INTERACTIVE TEACHING AND LEARNING AID SYSTEM (ITLAS)

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ABSTRACT
This paper discusses the path of Internet and Intranet as a learning tool to enhance the learning environment for students and lecturers. A lot of development has been done using Internet and Intranet as a medium. The Educational sector takes the opportunity to improve the learning environment from traditional ways of learning to flexi learning.

INTI College has developed the ITLAS which runs on top of Windows 2000 servers while Microsoft SQL server is used as a database platform. For programming language, Active server pages technology is utilized while more of the codes are written using VB Scripts. The ITLAS allows the posting of messages for the public, registered users, staff and students. Training is essential so that the users know the functions of ITLAS. At the time of writing, 49% of the lecturers make use of ITLAS to communicate with students. ITLAS has the potential to become a full fledged contents provider and bring about closer communication between lecturers and students.

INTRODUCTION
The 21st century is the era of information and knowledge. Information Technology has set off a drastic revolution, which has changed the lifestyle of modern man. A significant product of modern science is the computer, which influences our daily life.

In line with INTI College’s e-campus concept, the School of Computing and Information Technology has developed an integrated teaching and learning system to serve their colleagues and students. This system provides them with the following facilities for teaching and learning purposes: upload, download and update of instructor guides, display of staff and student information, interaction amongst staff and students, announcement or message posting and display of continuous assessment material and marks checking for students to access.

This system aims at reducing consumption of papers as well as enhancing teaching and learning efficiency. It can be accessed both in Internet and Intranet environment.

LITERATURE REVIEW
Historical application
Traditionally, face-to-face interaction among students and teachers has been the dominant educational process. Educational technology advanced, however, despite the philosophers’ derision. Papyrus and parchment manuscript, precursor to textbooks, enable a certain mobility of knowledge and education (Plato, 1998). Until now the dominant of learning face-to-face interaction remained.

With the development of the postal service in the 19th Century, educational institutions expanded their reach via correspondence courses. Institutions incorporated interaction
into these courses as students and teachers could receive and send course materials, assignments and feedback.

Broadcast media e.g. radio and television were the technologies that have an impact on education, particularly distance education. Like the telephone, they provided students with similar options to their non-distant learning counterparts rather than usurping printed material (Bellgard et al., 2000).

Students could now choose to listen to the delivered lectures, read the textbook or both. The most successful example of distance learning using television programming is the Open University. It has a unique partnership with the BBC, which transmits over 1,500 Open University programmes annually on its national television network (Bates, 1982).

Again educators have technological opportunities, the Internet and Intranet as learning and teaching tools. The Financial Times noted that “the Internet and the subsequent explosion in web-based, on-line learning products arguably means that the very nature of education is likely to change more in the next five years than it has done in the past 500s” (Anderson, 2000).

**Internet and Intranet technology in education**

“University Malaysia Sarawak has come out with a plan of setting up a virtual campus, which incorporates internal and external elements e.g. subject, registration, appointment with lecture and bulletin boards” (Yogeswaran, 1998).

Unitar (University Tun Abdul Razak) is currently providing courses on-line mainly for students and working adults. This system is very convenient and has proven successful to produce a quality work force. UNITAR is a virtual university where students and faculty members engage in quality learning and teaching activities even though distance, space and time separate them (Anon, 2002).

Currently, INTI College is implementing the e-campus to the scope to be internationalized. All the programmes will be franchised and deployed in e-campus that can be accessible by students around the world.

Textbooks publishers are exploring vertical markets as well. The Massachusetts Board of Higher Education granted Harcourt General publishing company operational approval. Next, Harcourt will seek accreditation from the New England Association of Schools and Colleges (Massey et al., 1999).

Textbook publishers such as Wiley, Glencoe/McGraw-Hill, Pearson, International Thomson Publishing and Prentice Hall use the Internet’s technological capability to protect textbooks from the age-old problem of rapidly failing out of the date. They hope to delay, possibly avoid, the expenses of printing revised textbooks by publishing new, must-include subject matter onlines (Blumenstyk, 2000).

**Components of Internet education tools:**

- Accessing web-based information
- Virtual Reality
- E-mail
- Bulletin boards
- Usenet
- Newsgroup
- IRC or chat

**METHODOLOGY**

Developing Web applications is an open-ended task (December, 2000). The completed applications will evolve through time to reflect the advancement of Web technologies.

For the implementation of ITLAS, we also cannot escape from continuously changing to suit the user requirements. This is an applied research project. Initially, several general modules had been agreed on by the team to be developed first. Web development is different from traditional development where user
acceptance is only known when the applications are actually published online.

From the users feedback, we then periodically make changes to the current applications as seemed acceptable by the end users. New modules or applications are then added every semester to increase the functionality of the Web site. Applications towards solving the daily job functions of the office such as keeping track of students’ attendance are given a higher priority. In the meantime, applications such as a classified are given a low priority. Any online system must have applications that can attract the users to frequently visit the site (Efraim et al., 2000).

ITLAS runs on top of Windows 2000 servers while Microsoft SQL server is used as a database platform. For the programming language, Active Server Pages technology is utilized while most of the codes are written using VBScript.

The team comprising all staff contributed their spare time in developing and maintaining the Web site. The team is divided into three groups: Web programmers, Web designers and Web technicians. Following are the steps involved in creating an application.

**Current Functional Applications**

**USER REGISTRATION**

Users are divided into three categories:

- Academic Staff
- Non-Academic Staff
- Students

Each category of users can access to certain information. Users capabilities will be indicated in the relevant sections.

Unregistered users can only view public announcements and discussion board, however they cannot participate in them. Therefore, users must register first in order to use all the available functions provided for them. Newly registered users will not be able to use the system immediately. His or her account must be activated. This is to avoid phantom users.

To register, a user must fill in all the fields marked with an asterisk. A validation process will ensure that all information is entered correctly. As for student registration, they cannot register twice because a validation process will reject the second attempt to register the same student.

**Message/Discussion Board**

To post message or discussion onto this board, a valid user account is required. The message board contains two main components: (Table 1).

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![Figure 1. ITLAS Work flow chart](image)

* If the application is created for specific task done by our staff, then testing will be conducted with the users.
Table 1. Locations of the appearance of the messages for various categories of users

<table>
<thead>
<tr>
<th>Type of users</th>
<th>Appearance of message</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ALL Public Users</td>
<td>This message will appear on the home page of ITLAS and is viewable by public, i.e non-registered users.</td>
</tr>
<tr>
<td>To ALL Registered Users</td>
<td>This message will appear on the welcome page for all active user account.</td>
</tr>
<tr>
<td>To ALL Staff</td>
<td>This message will appear on the welcome page for all active Staff account.</td>
</tr>
<tr>
<td>To ALL Academic Staff</td>
<td>This message will appear on the welcome page for all active Academic account.</td>
</tr>
<tr>
<td>To ALL Non-Academic Staff</td>
<td>This message will appear on the welcome page for all active Non-Academic account.</td>
</tr>
<tr>
<td>To ALL Students</td>
<td>This message will appear on the welcome page for all active Student account.</td>
</tr>
<tr>
<td>To the Discussion Board</td>
<td>This message will appear on the discussion board.</td>
</tr>
</tbody>
</table>

Posting of messages
Messages can be posted to these groups of users:
To post a message to the public, a user has to register under the staff account. For staff, they can post a message that has a due date up to four months while messages posted by students are automatically deleted after three days. Even before the due date, the user can delete messages posted by them.

Posting of discussions
The main difference between posting a message and posting a discussion is that a discussion will not have a due date and active users can reply to that discussion. However, to keep the discussion board out of unrelated discussions, the administrator will maintain the board weekly.

Coursework Component
This component can be broken down into two parts. The first part is for lecturers while the other is for students. For lecturers, they will have the following functions:

Add Students
Students can be added into the class section if the name not appear on the list provided the student is already an active user.

Delete Students
When a student drops the subject at a later date, his/her name can be removed from the class list.

Class List
A Lecturer can view the class list. Students who are not active users will have their INTI ID number listed at the bottom of the list.

New Component
Lecturers can create new components for them to enter marks. Once a component is created, for example, test 1, it cannot be created a second time.

Remove Component
A component can be removed but this function will cause all the marks entered in that particular component to be deleted as well.

Edit Mark
Lecturers can enter a student’s coursework marks once a component is created. Lecturers also need to enter the total marks for this component and the percentage allocated for the system to do the calculation. Lecturers can also include comments for particular students.
Print Individual Component or All Components
A hard copy can be obtained for filing and verification of coursework marks.

As for students, they can only view the coursework marks.

**Online Instructor Guide**
Instructor guide is available online so that lecturers can view them to have a general idea of what the areas of coverage for a particular subject are. The administrator has the capability to upload and delete instructor guides. Lecturers can only download and view the instructor guides.

**Online File Manager**
Each registered lecturer is given Web space of 10MB to upload teaching materials. Students can download or view the materials online. Basic functions of the File Manager are uploading and deleting files, create and delete directory.

**Link Manager**
Link Manager is for the lecturer to organize their lecturer notes into a study schedule for a particular course, section, week and lecture. In this link manager, the lecturers are allowed to add more class sections if they want to display the same material to more than one class.

**Study Material**
Study material allow lecturers to view again the lecture notes they had organized. In this section, there is a view/copy archive where the lecturers can view the previous semester’s study material and copy to their own study material for the section.

**RESULTS AND FINDINGS**

**User Training**
In order to achieve the goals set by the team, users especially the academic staff must get involved and should be aware of the available functions of ITLAS. Therefore, user training is essential. Everyone knows that Web applications are easy to use, by just the pointing and clicking of a mouse. But without proper training, users might feel uncomfortable and reluctant to use ITLAS, although it is very simple and comparatively easy to use.

**User Resistance To Change**
There is no doubt that resistance to change happened in the early stage of ITLAS deployment. Initially, only staff and students from the School of Computing & IT utilized the system. Most in the meantime, about 49% of the lecturers made use of ITLAS to communicate with students while the rest seemed reluctant to use it at first. We believe the situation will change when lecturers find it very effective to manage their classes online, e.g. coursework, assignments and discussions.

**Management Support**
The management is very supportive of our project. Support to ensure the success of the project had been extended to the team although as a whole the College is already embarking on its E-Campus vision. ITLAS is targeted at a niche student population.

**CONCLUSIONS AND FUTURE RESEARCH**
There is no doubt that Information Communication Technology (ICT) has great impact on our daily job. Whether you like it or not, ICT will slowly become part of our life. ITLAS has the potential to become a full-fledged contents provider and to bring forth closer communication between lecturers and students. ITLAS is just in her infancy and the team can still contribute a lot of ideas to bring her to a perfect state.
REFERENCES
Anon (2002). http://www.unitar.edu.my, Unitar (University Tun Abdul Razak)