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# Improving the User Interface of Courseware in Malaysia

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ABSTRACT :

A large quantity of interactive multimedia educational courseware has been developed in Malaysia, but a recent review has found that its uptake has been limited. In particular, the interface design quality was claimed as one of the reason for this lack which is not appropriately designed in terms of quality of learning. With this in mind, this research study reviews the current educational courseware development process in terms of defining a quality of interface design through contextual analysis and in-depth interview within the Malaysian interactive courseware developer. The research outcomes are expected to contribute to courseware development field and multimedia based learning area in terms of interface design improvement and appropriately can enhance the interactive learning experience.

Keywords: Evaluation; Online English, Change; Classroom

## INTRODUCTION

Throughout the past decade, interactive multimedia educational coursewares are widely available for use at school for educational purposes. Therefore, this multimedia based learning has been accepted as an effectives learning tool and has broadly prevailed in various types of e-learning system. With this kind of benefits, Malaysian Ministry of Education has also adopted this benefit as an education reformation project called *'Smart School'* since 1999, aiming to improve all Malaysian Primary and Secondary students' learning ability, attitudes and achievement, and enhance teachers' teaching performance towards distribution of interactive courseware of the key learning domains such as Mathematics, Science, Bahasa Melayu and English and further to raise all the Malaysian schools to high academic achievement by year 2020.

Accordingly, the implementation of the interactive multimedia educational courseware provided was evaluated by the government from 2003 to 2008, based on several aspects such as looking on student performances and preferences towards the courseware. However, according to report of this evaluation and researchers' reviews, the courseware provided has not been effectively used in schools and was under-utilised by teachers and students (Multimedia Development Corporation, 2007). Therefore, many researchers point out that much courseware has been developed without deeply considering the various of interactions between students and the courseware, between students and teachers, and between students and students and there are a vital issues regarding the quality of interface design (MOE, 2006; MOE, 2004; Puteh, 2004; MOE, 2003; Zain, 2002). They further claimed, lack of uptake has resulted for several reasons including the fact that the presentation forms of the courseware content are also problematic in terms of encouraging students to use them and this courseware also lacks interactive features

in terms of multimedia presentations. This fact also has contributed to the students' poor attention status (Jaafar, 2006; Baharuddin et all, 2006).

## RESEARCH PROBLEM

Interactive multimedia educational courseware should motivate students to learn and encourage them to participate actively. Towards the goal, interface design should facilitate user's interaction and enhance user's experiences that can contribute to quality learning and teaching. It has been reported in Malaysia however, much of the interactive multimedia educational courseware that exists as a new medium of teaching and learning delivery in classroom, fails to achieve the quality learning experiences for students and teachers during the implementation stage. One of the main reasons for this is the impoverishment of interface design which does not properly accommodate students' and teachers' needs and their interactions with the functions (MOE, 2008; Multimedia Development Corporation, 2007; Kamariah, 2006).

As such, most of the interface design within these interactive multimedia educational courseware's are designed exclusively by the developer appointed by the government and assume can be used effectively by all students, but from the preliminary review it was shown that often the developers are not realized the courseware's that have been developed by them are inaccessible by the end users. Within this context, this research is presuming that there is some disintegrate in the development process of an effective interface design happened between the developer of the existing interactive multimedia educational courseware and the users involved (teachers and students) in order to produce an effective interface design that can accommodate the end user need and facilitating the quality learning experience.

Thus, due to the weakness performance of the interface design quality as well as the failure of the development of the courseware, this research tries to investigate and assessing how actually this interface design of the existing Malaysian interactive educational courseware has been developed by the current developers and to what extend the Malaysian interactive courseware developers understand the important of interface design as a communication medium in delivery courseware content.

Focusing on the interface design of the existing interactive courseware in the *Smart School Project* in Malaysia, three guiding research questions for this research project have been identified in investigation of how interface design of this interactive courseware has been developed. The study will undertake to explore the questions:

(1) What are the common developments processes of interface designs have been endorsed by the Malaysian Ministry of Education and have been implemented by the developer in the current development of *Smart School* interactive multimedia educational courseware?

*(2)* What are the common interface designs characteristics have been recommended in the existing guidelines by the Malaysian Ministry of Education for the current development *of Smart School* interactive multimedia educational science courseware?

(3) Have these guidelines been followed by all developers in the design and production of existing courseware?

## METHODOLOGY

This research study had begin with analyzing of interface design characteristics in the existing government guideline, followed by in depth interview with the developers those involved in the development of the existing courseware. In this primarily data collection, a content analysis technique was used. The interface design characteristics that identified in this existing guideline will be categorizing accordingly to the selected component. This content analysis will define the

common interface design characteristic exists in the guidelines provided. In order to get knowing how really the developer developed the interface design of the existing courseware, a field visit and face to face in-depth interview has been conducted with the selected courseware developer those involved with the development of the current existing courseware.

## DATA COLLECTION AND PRELIMINARY FINDINGS

To date a comprehensive review and analysis was done on the existing guideline for the development of interface design within existing Malaysian interactive educational courseware and in-depth interview with ten courseware developers across Malaysia. Based on the comprehensive review and analysis on the existing guideline it was identified that existing guideline are integrated of several components counting storyboard standard, instructional design standard, technical standard, interface design standard and references standard. Summary of these components are presented in table 1.

**Table 1: Components on the existing guideline for Malaysian interactive multimedia educational courseware**

| | | |
|---|---|---|
| **Storyboard** | Layout | |
| | Navigation | |
| | Graphic / Animation / Video | |
| | Text | |
| | Audio Script | |
| **Instructional design** | Content / Concept / Skill Learning | |
| | Practice / Activity | |
| | Test / Assessment / Evaluation | |
| **Interface design** | navigation | Montage with the Malaysian Government logo |
| | screen display | Text |
| | | Graphics |
| | | Animations |
| | | Audio |
| | | Video |
| **Technical** | Specifications requirement | |
| | Environments requirement | |
| **References** | language | English : Oxford Advanced Learner's Dictionary |
| | | Malay : Kamus Dewan Bahasa dan Pustaka |
| | Sign language | Malay : Kod Tangan Bahasa Melayu (KTBM) |
| | | English: American Sign Language (ASL) |

As one of the parts in this research is looking on the characteristics of interface design within existing Malaysian *Smart School* interactive multimedia educational courseware, this comprehensive analysis was revealed some of the interface design characteristics from the existing guideline as list below. Therefore this analysis determines that existing guideline is providing very simple information that can be used as a guideline for developer and it's too broad. Most of the explanations on every each component are just mentioned a very basic requirements and specifications. However the guideline clarified clear points about the decision making process the will be employ in the process of interface design development.

The interface design characteristics that revealed from the existing guideline

for Malaysian interactive multimedia educational courseware are:

Navigation:
1. Introduction section shall be a multimedia presentation, between 15-30 seconds, which shall include any combination of text, animation, graphics and/or audio
2. User shall have the flexibility to navigate to the next and previous activity, to pause and to continue an activity, and to exit.
3. All icons with "mouse over" effects.
4. Test page should have a confirmation dialogue.
5. Every page should be easy to use.
6. Must have the same introductory montage with the Malaysian Government logo to give a standardized look.

Screen Display:
1. Colors for the total screen area shall be a contrast between the foreground and the background.

Text:
Title should use of capital letters.
Fonts:
1. Colors used for text shall be contrast against the background of the screen.

Sizes and fonts shall be limited to no more than 3 types per page.

Graphics:
1. All graphic must be clear.
2. All character used (in e.g. animal, human or cartoon) :
   - must be approved by the content reviewer and to be used again and again or consistent
   - shall be logical and not contradictory to real life situations and enhance or support learning
   - Biases or stereotypes in graphics or animations (gender, ethnicity, religion, etc.) must be avoided.
3. Color used should be suitable for the age group concerned.
4. Any visual should include sound effect to sustain student interest.

Animations:
Shall be used with purpose to support and enhance learning.

Audio:
1. Voice, music narration, sound or song if include must be appropriate and should be clear.
2. Voice used:
   - Voice of talent used should be appropriate according to gender, age of the character portrayed in the courseware.
   - Correct pronunciation and clear intonation with neutral ethnic accent.
4. Audio icon shall be provided to enable user to choose to listen.

**Video:**
Video frame should be at least 240 X 180 pixels

Nevertheless, based on the data gathered from ten different courseware developers that were interviewed, the preliminary analysis revealed some outcomes. This preliminary analysis verified that the current practices of courseware development process implemented by the courseware developers for the existing *Smart School* interactive multimedia educational courseware are highly similar to the establish generic waterfall model of educational courseware development.
When the developer asked about user involvement, no one of the developers participated in this research mentioned that they conduct a user analysis before begin the design process. However, only one developer mentioned that they conduct a user testing with the actual end user. The reason given by most of the developer is when they conduct a user testing with the actual end user it will implicated to time and cost. From this it was shown that the involvement with the intended learner in the early stage of design or testing of the courseware is very low.

Therefore, data gathered from this in depth interviews also recognized there are

some general misconceptions about the important of interface design in courseware development and the challenges faces by the developer apparently. Most of the developers assuming that development of interface design of interactive multimedia educational courseware it's just involved a simple improvement phase from a printed version of content material into electronic format. For example, most of them is just converted the sample test from the current existing textbook into their potential interactive courseware. However, this was differing from the actual role of the interactive learning where courseware development is not merely a simple process of converting a printed learning module with exercise into electronic format (in e.g. Norhayati and Siew, 2004). Actually, in this case, it's important for the courseware developer to not avoid and distinguish the function of interface design of interactive multimedia educational courseware in teaching at the beginning of the process development.

## SUMMARY

From this preliminary analysis what can be conclude is the level of understanding on the role of interface design among the developers is small. Therefore concerning on the degree of their development process in relation to the existing guidelines provided, this analysis verified that most of the developers involved initially criticized that the existing guideline are too simple and broad to be used as a guidance in the development process of interface design for interactive multimedia educational courseware. However these preliminary research outcomes are expected to contribute to the development of practical guideline for Malaysian courseware development field in terms of improvement of interface design and appropriately can enhance the interactive learning experience among Malaysian school children.

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