INTERACTIVE DRIVER EDUCATION CURRICULUM (iDEC) COURSEWARE FOR ILLITERATE USER

SYAMIMI HAZIRAH BINTI BUSRO

CD11020

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ABSTRACT

Interactive Driver Education Curriculum Courseware for Illiterate User also known as iDEC Courseware is a courseware application about driving education curriculum designed specifically for the illiterate people who have the disabilities to read and write but at the same time, wish to have their own driving license. The main purpose of iDEC Courseware is to help the illiterate people to learn about driver education curriculum in an interactive way. It can also be used by the instructor of a driving institution to deliver the information regarding the *Kurikulum Pendidikan Pemandu* (KPP) that is related with highway codes and other relevant information. iDEC Courseware consists of a module called Learning Highway Code Module which consists of information regarding the highway code. It is divided into six categories where all the information regarding the driver education curriculum will be presented with the aid of the multimedia elements. It will be implemented with multimedia elements such as text, graphics, audio and video animation in order to help the illiterate people to understand the driver education curriculum in an interactive way.

ABSTRAK

Interactive Driver Education Curriculum Courseware for Illiterate User yang juga dikenali sebagai iDEC Courseware adalah sebuah aplikasi perisian tentang kurikulum pendidikan pemandu yang direka khusus untuk orang buta huruf yang tidak mempunyai kemampuan untuk membaca dan menulis tetapi dalam masa yang sama, ingin mempunyai lesen memandu tersendiri. Tujuan utama perisian iDEC dibangunkan adalah untuk membantu orang buta huruf mempelajari tentang kurikulum pendidikan pemandu secara interaktif. Ia juga boleh digunakan oleh pengajar sesebuah institusi memandu untuk menyampaikan informasi berkaitan KPP yang berkaitan dengan kod-kod jalan raya dan maklumat-maklumat yang berkaitan. Perisian iDEC mengandungi sebuah modul iaitu Learning Highway Code Module yang menyampaikan informasi tentang kod-kod jalan raya. Ia terbahagi kepada enam kategori di mana semua informasi tentang kurikulum pendidikan pemandu akan disampaikan dengan bantuan unsur-unsur multimedia. Ia akan menerapkan unsur-unsur multimedia seperti teks, grafik, audio dan video animasi bertujuan untuk membantu orang buta huruf memahami kurikulum pendidikan pemandu dengan cara yang lebih interaktif.

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LIST OF ABBREVIATIONS

iDEC	:	Interactive Driver Education Curriculum
KPP	:	*Kurikulum Pendidikan Pemandu*
ISD	:	Instructional System Design
ADDIE	:	Analysis, Design, Develop, Implement, Evaluate
AMS	:	Akademi Memandu Sistematik Sdn. Bhd

PART I: INTRODUCTION

1.0   Introduction

In this modern world, the existence of illiterate people has almost been forgotten. Generally, the illiterate people have always face difficulties because of their incapability to read and write and most people does not alert of their existence. The real problems of being illiterate involve critical parts of life such as when they want to apply for a loan, signing a contract, understand medical instruction, getting basic job training and also taking driving license. Having our own driving license is important in life because without driving license, it is difficult for people to move anywhere. The same situation also occurs to the illiterate people who want to take driving license but because of their disabilities to read and write, it becomes difficult for them to understand and learn the driver education curriculum called *Kurikulum Pendidikan Pemandu* (KPP) that has been provided by the driving institution.

Multimedia elements have been used in many aspects of our daily lives especially in the field of business, entertainment, educations, sciences and others. Multimedia comes from the word multi which means various, and media which refers to any hardware or software used to communicate with each other's. There are five elements that consist in a complete multimedia system which is text, graphics, video, audio and animation. With the aid of these elements, an application will have a powerful impact and at the same time, makes it more interactive.

Hence, this report will be focused on the development of Interactive Driver Education Curriculum (iDEC) Courseware for Illiterate User with the aid of few interactive multimedia elements. It is dedicated to the illiterate people who wish to have a driving license and also to the driving institution who wishes to have a new interactive method to deliver the KPP course towards the illiterate user. iDEC Courseware consists of a module named Learning Highway Code Module which is

divided into six categories and it will be delivered with multimedia elements such as text, graphics, audio and video animations.

1.1 Problem Statement and Objective

1.1.1 Problem Statement

Having a driving license is a must for everyone including the illiterate people. People should aware that this type of people would also want to have a driving license despite of their incapability to read and write. Nowadays, most of the driving institutions in Malaysia has provides driving lessons for illiterate people but the method of learning is different compared to the normal people. Following the process flow, the driving institution will firstly find and gather all the illiterate people who wish to take a driving license and later, they are required to attend a course named *Kurikulum Pendidikan Pemandu* (KPP) just like normal people do.

In the KPP course, the instructor will deliver important information regarding the driving rules, the signboard alongside the roads, and other relevant information. However, the KPP course for the illiterate people is created specifically with texts and static illustrations and graphics, makes the delivery method becomes less interactive. At the same time, it becomes a constraint for the illiterate people to understand the meaning behind the content of the KPP course. Thus, this courseware application is designed with the support of few multimedia elements which includes text, graphics, audio and video animation to give it an interactive visualization. It aims on the development and the implementation of Interactive Driver Education Curriculum (iDEC) Courseware for Illiterate User which will focus on Highway Code module in the KPP course.

1.1.2 Objective

The objectives of the courseware are very important because it shows the desired goal of the courseware application. Hence, the objectives have been identified as below:

1. To help illiterate people to learn about the driver education curriculum regarding the Highway Code using few interactive multimedia elements.
2. To propose a new interactive courseware application about driving education curriculum of Highway Code that can be used by driving institution.
3. To develop an Interactive Driver Education Curriculum (iDEC) Courseware for Illiterate User.

1.2   Literature Review

Literature review is a part of a research process. This section will review and discuss about the existing system that is related to *Kurikulum Pendidikan Pemandu* (KPP). The methodology that will be implemented during the development of the courseware application will also be highlighted. This section will also briefly explain about the development tools which consist of hardware and software requirements that are needed in order to develop the courseware application.

1.2.1   Existing System

Generally, each driving institution will conduct a *Kurikulum Pendidikan Pemandu* (KPP) course that is designed to produce an educated and prudent driver, and also help to acknowledge the safety aspects and rules that should be practiced on the road. The main objective of KPP is to enable the road user or driver to protect their life safety while on the road. It also helps to increase the driver's knowledge and skills regarding the law road as well as increasing their efficiency and confidence while on the road. The KPP course normally comprises of many sub-topics including the Highway Code. Thus, this section will review and discuss about the existing system that is related to the Highway Code taken from the KPP course.

1.2.1.1 KPPRIAKAR

KPPRIAKAR is one example of existing courseware application that is created based on the KPP curriculum. Figure 1.1 below shows the home page of the KPPRIAKAR which enable user to proceed to the next page by clicking on the provided *MULA* button.

Figure 1.1: Home for KPPRIAKAR

Figure 1.2 shows the list of traffic signs in *Tanda Isyarat Lalulintas Bahaya* from Highway Code module. The traffic signs are presented in text and static images. User is required to click on one of the graphical traffic signs to view the details of the traffic signs.

Figure 1.2: List of traffic signs in the menu of *Tanda Isyarat Lalulintas Bahaya*

Once the user has choose one of the traffic signs, details of the traffic signs will be displayed as shown in Figure 1.3 below.

Figure 1.3: Details of the traffic sign of *Selekoh Bahaya*

1.2.1.2 Learning Guide Book

Normally, each driving institution will provide a book named *Kurikulum Pendidikan Pemandu* as a learning guide for the candidate. Figure 1.4 below shows the cover page of the manual book.
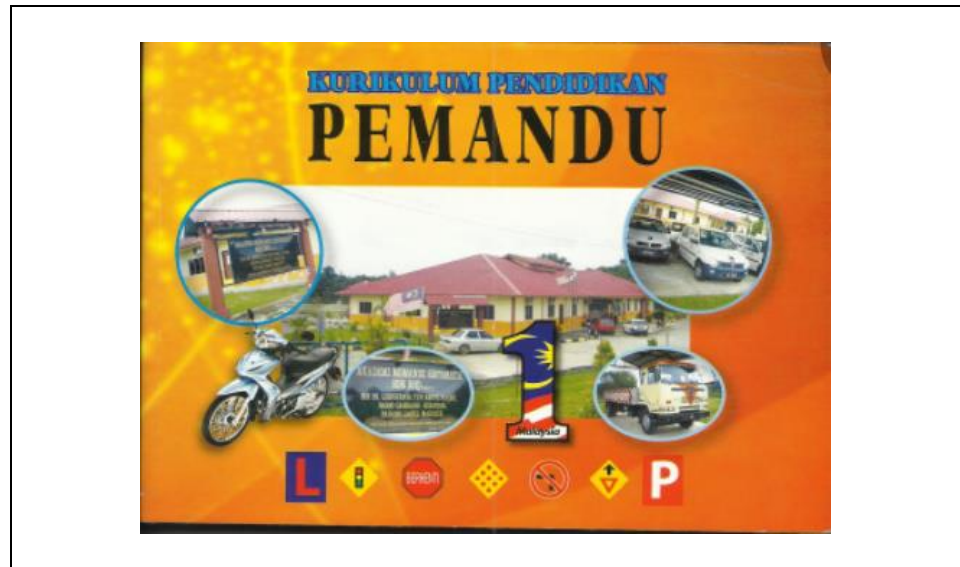
Figure 1.4: Cover page of *Kurikulum Pendidikan Pemandu* Book

Figure 1.5 below shows the list of traffic signs that contained in the category of *Tanda Isyarat Lalulintas Bahaya* together with the relevant details.

Figure 1.5: Example of Highway Code from *Kurikulum Pendidikan Pemandu*

1.2.1.3 Slide of Microsoft Office PowerPoint

Rather than using the manual book, the instructor of a driving institution will deliver the KPP course by using slides of Microsoft Office PowerPoint which is more effective compared to using the book. Figure 1.6 below shows one of the slides that are being used by driving institution, *Kesalahan-Kesalahan Jalan Raya Yang Selalu Dilakukan Dan Hukuman.*

Figure 1.6: Front page of Slide *Kesalahan-Kesalahan Jalan Raya Yang Selalu Dilakukan dan Hukuman*

Figure 1.7: Example of the slides' content

1.2.2   Limitation of Existing System

Each existing systems has its own limitation which leads to the idea of proposing a new Interactive Driver Education Curriculum (iDEC) Courseware for Illiterate User that will help to overcome the limitations of the existing systems. This section will describe about the existing system and their limitation.

1.2.2.1 KPPRIAKAR

KPPRIAKAR is a courseware application that is made by the *Institusi Memandu RIAKAR Sdn. Bhd*. to help their candidate to learn about the driver education curriculum in an attractive way. This courseware application consists of all sub-topics that are contained in the KPP manual book. However, there is no animation or video that has been implemented in the Highway Code section, but only text and static images with no sounds thus makes it less interactive and not suitable for the illiterate user to understand the Highway Code in the KPP curriculum.

1.2.2.2 Learning Guide Book

Normally, each candidate who is taking a driver's license will be provided with a book as a learning guide that is called *Kurikulum Pendidikan Pemandu* that covers many aspects of driver education curriculum. Though the book can be carried by the user anywhere as a learning guide, however, using a book might be boring for certain candidate because it only contains of text and static images. The limitation of the manual book is that it is really not suitable to be used by the illiterate user since they are incapable of reading and writing. Thus, the manual book is non-interactive for them to learn about the driver education curriculum.

1.2.2.3 Slide of Microsoft Office PowerPoint

Generally, KPP is a course where the candidate is required to attend and listen to the instructor who will deliver important information regarding the driver education curriculum by using Microsoft Office PowerPoint. Just like the manual book, the delivery method of the KPP course is presented by using texts, static images and included few 2D animations. Thus, the content of the driver education curriculum will become limited for the illiterate people to understand it.

1.2.3   Methodology

This section will generally discuss about the methodology that is being used in order to complete and ensure the courseware application works well. The methodology is chosen in order to achieve the objectives of the project and also helps to produce a courseware application that is effective, high-quality and cost-efficient. This system was conducted based on ADDIE Model.

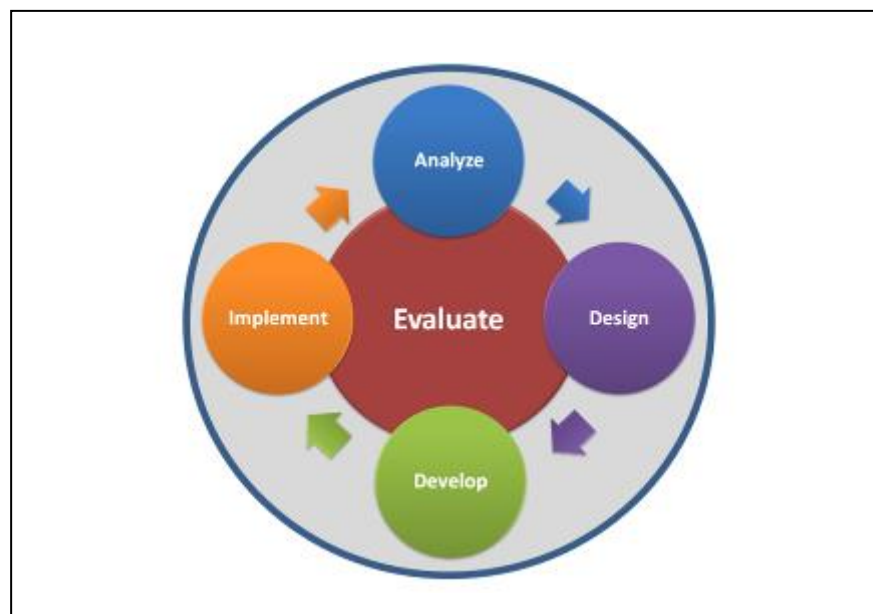Figure 1.8: ADDIE Model

ADDIE is an Instructional System Design (ISD) which stands for Analysis, Design, Develop, Implement and Evaluate. The first four phases are naturally sequential meanwhile the Evaluate phase is a continuous phase that is conducted together with the other phases. ADDIE model helps to guide throughout the process of creating effective materials and educational courses for end-user.

1.2.3.1 Analysis

Analysis phase is a very important phase in the process which helps to determine the basis for any future decisions. This phase helps to identify the problems, opportunities or limitations of the system, and also established the objectives that can be useful during the design phase. It also determined the end user's needs, the existing knowledge and also any other relevant characteristics. Below are few questions that are addressed during the analysis phase:

1. Who is the end-user and what are their characteristics?
2. What types of learning constraints that exist?
3. What are the options of delivery?
4. What is the timeline for the completion of the project?

1.2.3.2 Design

The next phase is Design phase which is a systematic process of specifying the learning objectives. This is the brainstorming step where the information that has been obtained from the Analysis Phase is used to create an application that meets the requirements of the customer. Detailed storyboard, prototypes including user interface, graphic design and content of the design is determined in this phase. The concepts of the design should be tested so that it will help to save time.

1.2.3.3 Develop

The Develop phase is the actual production of the content which is focused on building the output from the Design Phase which can consumes much time in developing the design interface and creating the sound for each module. Various steps are included such as initial drafts, reviews and testing for each concepts of the design.

1.2.3.4 Implement

The Implement phase of a system development is a process of converting a system specification into an executable application. It includes more processes where it can uncover topics that need further development or required to re-design work. The main purpose of this phase is to convert the physical system specifications into a working and reliable application and documenting the processes that has been done. This is a time-consuming phase since all processes need to be completed during this phase. The effectiveness of the processes will be evaluated after the delivery.

1.2.3.5 Evaluate

Evaluate phase is an important role from the beginning until the end of the processes. It reflects most of the discoveries found during the Analysis phase which includes the objectives and also expectations of the learner. This phase consists of formative and summative evaluation, where formative evaluation is used in every phase of ADDIE process while summative evaluation is designed to provide opportunities to get feedback from the end user. Thus, it is necessary to made revisions for each phase. Rather, ADDIE model is a continuous cycle with some overlapping boundaries.

1.2.4 Development Tools

1.2.4.1 Software Requirement

The software specifications for the courseware application development have been identified as below:

Software	Function
Adobe Flash Professional CS5	- Main software to develop the courseware application. - To create and design the interfaces of the courseware application.
Adobe Photoshop CS5	- To edit and manipulate images relevant to the courseware application needs.
Adobe Captivate CS4	- To create user manual of the courseware application.
Adobe Soundbooth CS5	- To edit and convert .wav files to .MP3 files.
Windows Media Player	- To preview the sound and animation of the required elements in the courseware application.
Windows 7	- Act as main OS platform to run the courseware application.
Microsoft Office Word 2010	- For documentation and full report
Microsoft Office PowerPoint 2010	- For the purpose of presentation
Microsoft Office Visio 2010	- Used to build Gantt Chart and Flowchart

Table 1.1: Software Requirement for iDEC Courseware