Learners' Evaluation of OUM's HTML Modules

Lim Tick Meng
Open University Malaysia
limtm@oum.edu.my

Widad Binti Othman
Open University Malaysia
widad@oum.edu.my

Woo Tai Kwan
Open University Malaysia
woo@oum.edu.my

Safiah Binti Md Yusof
Open University Malaysia
safiah_mdyusof@oum.edu.my

Halimatolhanin Binti Mohd Khalid
Open University Malaysia
hanin@oum.edu.my

Abstract

A major step taken by OUM, as part of the continuous effort to improve its learning system and tools was the conversion of the print module, used primarily as resource for self-managed learning, into the web-based HTML modules. This paper describes the research which was conducted to evaluate the efficacy of OUM's HTML modules from learners' perspective. A set of questionnaire was prepared for the purpose. Subsequently a user evaluation survey was administered at OUM's various learning centres. The analyses of the study indicate that HTML modules are generally well accepted by the learners. A t-test conducted indicates that the male learners rated the HTML modules higher than the female learners. Another Pearson correlation test shows that the ICT competency of the users has little effect on their perceived quality of the HTML modules, even though the modules are basically computer-based. Recommendations for improvements are proposed

Introduction

Open University Malaysia (OUM) is well recognised as the pioneer of ODL education provider in Malaysia. Since the setting up, it has probably been the most meaningful effort for OUM to explore the best possible means that make ODL an alternative model of learning which is as good, if not more superior than traditional classroom education.

In OUM, courses are delivered using a blended mode comprising three components: self managed learning, face-to-face instruction and online learning. Of the three components, the self-managed learning component constitutes approximately 80% of learners' learning time. Learners use the print modules provided by OUM as main resource for their own learning. To date, OUM has produced a total of more than 1500 print modules for its learning programmes. It is thus apparent that print modules play a critical role in determining the success in OUM's implementation of ODL. In recent years, OUM has been embarking on a major project of converting all the print modules into the HTML format, which are accessible via OUM's proprietary web-based learning management system, MyVLE.

This paper reports on a research project to conduct user evaluation of the HTML modules. The evaluation focuses on four aspects of adequacy of the HTML modules, namely, technical adequacy, interface design adequacy, learner-support adequacy and instructional adequacy. The research study seeks to answer the following research questions:

1. What are OUM learners' perceived qualities of the web-based HTML modules from the dimensions of technical, interface-design, learner-support and instructional adequacy respectively?

2. Is there any difference between male learners and female learners in their overall perceived quality of the web-based HTML modules?

3. Is there a correlation between the learners' competency level in the use of the computer and their perceived overall quality of the web-based HTML modules?

Literature Review

Self-managed learning is the main and the most important component of pedagogic discourse in the blended learning mode that OUM practises. Even though the performances of OUM's learners in their study depend greatly on their ability to carry out effective self-managed learning, it is naive to assume that learners are able to carry out self-managed learning without any assistance (Ottewill, 2002). The effectiveness of self-managed learning depends not only on the availability of appropriate resources and tools but also the learning support. Thus, in determining the effectiveness of any tools or innovations used for self-managed learning, such factors of success are of primary concern.

In March, 1987, Chickering and Gamson (1987) introduced the "seven principles of good practice in undergraduate education" based on a thorough meta-analysis of 50 years of research on good teaching principles. These seven principles are general principles that can be applied to any learning environment. Since their introduction, the seven principles have been widely adopted and practiced in higher institutions of learning throughout the United States and Canada (Chickering and Ehrmann, 1996). These seven principles are:
1. Encouraging contact between students and faculty
2. Developing reciprocity and cooperation among students
3. Encouraging active learning
4. Providing prompt feedback
5. Emphasizing time on task
6. Communicating high expectations; and
7. Respecting diverse talents and ways of learning

The seven principles were introduced during the time when technology in education was at its infancy stage. In fact, the notion of ODL by means of web-based learning system during those days had not existed yet. Today, the advancement of Internet technology has greatly expanded the paradigm of learning. ODL with technology is becoming as important as the traditional mode of learning. It needs however to be stressed that good principles of instructional practice change very little with time. In fact, Chickering and Ehrmann (1996) posit that appropriate use of technology with suitable instructional design could also help in advancing the seven principles of good practice.

Mukawa (2006) conducted a study to investigate the relationship between the seven principles of good practice and the effectiveness of online instruction. A meta-analysis on research findings drawn from 232 studies reveals that effective online instruction adheres to most of the seven principles advocated by American Association of Higher Education. Based on Mukawa's analysis, it is thus reasonable for us to use the seven principles as a guide in designing our instrument for conducting learner evaluation of the web-based HTML modules.

Concurring with their views, evaluation instrument for OUM's web-based HTML modules was carefully designed to ensure their adherence to the principles of good practice.

Elissavet & Economides (2003) designed an instrument for hypermedia courseware evaluation. The design of the instrument was based on a thorough review of the issues emerged from research on instructional design and learning systems evaluation. The instrument focuses on four main areas: content, content organization and presentation, technical support and evaluation of learning. The items constructed emphasize two major aspects of evaluation: pedagogical aspect and design aspect. The 100 item instrument and the additional 24 items catered specifically for web-based hypermedia courseware serve as an excellent source of reference for the design of the customized evaluation instrument for the web-based HTML modules developed by OUM.

Methodology

The instrument designed for user evaluation of the web-based HTML modules is a set of questionnaire containing 40 close-ended items and two open-ended items. The adequacy of the web-based HTML modules as an online learning tool is viewed from four major dimensions, the technical adequacy, the interface design adequacy, the learner-support adequacy and the instructional adequacy. The 40 close-ended items are categorised in Table 1.

Table 1: Dimensions and Scope of Evaluation

Dimensions of Evaluation	Scope of Evaluation	Number of Items
Technical Adequacy	Reliability and ease of use	7
Interface design adequacy	Appropriate design of layout, colour and text	4
Learner-support Adequacy	Adequacy in terms of support to facilitate information search and carry out learning process	7
Instructional Adequacy	Adequacy of the tool to promote effective learning	22

All the 40 close-ended items were designed to be rated on a four-point Likert scale where

1 = strongly disagree

2 = disagree

3 = agree

4 = strongly agree

The purpose of using four-point instead of the commonly used five-point Likert scale is to prevent users from selecting the "Not Sure" or "Undecided" option.

The instrument also includes two open-ended items. The first item "What are your main problems in using the html module" is for the purpose of identifying problems encountered when using the web-based HTML modules. The second item "Please give suggestions on how we can improve the web-based HTML module" is for the purpose of collecting opinions on how the HTML modules could be improved

The research was conducted in the form of a survey. The sets of questionnaires were sent to various OUM learning centres throughout Malaysia, and administered from September to December 2010. The sets of questionnaire were distributed to OUM learners who used web-based HTML modules for their self-managed learning of one of the following subjects:

OUMH1103 – Learning Skills for Open and Distance Learners

OUMH1203 – English for Written Communication

OUMH1303 – English for Oral Communication

These three subjects were selected mainly because they are compulsory for learners who pursue degree courses at OUM. Thus it was more likely for the researchers to gather a bigger sample for the purpose of quantitative analysis. Another reason is that the web-based HTML modules for these three subjects are among the web-based HTML modules inspected in the first phase of the study.

Purposeful and convenient sampling was adopted for the purpose of data collection. The questionnaires were distributed to learners who use the HTML modules for learning. A total of 860 sets of filled questionnaire were collected from OUM's various learning centres. Of these, 21 sets which did not have complete answers to all the close-ended items were excluded in the analysis.

Data Analysis

Before the actual data analysis was carried out on the data collected, the research team carried out a computation of Cronbach's alpha on the items used to evaluate each category of adequacy. The purpose was to ensure that the items within each category are internally consistent. The results are summarised in Table 2.

Table 2: Cronbach's alpha for Items Measuring Adequacies

Adequacy Measure	No of items	Cronbach's alpha
Technical Adequacy	7	.916
Interface-Design Adequacy	4	.871
Learner-Support Adequacy	7	.922
Instructional Adequacy	22	.952

From the result, it is clear that the Cronbach's alphas for items measuring the four aspects of adequacies range from .871 to .952, indicating that the items for the measurement of respective adequacies have reasonably high internal consistency.

The profiles of the learners who participated as respondents in this research are summarised in Table 3.

Table 3: Respondents' Profiles

Profile		Frequency	%
Sex	Female	491	60.1
	Male	326	39.9
	Total	**817**	**100**
Age	<21	42	5.1
	21-30	405	49.6
	31-40	279	34.1
	41-50	75	9.2
	51-60	14	1.7
	>60	2	0.2
	Total	**817**	**100**
ICT Competency	Very high competency	6	0.7
	High competency	52	6.4
	Average competency	488	59.7
	Low competency	214	26.2
	Very Low competency	57	7.0
	Total	**817**	**100**

Research questions (1) to (4) were aimed at investigating users' perceived quality of the web-based HTML modules from the dimensions of technical, interface-design, learner-support instructional adequacy respectively. The result of the analyses are summarised in Table 4.

Table 4: Evaluation o f Various Adequacies (by Learners)

Dimension of Adequacy	Gender	Mean	SD	N
Technical Adequacy	Male	3.14	.46	326
	Female	3.06	.54	491
	Total	3.07	.50	817
Interface-Design Adequacy	Male	3.15	.47	326
	Female	3.07	.50	491
	Total	3.09	.48	817
Learner-support Adequacy	Male	3.12	.49	326
	Female	3.02	.53	491
	Total	3.05	.51	817
Instructional Adequacy	Male	3.12	.44	326
	Female	3.04	.50	491
	Total	3.06	.47	817
Overall	Male	3.12	.49	326
	Female	3.01	.57	491
	Total	3.07	.45	817

It is interesting to note that only two items from the 40 open-ended items have mean rating scores below 3.00. These two items are:

1.   The HTML module can be launched without error (M=2.89, SD=0.610)

2.   There are sufficient amount of activities in the HTML module to support learning (M=2. 92, SD=0.589)

Research question (5) investigates whether there is a difference between male learners and female learners in their overall perceived quality of the web-based HTML modules. An independent sample t-test was conducted for the purpose.

The analysis shows that there is a significant difference in the rating scores the web-based HTML modules between the male learners (M=3.11, SD =.40) and the female learners (M=3.03, SD = .48); t(815)= -2.477 , p.=.01, d=0.20. The results suggest that gender factor does have an effect on the perceived adequacy of the web-based HTML modules. The perceived adequacy ratings by male Learners are higher than that by the female Learners. The Cohen's d value of 0.02 however, is indicative of a small effect size.

Research question (6) aims to investigate whether a learner's level of ICT competency has an effect on his/her perceived usefulness of the web-based HTML modules. To determine the strength of correlation between the computer competency level and the overall rating of the learner on the quality of the web-based HTML modules, a Pearson product-moment correlation coefficient was computed. The result indicates that the there is significant correlation between the two variables (r = .188, n = 817, p <.001).

Nevertheless, the correlation appears to be weak. The r^2 value of .035 indicates that a mere 3.5% of the variance in the perceived quality of Technical Adequacy is accounted of by the variance in ICT competency.

There are two open-ended questions in the questionnaire. The first question was aimed at collecting feedback from the respondents regarding the problems faced when using the web-based HTML modules. Feedback obtained is summarised in Table 5.

Table 5: Problems Raised by Respondents

NO	Problems using the HTML Modules	Number of Respondents
1	There is difficulty to log in and launch the module.	34
2	The system appears to be slow	21
3	There is no face-to-face discussion	8
4	There is no one to explain the difficult concepts	8
5	We do not know when to use the learning objects	7
6	There are not enough self-assessment activities	3
7	It is tiring watching the computer for too long.	23

The second open-ended question was aimed at obtaining respondents' suggestions on ways to improve the HTML modules. Feedback is summarised in Table 6.

Table 6: Suggestions by Respondents

NO	Suggestions for Improvement	Number of Respondents
1	Should have more interactive activates and exercises	11
2	Face-to-face instruction is still important	10
3	The print module should also be given.	10

Discussion of Findings

From Table 4, the mean rating score based on the feedback from the learners is 3.07 (on a rating scale of 1-4) with a standard deviation of .45. This indicates the general acceptance of the users of the web-based HTML modules as an online tool for self-managed learning.

It was however mentioned earlier that there were two items that had rating scores of below 3.00. The first of these two items reveals the prevalence of technical problem in launching the web-based HTML modules. The finding is in congruence with the issue raised by users that they had difficulty in launching the HTML modules or that the system was slow. The low rating of the item about the launching problem is probably not due to the weakness of HTML module or MyVLE, but more likely because of the bandwidth and Internet connectivity problem in some parts of the country.

The other item that has a rating below 3.00 should be a matter of concern. It indicates that the respondents prefer the web-based HTML modules to be equipped with more interactive activities and multimedia learning objects, and not just heavily based on text and static graphics or pictures. This argument is again substantiated by the suggestions from users that there should be more interactive activities and exercises. In fact, it is of the opinion that the interactive learning should serve as some kind of microworld that allows constructivist learning.

The t-test conducted to compare rating scores of the web-based HTML modules by male learners and female learners indicate that the male learners give a significantly higher rating. This is probably a factor of differences in gender preferences, but the small magnitude of the difference should not be a matter of concern.

Another issue that needs to be seriously looked into are the other two suggestions forwarded by the users. These suggestions are:

1. there should still be face-to-face interaction

2. the print modules should still be given

Conclusion and Recommendations

This research indicates the general acceptance of the learners towards the use of HTML modules as an alternative resource for self-managed learning. However, feedbacks from learners show that the there are aspects of the HTML modules that need to be improved to warrant it a more effective learning resource. Some of the suggestions can be summarised as follows:

(i) The level of interactivity of the HTML module needs to be improved. There should be sufficient number of interactive learning objects. These objects should not reside in a depository and dissociated from the modules. But they should instead be embedded in the HTML modules at appropriate nodes and links such that they can be used rightly by the learners to enhance their understanding of the subject. It also makes learning more systematic and organised.

(ii) Instructional designers may have difficulty in determining the appropriate nodes to be linked to learning objects as this requires good understanding of the pedagogical and content knowledge of the subject matter. Therefore, the research team members are of the opinion that subject matter experts should be involved in the interactive content development.

(iii) Sufficient assessment activities should be embedded in the HTML modules too. Assessment activities should not be just providing scores. It should be "intelligent" enough to provide different responses for different inputs. The responses should be meaningful in guiding learning, not just measuring learners' performance.

The request by users to have face-to-face instruction indicates that there is still a gap between conventional learning and the ODL form of learning. It may be difficult at this stage to fill the gap, but it is certainly not impossible to narrow the gap. For instance, relevant video-recorded mini lectures (which are named as i-lectures by OUM) may be embedded and linked to the web-based HTML modules at appropriate nodes to allow the learners "see" the lecturer giving lectures. By using such mini-video-recorded lectures, we have the benefit of filtering off the unimportant content and select quality and concise lectures for our learners.

It may be meaningful to conduct further research on modelling a conceptual framework for designing the web-based interactive modules which is based on sound pedagogical and learning principles.

References

Chickering, A. W., & Gamson, Z. F. (1987). Seven Principles for Good Practice in Undergraduate Education. AAHE Bulletin(March 1987), 3-7.

Chickering, A. W., & Ehrmann, S. C. (1996). Implementing the seven principles: Technology as lever. AAHE Bulletin(October 1996), 3-6.

Elissavet, G., & Economides, A. A. (2003). An Evaluation Instrument for Hypermedia Courseware. Educational Technology & Society, 6(2), 31-44.

Mukawa, T.E. (2006). Seven Principles for Good Practice and Effective Online Instruction in Higher Education. In T. Reeves & S. Yamashita (Eds.), Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2006 (pp. 236-240). Chesapeake, VA: AACE.

Ottewill, Roger (2002). Student self-managed learning – time for action. On the Horizon, Vol. 10 Iss: 2, pp.13 – 14.