

SELF-MANAGED LEARNING OF *myVLE* VIA CBT COURSEWARE

Harvinder Kaur A/p Dharam Singh
harvinder@oum.edu.my

Safiah Yusof
safiah_mdyusof@oum.edu.my

Lim Tick Meng
limtm@oum.edu.my

Open University Malaysia

Abstract

Open University Malaysia (OUM) is an open and distance learning institution which provides opportunities for lifelong learning. OUM continuously strives to improve and maintain quality programme delivery in the attempt to produce quality graduates. OUM has been using its own in-house developed learning management system called myVLE (my Virtual Learning Environment) to support lifelong learning undertakings. Since 2002, myVLE has gone through minor enhancements. In late 2013, a new platform was designed and developed with the aim for a more user-friendly learning environment besides providing an optimised online learning experience. The new version of the myVLE was released in January 2014, to be used only for six fully online courses. In September 2014, all courses offered by OUM were migrated to the new myVLE. With the migration and the introduction to the new functions of the new myVLE, it was necessary to make efforts to provide additional support to the learners and online facilitators for a smooth transition. To assist users in adapting to a new user-interface several incentives were taken which include: (a) the development of a learning courseware, (b) short online video clips, and (c) face-to-face training for online facilitators. This paper focuses on the development and use of the learning courseware which was instructionally designed based on ADDIE model.

Introduction

As an open and distance learning institution, Open University Malaysia (OUM) plays an important role in providing opportunities for lifelong learning. Courses at OUM are offered in blended mode, which stresses on self-managed learning with face-to-face and online support for learning. OUM is however progressively moving towards offering fully online courses. Recent initiatives are focusing on the quality of online delivery and online learning through the use of OUM's proprietary learning management system, *myVLE*. Learning management systems (LMS) are known as the building infrastructure of the virtual environment. Among the benefits having a learning management system is that it organises learning materials and learning objects in an efficient manner to facilitate effective online learning. It facilitates effective collaboration and guidance via communication using an integrated email system. In addition, it promotes collaborative and cooperative learning through discussion forums. It enables information sharing via online announcements. Furthermore, it also caters for learners of different needs and styles by enabling the creation of different learning groups.

Recently OUM migrated to a new version of its learning management system, *myVLE*. The new *myVLE* has a number of new features. To make learning more user-friendly, the following features were integrated into the learning system: i) a new and much simpler icon-based interface for easy navigation; ii) a more organised platform; iii) a more efficient system that allows quicker access to content; iv) self-tracking feature for learners to track their own learning; v) self-tests for learners to check on their understanding and learning progress; and vi) pre-posted forum discussion questions for learners to initiate the discussion topics.

With the introduction of the new *myVLE*, there is a need to impart the competency of using the functions of *myVLE* to all users including the learners and the tutors. OUM learners are mostly working adults with varying backgrounds and learning styles. Some of these learners are not IT savvy while majority of the part-time tutors who are from the conventional based higher education may lack or have little experience in using technology for teaching purposes. As such, some of these users may experience difficulty and may be stressed by the change, especially to those who view technology as an obstacle to their teaching and learning. One of the key

components for the success of technology usage is technology proficiency of users. Therefore, every effort has to be made to train the *myVLE* users. OUM faces the challenge of training a large number of users comprising more than 30,000 registered learners, over than 4,000 part-time tutors including 400-500 online facilitators (e-tutors) and about 600 faculty staff.

However, learning new computer skills demands an extensive amount of time for training and technical support (Casey & Rakes, 2002). There are many constraints and obstacles in training the technological skills of *myVLE*, which includes but not limited to: i) lack of trainers to conduct training at various learning centers disseminated in the country; ii) scheduling issues for both learners and trainers. Learners are working adults and attend tutorials during the weekends; iii) catering to learners with different learning needs and learning styles; and iv) issues with quality of training and consistency of instructional delivery by various trainers.

In view of that, the Institute for Teaching and Learning Advancement (ITLA) at OUM has taken the initiative to develop a learning courseware for learning how to use the new *myVLE*. The reasons for developing the learning courseware stem from the following: i) users will be able to control their own learning needs; ii) users can learn at their own pace; iii) standardisation in the instructional delivery; iv) economical and cost-effective for training significant number of users; v) training on how to use the new *myVLE* can be extended to OUM's international students; vi) presentation of auditory and visual as well as interactive multimedia; and v) as a support for lifelong learning skills. The following sections focus on the development and use of the courseware.

Educational Software

Educational software is generally known as computer software that teachers and learners can use to support teaching and learning. Computer based education became widespread in the 60s, with the use of computer-assisted instruction (CAI), computer-assisted learning (CAL), computer-based training (CBT) and later more intelligent software programs with intelligent tutors and tools. Computers were clearly seen not only as tools, but also as teachers/instructors. With the advancement in computer hardware and the early use of the internet in the 90s, educational software went through some major developments, and has gone a long way from delivery via CD-ROM to virtual learning environments.

Courseware is a type of educational software. Generally, coursewares are computer programs that are designed for education and training and are used in CBT. There are several known definitions of courseware. The business dictionary states courseware as "training material on a diskette, CD or DVD, or downloaded from the internet, for use with a self-learning or coach assisted program." Educational courseware programs usually include three components: information, computation, and multimedia (Schitai, 1998). An interactive courseware takes training programs a step further, whereby the sequence of events in the program relies on the learner's responses. The use of interactive courseware allows for the learner to be engaged in the learning process and provides a better chance for learning to occur.

***myVLE* Learning Courseware**

Courseware design utilises a number of instructional techniques such as tutorials, drill and practice, simulations, games, and demonstrations/presentations. In developing the *myVLE* Learning Courseware, three main techniques were employed: tutorial, simulation, and demonstration. From the perspective of tutorial, the learning courseware introduces the learners to the many features of the new *myVLE* and their respective functions. By using simulation, the learners are given the opportunity to visualise the use of *myVLE* in learning in a step-by-step manner. Learners are also able to explore and practice on the functions in *myVLE* without worry of making mistakes. To enable the courseware to guide learners through demonstration, short video clips with audio-recording which simulates the step-by-step processes are embedded into the courseware. The development of the learning courseware follows the general instructional design principle and is based on the ADDIE model (Figure 1) which has five phases: Analysis, Design, Development, Implementation, and Evaluation (Gagné, Wager, Golas & Keller, 2005). According to Gagné et al., (2005), ADDIE model is frequently referenced as a generic model of instructional system design process. The five stages represent major steps in systematic problem solving, which begin with identification of the problem and its causes (Analysis),

planning a solution (Design), creating the solution (Development), carrying it out (Implementation), and checking whether the solution was effective (Evaluation).

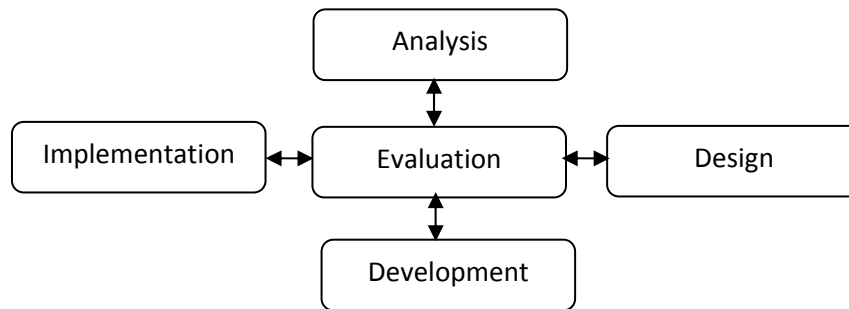


Figure 1: ADDIE model

The following steps were taken at each stage of the ADDIE Model as shown in Figure 1 above.

Analysis

At the analysis stage, the developer team brainstormed on the different approaches in which the users would employ the new *myVLE* system for their tutoring and learning. The team also identified the intended learning outcomes of the learning courseware as a self-managed instructional tool and the list of most frequently used functions of the new *myVLE*.

Design

A learning process should be active rather than passive (Brecke & Jensen, 2007). Behaviourist instructional strategies, which focus on the development of a set of instructional sequences with predetermined learning outcomes was employed. Behaviourist instructions are effective for the self-study of definitions, basic concepts, information acquisition, and application of technical material (Jonassen, 1994). In the design stage, the developer team focused on the following aspects:

- (i) The design of the main screen with the list of general objectives (Figure 2).
- (ii) The selection of instructional strategies: Appropriate self-learning strategies were selected for fulfilling the learning objectives. To achieve this, the developers had to decide on the content and activities to be included in the courseware. The content included screenshots of the actual *myVLE* showing tool icons together with mouse over information of its' functions as shown in Figure 3 and Figure 4. Also, short video clips were incorporated to demonstrate on the "how to" of each tool. In addition, for the commonly asked questions, step-by-step illustrations were presented as answers.
- (iii) The organisation structure, the sequencing and the flow of the storyboard: A proper sequence and structure of the content and activities will help to ensure the instructional objectives and learning outcomes are met. This is because it provides the users with a pattern of relationship of the instructions so that each learning content or activity will have a definite purpose and will be more meaningful to the users. The content was ordered in terms of their relative importance and increasing complexity. For example, the main interface (Figure 3) was listed before the learning interface (Figure 4). This actually helps in making the instruction more effective. Though the content is structured and organised in a systematic order to help the users' learning, it does not restrict them in exploring and clicking the content in accordance to their interest. This is part of the design in fulfilling the objective of the courseware to serve as pull learning strategy. Most importantly, consideration was given on the role of the user. There are two versions of the courseware: learner's version and tutor's version. This is necessary because the *myVLE* interface for learners is different from the interface for tutors. Some of the tool icons in the tutors' *myVLE* interface/platform are for the purpose of administering learning whereas the tool icons for learners are meant for learning purposes.

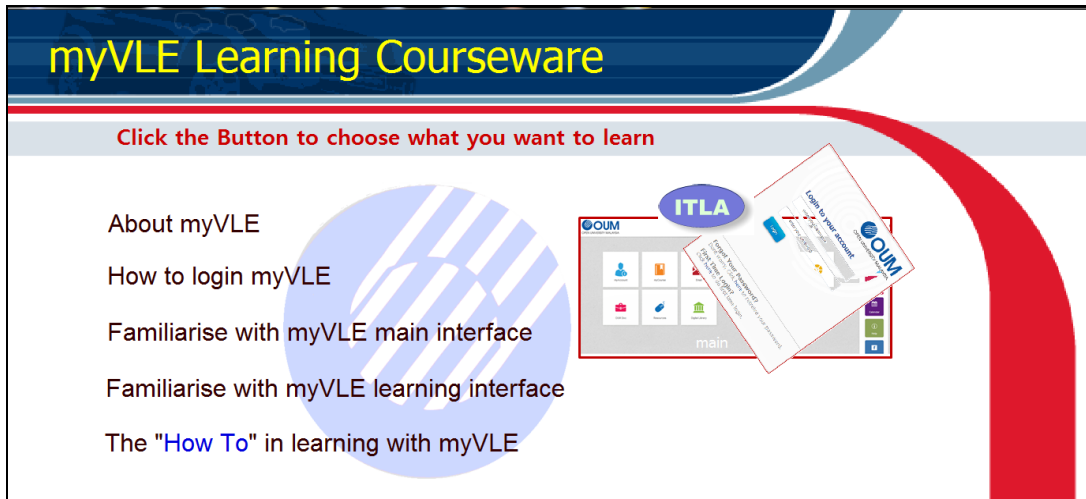


Figure 2: Homepage screen shot of the courseware

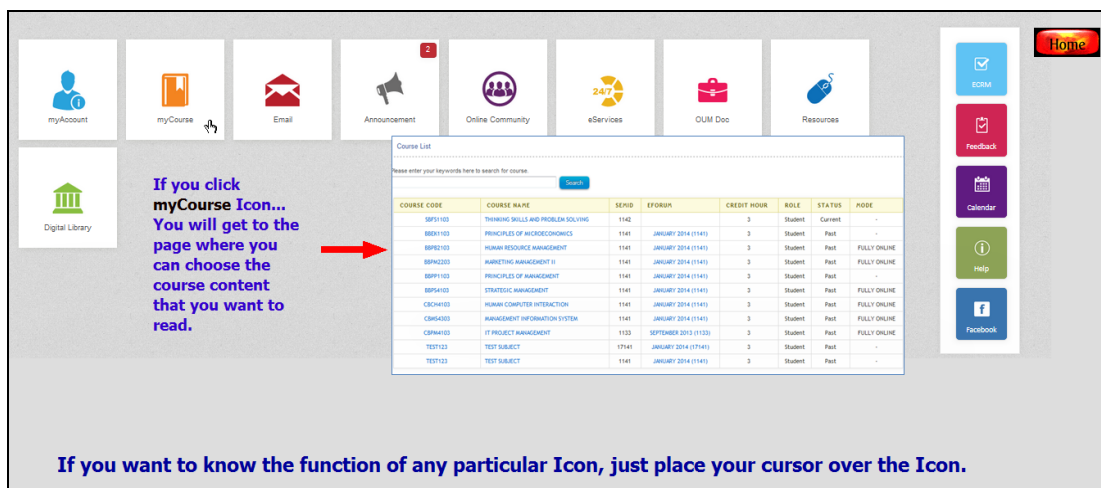


Figure 3: Tool icons in the main interface and mouse over information showing each icon's function

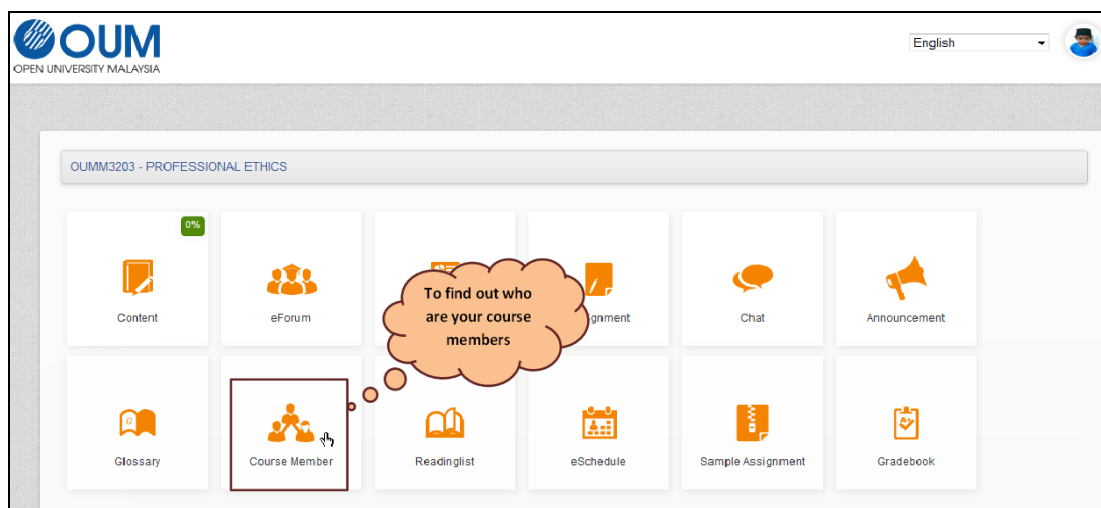


Figure 4: Tool icons in the learning interface and mouse over information showing each icon's function

Development

The standalone learning courseware was developed using the authoring tool Authorware. The development stage elaborated and built on the learning objectives and instructional strategies created in the design stage, into a complete learning environment. The learning platform encompasses the courseware media and its content (activities, voice recording, video clips, etc.). The end result is the courseware ready for instructional delivery. The following components were emphasised under the development stage:

- (i) Storyboard: The developmental stage started with storyboarding. Tasks were then assigned to team members to work on content selection, video and audio recording, editing, and programming respectively.
- (ii) The development stage went through the cyclical processes of designing, programming, testing, modifying and re-testing until the system was tested to run without flaws. The final version produced was then checked against the initial objectives and intended learning outcomes to ensure that the instructional design meets the requirements.
- (iii) Production: After the many rounds of prototyping and testing, the actual courseware and its manual were produced. The manual serves as a guide for the users to use the courseware.

Implementation

After the courseware was developed, it was uploaded in *myVLE* as a “Guide to *myVLE*” and the link to the courseware was also emailed to the e-tutors before the beginning of the semester. It is important that all users be provided with the courseware before the actual use of *myVLE*. Wherever possible, ITLA also provides hands-on training to the e-tutors with the support of the courseware. This is to prevent any obstacles in their use of *myVLE* for the purpose teaching or learning.

Evaluation

Finally, like any computer aided instruction tool, it is crucial to evaluate its effectiveness in meeting the intended learning outcomes. The formative evaluation during the development process of the courseware was conducted internally by ITLA staff. The timely feedback was useful in enhancing the courseware. Besides the formative evaluation, the summative evaluation through survey was conducted to evaluate the effectiveness of the courseware for learning how to use *myVLE* as discussed in the subsequent section. The courseware is expected to undergo continuous enhancements in line with the on-going efforts in enhancing the new *myVLE* features.

User Feedback

The summative evaluation of the courseware was done through a survey questionnaire consisting of two parts. Part 1 had four question items to collect respondent demographics. The respondents were asked of their gender, their role (tutor or student), age and level of competency in using the previous *myVLE*. Part 2 consisted of nine items that evaluated the following aspects of the courseware:

1. User-friendliness.
2. Clarity of information presentation.
3. Effectiveness of Self-learning.
4. Ease of learning *myVLE* via courseware compared to attending training workshop.
5. Usefulness of the courseware in general.
6. Usefulness of the courseware unit on “How to login *myVLE*”.
7. Usefulness of the courseware unit on “Familiarise with *myVLE* main interface”.

8. Usefulness of the courseware unit on “Familiarise with *myVLE* learning interface”.
9. Usefulness of the courseware unit on “How To – in learning with *myVLE*”.

The rating scale for the items ranges from 1 to 6 (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree).

Besides the Likert-scale items, there were two open-ended questions aimed at obtaining feedbacks from users regarding problems encountered with the courseware and suggestions on improvement. The courseware evaluation questionnaire survey was distributed to 17 e-tutors.

Figure 5 depicts that majority of the respondents found that the learning units in the courseware were useful and can be learned easily with its user-friendly interface and instructions. The highest min score ($M = 5.53$, $SD = 0.72$) was reported for item 3 that asked if the courseware is useful for self-learning. Interestingly, on the other hand the lowest rating was recorded for item 4 ($M = 4.82$, $SD = 0.95$) that asked whether it was easier to learn *myVLE* using the courseware as compare to attending a training workshop.

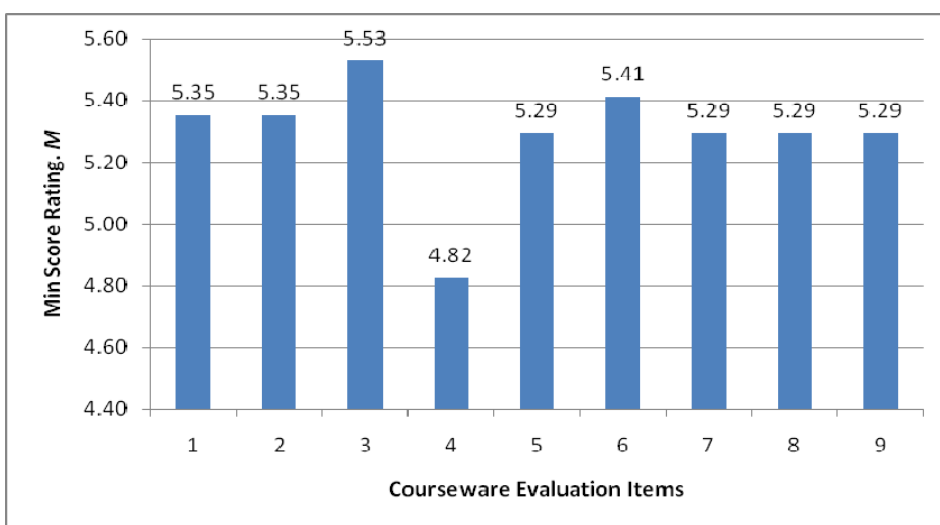


Figure 5: Min score rating of the question items evaluating the courseware

This finding could be explained based on the following reasons as gathered from the respondents’ feedback for the open-ended questions:

Reasons	Respondents’ Feedback
Users are still unfamiliar with the courseware as it was their first time exploring the courseware.	<p>“just need some time to get use to it [courseware]” {e-tutor 1}</p> <p>“need to remember the navigation [of tools]” {e-tutor 10}</p> <p>“[the] word ‘to watch video click me’ [did] not attract my attention to click [on it] and I didn’t realised it” {e-tutor 11}</p>
The workshop facilitator is able to do life demonstration of all the <i>myVLE</i> tools, however the courseware is limited just to describe the functions of the tools and it has a limited number of video clips focusing on key functions only. In addition, all possible questions or issues pertaining <i>myVLE</i> can be easily addressed in the face-to-face training workshop.	<p>“[include] virtual tour for new <i>myVLE</i>” {e-tutor 3}</p> <p>“provide virtual tour for the courseware” {e-tutor 6}</p> <p>“make it easier for all categories of OKU [special need] students” {e-tutor 9}</p> <p>“improve the help function [for] the user” {e-tutor 10}</p>

Despite the above reasons, it cannot be denied that the unanimous consent from the respondents indicated that the courseware is a self-learning tool. The courseware promotes active learning and individualised learning through the pull learning strategy. Hence, these attributes are perfectly consistent in equipping the learner with lifelong learning skills.

Challenges

Learning is enhanced if appropriate instructional strategies are utilised to suit different types of learning. The courseware utilised the behaviourist approach for transmission of structured knowledge. It seemed to lack the learning activities that promote problem solving or knowledge construction. For this, a constructivist learning approach is needed. Although behaviourist instructional strategies have stimulated innovations in educational technology (Gagné, 1965; Skinner, 1968), but educationists have claimed that it is not sufficient to solve certain educational problems (Jonassen, 1994). According to Jonassen (1999), learners learn best through active, intentional, constructive, complex, authentic, cooperative and reflective learning activities. Therefore, it is imperative that due consideration are taken in involving constructivist instructional strategies in designing the learning courseware. Atkins (1993) indicated that designers should apply mixed approach of instructions to offer complete flexibility in acquiring learning. On the other hand, while the developer team acknowledges the usefulness of constructivism learning design, they also had to contemplate on the nature of the subject being learned via the courseware and its main purpose. Thus, behaviourist learning design approach was opted for the courseware as it was deemed to be able to achieve the intended learning outcomes more objectively.

This courseware was developed using Authorware, a popular and rich media courseware for creating e-learning. Though, it is an excellent authoring tool for developing standalone CBT courseware but it requires professional skill and experience in designing and developing the software. Due to lack of experience in using the authoring tool, a lot of time was spent in the learning how to use the authoring tool for creating professional results.

Conclusion

OUM is an ODL institution with learning centres distributed all over Malaysia. In addition, there are about 7000 International learners from 10 countries following OUM's programmes and using *myVLE* to support their learning. With the massive and widely spread learners as well as tutors, it is virtually impossible to conduct face-to-face training to every user of *myVLE*. Nevertheless, *myVLE* is the learning management system that serves as the gateway to self-managed online learning for OUM learners. As such, it is of utmost importance for tutors and learners to be familiar with the use of *myVLE*. The learning courseware was developed to help the tutors and learners reduce their learning curve of getting familiar with the learning management system. Appropriate instructional strategies incorporated in the courseware had helped to decrease the apprehensions of utilising new *myVLE*. The feedback from the e-tutors indicated that the courseware was effective in learning the new *myVLE* and was presumed to be a self-learning tool which essentially encourages lifelong learning. Evaluations by learners are currently in progress. It is hoped that the findings will be useful for future enhancements of the courseware and provide positive indications for developing more CBT courseware to support teaching and learning. Among the proposed plans are a courseware to guide learners in doing their assignments and a courseware for training tutors in facilitating open and distance learning environment.

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