Online Learning Modules for Distance Education

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Abstract

Rapid development in the world of information technology has enabled distance learning to be carried out using web-based modules. The School of Distance Education, USM, has been developing learning via the internet, which allows learning materials to be made accessible to students regardless of time and place. Preliminary assessments showed that students choose to pursue education using online modules compared to the printed modules because the former is more attractive and easier to understand. Furthermore, these online modules are deemed suitable for distance learning and should be developed for all courses.

Abstrak

Pembangunan yang mendadak di dalam dunia teknologi maklumat telah membolehkan pendidikan jarak jauh dikendalikan dengan menggunakan modul berasaskan web. Pusat Pengajian Pendidikan Jarak Jauh, Universiti Sains Malaysia telah membangunkan pembelajaran melalui internet yang membolehkan bahan pembelajaran diakses oleh pelajar tanpa mengira masa dan tempat. Penilaian awal menunjukkan bahawa pelajar memilih untuk menjalani pendidikan menggunakan modul atas talian berbanding modul bercetak kerana modul atas talian lebih menarik dan mudah difahami. Tambahan pula modul atas talian ini dirasakan sesuai untuk pendidikan jarak jauh dan perlu dibangunkan untuk semua kursus.

Introduction

In the early period of its inception, the School of Distance Education (SDE), Universiti Sains Malaysia (USM) supplied learning materials to its students in the form of printed modules. For certain courses, other kinds of supporting materials such as audio graphics, slides and videos were also

provided. Although direct radio broadcast and interactive video conferences were later widely used in distance learning in SDE, the printed modules still remained the main source of learning materials.

Distance learning, as discussed by Keegan (1980), involves education that does not require attendance in person (face-to-face) and can be followed by students any time even if they are working full time or working outstation from time to time, as directed by their respective employers. Based upon this philosophy, the learning materials provided for distance education (DE) should be accessible to the students wherever they are, regardless of whether they are in or out of the country. The rapid development in information technology in the country has given a golden opportunity to the SDE to further strengthen its DE programme by using computer-based learning materials. In the first phase of this project, printed modules were being converted to online modules and this was implemented and launched on 15 June 1999 during the Launching Ceremony of USM: 30 Years' Celebration by the then Deputy Prime Minister of Malaysia, Y.A.B. Dato' Seri Abdullah Haji Ahmad Badawi. Online learning (OL) allows easier accessibility of learning materials to students without the constraints of place and time, saving the students the trouble of having to cope with heavy learning materials in the form of printed modules.

Literature Review

Nowadays, most higher education institutions (HEIs) advertise their courses on websites via the internet. This indirectly indicates that universities have recognised the internet as a medium of instruction and acknowledge it as an appropriate means of disseminating information to students and the public. Using the internet to deliver educational contents in distance learning is an alternative way to diversify learning methods other than the present conventional one (Falk et al., 1999). Although this method is relatively new, its ability to overcome the problems of the overwhelming number of students in the universities has been quite successful. Online learning, using modules, is a method of teaching and learning at a distance which enables students to follow and learn courses via the internet.

The definition of online learning in this study refers to the teaching and learning process using modules made available through the web. The teaching and learning process is no longer restricted to classroom-based learning but can also be undertaken through virtual classes using the computer. This form of learning will become a necessity in the future as the number of students increases in parallel with the country's industrial needs.

In the context of distance learning, the usage of learning materials based upon the web can help save students travelling costs; the learning process is aimed at inculcating good habits like being innovative, independent and responsible to oneself to succeed in one's education without relying entirely on the lecturer or course manager. In countries like the United States and Britain, the majority of universities and colleges that are implementing the DE system offer courses via the internet as an addition to existing supporting systems such as the satellite, television and video sessions.

Flexibility is an advantage in the usage of learning based upon the web compared with the conventional face-to-face learning method (Clarker, 1999). Distance learning via the internet is open to all students at any time because it is accessible 24 hours a day, seven days a week. This has not only given an opportunity for students to study during their free time but also enables them to learn at their own pace as they are given ample time to do so. This type of learning approach is very suitable for those who are learning at a distance.

With the advancement of sophisticated technology, online learning materials are no longer new. They have been used by international higher education institutions for some time and the feedback from students has been very encouraging. Therefore, the initial step taken by the SDE to launch online learning materials need not be questioned further. Studies have shown that students who follow their education via the internet can achieve even better results than those who attend face-to-face lecture classes (McCollum, 1997). This shows that the perception regarding the weaknesses of the internet in delivering learning contents should no longer be accepted, especially by those who wish to avail themselves of higher education.

It is one of the SDE's hopes to include the printed modules for all offered courses to be switched to online modules for learning. Figure 1 shows the main web page for all courses offered in 1999 by the SDE and the synopsis for each course. These courses include science, engineering, humanities, social science, management, education, pre-science one, pre-science two and continuing education courses. Besides that, factors such as the instructional design, learning objectives, learning methods, time and quality and others have been given attention when developing online learning modules.
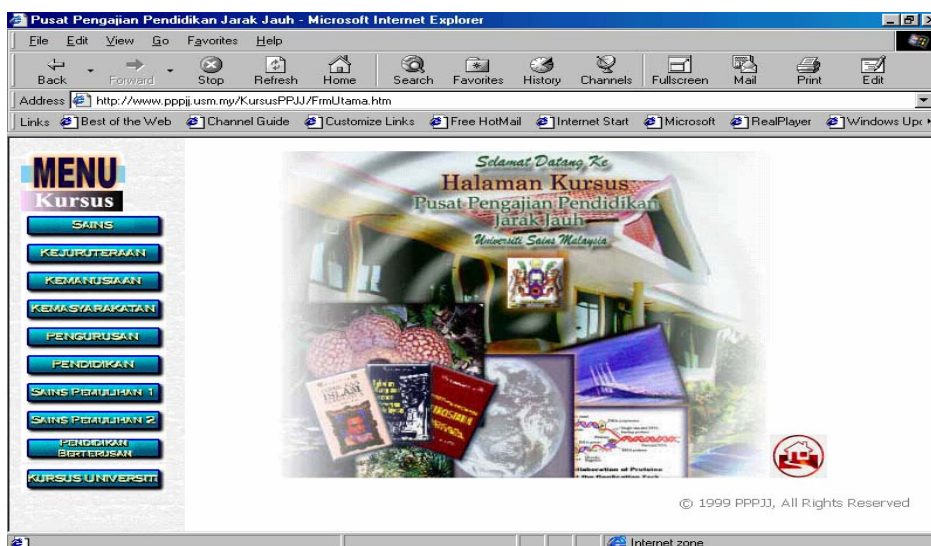

Figure 1   The Main Web Page Menu for Online Learning Modules

Support from the administrative management to ensure students have access to online modules has been very encouraging. There was a proposal that the SDE regional centres should be equipped with computers. However, most students who enrol in DE are already working and expected to have their own computers at home, if not in the office and also in schools (for those working as teachers). Furthermore, cyber cafés are operating all over the country, providing space and facilities to students who stay far away from their hometown to pursue their education.

In implementing education through online learning, students who cannot access their learning materials via the internet are given other options. As an alternative, they are given a CD-ROM which follows the same format as the online modules. Thus, students can choose to use the CD-ROM, online modules or printed modules.

Methodology

Designing a learning module in the electronic form or via the internet is not an easy matter. The SDE first developed online learning modules in 1997. When developing these modules, many aspects of educational pedagogy such as colours, fonts, fonts justification, centralisation, focus, layout and file size have to be considered so that the instructional objectives for the learning contents to be followed by students are achieved. For example, the colours used for the screen are "soft" so as to promote easy reading. Attention is also given to the analysis from the aspect of the learning content, student background and learning strategies to interaction. Besides that, the quality of the distance teaching method is also a priority. For example, the features for the distance learning method are also taken into consideration when designing the home page for online learning for certain courses by uploading some communication features such as the interaction room with the course manager, course work component, video conferencing, radio broadcasts, practicals, academic planning, term schedules, questionnaires, evaluation, feedback and the discussion room are uploaded. Examples of the layouts are shown in Figures 2a and 2b. As shown, in certain circumstances, students are able to interact with their course manager and other students through the feedback feature as well as the discussion room. They can discuss matters that are related to the modules they are taking, without meeting each other. In this way, students will find it easier to understand the modules through online learning.

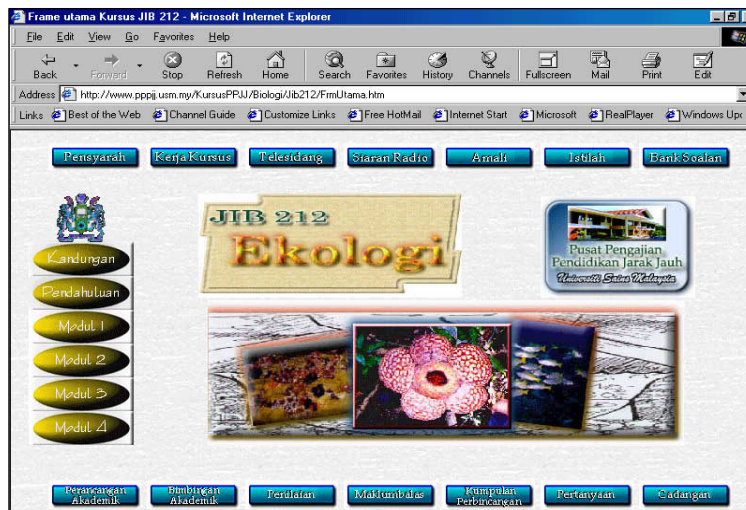**Figure 2a**   Layout of Online Modules for a Physical Geography Course

Figure 2b   Layout of Online Modules for an Ecology Course

Online modules have been developed based on the criteria mentioned, taking into account relevant features and designs. When they are made accessible to students, their feedback is obtained and evaluated. The

evaluation for online learning was done during the launching ceremony of "Agenda IT" in USM which was held for three days. Questionnaires were distributed during the exhibition for immediate responses from visitors who had followed the courses which had been developed. 84.3% of the respondents were university students while the remainder comprised of students from private institutions of higher learning.

Results and Discussions

The research showed that 78.9% of respondents had their own computer facilities at home and the rest had this facility in the office. This showed that students can access online learning materials easily. Furthermore, the findings also showed that student competence in computer usage was high with 96.2% of them being experts and competent users; only 3.8% of them were weak and did not know how to operate a computer. 96.2% of students knew how to use the internet. This positive response is very useful for the administrative management to implement and upload modules for more courses via the internet since most students are computer literate.

The preliminary assessment (the first phase evaluation) of online learning showed that students chose to pursue their education by using the online learning modules compared to printed modules which has been the traditional method practised in the country. The respondents' opinion was that online learning modules are much more interesting and easier to understand compared to printed modules and 96.1% of the respondents acknowledged that using these modules make learning more effective compared to using textbooks and printed materials.

From the questionnaire, it was also found that all the respondents agreed that online learning is suitable for distance learning students. They felt that it fitted because it is faster, of higher clarity, saves time, energy and costs and is complete, up-to-date and interesting. 66.7% of the respondents agreed that courses that are offered through online learning can replace the usual face-to-face lecture classes and 79.2% thought that learning online is better compared to CD-ROM learning because it is accessible directly at any time regardless of the place, no costs are involved, students can readily ask questions regarding the modules and it is the most up-to-date method.

The overall evaluation by the respondents for the online learning website that was presented in this project was satisfactory, with 21.2% stating that it was well presented and sophisticated, 69.2% stating that it was interesting and only 9.6% stated that it was only at a satisfactory level. Recommendations for improvement and upgrading showed that most of the respondents would like all the courses to be offered online. Regarding the question of whether online learning needed to be developed and expanded for all distance education students, 40.4% of the respondents fully agreed that this should be done, 57.7% agreed it should be done while only 1.9% did not give their answers. The initial assessment for this project showed that students want diversified learning methods for distance learning that are in tandem with the rapid development of information technology.

Conclusion

There is high potential in the utilisation of online learning modules in the future to increase the quality of distance learning to keep pace with technology development and the increasing numbers of students from year to year. Online learning modules are very suitable for use in distance learning because students can learn according to their own pace and on an individual basis while still being able to discuss issues with their friends and course managers without having to consider a particular time and place.

Acknowledgement

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