DESIGN AND DEVELOPMENT OF MASSIVE OPEN ONLINE COURSE (MOOCs) FOR MULTIMEDIA SYSTEM

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DESIGN AND DEVELOPMENT OF MASSIVE OPEN ONLINE COURSE (MOOCs) FOR MULTIMEDIA SYSTEM.

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This report is submitted in partial fullfillment of the requirements for the Bachelor of Computer Science (Interactive Media)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2016

BORANG PENGESAHAN STATUS TESIS

JUDUL: THE DEVELOPMENT OF MASSIVE OPEN ONLINE COURSES (MOOCs) CONTENT FOR MULTIMEDIA SYSTEM

SESI PENGAJIAN: 2015/2016

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TABLE OF CONTENT

CHAPTER 1 : INTRODUCTION

1.1 Project Background 1
1.2 Problem Statements 3
1.3 Project Objective 4
1.4 Project Scope 4
1.5 Project Significance 5
1.6 Conclusion 5

CHAPTER 2 : LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction 6
2.2 Domain 6
2.2.1 What is MOOCs ? 7
2.2.2 Model of deliver an effective learning 8
2.3 Existing System 9
2.3.1 Open Learning 9
2.3.2 Class Central 11
2.3.3 Technique 13
2.4 Project Methodology 16
2.4.1 Project Methodology model 16
2.4.2 ADDIE Model 19
2.4.3 Instructional Design 20
2.4.3.1 Education Goals 20
2.4.3.2 Course Map 21
2.4.3.3 Detailed Course Content 22
2.4.3.4 Flowchart Video 23
2.4.3.5 Course Content 25

2.5 Project Requirements 26
2.5.1 Software 26
2.5.2 Hardware 26
2.5.3 Other Requirement 27
2.6 Project Schedule and Milestones 27
2.7 Conclusion 29

CHAPTER 3 : ANALYSIS

3.1 Current Scenario Analysis 30
3.2 Requirement Analysis 31
3.2.1 Project Requirement 31
3.2.2 Software Requirement 31
3.2.3 Hardware Requirement 31
3.2.3.1 Technical Analysis 32
3.2.3.2 Resources Analysis 33
3.3 Project Schedule and Milestone 34
3.4 Conclusion 34

CHAPTER 4 : DESIGN

4.1 Introduction 35
4.2 Scene Sequence Diagram 35
4.3 Preliminary Design 37
4.3.1 Storyboard Design 37
4.4 Conclusion 40

CHAPTER 5 : IMPLEMENTATION

5.1 Introduction 42
5.2 Media Creation 42
5.2.1 Production of Text 43
5.2.2 Production of Graphics 43
5.2.3 Production of Animation 45
5.2.4 Production of Video 46
5.3 Media Integration 47
5.4 Implementation Status 50
5.5 Conclusion 50

CHAPTER 6 : TESTING

6.1 Introduction 52
6.2 Test Plan 52
6.2.1 Test User 52
6.2.2 Test Environment 54
6.3 Test Strategy 54
6.4 Test Implementation 55
6.4.1 Test Description 55
6.4.2 Test Data 56
6.5 Test Results and Analysis 57
6.5.1 Alpha 57
6.5.2 Beta 59
6.6 Conclusion 64

CHAPTER 7 : CONCLUSION

7.1 Introduction	65
7.2 Observation on Weakness and Strengths	65
7.2.1 Project Weakness	66
7.2.2 Project Strength	67
7.3 Prepositions for Improvements	68
7.4 Contributions	69
7.5 Conclusion	69

DECLARATION

I hereby declare that this project report entitled

THE DEVELOPMENT OF MASSIVE OPEN ONLINE COURSES (MOOCs) CONTENT FOR MULTIMEDIA SYSTEM

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : _____ Date: 16 August 2016
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SUPERVISOR : _____ Date: 16 August 2016
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ACKNOWLEDGEMENTS

In the name of Allah, Most Gracious and Most Merciful Praise is to Allah for giving me strength, patience and guidance throughout the process to finish this project. Words cannot express my gratitude towards my supervisor Dr. Siti Nurul Mahfuzah bt Mohamad for the patience, humble supervision and guidance throughout my academic endeavors. Her guidance and encouragement had helped me tremendously in completing this project.

I would like to thank to my fellow friends, Muhammad Syafiq bin Hisham , Mahdi Salwan b Mohd Sabri , Mira Emylia bt Mohd Remy and Ilham Nur Arif bin Mislan for developing this project together with me by willingly contributes their voices as the narrator. My thanks and appreciations also goes to all my colleagues.

Last but not least, I am also thankful towards my family members especially to my parents Sazali bin Ahmad and Sarinah bt Sarju whose have been incredibly supportive throughout my academic career and their support beginning until the end.

Thank you so much.

ABSTRACT

MOOCs is an initiative for learning methods. This method was developed to help students to better understand the learning. In addition, it also aims to enable students to engage with existing learning. However, this method is found to be too effective to students. This is due to the time taken for the learning sessions a topic too long and also due to the input are unattractive. This causes the student misses focus and objectives can not be achieved. Thus, a type of MOOCs was developed with multimedia elements as a solution for this problem. Element is defined as consisting of a combination of text, audio, video, graphics and animation. As a result, students are more interested in the concept of learning and can provide a better understanding on the topic.

ABSTRAK

MOOCs adalah suatu inisiatif bagi kaedah pembelajaran. Kaedah ini dibangunkan bertujuan untuk membantu pelajar supaya lebih memahami akan pembelajaran. Disamping itu, ia juga betujuan supaya pelajar dapat melibatkan diri dengan pembelajaran sedia ada. Walaubagaimanapun, kaedah ini didapati tidak terlalu berkesan kepada pelajar. Ini adalah disebabkan oleh masa yang diambil bagi sesi pembelajaran sesuatu topik itu terlalu lama dan juga disebabkan oleh input yang terdapat didalamnya terlalu mendatar. Ini menyebabkan fokus pelajar tersasar dan objektif tidak dapat dicapai. Oleh itu, suatu jenis MOOCs telah dibangunkan dengan elemen-elemen multimedia sebagai penyelesaian bagi masalah ini. Elemen yang dimaksudkan ialah terdiri daripada gabungan teks, audio, video, grafik dan animation. Kesannya, pelajar lebih tertarik dengan konsep pembelajaran ini dan dapat memberi lebih kefahaman tentang topik yang dipelajari.

LIST OF TABLES

TABLE	TITLE	PAGE
1.2	Problems by past Research	3
1.4	Developers and Chapters Covered	4, 25,33
2.2.1	Creative Commons Attribution: Definition of MOOCs	7
2.3.3	Techniques listed by Research	11
2.4.1	Description of ADDIE model	17
2.4.3.3	Detailed Course Content for Multimedia System	22
2.6	Project Schedule and Milestone	28,34
3.2.2	Software Used in Project	32
4.2.1	Video Sequence	36
4.2.2	Scene Sequence for Learning Process	37
5.2.1	Type of fonts used	43
6.1	Example of Agree Scale	54
6.5.1	Results for Comparison on Traditional and MOOCs learning survey`	57
6.5.2	Results for Pre nd Post Test	59

LIST OF FIGURES

FIGURE	TITLE	PAGE
2.2.2	An effective learning model by Andreas Andersen	8
2.3.1.1	Screenshot MOOC Open Learning (County Involved)	10
2.3.1.2	Screenshot MOOC Open Learning (Featured Institutions)	10
2.3.1.3	Screenshot MOOC Open Learning (Malaysia Institutions)	10
2.2.2.1	Screenshot MOOC Birmingham	11
2.2.2.2	Screenshot MOOC Queensland	12
2.2.2.3	Screenshot MOOC Auckland	12
2.4.1	Example of ADDIE model	16
2.4.2	ADDIE model	19
2.4.3.2	Multimedia System course Map	21
2.4.3.4(i)	Flowchart Video Promo and Chapter 1	22
2.4.3.4.(ii)	Flowchart Chapter 3, 8,11	23
2.6	Project Schedule and Milestones	27
4.2.1	Video Scene Sequence	36
4.2.1	Scene Sequence for Learning Process	37
4.3.1(i)	Storyboard for Home Page	38
4.3.2(ii)	Storyboard for Lectures & Activities	39
4.3.2(iii)	Storyboard for Week 1,3,8,11	39
4.3.2(iv)	Open Leaning Page	40
5.2.2(i)	Materials for graphics used	44
5.22(ii)	Materials for graphics used	44
5.2.3	The production of animation	45
5.2.4	The production of Video	46
5.3	The flow of multimedia production	47
6.4.1	The Instructions for respondents guideline	56
6.5.1 (i)	Results for Comparison on Traditional and MOOCs Learning Survey	58
6.5.2 (i)	Results for Increment of Pre and Post Test	61
6.5.2 (ii)	Results the use of MOOCs	62
6.5.2 (iii)	The feedback for overall of learning content	63

LIST OF ABBREVIATIONS

MOOCS	Massive Open Online Course
UTeM	Universiti Teknikal Malaysia Melaka
ID	Interactive Design
ADDIE	Analysis , Design, Developement, Implement, Evaluate
MSC	**Multimedia Super Corridor**

CHAPTER I

1.0 INTRODUCTION

1.1 Project Background

A massive open online course (MOOCs) is a model for conveying learning content online to any individual who needs to take a course, with no restriction on participation. This is the creative development in instruction that advanced into fields of practice and study. The term alludes for the most part to exercises that either enhance learning opportunities inside formal training frameworks or expand learning opportunities past formal instruction frameworks. Notwithstanding customary course materials, for example, recorded addresses, readings, and problem sets, numerous MOOCs give intelligent client discussions to bolster group associations between understudies, teachers, and teaching aides (TAs). MOOCs are a later and broadly explored advancement in distance instruction. This model is an initiative ways to increase the effectiveness in learning.

However, there is a research by Candace Hazlett stated that on this model of learning showed there is no significant difference between classroom learning and online learning. In nutshell, its showed that the evaluation model learning reached

limitation as learning change the traditional learning become a linear learning without the student-teacher interaction. There is no guidance from the teachers resulting the effectiveness of learning decrease. Thus, the elements of multimedia is applied to increase the effectiveness of this learning model.

The concept of Instructional Design is used to improve the analysis of adapting needs and efficient improvement of learning encounters. Learning content is designing is simple way by applying the five elements of multimedia. The purpose from this is to ensure the learning content can be deliver to the learners in meaningful ways. Open Learning is chosen as the platform for deliver the learning content.

This project will improve the learning content for Multimedia System subjects. Some of terms and implication in this subjects is difficult to delivered by a simple text and audio. Thus, some animation is developed to give the learner's visualize well the contents.

1.2 Problem Statement

There are a few problem statements listed by the researchers on the development of MOOCs for learning content of Multimedia System.

Table 1.2: Problems by Past Research

Author	Issues / Problems / Discussion
Ilona Nawrot & Antoine Doucet	to foster knowledge through free high quality learning materials procurement.
Khe Foon Hew	To study what factors that could influence student engagement in traditional online courses also apply to online courses that are massive and open and do the factors are being applied.
Rita Kop	Does self-directed learning on open online networks is now a possibility as communication and resources can be combined to create learning environments.
Sanlitun Dongwujie	To prove whether MOOCs can provide a service which on a technical, language and cultural level better suits needs.
Meris Stansbury	Does multimedia able to enhance learning.

1.3 Project Objective

The main objectives of this research are as follows:

1. To identify the engagement of multimedia in MOOCs.
2. To design the project content of learning in MOOCs using the element of multimedia.
3. To evaluate an effective learning by using multimedia elements in learning process.

1.4 Project Scope

- Multimedia System subject's learners.
- Learners whose enrolled this subjects in Open Learning.
- Topic covered:

Table 1.4: Developers and Chapters Covered

Developer	Chapter Covered
Mr. Ahmad Shaarizan Shaarani	Chapter 1 : Introduction Multimedia
Dr. Siti Nurul Mahfuzah Mohamad	Chapter 3 : Text
Dr. Mohd Hafiz Zakaria	Chapter 7 : Video
Ass. Prof Dr. Faaizah Shahbodin	Chapter 11: Multimedia Development Model

1.5 Project Significance

The purpose of this project is to help the learners whose taking and learning this subjects understand well the subject and enjoy the learning process. After the project had successfully developed, it may encourage students to learn effectively as they are able to revise the subject and strengthen their self-understanding regarding the subject of Multimedia System. Besides, it enable students to access and learn any time and any where they want to.

1.6 Conclusion

Overall, chapter 1 explains about the purpose of project, scope and the contributions of the project.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter discusses mainly on the literature review from past research about MOOC (Massive Open Online Course). The chapter also reviews the overview of what MOOCs about. This chapter also discusses about the model of deliver an effective learning to the learners that being used in past research.

2.2 Domain

The domain for this project is about an online education learning by using MOOCs (Massive Open Online Learning) as the model. This project enable the learner for Multimedia Systems subjects learn it mobile which allows anywhere and any time they want. Besides, the learners may be from this any countries in this world. This model will resulting an effective of learning through online education by the combination the learning ontent with the elements of multimedia.

2.2.1 What is MOOCs ?

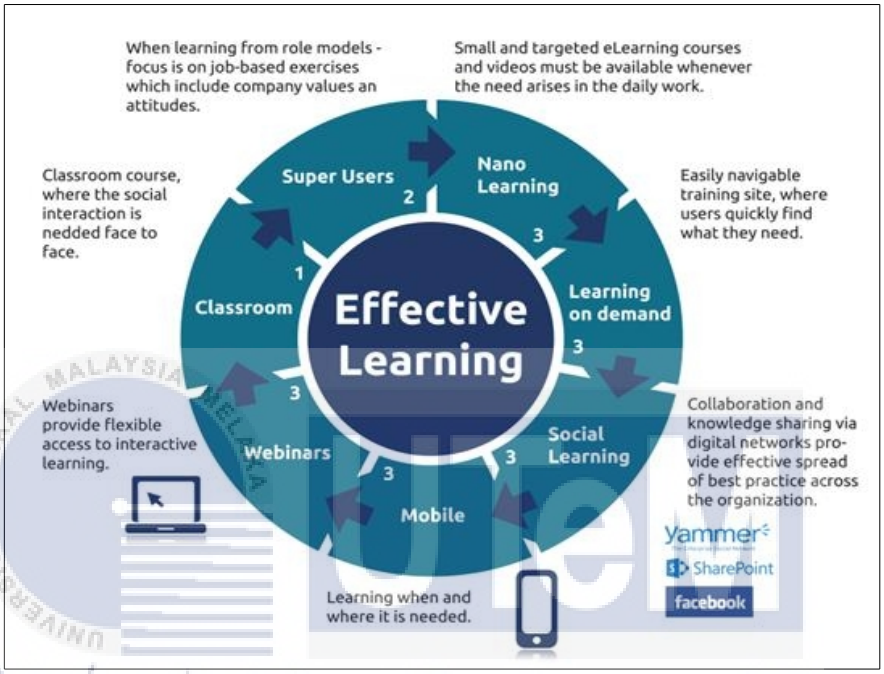
MOOCs is stands for Massive Open Online Course which is an online course aimed at unlimited participation and open access via the web.

Table 2.2.1: Creative Commons Attribution: Definition of MOOCs

		Dimension definition of MOOCs	Criteria deciding for a MOOCs
M	Massive	An online course designed for large number of participants	- Number of participants is larger than can be taught in a 'normal' campus class room / college situation (>150 = Dunbar's number)
O	Open	Course can be accessed by (almost) anyone anywhere as long as they have an internet connectio	- Course can be accessed anywhere as long as they have an internet connection without limitations
O	Online	Complete course online	All aspects of course are delivered onlin
C	Course	The course offers a full course experienc	participants are provided with some feedback mechanism.

2.2.2 Model of deliver an effective learning

Figure 2.2.2: A effective learning model by Andreas Andersen



Based on the research by Andreas Andersen, the capability of teaching is to increase the necessities of the workforces-both regarding having the required learning, qualities and skills and as far as the capacity to adjust when prerequisites are evolving.

Moreover, what had been learn in a normal classroom setting can be hard to put into practice. Classroom courses might regularly give an abnormal state understanding and empower understudies to take in more. In nutshell, once classroom courses are led, the understudy for the most part needs to begin figuring out how to utilize the new learning in learners day by day work.

Thus, to make the learning becomes more effectively deliverable to learners, technology must be involved in education. This to build an effective learning solutions.

Suggested method might be e-Learning with video from available IT-instructions. This will make the backing accessible at the exact minute the representative needs to work with new IT usefulness or perform an assignment as per new work forms.

2.3 Existing System

MOOCs has widely used by many education institutional. This type of model offering everyone is allowed to follow the course. It open to everyone without entry qualification with no limitation numbers of participant.

There are many platform for this type of online course learning such as Open Learning and Class Central. Currently, MOOCs is developing in Malaysia by using the Open Learning as the platform for this learning process.

2.3.1 Open Learning

Open Learning is already first rank of online learning platform. This because, Open Learning in present, already have the collaboration with other universities and institutions from Malaysia, China and Australia. However, there are also participation from other institutions from other than these 3 countries. Currently, Open Learning has explore over 1477 courses in total and learn by 147,110 students from all over the world.

Figure 2.3.1.1: Screenshot for Open Leaning MOOC (County Involved)

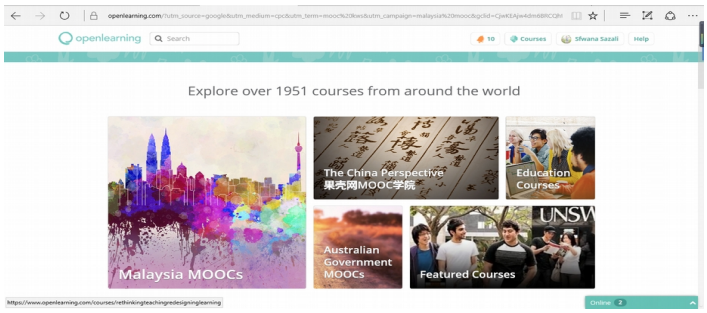


Figure 2.3.1.2: Screenshot for Open Leaning MOOC (Featured Institutions)

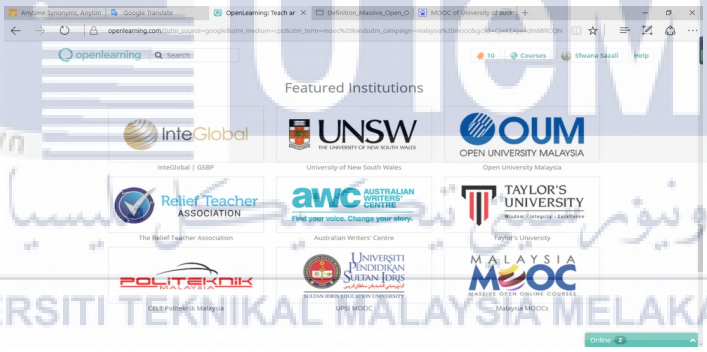
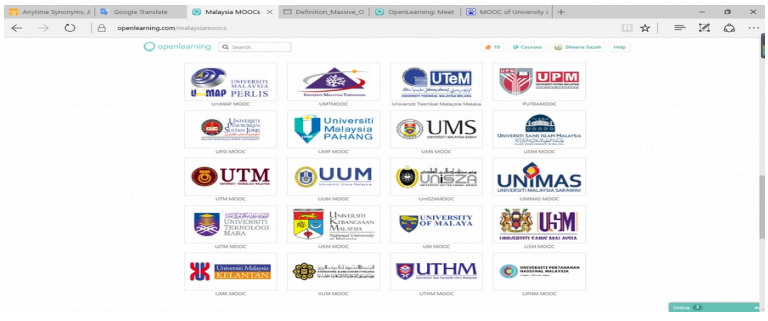


Figure 2.3.1.3: Screenshot for Open Leaning MOOC (Malaysia Institutions)



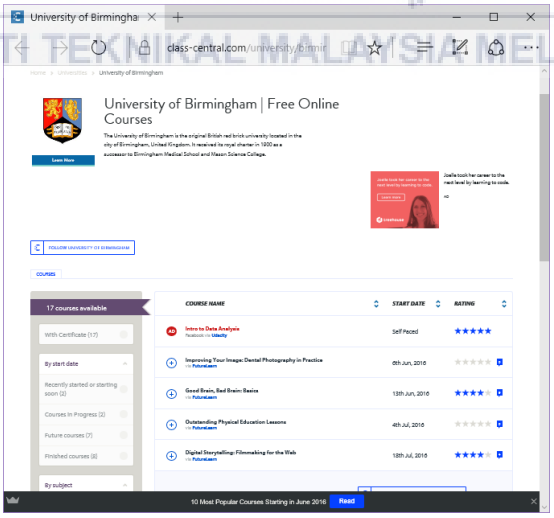
2.3.2 Class Central

Class Central is a free online training stage that totals open online course from MOOC websites.It totals courses from suppliers like Coursera, Udacity, edX, and others that offer courses in an extensive variety of orders to an overall understudy body from colleges and organizations.

Class Central is a registry of free online courses and MOOCs in different disciplines. The site records courses in an assortment of zones, including Computer Science, Engineering, Humanities, Mathematics, Medicine, Biology, Social Sciences, Business, Management, Data Science, Education and Teaching. As Class Central tracks around 4500 free online courses from more than 550 colleges around the world.

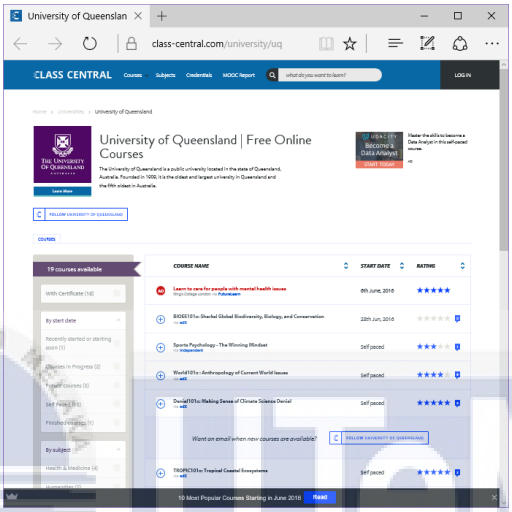
i. University of Birmingham

Figure 2.3.2.1 Screenshot Online Course University of Birmingham



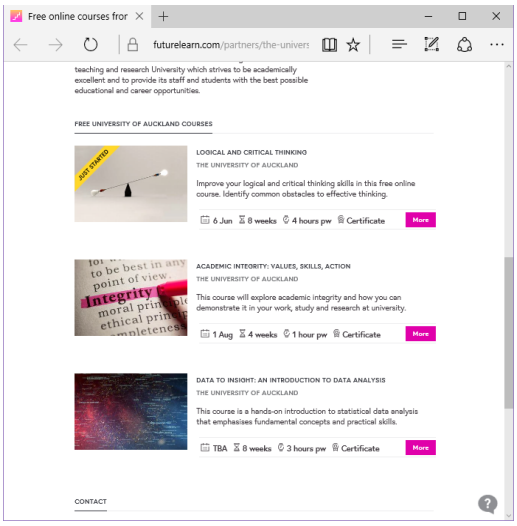
ii. University of Queensland

Figure 2.3.2.2 Screenshot Online Course University of Queensland



iii. University of Auckland

Figure 2.3.2.3 Screenshot Online Course University of Auckland



2.3.3 Technique

These are few techniques listed by researchers in order to design the MOOCs

Table 2.3.3: Techniques listed by Researchers

Author(s)	Techniques	Explanations
1) George.S and S.Downes	Influencing MOOCs in teaching and learning	1. Encouraging and enabling unbundling – the separation of design, development, deployment, delivery and support for learning. 2. Changing the nature of credit granting and credentials. 3. Supporting and accelerating the development of blended learning. 4. Supporting the development of learning portfolios. 5. Demonstrating the power of learning communities and peer tutoring.
2) Mackness, J., Mak, S. and Williams, Roy (2010)	The ideals and reality of participating in a MOOCs	MOOCs is new learning theory for a digital age. The course introduced a one of a kind chance to find more about how individuals learn in huge open systems, which offer broad assorted qualities, network and open doors for sharing information. Learners are progressively practicing self-rule with respect to where, whenever, how, what and with whom to learn. To do this, they frequently select advances autonomous of those offered by customary courses. The examination

		recommends that the topic of whether a substantial open online system can be intertwined with a course has yet to be determined. Further research considers with bigger specimens are required, just like an examination concerning the moral contemplations which may should be considered when testing new hypothesis and practice on course members.
3) Nicolás Pino James, 2012	How to engaging Students in Learning Activities	Learning have to be meaningful and interactive which by connecting students previous knowledge and experiences. Besides, it also have to foster a sense of competence. Researchers have found that effectively performing an activity can positively impact subsequent engagement. The assigned activity could be only slightly beyond student' current levels of proficiency. Effectively, students have to demonstrate understanding throughout the activity and including the feedback which helped students to make progress. Then, provide autonomy support as nurturing the students sense control over their behaviours and goals.

4)Candace Hazlett	Comparison between effectiveness of learning in MOOCs and in classroom.	The amount of learning happens in MOOCs with a huge number of understudies remained an open inquiry. While there is no critical distinction in learning between conventional private and customary online courses, MOOCs are a long ways from conventional online courses (which have significant understudy educator communication, yet at a separation). MOOCs are essentially distinctive. Singular understudies get no immediate teacher support. In any case, innovation, examination, and economies of scale permit us to outline courses around complex confirmation based procedures in ways beforehand unthinkable in many settings. To date, assessment of MOOCs has been restricted. While had a lot of casual confirmation that MOOCs worked, the advantages and expenses of MOOCs adjusted is undefined.

2.4 Project Methodology

2.4.1 Project Methodology model

There are many ways to develop this MOOCs. Importantly, the design of the project need to follow the theory of instructional design to produce the quality of the educational input. Hence, project methodology is precise way to deal with arranging and controlling venture forms all the way. There are various of model that can be used. However, the most suitable model to used in this project is ADDIE model. The ADDIE model is a framework that lists generic processes that instructional designers and training developers use. It represents a descriptive guideline for building effective training and performance support tools in five phases.

Figure 2.4.1 : Example of ADDIE model

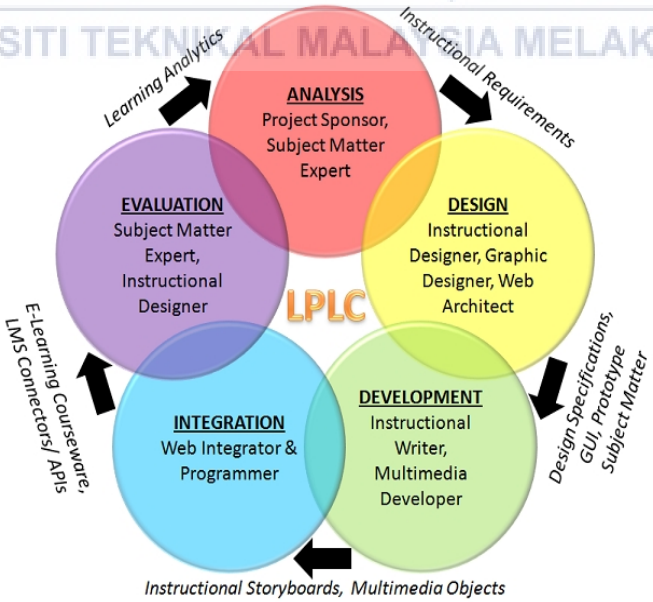


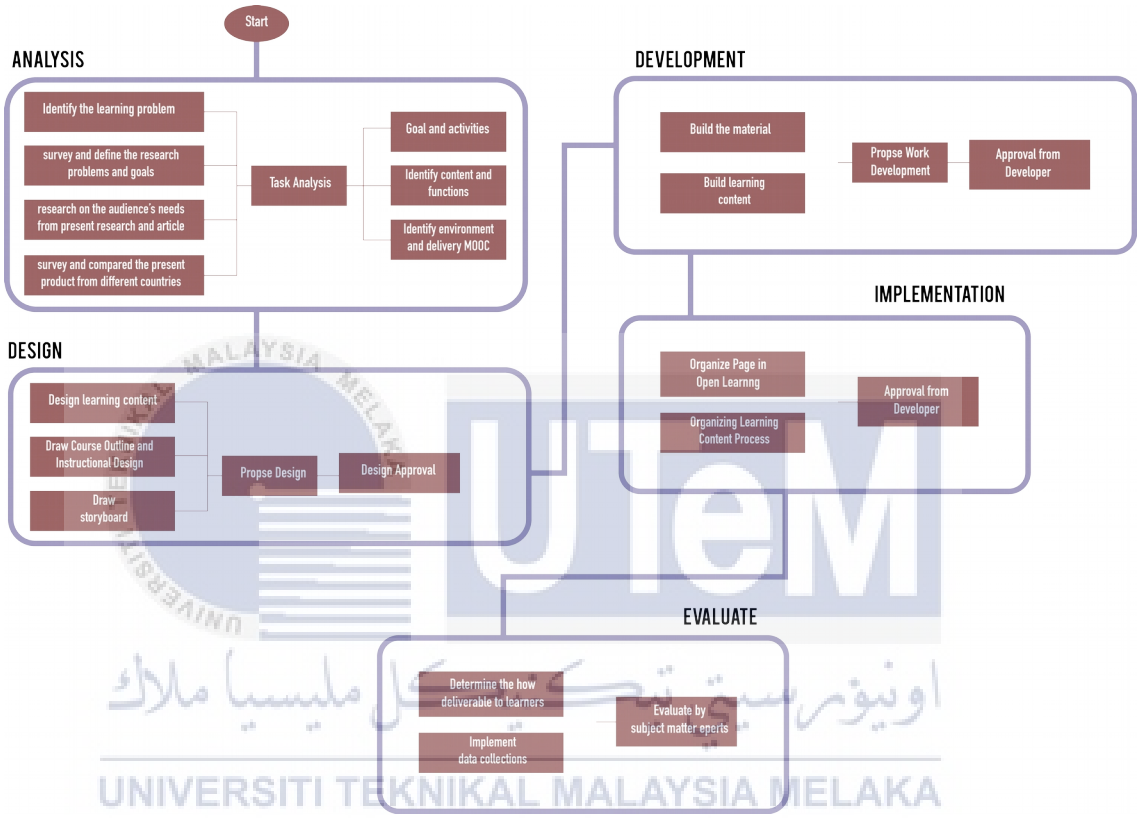
Table 2.4.1: Description of ADDIE model

Phase	Description
Analysis	In the analysis phase, instructional problem is clarified, the instructional goals and objectives are established and the learning environment and learner's existing knowledge and skills are identified
Design	The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning and media selection. The design phase should be systematic and specific. Systematic means a logical, orderly method of identifying, developing and evaluating a set of planned strategies targeted for attaining the project's goals. Specific means each element of the instructional design plan needs to be executed with attention to details.
Development	The development phase is where the developers create and assemble the content assets that were created in the design phase. Programmers work to develop and/or integrate technologies. Testers perform debugging procedures. The project is reviewed and revised according to any feedback given.
Implementation	During the implementation phase, a procedure for training the facilitators and the learners is developed. The facilitators' training should cover the course curriculum, learning outcomes, method of delivery, and testing procedures. Preparation of the learners include training them on new tools (software or hardware), student registration.

Evaluation	The evaluation phase consists of two parts: formative and summative. Formative evaluation is present in each stage of the ADDIE process. Summative evaluation consists of tests designed for domain specific criterion-related referenced items and providing opportunities for feedback from the users.

2.4.2 ADDIE Model

Figure 2.4.2: ADDIE Model



2.4.3 Instructional Design

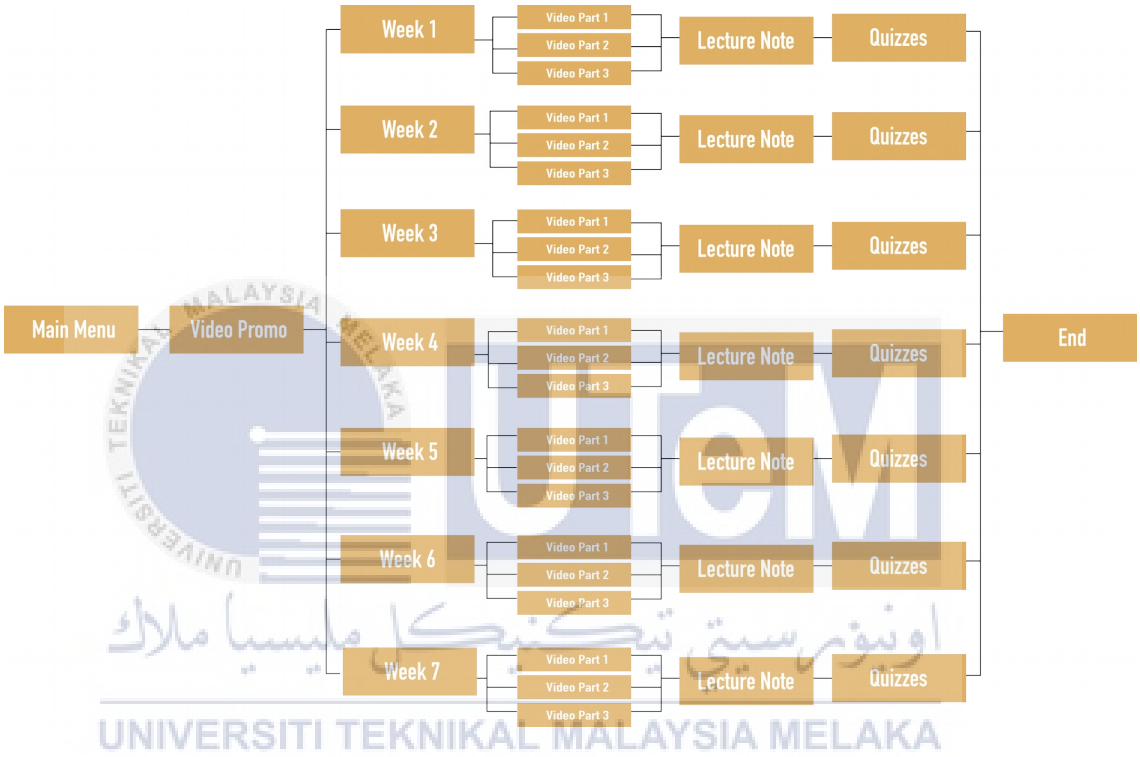
Instructional Design (ID) is defined as “a systematic process that is employed to develop education and training programs in a consistent and reliable fashion” (Reiser, Dempsey, 2007). Hence, this process is applied to create detailed specifications for the development, evaluation and maintenance of situations which facilitate the learning in this project.

2.4.3.1 Education Goals

- students may understand well the learning contents
- students may engage with the subjects
- students feel the enjoyment of learning the subject

2.4.3.2 Course Map

Figure 2.4.3.2:Multimedia System course Map



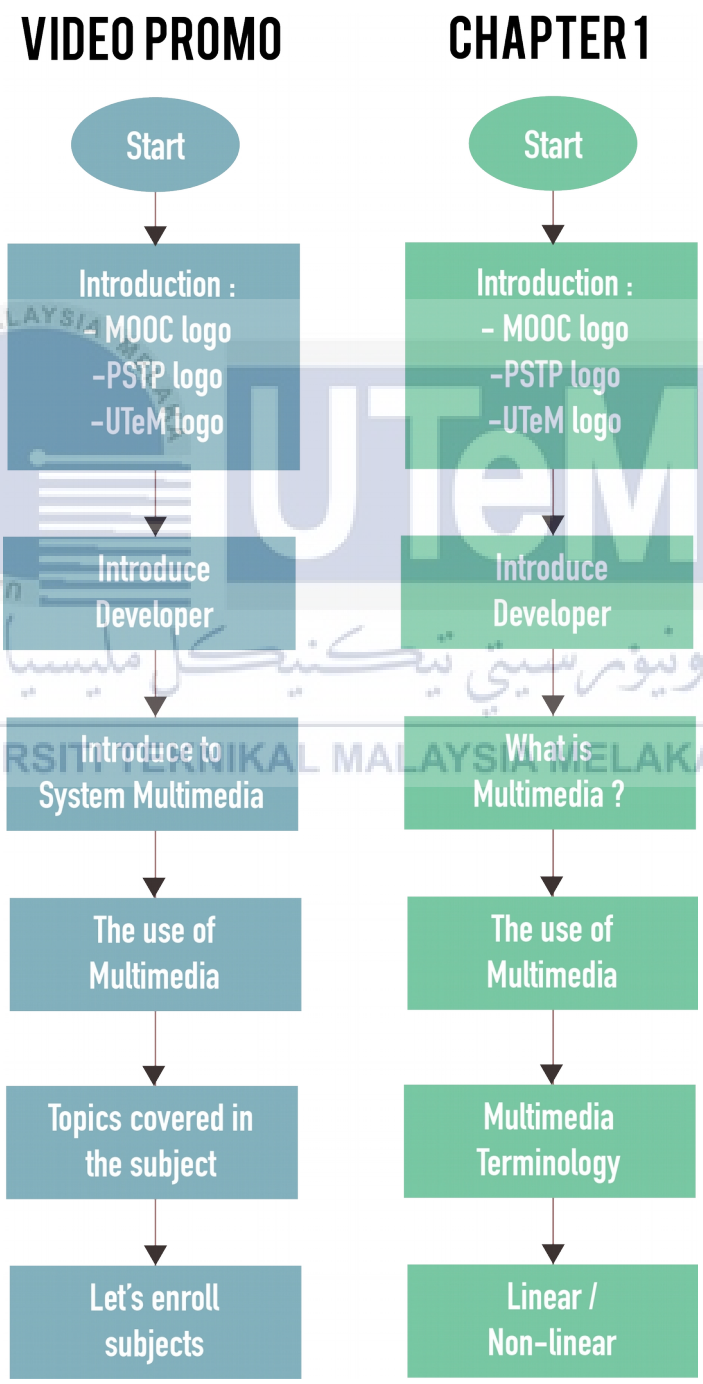
2.4.3.3 Detailed Course Content

Table 2.4.3.3: Detailed Course Content for Multimedia System

Chapter	Topic	Detailed
1	Concept of Multimedia	- what is multimedia ? - multimedia elements - use of multimedia - multimedia terminology - Interactivity in multimedia - medium for deliver concept of multimedia - goods and bad - introduction to MSC
3	Introduction to Text	- serif and sans serif - type of fonts - use of text in multimedia
8	Video	- what is video ? - analog - digital - difference analog and digital - video characteristics - video broadcasting standard for analog - files format for video
11	Multimedia Development Model	- multimedia stages - multimedia development model - storyboard - process multimedia authoring

2.4.3.4 Flowchart Video

Figure 2.4.3.4(i): Flowchart Video Promo and Chapter 1



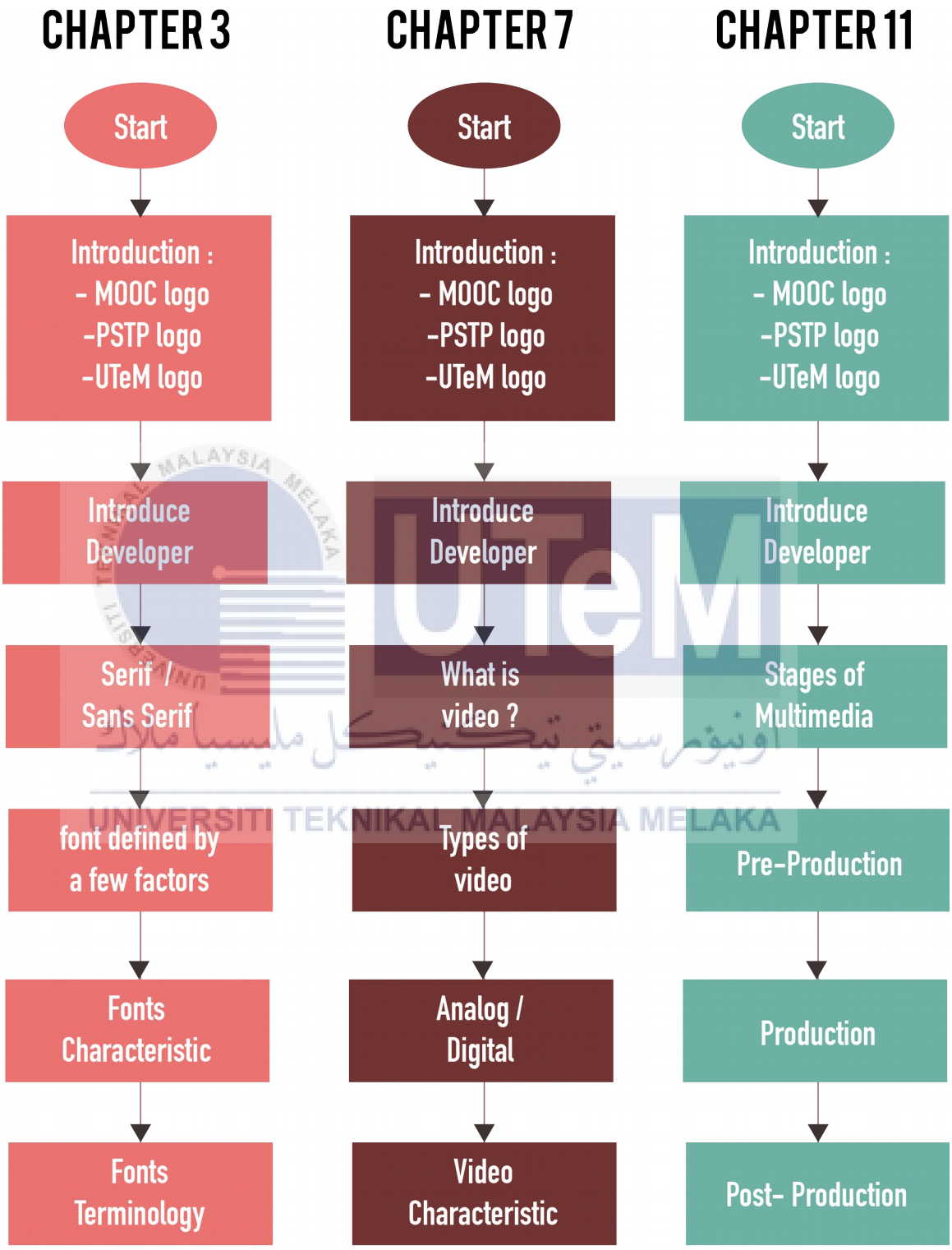


Figure 2.4.1.4.2: Flowchart Chapter 3, 8, 11

2.4.3.5 Course Content

Table 1.4: Developers and Chapters covered

Developer	Chapter Covered
Mr. Ahmad Shaarizan Shaarani	Chapter 1 : Introduction Multimedia
Dr. Siti Nurul Mahfuzah Mohamad	Chapter 3 : Text
Dr. Mohd Hafiz Zakaria	Chapter 8 : Video
Ass. Prof Dr. Faaizah Shahbodin	Chapter 11: Multimedia Development Model

2.5 Project Requirements

2.5.1 Software

Table 2.5.1: Software Requirement and Detailed

Software	Detailed
i. Adobe Illustrator CC	Tracing and drawing character used in video of learning content
ii. Adobe After Effect CC	Animate the content of learning project
iii. Adobe Premiere Pro CS6	Compile with audio of narrator and music background

2.5.2 Hardware

i. Manufacturer: Toshiba
ii. Processor: Intel® Core(TM) i5-2450M CPU @ 2.50GHz
iii. Memory: 8.00 GB
iv. System type: 64-bit Operating System
v. Windows Edition: Windows 10 Education

2.5.3 Other Requirement

Table 2.5.3: List of Other requirement used in project

Requirement	Detailed
Sound Recorder	Record narrator voice
Multimedia System Books , 2011	Learning Content references
Printer	Print documentation report

2.6 Project Schedule and Milestones

Figure 2.6: Project Schedule and Milestones

	Task Name	Duration	Start	Finish	Predecessors
1	Proposal Submission	6 days?	Fri 12/18/15	Fri 12/25/15	
2	Searching for sv	3 days?	Wed 12/16/15	Fri 12/18/15	
3	proposal Submission & Pre	5 days?	Mon 2/22/16	Fri 2/26/16	
4	Assesment and Verificatio	5 days?	Mon 2/22/16	Fri 2/26/16	
5	Proposal Improvement	1 day?	Fri 3/4/16	Fri 3/4/16	4
6	Chapter 1	5 days?	Mon 3/7/16	Fri 3/11/16	5
7	System Development Begi	5 days?	Mon 3/7/16	Fri 3/11/16	
8	Chapter1&2	1 day?	Fri 3/18/16	Fri 3/18/16	7
9	Chapter 2	5 days?	Mon 3/21/16	Fri 3/25/16	8
10	Chapter 2&3	5 days?	Mon 3/28/16	Fri 4/1/16	9
11	Project Demo	4 days?	Tue 4/5/16	Fri 4/8/16	
12	Chapter 3&4	5 days?	Mon 4/4/16	Fri 4/8/16	10
13	Project Demo&Chapter 4	5 days?	Mon 5/2/16	Fri 5/6/16	
14	Project Demo & PSM Repo	10 days?	Mon 5/9/16	Fri 5/20/16	13

Table 2.6: Project Schedule and Milestones

WEEK/DATE	ACTIVITY
1 18DEC -25 DEC	Proposal PSM : Submission Searching for SV
2 22-26 FEB	Proposal PSM: Submission & Presentation Proposal assessment and verification
2 29 FEB – 4 MAR	Proposal Improvement Chapter1
3 7-11MARCH	Chapter1 (System Development Begins)
4 14-18 MARCH	Chapter1 &Chapter2
5 21-25 MARCH	Chapter2
6 28 MARCH – 1 APR	Chapter2 -3
7 4-8 APR	Project Demo, Chapter 3&4
9 18-22 APR	Project Demo & Chapter 4
10 25-29 APR	Project Demo & Chapter 4
11 2-6 MAY	Project Demo
12 9-13 MAY	Project Demo & PSM Report
13 16-20 MAY	Project Demo & PSM Report

2.7 Conclusion

This chapter explains about the planning and analysis of project. At first, its about the finding regarding project from past research. Secondly, it explains about the project planning and design of project methodology model. Lastly, it state the planning of software and hardware used for the project development. The best planning project will result the best project developed.

CHAPTER 3

3.0 ANALYSIS

3.1 Current Scenario Analysis

Online instruction is not new; Massively Open Online Courses (MOOCs) are. Their remarkably intense blend of traditional computerized showing instruments (recordings, sounds, illustrations or slides), individualized devices for getting and accepting information, and proper utilization of committed interpersonal organizations makes them another and considerable method for getting to learning and instruction. In the event that went down with logical and pedagogical incredibleness, MOOCs permit one to reach and instruct at the same time several thousands and even many thousand of learners in another pedagogical element.

Of the various MOOCs activities that have as of late developed, particularly in the US and Europe, a couple appear to surface with a critical effect. This makes another circumstance and undoubtedly can be considered as the informatics group's first principle sway on learning scattering and educating. MOOCs will probably incite a radical change in showing instruments and their connections to the monetary and generation frameworks. The results regarding the transmission of society and instructive substance, and on society overall, will be profound.

3.2 Requirements Analysis

3.2.1 Project Requirement

- Need Analysis

The purpose of developing this MOOCs with multimedia elements for Multimedia System's subject is to help the group of students whose taking in this subjects see well the subject. In other words, is to ensure their learning process become more effective as they may understand well the topic contents. Besides to urge these students learn this subject successfully, students also may overhaul the subject and fortify their self-comprehension with respect to the subject. Furthermore, it empower students to get to access at any time and any place they want to. Hence, by using this MOOCs with the multimedia, students able understand the topic content before they start their real learning in the class. With the support of multimedia elements, it enable students to visualize the content well.

- User Analysis

To draw in the consideration of the understudies in learning are troublesome on the grounds that the necessities of the understudies they tend to catch the substance with intuitiveness and the achievement of conveyance of the substance which is straightforward and have the capacity to learn by understudies. the understudies appears to be exhausted and absence of enthusiasm with the subject as the substance are intricate and excessively numerous words. By and large, the ordinary printed note is exhausted and has no intelligence. Consequently the understudies misfortune their centre amid learning process and the learning get to be effective..

3.2.2 Software Requirement

Table 3.2.2: Software Used in Project

Software	Description
Adobe Illustrator CC	Draw the materials used in the project contents
Adobe After Effect CC	Animate the learning video
Adobe Premiere Pro CS6	Combine with audio and finalize the video

3.2.3 Hardware Requirement

Manufacturer: Toshiba
Processor: Intel® Core(TM) i5-2450M CPU @ 2.50GHz
Memory: 8.00 GB
System type: 64-bit Operating System
Windows Edition: Windows 10 Education

3.2.3.1 Technical Analysis

In this project, the elements of multimedia is being used which involved all the five elements, audio, video, text, graphic and images. These 5 elements are being used in the development of learning content. Then, in order to make the learning engage with students and becomes more effective to them, some activities are available in the learning process. It will urge the students to revise the learning contents. However, the notes are still available for them. These notes are prepared by the expert developers.

3.2.3.2 Resources Analysis

In this MOOCs for Multimedia System, all the topics content covered are prepared by the expect developers. In this subject, there are 11 chapters. Then, it had been distributed by two which, which each will covered 4 and 5 chapters. These chapters are as below:

Table 1.4: Developer and Chapters covered

Developer	Chapter Covered
Mr. Ahmad Shaarizan Shaarani	Chapter 1 : Introduction Multimedia
Dr. Siti Nurul Mahfuzah Mohamad	Chapter 3 : Text
Dr. Mohd Hafiz Zakaria	Chapter 8 : Video
Ass. Prof Dr. Faaizah Shahbodin	Chapter 11: Multimedia Development Model

3.3 Project Schedule and Milestone

Table 2.5: Project Schedule and Milestone

WEEK/DATE	ACTIVITY
1 18DEC -25 DEC	Proposal PSM : Submission Searching for SV
2 22-26 FEB	Proposal PSM: Submission & Presentation Proposal assessment and verification
2 29 FEB – 4 MAR	Proposal Improvement Chapter1
3 7-11MARCH	Chapter1 (System Development Begins)
4 14-18 MARCH	Chapter1 &Chapter2
5 21-25 MARCH	Chapter2
6 28 MARCH – 1 APR	Chapter2 -3
7 4-8 APR	Project Demo, Chapter 3&4
9 18-22 APR	Project Demo & Chapter 4
10 25-29 APR	Project Demo & Chapter 4
11 2-6 MAY	Project Demo
12 9-13 MAY	Project Demo & PSM Report
13 16-20 MAY	Project Demo & PSM Report

3.4 Conclusion

As conclusion, the analysis chapter is all about defining the process in analyse phase with existing system in order to produce s better systems.

CHAPTER IV

4.0 DESIGN

4.1 Introduction

This chapter will discuss the fourth phase of multimedia development. Thus, it will continue the results from the analysis phase. It will explain about the design of this project content and the MOOCs development.

4.2 Scene Sequence Diagram

These will describe the scene sequence in this project. Sequence diagram is to show the linear sequence against time to visualize the scenes arrangement. Overall, there are 11 chapters are need to be covered in this project. After chapter distributions, 4 chapters is given for each. According to the objective of this project, to evaluate an effective learning by using multimedia elements in learning process, the duration of the learning must not more than 3-5 minutes as the focus of student will lost. Hence, the duration estimation for each video is not more than 2 minutes. The other 3 minutes will

be reading the content lessons, understand and answer the quizzes. These is for engaging student's attention to the topic. Below is the diagram of the video scene sequence.

Figure 4.2.1: Video Scene Sequence

Table 4.2.1: Video Scene Sequence

No Segment	Description	Duration (s)
1	Logo, Introduce Developer	00:10
2	Introduction of topic	00:08
3	Subtopic content	00:98
4	Credits	00:05

Figure 4.2.2 : Scene Sequence for Learning Process

Table 4.2.2 : Scene Sequence for Learning Process

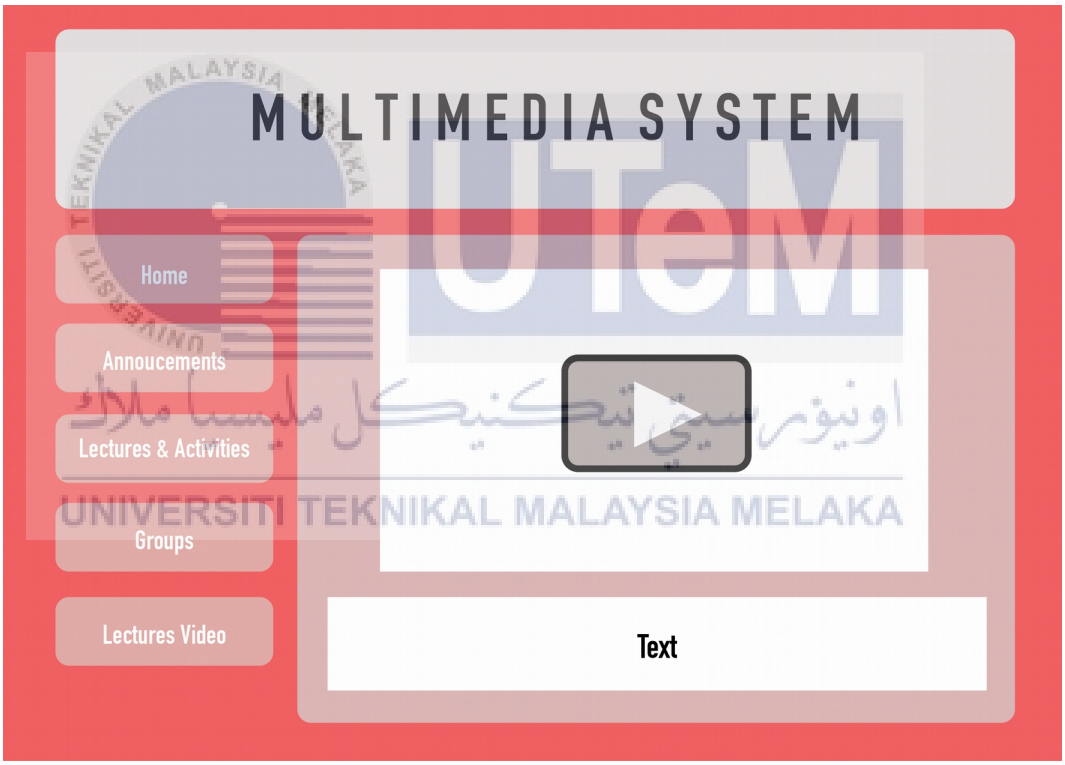
No Segment	Description	Duration (s)
1	Topic Description	01:00
2	Learning Video	02:00
3	Quizzes and activity	02:00

4.3 Preliminary Design

4.3.1 Storyboard Design

i) Home Page

Figure 4.3.1(i): Storyboard for Home Page



ii) Lectures & Activity

Figure 4.3.1(ii): Storyboard for Lecturer & Activities

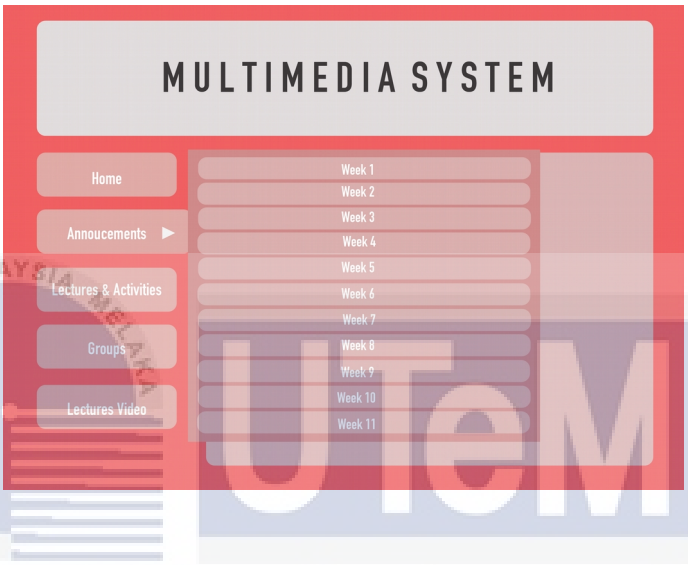
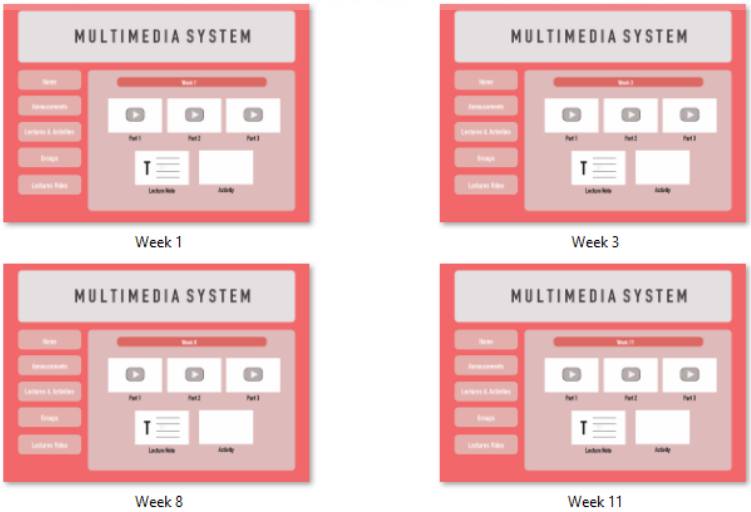


Figure 4.3.2(iii) : Storyboard for Week 1, 3, 8,11



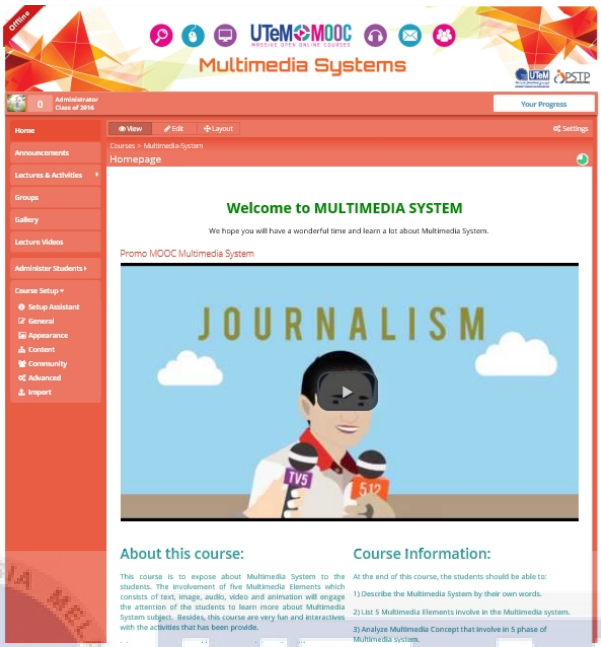


Figure 4.3.2(iv) : Open Leaning Page

4.4 Conclusion

Overall, this chapter is about project designing before implementation phase. Design include the flow of learning content and the learning process. All designs are just briefly from based on the Open Learning format. However , all designs need to follow with Instructional Design.

CHAPTER V

5. IMPLEMENTATION

5.1 Introduction

This chapter will explain about the fifth phase of this project which is implementation phase. In this phase, the project has started implement based on what had done in designing phase. After the approval of learning content and learning design, the project content had started build by using the requirements listed at previous chapter. Other than that, this chapter also will explain the progress of the implementation.

5.2 Media Creation

This subtopic will describe all the elements and materials used in production of learning content. The materials used are includes with all the elements of multimedia which the production of texts, graphics, audio, video and animation.

5.2.1 Production of Text

The use of fonts play the important role in multimedia production. To deliver a learning content, a suitable font choose must simple. This to ensure the message of learning content can be deliver easily and meaningful.

Table 5.2.1: Type of fonts used

No	Type of Fonts	Description
1	DinEngschift	This font is the most widely used in the project in describing and explanation of learning content.
2	BEBAS	This font is commonly used for hightlighting keywords or introduced to topic content.
3	BEBAS NEUE	This font is being used if the fonts need to light and in small size. As BEBAS font is originally in bold form.
4	*Brush Script Std*	This font only used in chapter 3 to explain the difference between serif and sans serif.

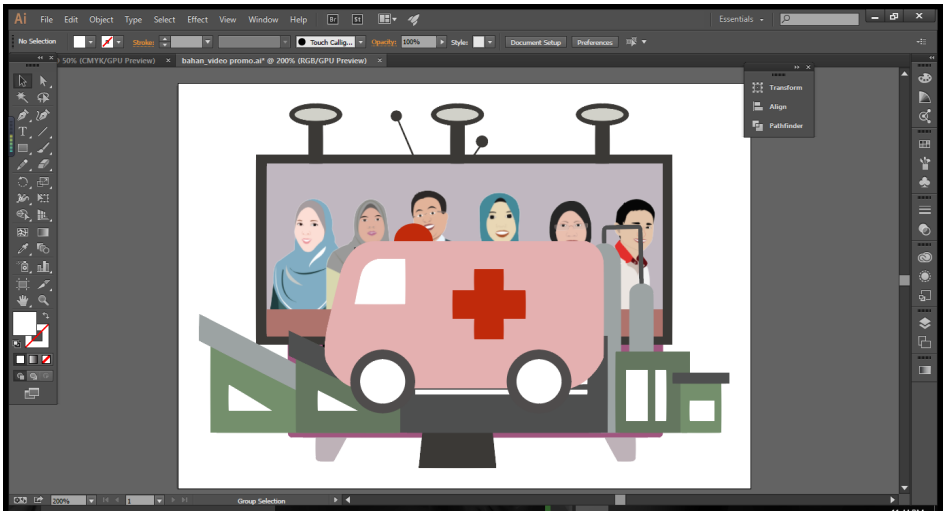
5.2.2 Production of Graphics

The used of graphic has widely being used in this project. Besides, the used of graphic is the highest in this project. However, the rank for most important role in this project, the used of graphic is the second important after animation. Due to the model used to deliver this learning content is MOOCs which is an online learning, all the graphics used is made from scratch except for some graphics with copyright link below

it. But, there are some material are inspired from the internet. Nevertheless, the source has been traced and edited from the original version. The type of graphics used in this projects is a vector with png format. So, to sum up, all graphics used in projects are original and won't have problem with copyright issues.

Figure 5.2.2(i): Materials for graphic used

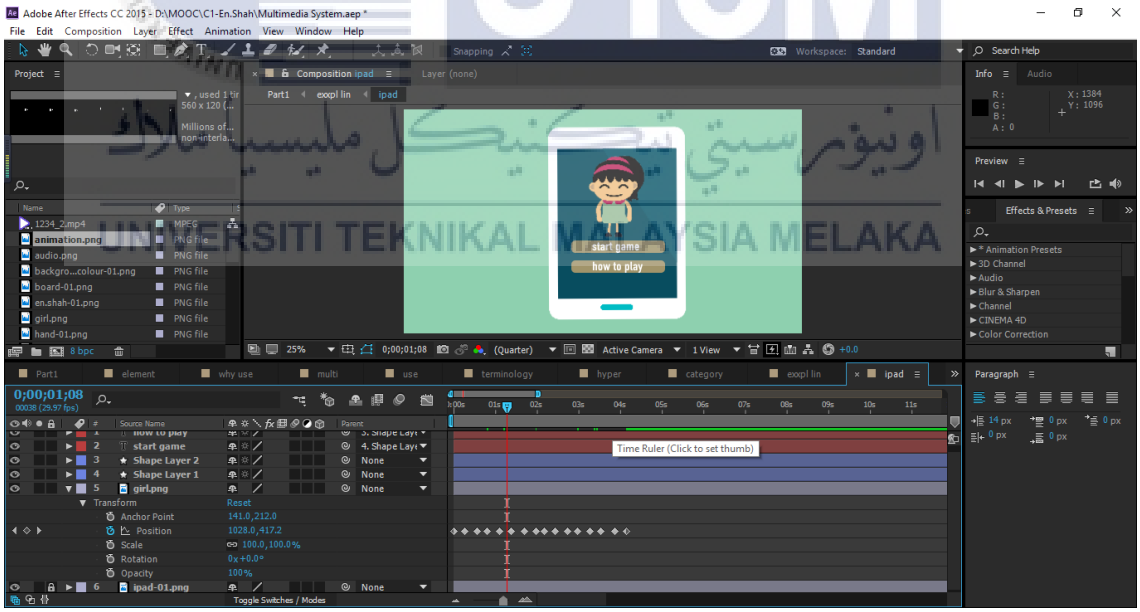
Figure 5.2.2(ii): Materials for graphic used



5.2.3 Production of Animation

The used of animation in this project is the main role in developing the learning content for Multimedia System subject. These due to give the clear explanation to the learners on the learning content. The impact of applying an animation will resulting the increases of the effectiveness of learning through MOOCs learning model. In nutshell, it also intend to engage the learners with the learning process of subject Multimedia System. All the animation used in the project is originated from scratch without using any kind of template. All these had been done in Adobe After Effect CC.

Figure 5.2.3: The production of animation



5.2.4 Production of Video

The production of video is the final stage in developing this learning content project. After phase of producing the animation finished, all raw video will be compile in Adobe Premiere Pro CS6. In the process of producing the video, the source of musics background are from YouTube. All of this music background is allowed to be used, based on the terms from the copyright details. Lastly, the video is render in H.264 format with preset HD 1080p 25.

Figure 5.2.4: The production of video

5.3 Media Integration

Figure 5.3(i): The flow of multimedia production

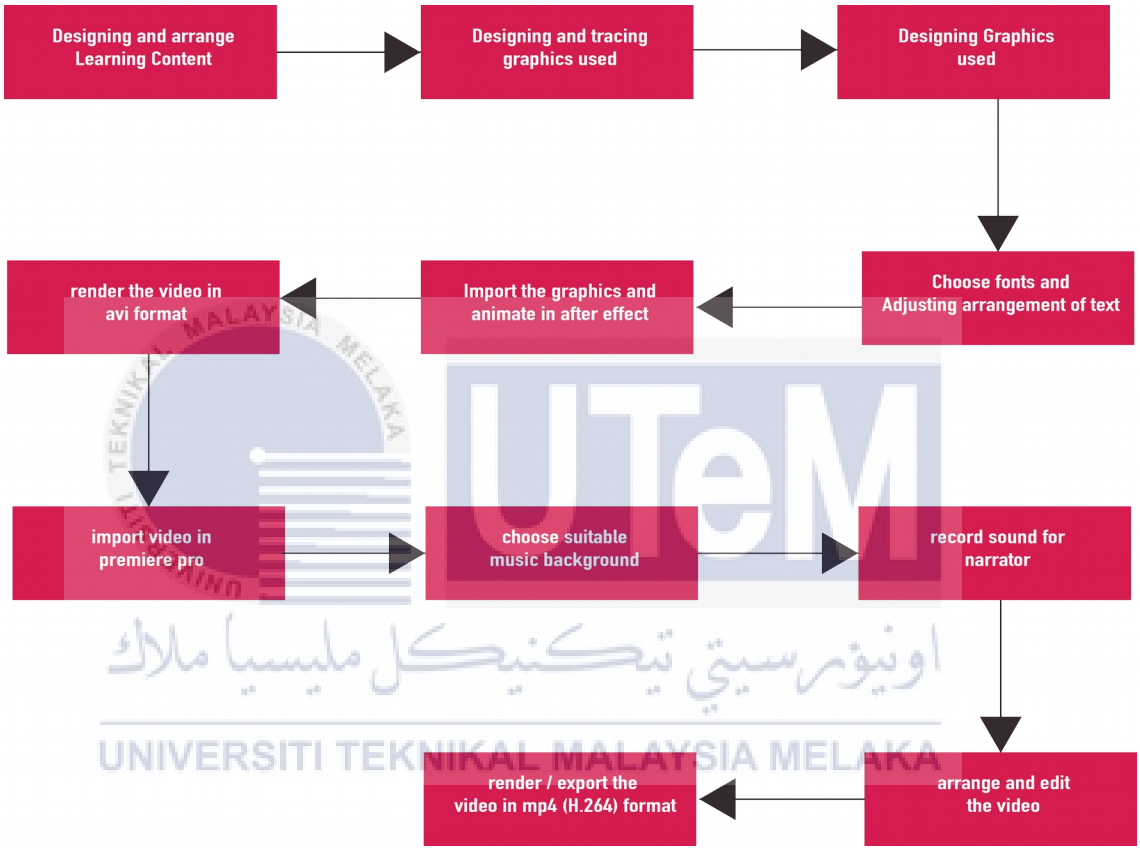


Figure 5.3(ii): Flow of Chapter 1

Figure 5.3(ii): Flow of Chapter 3

Figure 5.3(iii): Flow of Chapter 8

Figure 5.3(iv): Flow of Chapter 11

5.4 Implementation Status

The status for the implementation process is based on the design of gantt chart.

5.5 Conclusion

As conclusion, the phase of implementation is the longest duration time takes to finish up the full of phase. This phase also play as the big role in the development of learning content. In nutshell, it will also determined whether the project had reached to the objectives target. Next, this project will be testing by the developer expert which also the subject expert for Multimedia System subject.

CHAPTER VI

6. TESTING

6.1 Introduction

This chapter will discuss the fifth phase of multimedia development which is testing phase. The purpose of this phase is to test the effectiveness and the usability of the product. The respondents in this testing phase are students whose never learn about this subject and the subject matter experts.

6.2 Test Plan

6.2.1 Test User

A testing had undergo to identify whether this project implementation reflect the project objectives. Alpha and beta testing is undergo in this process. Alpha testing is done by the subject matter expert where are selected from senior students and lecturers.

The total person for this testing is 4. While, for beta testing, the total of the respondent is 33 person.

Thus, to identify whether its linear to the objectives, the respondents are selected from the group of students whose never learn this multimedia system subjects which not necessary whether they are going to enroll this subject or not. Besides, the respondents also from the subject matter experts. The purpose is to ensure the target of this testing is achieved and the content is usable for the students to learn.

a. Alpha Testing : Subject Matter Expert

This group of respondents are from the lecturers which are also the developers for this projects. Besides, there are some subject experts from the senior students whose already take this subject and scored well. They will test the learning contents to ensure the contents are ready to be delivered to students.

b. Beta Testing : Students

UTeM's students are the major number of respondents in this testing. The respondents then are choose based on their knowledge about this topic. The purpose is to test whether the learning contents had achieve the objectives and how effective the learning contents.

6.2.2 Test Environment

Test environment is where the testing process take place. In this projects, there are no specific place assigned as the testing is fully undergo through the web-based application. All the links and requirements are combine in one instructions to ensure the respondents may undergo well with the testing process. All the questions of pre-test, post-test and survey questions is created by using Google Form and the video is being link together with the questions while the lecture note is being uploaded in Google Drive which enable they access the note easily.

6.3 Test Strategy

Testing Strategy is the techniques used to undergo this testing process and how the data is collected in this phase. An agree scale survey is used in survey questions. This test is include the testing of the usability, functionality and the user interface to detect the error or any whereas in design and instrumentation.

1	2	3	4	5
Strongly Disagree	Disagree	Agree	Very Agree	Strongly Agree

Table 6.1 : Example of Agree Scale

6.4 Test Implementation

Test Implementation is on how the test plans will be implemented. It is about the description of the test and the result of data test collection. There are three phases to implement this test.

6.4.1 Test Description

This testing for this project has two (2) methods whether they will undergo all the testing process by enrolled first this multimedia system subjects in Open Learning or they may just answered all testing process via any web-based application. This testing may be done online because as referred to the concept of MOOCs online learning.

Test for this project has been carried out according to two (2) categories. First category is for the first and third objective of this project where to identify the engagement of multimedia in MOOCs. While the second category is for the second and third objective where to design the project content of learning in MOOCs using the element of multimedia and to evaluate an effective learning by using multimedia elements in learning process.

For the first category of testing is being tested by the subject matter experts for this System Multimedia subjects. While for the second category is tested by the other respondents civilians.

An instruction is construct to make the process went well and easier the respondents for second test category to answer the test as there are three (3) parts for the testing. The first part is the pre-test where the respondents need to answer the test based on what they had learned in lecture notes based on the link available. Next, they will answer the post test questions after they had watched three (3) videos for 1 minutes or more each. Lastly, they need to answers survey questions where these questions to receive the feedback on the MOOCs and the learning contents.

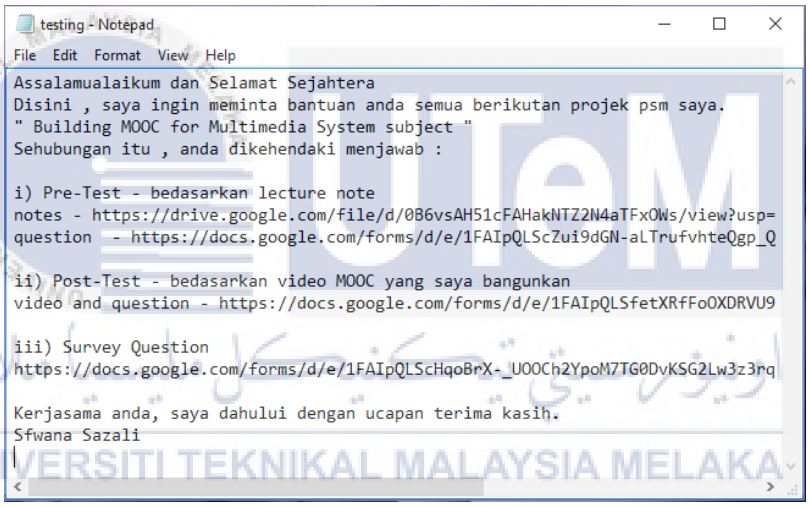


Figure 6.4.1 : The instructions for respondents guideline

6.4.2 Test Data

There are few methods to analyze the data collect from the testing. The purpose of making the pretest and post test are to identified how effective this method of learning to capture their understanding for this Multimedia System subject.

6.5 Test Results and Analysis

6.5.1 Alpha

This testing is conducted to two (2) senior students and two (2) lecturers of System Multimedia to test the first objective of this project whereas to identify the engagement of multimedia in MOOCs. Multimedia is define as the combination of text, audio, video, graphic and animation. Thus, this testing is to test whether the objective is achieve with arrangement of the elements of multimedia.

	Text Legibility	Layout Simplicity	Color Contrast	Content Arrangement	Contrast in Size	Election of music
Traditional	11	10	8	7	11	0
MOOCs	18	19	19	19	18	17

Table 6.5.1 (i) : Results for Comparison on Traditional and MOOCs Learning Survey

Objective 1 : To identify the engagement of multimedia in MOOCs

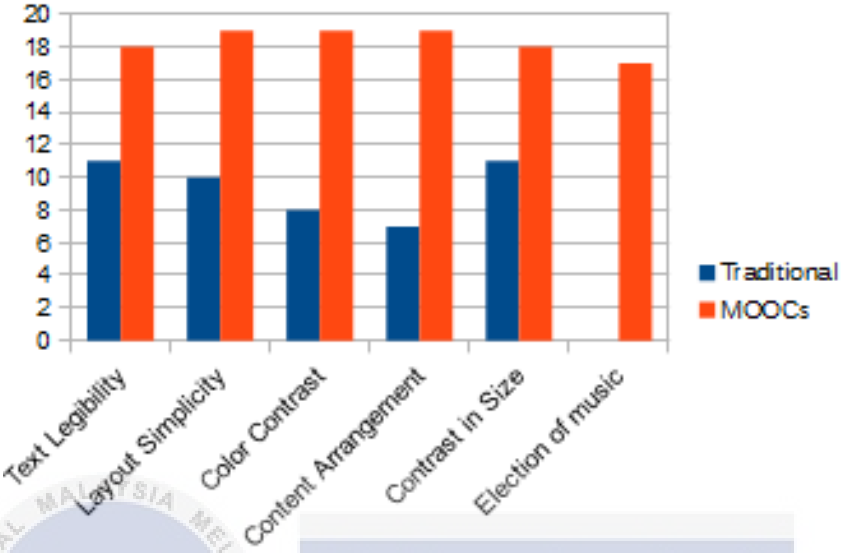


Figure 6.5.1 (i) : Results for Comparison on Traditional and MOOCs Learning Survey

Figure 6.5.1(i) shows the result of SME (Subject Matter Experts) testing. All respondents give a good respond to MOOCs learning compared to traditional learning. MOOCs learning scored higher score than traditional in all the features list in the testing.

Thus, it can be conclude that the engagement of multimedia is appropriate and suitable in this MOOCs learning as this testing resulting mean 7.83 with 4.167 of standard deviation for traditional , while 18.3 for MOOCs learning mean and 0.816 for standard deviation.

6.5.2 Beta

There are two types of results for this testing process. First is based on the results of comparison between the score from the respondents of pre and post test. While, another results are based on the test from the survey questions. Below this results consists of three (3) results from each part of the survey questions.

Respondents	Pre-Test Results	Post-Test Results	Increment Percentage (%)
1	6	10	40
2	8	9	10
3	8	8	0
4	5	7	20
5	7	10	30
6	8	10	20
7	4	8	40
8	9	10	10
9	5	8	30
10	4	8	40
11	7	10	30
12	5	7	20
13	9	10	10
14	8	10	20
15	7	8	10
16	5	7	20
17	9	10	10
18	8	10	20
19	4	8	40

20	9	10	10
21	5	10	50
22	7	8	10
23	7	8	10
24	5	7	20
25	9	10	10
26	3	8	50
27	8	10	20
28	5	8	30
29	5	7	20
30	9	10	10
31	7	9	20
32	6	7	10
33	8	10	20

Table 6.5.2 (i) : Results for Pre and Post Test

Objective 3 : To evaluate an effective learning by using multimedia elements in learning process.

Increment Percentage of Pre Post Test

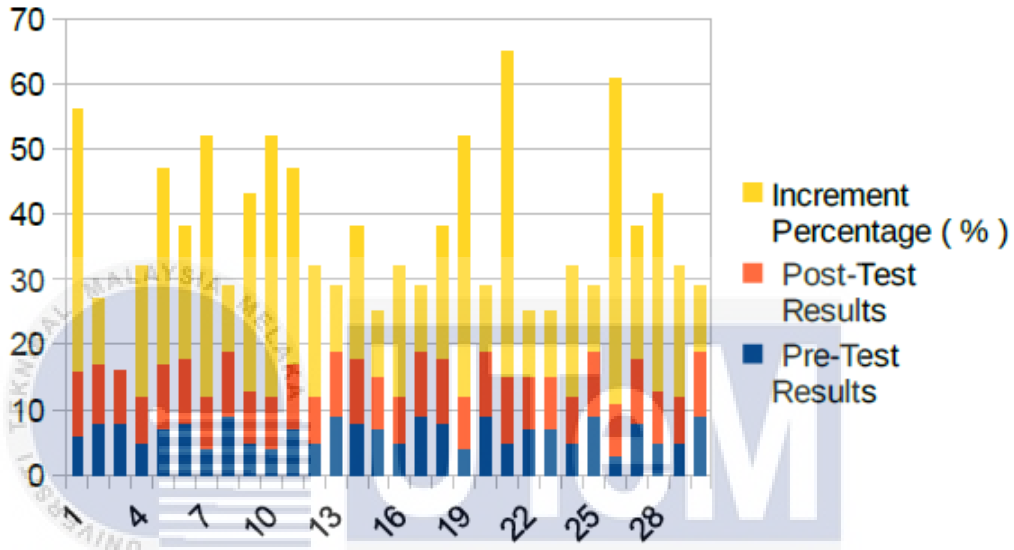


Figure 6.5.2 (i) : Results for Increment of Pre and Post Test

Table 6.5(i) and Figure 6.5(i) show the results for pre and post test which is the testing for the third objective of this project, to evaluate an effective learning by using multimedia elements in learning process. The graph shows the improvement based on the increment percentage from the respondents.

Based on the results showed in both test, majority result show the increment percentage from this test which by learn through traditional way , using lecture note and the alternative way, by using the online learning of MOOCs. It can be conclude that this learning content is effective enough in learning and teaching process with mean 2.15 of the increment percentage with 12.777 for standard deviation.

Objective 2 : To design the project content of learning in MOOCs using the element of multimedia

The use of Massive Open Online Learning (MOOCs)

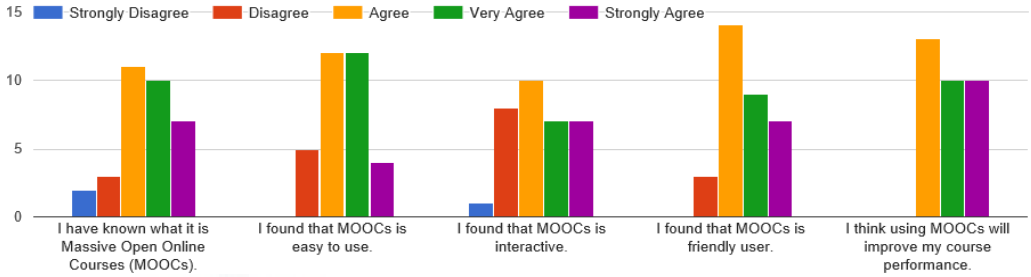


Figure 6.5.2 (ii) : Results the use of MOOCs

Figure 6.5(ii) shows the results of the use of MOOCs to the respondents. All respondents have their own perceptions and opinions on MOOCs. However, most of the respondents state agree for all the questions in this section. This resulting agree as the highest choice while strongly disagree as the lowest choice.

Meanwhile, based on the results in the figure, only for question 2, the respondents think that MOOCs is easy ease to use resulting same of agree and very agree. While, non of respondents strongly disagree on the questions. It positively shows that MOOCs is easy to use.

Based on the results above, we may conclude that most of the respondents agree that the MOOCs is useful in learning and teaching process.

Objective 3 : To evaluate an effective learning by using multimedia elements in learning process.

The feedback for overall of learning content

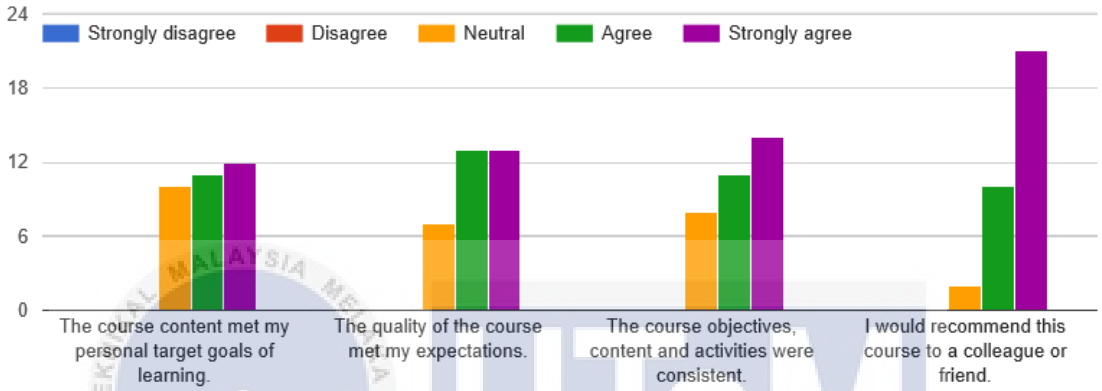


Figure 6.5.2 (iii) : The feedback for overall of learning content

Based on the results in the figure above, the highest choose answer is strongly agree while the lowest is neutral. Then, the data show the same results of agree and strongly agree for the question that the quality of the course met my expectations. However, both choice answer still in the same group of agree with the statement. In overall, it resulting the positive feedback for the respondents. Most of them agree with the statement. In conclusion, the learning content is satisfy the respondents.

6.6 Conclusion

Overall this chapter shows the results from the testing process. These testing is to identify how effective this learning content to the target users. At the conclusion, we may conclude that this product is effective as to improve the learning and teaching for Multimedia System subject. However, based on the results on MOOCs, it shows that most of respondents still in the process of knowing and learning on handling lerning in the MOOCs.

CHAPTER VII

7. CONCLUSION

7.1 Introduction

This is the last chapter in this project report. In this chapter will discuss about weakness and strength of this product. Beside, it will also tells about propositions for the improvement and state the project contribution.

7.2 Observations on Weakness and Strengths

There are several weakness and strength that can be identified in this product based on the results of the testing from the respondents. Only some of these weakness is resulting from the feedback form from the questions survey.

7.2.1 Project Weakness

i) Animation

There are some of information is not explain well with the animation. Some of the animations is not fully helpful in explaining meanwhile there are also some animations is not enough to explain the contents. Besides, there are also some information that can't be explain through animations.

ii) Internet Connection

This product is a learning contents which only available in web-based application. Thus, the weakness occur to the product when the internet connection are having some trouble.

7.2.2 Project Strength

i) Multimedia Elements

The use and the combination of all the elements of multimedia in this project does improve the effectiveness of learning and increase the understanding of the students regarding this learning content.

ii) Narration Voice

There are some videos that have the voice of narrator. Based on the survey, respondents state the improvement of adding the narration in all the videos. There are some content that can't be explain by using animation. So, the support from the narration may improve the students understanding in learning the subject.

7.3 Prepositions for Improvements

After undergo the process of testing and analyze the results, this product needed some improvement to ensure all the objectives are successfully achieved. The improvements that can be done are:

i) Animation

The developer need to organized back the contents and creatively think the animations that can help the students to engage well with the contents besides increase the effectiveness of their understanding.

ii) Internet Connection

Due to this problems, the improvement that can be done is by building the another type of the deployment for this learning content which by deploy a stand alone application which students may access the learning content without having any problem with internet connections.

iii) Narration Voice

There are some videos that did not have the voice of narrator. Based on the survey, respondents state the improvement of adding the narration in all the videos. There are some content that can't be explain by using animation. However, with the support of narration may improve the understanding of learning to the target users and the content may be deliver well to them.

7.4 Contributions

The contributions of this project are to help the students and lecturers in learning and teaching process. The aim is based on the three objectives stated at the beginning of this project report. The great expectations that this products may developed to be used by the students from all over the world whose interested or enrolled this subject in Open Learning.

7.5 Conclusion

The conclusion is this project have successfully developed and achieved their objectives. The interesting way of learning and teaching may resulting the more understanding and increase the effective of learning besides engage the students well with the learning contents. These can be prove by comparing the way of learning between the traditional learning of lecture notes and by using the MOOCs with the elements of multimedia.

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APPENDICES

Question Chapter 1- Concept of Multimedia

This is pre survey question . Please answer all the questions based on what you had learn from the lecture notes given

* Required

1.

Matric / IC No *

.....

2.

1. How many elements in multimedia? *

.....

3.

2. List all the elements in multimedia *

.....

.....

.....

4.

3. How is the concept of hypertext ? *

Mark only one oval.

- ◯ is comprised of many interlinked chunks of self-contained text
- ◯ is non-linear process where text is linked to other media
- ◯ is text-based and also include graphics, images, and especially the continuous audio and video
- ◯ is only text link which either audio and video

5.

4. How is the oonoept of hypermedia ? *

Mark only one oval.

- Is comprised of many interlinked chunks of self-contained text
- Is text-based and also include graphics, images, and especially the continuous audio and video link with other media
- Is only text link which either audio and video
- Is non-linear process where text is linked to other media

6.

6. What is mean by linear multimedia ? *

Mark only one oval.

- there is navigational control in the multimedia presentation
- user can't control multimedia presentation
- elements multimedia is used to present the element of multimedia
- use interactivity to control the progess of multimedia

7.

8. What is mean by non-linear multimedia ? *

Mark only one oval.

- use interactivity to show the progess of multimedia
- user can't control multimedia presentation
- elements multimedia is used to present the element of multimedia
- there is navigational control to control the progress multimedia presentation

7. What is type of multimedia interactivity in image below ?

8.

_____

9.

8. There are two typec of media deployment , whioh above is not example of stand alone application ? *

Mark only one oval.

- DVD-R
- Flash Drive
- Dropbox
- Diskette

10.

9. Name one example of web-based application *

_____

11.

10. What is advantagec of multimedia in learning ? *

(May select more than 1 answer)

Check all that apply.

- [ ] increases learning effectiveness
- [ ] more understanding and interactive to learn
- [ ] doesn't need hardware to learn
- [ ] reduces training cost

Question Chapter 1- Concept of Multimedia

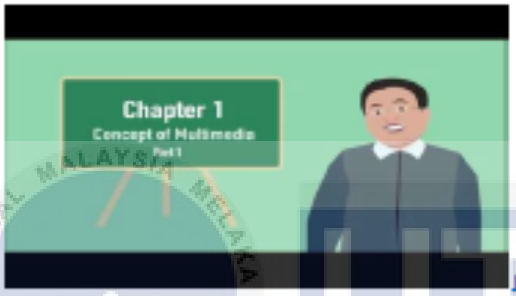
This is post survey question . Please answer all the questions based on what you had learn from the MOOC videos.

* Required

1. **Matrio / IC No** *

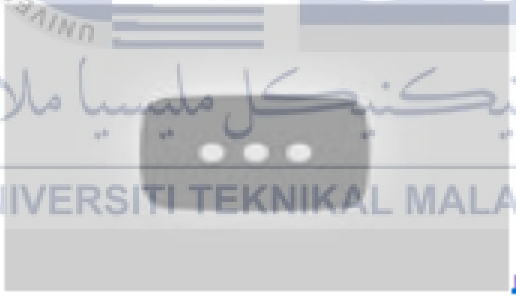
_____

Chapr 1 - Part 1



http://youtube.com/watch?v=Ne710bL20Y

Chapter 1 - Part 2



http://youtube.com/watch?v=mvs8FmqTxuU

Chapter 1 - Part 3

http://youtube.com/watch?v=eX8R0QRvlvY

2.

1. Multimedia is the combination of the elements of multimedia which is animation , audio and graphic. *

Mark only one oval.

- True
- False

3.

2. Definition : Multimedia is the presentation of a computer application incorporating media elements such as graphics, animations, audio ________ .

*this question may have more than 1 answer

4.

3. Choose which is NOT the reasons why did people use multimedia ? *

Mark only one oval.

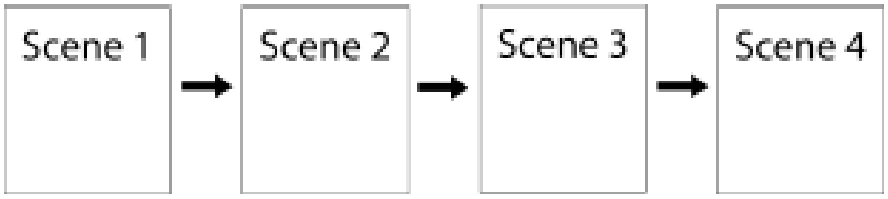
- improves marketing in business
- user friendly interface
- facilitate the deployment of applications
- bringing in an expert speaker from a distant location
- none above

5.

4. What are some examples of multimedia?

Mark only one oval.

- Video games, movies, and television
- Television series
- Computer-generated graphics
- Digital pictures



6.

6. What type of interactivity in image above ? *

7.

8. Hypermedia and hypertext almost like same it's NOT just text-based drain only include other media such as audio, video , graphic and animation *

Mark only one oval.

- True
- False

8.

7. Which below is NOT purpose of multimedia to help school-age children? *

Mark only one oval.

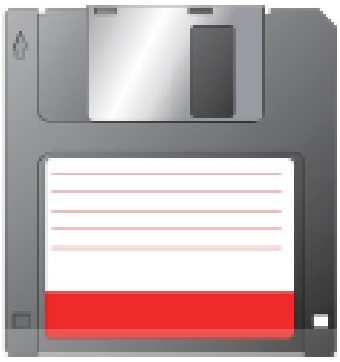
- It replaces direct textbook reading
- It helps students learn in new and stimulating ways and allows them to apply their knowledge creatively
- It allows students to control all their learning
- It replaces teacher lectures
- non-above

9.

8. Example of Web-Based Application is Internet Explorer , Opera Mini , iCloud and Dropbox *

Mark only one oval.

- True
- False



10.

8. What is type of multimedia deployment in image above ? *

11.

10. One of the disadvantages of multimedia is *

Mark only one oval.

- Cost
- Adaptibility
- Usability
- Relativity

QUESTIONNAIRE ON THE DEVELOPMENT OF A MASSIVE OPEN ONLINE COURSES (MOOCs) CONTENT FOR MULTIMEDIA SYSTEM.

* Required

Part A: Demography

Instructions: Tick (/) on the appropriate options.

1. **Matrio / IC No**

   _____

2. **Gender**
   Mark only one oval.
   - ◯ Male
   - ◯ Female

3. **Age**
   Mark only one oval.
   - ◯ 18-20
   - ◯ 21-25
   - ◯ 26-30

4. **Race**
   Mark only one oval.
   - ◯ Malay
   - ◯ Chinese
   - ◯ Indian
   - ◯ Other: _____

5.

Course:

Mark only one oval.

- ◯ BITM
- ◯ Other: _____

6.

PART B: THE USE OF MASSIVE OPEN ONLINE COURSES (MOOCs) *

Mark only one oval per row.

	Strongly Disagree	Disagree	Agree	Very Agree	Strongly Agree
I have known what it is Massive Open Online Courses (MOOCs).	◯	◯	◯	◯	◯
I found that MOOCs is easy to use.	◯	◯	◯	◯	◯
I found that MOOCs is interactive.	◯	◯	◯	◯	◯
I found that MOOCs is friendly user.	◯	◯	◯	◯	◯
I think using MOOCs will improve my course performance.	◯	◯	◯	◯	◯

7.

PART C: COURSE CONTENT AND ACTIVITIES

Mark only one oval per row.

	Strongly Disagree	Disagree	Agree	Very Agree	Strongly Agree
The learning materials were clear.	◯	◯	◯	◯	◯
The learning materials were acceptable.	◯	◯	◯	◯	◯
The learning materials were interesting.	◯	◯	◯	◯	◯
The reference materials were useful.	◯	◯	◯	◯	◯
The content were accurate.	◯	◯	◯	◯	◯
The course activities help me learn.	◯	◯	◯	◯	◯
The course activities were realistic.	◯	◯	◯	◯	◯
The course activities help me apply what I have learned.	◯	◯	◯	◯	◯
The course activities improved my social skill.	◯	◯	◯	◯	◯
The course activities are engaging.	◯	◯	◯	◯	◯

8. **PART D: OVERALL**

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The course content met my personal target goals of learning.	◯	◯	◯	◯	◯
The quality of the course met my expectations.	◯	◯	◯	◯	◯
The course objectives, content and activities were consistent.	◯	◯	◯	◯	◯
I would recommend this course to a colleague or friend.	◯	◯	◯	◯	◯

9. **What aspects of this course were most useful or valuable?**

10. **How would you improve this course?**

11. **Why did you choose this course?**

Mark only one oval.

- ◯ Degree requirement
- ◯ Time offered
- ◯ Interest

Survey Questionnaire for Subject Matter Experts

Title :
Design and Development of Massive Open Online Course (MOOCs) for Multimedia System

---

Demography :

Status : Lecturer ( ) Senior Students ( )

How long did you had learn / teach Multimedia Subject ? _____

Questions :

Traditional Learning					Visual Clarity	MOOCs Learning				
1	2	3	4	5	Text Legibility	1	2	3	4	5
1	2	3	4	5	Layout Simplicity	1	2	3	4	5
1	2	3	4	5	Color Contrast	1	2	3	4	5
1	2	3	4	5	Content Arrangement	1	2	3	4	5
1	2	3	4	5	Contrast in Size	1	2	3	4	5