e-portfolios as a strategy for enhancing the record of student activity, engagement, and performance.

4. Instruction As a Team-Based Activity
Currently, higher education instructors perform several roles simultaneously: instructor, mentor, researcher/academic, and course implementer/developer. For higher education to take advantage of e-learning opportunities, instructors must successfully integrate the additional roles of technologist and instructional designer, supported to a greater or lesser extent by their e-learning support organizations. Some early teambased course-authoring tools rely on typical faculty roles (author and content manager) as well as newer ones such as content editor, graphic designer, and production coordinator, making the “team” almost like a film production company.

Mitigating the impact of these additional roles, or functions, presents a significant challenge for the continued growth of e-learning in higher education. Faculty members, instructional designers, librarians, information technologists, and others will likely work in teams to assure the quality, reliability, and scalability of e-learning offerings. Interestingly, some e-learning proponents outside higher education are pushing strongly to move some e-learning support burdens to publishers and other owners of the intellectual property associated with e-learning. In other cases, commercial e-learning proponents promote shifting IT support burdens to learning technology infrastructure and tool vendors.
5. BENEFITS
In the direct mode of delivery the content following capabilities are generally not available for an educator utilizing a traditional delivery system which are available in proposed strategy.
1. Varying pace for displaying the content.
2. Different formatting options of the content (eg both text and graphics).
3. Modifying capabilities for correcting, adding and deleting content breadth and depth
4. Navigation systems to support both linear (sequential) and non-linear inquiries of the content (knowledge base or hyper-media).

Here, the prime concern is to bridge the gaps between the academic researchers and the instructors. Academic researchers are the significant people who understand the learning process, the authors that provide knowledge sources (e-books, e-solutions manuals, etc). On the other end instructors are there who develop and package the course content and assess student knowledge, misconceptions and retention.

6. CONCLUSION
This work proposes an adapted approach for edification that will present the material in an intuitive, interactive, and innovative manner while focusing on ways to integrate qualitative and quantitative methods throughout the learning experience. The paper confers a support system to facilitate scholars. Here the main concentration is on the adaptivity and student evaluation aspects of the system. Adaptivity refers to the capability of the system to adapt teaching to student needs, specified by the student model characteristics. The advantages of the such proposal from the learner's viewpoint: will be - lower delivery costs, - faster training, - learners do not have to travel, with an E-learning course learners can take the course at their own pace - accumulated intellectual capital, - learning anytime and anywhere, - learners create their own learning experiences.

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8. FUTURE SCOPE
A number of research questions arise subsequent from this initial work. For a more complex environment, how much illustration would be required to train system to a satisfactory level? To what degree should outlier decisions be identified and included in the simulation/expert system? In the context of Topic Storage unit, there is a future scope for the enhancement of the current work that the maintenance can be managed lively by a specific subroutine which will include a web crawler to occasionally crawl particular websites to find more rich content. This will be advantageous in that the contents in the Topic Storage Unit will dynamically changing, with new contents added in by the web crawler, and obsolete content will be deleted based on Scholars’ assessments.

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