CONCEPTUAL DESIGN OF REALITY LEARNING MEDIA (RLM) MODEL BASED ON ENTERTAINING AND FUN CONSTRUCTS

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By

Ariffin Abdul Mutalib
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Ariffin Abdul Mualib
15 April 2009
ABSTRACT

Many eLearning materials (eLM) have been developed for use in education and training. However, studies report that the investments on the courseware projects do not show good returns. Furthermore, the use and perception of teachers and students on eLM, such as courseware on CDs, are very low. In fact, many schools have stopped using courseware in the classrooms.

Many factors were identified influencing the disadvantages of courseware implementation in eLearning; nevertheless the way learning content in the eLM is blended and presented to learners is seen as one of the reasons. Existing eLM are found to be not entertaining and not invoking fun, making learners feel bored. In Interaction Design, although many guidelines have stated entertaining and fun as two important design elements, many developers still produced contents that failed to include these elements. One possible reason for this is the nature of fun and entertaining that are difficult to be realized without technical skills and creativity. This leads to the following research questions: (1) How to ensure that learning content is perceived entertaining and invoking fun by the end users?, (2) Can entertaining and fun learning material be effective?, and (3) How to enable instructors especially the non-technically-skilled to produce eLM that are considered entertaining and invoking fun?

Answering these questions leads this study to propose a conceptual design model of eLM which is able to ensure content is entertaining and invoking fun as perceived by the end users. Inspired by the famous reality TV shows, the proposed model is called Reality Learning Media (RLM). Therefore, the aim of the study is to propose a conceptual design model of RLM. To accomplish that, four specific objectives are formulated: (1) To determine the components of RLM, (2) To propose the conceptual design model of RLM, (3) To validate the conceptual design model of RLM through prototyping, and (4) To investigate user experience of RLM in terms of entertaining, fun, and effectiveness.

Comparative analysis, peer and expert reviews, content analysis, prototyping, and experimental studies are used to accomplish the objectives and aim. General findings show that RLM is perceived entertaining; in fact it is more entertaining than video and courseware. In addition, hypotheses-specific testings using one sample t-Test, independent samples t-Test, and ANOVA reveal that regardless of gender, academic achievement levels, and other eLM experience (before learning with RLM), respondents perceived RLM as entertaining and fun. Not only that, RLM is proven to be effective in delivering learning contents.

The main contributions of this study are the concept of reality video that has been put forward, the development of the conceptual design model together with the prototypes of the RLM. Apart from these, the recording techniques for RLM and the validated instrument measuring entertaining and fun are also significant contributions to the body of knowledge.
**ABSTRAK**

Pelbagai bahan pembelajaran elektronik (eLM) telah dibangunkan untuk kegunaan latihan dan pendidikan. Namun, banyak kajian melaporkan bahawa pelaburan terhadap projek-projek pembangunan koswer tidak menunjukkan hasil yang baik. Tambahan pula, penggunaan dan persepsi guru dan pelajar terhadap eLM, seperti koswer, adalah sangat rendah. Malah, kebanyakan sekolah tidak lagi menggunakan koswer dalam pembelajaran.

Beberapa faktor dikenalpasti mempengaruhi kelemahan penggunaan koswer dalam eLearning; termasuk cara bahan pembelajaran diolah dan dipersembah kepada pelajar. ELM yang sedia ada didapati tidak menghiburkan (*entertaining*) dan tidak membuatkan pelajar seronok (*fun*) semalknya menyebabkan pelajar menjadi bosan. Dalam Rekabentuk Interaksi (ID), walaupun kebanyakan garis panduan meletakkan *entertaining* dan *fun* di kalangan elemen rekabentuk yang penting, pembangun aplikasi dilihat gagal memuatkan elemen-elemen tersebut. Satu kemungkinan adalah sifat *entertaining* dan *fun* yang sukar dibentuk tanpa kreativiti dan kemahiran teknikal. Keadaan ini membawa kepada perangkap: (1) bagaimana memastikan kandungan pembelajaran *entertaining* dan *fun* dari sudut persepsi pengguna? (2) Bagaimanakah kandungan pembelajaran yang *entertaining* dan *fun* menjadi efektif? (3) Bagaimanakah cara membolehkan pengajar terutama yang tidak mempunyai kemahiran teknikal menghasilkan eLM yang *entertaining* dan *fun*?

Bagi mencari jawapan, kajian ini mengusulkan satu model rekabentuk konsep bagi eLM yang membolehkan kandungan dilihat *entertaining* dan *fun* dari sudut persepsi pengguna. Mendapat inspirasi dari rancangan TV realiti, model yang dicadangkan diberi nama **Reality Learning Media** (RLM). Maka, matlamat kajian ini adalah untuk mengusulkan model rekabentuk konsep bagi RLM. Untuk mencapai matlamat ini, empat objektif dibentuk iaitu untuk: (1) mengenalpasti komponen RLM, (2) mencadangkan model rekabentuk konsep bagi RLM, (3) mengesahkan model yang dicadangkan melalui pembangunan prototipo, dan (4) mengukur persepsi pengguna terhadap pengalaman menggunakan RLM dari segi *entertaining*, *fun*, dan keberkesanan.

Analisis perbandingan, penilaian oleh pakar dan rakan (*peer*), analisis kandungan, pembangunan prototipo, dan kajian berskperimen digunakan bagi mencapai objektif. Dapatkan umum persepsi pelajar menunjukkan RLM adalah menghiburkan, malah lebih dari video dan koswer. Ujian hipotesis melalui t-*Test*, Independent Sample t-*Test*, dan ANOVA mendapati bagi sebarang jantina, tahap pencapaian akademik, pengalaman eLM selain RLM, RLM adalah *entertaining* dan *fun*. Lebih dari itu, RLM juga didapati menyampaikan kandungan pembelajaran dengan berkesan.

Sumbangan utama dari kajian ini termasuk konsep video realiti, pembangunan model rekabentuk konsep bagi RLM berserta prototipnya. Selain itu, teknik merekod bagi penghasilan RLM dan instrumen penilaian aspek *entertaining* dan *fun* yang telah diuji adalah sumbangan yang signifikan kepada bidang ilmu.
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On top of everything, The Almighty God knows better...

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Universiti Utara Malaysia
15 April 2009

Ariffin Abdul Matalib
DEDIcATION

In the name of Allah, The Most Beneficent, Most Merciful

Al-Fatehah

To my late father, Abdul Mutalib Hj. Arshad
To my late mother, Zawiyah Abu Bakar
To my family and friends, who believe in me...

Universiti Utara Malaysia
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<td>ACHA</td>
<td>Analytical, Constructive, and Hypoithetico Approach</td>
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<td>AICCC</td>
<td>Aviation Industry CBT Committee</td>
</tr>
<tr>
<td>ANOVA</td>
<td>One Way Analysis of Variance</td>
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<tr>
<td>API</td>
<td>Application Protocol Interface</td>
</tr>
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<td>ATI</td>
<td>Aptitude Treatment Instruction</td>
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<tr>
<td>BTP, KPM</td>
<td>Bahagian Teknologi Pendidikan, Kementerian Pelajaran Malaysia</td>
</tr>
<tr>
<td>CAI</td>
<td>Computer-Aided Instruction</td>
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<tr>
<td>CAL</td>
<td>Computer Assisted Learning</td>
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<tr>
<td>CBL</td>
<td>Computer-Based Learning</td>
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<tr>
<td>CBT</td>
<td>Computer-Based Training</td>
</tr>
<tr>
<td>CCC</td>
<td>Content Composition Components</td>
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<td>CD</td>
<td>Compact Disc</td>
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<tr>
<td>CE</td>
<td>Courseware Engineering</td>
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<tr>
<td>CGPA</td>
<td>Cumulative Grade Point Average</td>
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<tr>
<td>CTGV</td>
<td>Cognition and Technology Group at Vanderbilt</td>
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<tr>
<td>DVD</td>
<td>Digital Video Disc</td>
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<tr>
<td>eBook</td>
<td>Electronic Book</td>
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<tr>
<td>EIDA</td>
<td>Elicitative, Investigative, and Deductive Approach</td>
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<tr>
<td>eLM</td>
<td>Electronic Learning Materials</td>
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<tr>
<td>EPEES</td>
<td>Ensure, Provide, Engage, Establish, Strengthen</td>
</tr>
<tr>
<td>ETP</td>
<td>Educational TV Programme</td>
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<tr>
<td>Fh IESE</td>
<td>Fraunhofer Institute of Experimental Software Engineering</td>
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<tr>
<td>HCI</td>
<td>Human-Computer Interaction</td>
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<tr>
<td>HLI</td>
<td>Higher Learning Institution</td>
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<tr>
<td>IADIS</td>
<td>International Association for Development of the Information Society</td>
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<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
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<tr>
<td>iD</td>
<td>Interaction Design</td>
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<td>IMM</td>
<td>Interactive Multimedia</td>
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<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
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<td>JAD</td>
<td>Joint Application Development</td>
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<tr>
<td>KMO</td>
<td>Kaiser-Meyer-Olkin</td>
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<td>LCMS</td>
<td>Learning Content Management System</td>
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<td>LMS</td>
<td>Learning Management System</td>
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<tr>
<td>LO</td>
<td>Learning Object</td>
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<td>MSA</td>
<td>Measure of Sampling Adequacy</td>
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<td>MSS</td>
<td>Multiple Sources System</td>
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<td>OUM</td>
<td>Open University of Malaysia</td>
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<td>PC</td>
<td>Personal Computer</td>
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<td>Q-MEF</td>
<td>Questionnaire for Measuring Entertaining and Fun</td>
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<td>QUIS</td>
<td>Questionnaire for User Interaction Satisfaction</td>
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<td>QVRT</td>
<td>Quick Video Recording Technique</td>
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<td>RAD</td>
<td>Rapid Application Development</td>
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<td>Abbreviation</td>
<td>Description</td>
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<td>RLM</td>
<td>Reality Learning Media</td>
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<td>RSS</td>
<td>Really Simple Syndication</td>
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<td>RTS</td>
<td>Reality TV Shows</td>
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<td>SC</td>
<td>Structural Components</td>
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<td>SCORM</td>
<td>Sharable Courseware Object Reference Model</td>
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<td>SE</td>
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<td>SUMI</td>
<td>Software Usability Measurement Inventory</td>
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<td>SUS</td>
<td>System Usability Scale</td>
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<td>TAM</td>
<td>Technology Acceptance Model</td>
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<td>UNITAR</td>
<td>Universiti Tun Abdul Razak</td>
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<td>VBL</td>
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<td>VC</td>
<td>Virtual Classroom</td>
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<td>Video Compact Disc</td>
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<td>XML</td>
<td>Extensible Markup Language</td>
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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Learning is a common process for everybody. Naturally from birth, a person will start to learn, and the learning process will mature together with the cognitive and physical development. As the learning processes mature, the kind of learning methods including formal and informal change and blend, to equip the person with more and more new knowledge. Learning processes and techniques evolve to align with chronic factors. In this 21st century, learning is closely associated with technology.

Beginning with analog learning method, technology advancement has led to more sophisticated digital learning environments. Benefits of digital technologies can be seen in terms of content diversity; more media can be used more widely including text, graphics, animation, audio, video, and interactivity (Chapman & Chapman, 2000). This gives many impacts to the field of education where teaching and learning are involved. Accordingly, many academics have been carrying out research to investigate how learning and its facilitation can be more effective.

This scenario has given better opportunities for communities to learn. Gradually, not only learning in traditional environment where attending classes is essential, but also communities can learn online with the help of digital technologies. With this, learning
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