STUDENT CENTERED INSTRUCTIONAL DESIGN FOR E-LEARNING CONTENT – LEARNING MANAGEMENT SYSTEM (LMS)

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ABSTRACT

E-Learning is an educational process that leverages on the opportunities of digital technologies for delivering contents, assessing students’ competences as well as for enhancing interaction between instructors and students. This paper aims on developing and adapting a better Learning Management System (LMS) for INTI University College students. Furthermore, E-learning content is one of the component in LMS, plays a vital role for INTIONLINE System. The instructional design proposed as a complementary tool to enhance and improve the quality of teaching and learning, which focuses on student centered perception.

The application of instructional design principles in E-learning content is to ease the learner in acquiring a better understanding as laid in the objectives of the content and facilitates a student friendly structure. The learner’s perception toward the current content design at this higher learning institution is paid importance.

The outcome of this study is useful for E-learning content developers and also for lecturers to exploit the benefits of the instructional design principles and strategies. These instructional design principles and strategies can be used as guidelines to design and develop E-learning contents.

KEYWORDS

Student centered, E-learning content, Instructional design

INTRODUCTION

Educational institutions need more flexibility and control over their e-learning environments to enable different schools, programmes, course, or instructors to select and deploy the most appropriate e-learning tools suited to teaching and learning process. Effective design and implementation of E-learning will facilitate the better achievement of desired learning outcomes for students. Effective design on E-learning content relies on instructional design process, which encompasses stages such as requirement analysis, target audience analysis, course development that includes objectives, content, delivery modes and evaluation and the implementation of the system. Particularly, a successful development of content demands a thorough understanding of content, process of instructional strategies, content organization, learning outcome assessment and learner needs.

INTI University College is one of the well known private academic institutions in Malaysia, that looking forward to promote a conducive learning environment, using modern learning methods and integrating the latest advances in Information and Communication Technology (ICT). INTI’s mission is to provide and maintain higher academic standards through E-
learning and it requires innovation and flexibility in content, based on the instructional design strategies and principles. INTIONLINE as the Learning Management System (LMS) has been developed and in use to facilitate the learning and teaching process. Although at INTI lecturers’ play the role as the content developers, it is important to know how well the instructional strategies used in content match the students’ needs and expectations.

Therefore this paper surveys how well students have benefited from reading and using the material content to enhance knowledge and their expectations and readiness. Finally the importance is to design elements needed to develop E-learning content.

LITERATURE REVIEW

E-learning is an emerging technology in many academic institutions in Malaysia. It is moving towards the implementation of e-learning with the blend of classroom teaching which is also known as blended learning. In recent years, many studies have been conducted to prove the usefulness of E-learning over conventional classroom teaching. However E-learning is not to replace the classroom teaching. It plays the role as a supplementary tool to provide effective and quality learning and teaching.

Today there are many ways to access technologies for manipulating and presenting content. Many instructional designers and content developers are exposed to different ideas of what defines good layout, instruction and presentation design. The design of E-learning content influential factors includes instructional strategies and process, learner readiness and expectations, media and format to be used, reusability and interoperability.

INSTRUCTIONAL DESIGN COMPONENTS

Instructional Design is a set of prescription of the necessary events and activities of learning which provide a guidance function towards the achievement of specific objectives for learners. Instruction consists of three steps such as information presentation, eliciting responses from the learner and providing feedback to the learner and a complete instructional package contains 4 components that are related to the 3 steps mentioned earlier. The 4 instructional components are:

(a) Intent – learning objectives and outcome
(b) Content – information is the inherent structures that give its characteristic and meaning in contextual sense.
(c) Activities – learning procedures, exercises and questions.
(d) Assessment – Progress check and student evaluation.

Instructional design involves the alignment of all these four components. Mismatching of these components will lead to incomplete instruction thus the learning objective design provides a focus for selecting instructional content, strategies, tactics and media (Raja Maznah, 2001).
Variety of factors should be considered in the design of materials for learning. Design elements are one the factor when planning the e-learning content. The six design elements are:

1. Activity – Rich learning activities in E-learning would provide an experience to lead students to achieve the desired new understanding and knowledge.
2. Scenario – An interesting context or scenario makes the activity more meaningful.
3. Feedback – Experience creates knowledge through reflection with use of appropriate criticism or feedback. Provision of feedback amplifies the learning from the experience.
4. Delivery - Aims to maximize the engagement of the student with the activity and feedback and reflection with the proper technical infrastructure.
5. Context – Includes the instructional objectives of the e-learning program, role of instructor and the longevity of the resources.
6. Influence – Influence of the design includes how it affects the learner and to what extend the content benefits them.

These six elements pave the way to design the effective and flexible instructional strategies for the content that suits learner needs and provide better balance between content and process. The core elements stated above can reduce the gap between educational intention and the reality of learner experience (Andrew and Bradley, 2005).

INSTRUCTION DESIGN PROCESS

Process of designing instructions involves 5 stages. Analysis is the process of investigating the instructional solution for the identified content and audience. Development involves the process of designing producing the leaning experience through instructional strategies. Production is the process of multimedia and data elements produced though iterative revisions before it is considered finished. Implementation involves both pilot testing and field trials (formative evaluation) of the material to ensure it suitable for learners. In the final stage, summative evaluation involved to improve the learning materials (David et al., 2001).

LEARNER READINESS

In a blended learning or E-learning that focuses on learner-instructor approach, learning objectives, activities and content materials are vital to successful learning outcomes. This definition highlights the importance of interrelationship among learner, content and technology (Candance, 2004). However, online learning might not be suited for every learner. Self-motivation, necessary learning skills, collaborative learning, frequent and specific feedback can lead to readiness towards its use.
MULTIMEDIA PRESENTATION TOOL (MPT)

On-line instruction present many challenges compared to traditional classroom teaching. Therefore level of technology and software and hardware requirements is essential to create realistic expectation. There are various multimedia presentation tools available to aid the design and development of instructional content. Right choice of multimedia elements is essential to engage learners on-line. The right selection of MPT will help to ensure the effective presentation of the content and it also responds to other factors such as less cost, no and basic training, high flexibility, cut of development time.

REUSABILITY AND INTEROPERABILITY

Reusability is the consideration of the independent of the learning context where it can be used in numerous learning environments and usable for many different learners. To motivate the instructor to consider reusability, the major stimulus is not so much pedagogical but rather their need to adapt existing courses to changes in the curriculum. In blended learning, instructor makes the pedagogical decision relating to reuse and not the LMS. If the whole course cannot be reused but a module or some learning materials within it could be reused (Betty and Allard, 2003). If the instructors themselves create the content material, it would not be a problem to identify and select materials to reuse.

Interoperability is the consideration of different function in application, hardware and software and a common interface between various components of E-learning to interchange data. There is a need for interoperability for the elements in on-line components. Instructional elements can capture data and communicate the data to other components of E-learning systems that can store and analyse it. Therefore a standard communicating methodology (protocols) between various components of E-learning is vital (Rao and Pal, n.p).

METHODOLOGY

A set of questionnaires were designed for students which categorized into 5 sections. The sections seek information respectively on learners’ readiness and expectation, choice of presentation media, effective strategies in content, useful LMS features to support the learning process and learner perception towards the existing content presented in INTIONLINE.

FINDINGS AND DISCUSSION

The results of the survey are divided into two parts to answer the research questions. The first question is: to find out what is learner’s perception toward the current content design. The second part of this survey is to find out the important design elements and other considerations to design and develop E-learning content in blended solution.
LEARNERS PERCEPTION

Out of 60 students 5.5% find the current content uploaded on INTIONLINE are not really useful and helpful whereas 56.3% of the students find the contents are useful for them and the rest of the students are uncertain whether the use of content is one the factor to facilitate their learning. This results shows that INTI students agree that the current E-learning content which follows certain instructional design strategies and principles are helpful and useful a self study tool to take control of their own learning.

USEFUL LMS OBJECTS IN INTIONLINE

INTIONLINE contains nine objects and the following are the result of learners ranking of the objects in their degree of usefulness.

<table>
<thead>
<tr>
<th>Object</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notice board</td>
<td>92.7%</td>
</tr>
<tr>
<td>E-mail</td>
<td>80.2%</td>
</tr>
<tr>
<td>Coursework</td>
<td>92.7%</td>
</tr>
<tr>
<td>Outline</td>
<td>80.1%</td>
</tr>
<tr>
<td>Events</td>
<td>81.9%</td>
</tr>
<tr>
<td>FAQ</td>
<td>76.4%</td>
</tr>
<tr>
<td>Content</td>
<td>94.5%</td>
</tr>
<tr>
<td>Dropbin</td>
<td>76.1%</td>
</tr>
<tr>
<td>Assessment</td>
<td>89.2%</td>
</tr>
<tr>
<td>Feedback</td>
<td>83.6%</td>
</tr>
<tr>
<td>Forum</td>
<td>81.8%</td>
</tr>
<tr>
<td>Chat room</td>
<td>58.3%</td>
</tr>
<tr>
<td>Study schedule</td>
<td>70.9%</td>
</tr>
</tbody>
</table>

The most useful object for learners are the content, coursework, notice board, assessment, feedback, events and forum. 79.1% of the learners used the E-learning content and other features such as on-line tutorial, quizzes and test, online help, related websites, e-mail facility, forum, feedback, and electronic notice board. 3.6% of the students did not use any of these objects.

USEFUL STRATEGIES IN INTIONLINE

There are many instructional design principles used in E-learning content which are very useful. 78.2% of the students ranked the following instructional design principles used has the most useful for them: learning objectives, learning outcome, activities, self-assessment, related websites, content with multimedia elements and content with examples.

CHOICE OF PRESENTATION MEDIA

Three types of multimedia presentation tool (MPT), namely PowerPoint, Authorware and Tool Book are selected as the choice of content presentation media. This is to find out the appropriate MPT based on learners’ preference. 83.7% find PowerPoint is appropriate, 29.1% prefer Authorware and 32.9% prefer Tool Book. This result shows PowerPoint is still the most useful multimedia presentation tool to present content. The right choice of MPT is the vehicle that delivers the instructional content and enhances the flexibility in designing the
learning activities in the content. Incorporation of different media elements such as text, graphics, audio and video cater for different learning styles.

**E-LEARNING CONTENT DESIGN CONSIDERATIONS**

To identify the suitable instructional strategies and principles, content developers need to perform target audience analysis, requirement analysis and content analysis. In some cases, content developers might not have instructional background and instructional designer would take the responsibility of the instructional design. In this context, teamwork would be great, involving various people such as content developers, content evaluators, instructional specialist and media specialist. When learning materials are fully developed in house, content developers have the skills to identify the right material to be reused. Reusability would save the time and cost.

**CONCLUSION AND FUTURE WORK**

The main conclusion drawn from this study is that the content is the most useful LMS object in blended learning particularly for INTI University College. Content should be created as an independent component freely articulating with interoperability and reusability. The content materials being used currently need more refinements based on instructional strategies and evaluation. This study is still in progress and it is subject to an experiment in the next stage. This experiment objective is to perform a summative evaluation on the refined instructional content to study how well it matches students learning style.

**REFERENCES**


