

**'GO GREEN' COURSEWARE : A LEARNING COURSEWARE ABOUT GLOBAL WARMING AND CLIMATE  
CHANGE FOR PRIMARY SCHOOL STUDENTS (PHASE I)**

By

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(Business Information Systems)

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**CERTIFICATION OF APPROVAL**

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Approved by,



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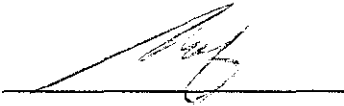
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TRONOH, PERAK

January 2011

## **CERTIFICATION OF ORIGINALITY**

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgement, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

A handwritten signature in black ink, appearing to read 'Muif Fikri Bin Moghni', is written over a solid horizontal line.

**MUIF FIKRI BIN MOGHNI**

**TABLE OF CONTENTS**

**CHAPTER I:INTRODUCTION**

<b>1.1</b>	<b>BACKGROUND.....</b>	<b>1</b>
1.1.1	Saving our environment .....	2
1.1.2	Awareness on the environmental issues .....	2
<b>1.2</b>	<b>PROBLEM STATEMENT .....</b>	<b>3</b>
<b>1.3</b>	<b>OBJECTIVE.....</b>	<b>3</b>
<b>1.4</b>	<b>SCOPE OF STUDY .....</b>	<b>3</b>
<b>1.5</b>	<b>PROJECT SIGNIFICANCE.....</b>	<b>4</b>

**CHAPTER II: LITERATURE REVIEW**

<b>2.1</b>	<b>AWARENESS ABOUT GLOBAL WARMING AND THE “GO GREEN” CONCEPT .....</b>	<b>5</b>
<b>2.1</b>	<b>LEARNING APPROACH FOR THE STUDENTS .....</b>	<b>6</b>
2.2.1	Multimedia Courseware .....	6
2.2.2	Benefits in using courseware.....	6
<b>2.3</b>	<b>FLASH TECHNOLOGY.....</b>	<b>9</b>
<b>2.4</b>	<b>ACTION SCRIPT .....</b>	<b>10</b>
<b>2.5</b>	<b>LEARNING SLYLBBUS .....</b>	<b>10</b>
2.5.1	Other courseware for learning purposes .....	11

2.5.2 Resource..... 11

**CHAPTER III: METHODOLOGY**

**3.1 PROTOTYPING-BASED METHODOLOGY ..... 12**

3.1.1 Planning..... 13

3.1.2 Analysis..... 13

3.1.3 Design..... 13

3.1.4 Implementation ..... 13

**3.2 TOOLS..... 14**

3.2.1 Hardware..... 14

3.2.2 Software..... 14

**3.3 GANTT CHART ..... 15**

**CHAPTER IV: RESULTS AND DISCUSSION**

**4.1 THE INTERVIEW..... 16**

4.1.1 Obtain certain requirements for the courseware ..... 16

4.1.2 To ask what kind of learning tools are appropriate for the students ..... 16

4.1.3 How aware those students are about the 'go green' concept ..... 16

4.1.4 Will they be able to learn effectively by using the courseware? ..... 16

4.1.5 How will this courseware help assisting the teacher to teach the students ..... 17

4.2 DISCUSSION..... 17

4.3 CONCEPTUAL FRAMEWORKS..... 18

4.4 FLOW CHARTS..... 21

4.5 SYSTEM DESIGN..... 25

4.6 INTERFACE ..... 31

4.6.1 The start page..... 31

4.6.2 The Main Menu..... 31

4.6.3 The quiz page..... 32

4.7 TESTING ..... 33

**CHAPTER V**

**CONCLUSION..... 33**

**REFERENCES..... 34**

**APPENDICES**

**LIST OF FIGURES AND TABLE**

**Figure 1:** A Prototyping-based Methodology ..... 12

**Figure 2:** Gantt chart For the Project..... 15

**Figure 3:** A general structure view of the working core modules in the courseware ..... 18

**Figure 4:** A structure view of sub-modules that exist in the Global Warming Module..... 19

**Figure 5:** A structure view of sub-modules that exist in The Effects of Global Warming  
Module..... 19

**Figure 6:** A structure view of sub-modules that exist in the Go Green Module..... 20

**Figure 7:** A general program flow of the main modules in the courseware..... 21

**Figure 8:** A Global Warming module flowchart and the associated sub modules ..... 22

**Figure 9:** A module flowchart on Effects of Global Warming Module..... 23

**Figure 10:** A flow diagram of the Go Green module and its related sub-module ..... 24

**Figure 11:** Introduction screen to the courseware system..... .25

**Figure 12:** Main menu interface containing the core modules in the application..... .26

**Figure 13:** Overview screen example for the Global Warming module ..... 27

**Figure 14:** Sample sub module with its associated animations ..... 28

**Figure 15:** Tips sub module with its associated content variation that differs for each module ..... 29

**Figure 16:** The about page ..... 30

**Figure 17:** Start Page ..... 31

**Figure 18:** The Main Menu ..... 31

**Figure 19:** The animated modules ..... 32

**Figure 20:** The Quiz Page ..... 32

**Figure 21:** The Game Page ..... 33



### **ABSTRACT**

As a need for Final Year Project, this documentation will explain the rationale behind the project development 'Go Green' courseware for primary school students in phase 1 (7-9 years old). The content of the documentation is overall about early stage until the design stage. The objective of this project is to create and design a prototype of courseware pre-school children aged 7-9 years old. This report is mainly about the development of a courseware that will instill environmental awareness among children. This project will cover from the understanding of what global warming is about, the causes and lastly the solution for it. The study for the development of the courseware will be elaborated in depth and also the methodology of developing it will be further explained. There will be more explanations on how the courseware can actually teach the students to be more close to the technology and how this courseware can be very useful and helpful in order to spread awareness amongst youngsters. This project will be developed using the Macromedia Flash as a stage in developing and presented in Windows. There are three modules include in this application. Hopefully, this courseware can help to prepare our youngster an eco-friendly lifestyle and teach them adequate knowledge on preserving mother earth.

# **CHAPTER I**

## **INTRODUCTION**

### **1.1 BACKGROUND**

#### **1.1.1 Saving our environment.**

The earth is getting weaker and weaker, pollution happens everywhere. This seems to be a global issue. The simplest things you can do will have a great impact on our earth. Among the environmental concerns is the 'global warming issues', the green house effect, recycling and other related stuff. All of these maybe quite impossible for us to stop, but we can play our role in reducing the effects and lessen the damages to mother earth.

#### **1.1.2 Awareness on the environmental issues.**

It has become a major concern of the world citizens to help reduce pollutions. We have taken many major steps in overcoming these environmental issues. One of those steps is to gain high awareness among the citizens itself. Awareness itself is very important to begin with. Awareness itself will bring all the people to come to their senses and really committing in doing actions that could help the environment. Stories and campaigns on increasing awareness among citizens already organized thoroughly in many countries. There is even an event where the whole world takes part during the 'earth hour'. Even the simplest act such as switching our lights off can make a big difference to the earth.

Thus, with conjunction with the green campaign, this project will help contribute in the effort of saving the environment. Thus, as to be a part of the concerned society, the development of the 'Go Green' courseware for the primary school students hopefully will benefit many others. I have chosen the primary school students as my scope for my projects because they are the future generations. During the tender age of 7-9 years old, it is appropriate enough for them to learn basic things and lifestyle that could change their life in the future. With this project, we will be able to teach

them in a more attractive ways in order for them to understand more about environmental issues.

The project will be focusing more on teaching them on a more environment-friendly lifestyle. They will learn on recycling unused items, reducing the usage of plastic bags and etc. This can train them to live the lifestyle that can help to reduce the greenhouse effect. This project will be focusing on the green campaign. It will stress certain topics such as ways to reduce the green house effect and help reduce global-warming. This courseware also will provide the sufficient knowledge about the global warming issue and also other related issues. Thus, with conjunction with the green campaign, this project will help contribute in the effort of saving the environment.

## **1.2 PROBLEM STATEMENT**

Even though that the government is running campaigns to save the environment, there are no specific module prepared to teach the primary school students on the foundation of preserving the environment. At this basic age, the children really need to be thought from the earlier stage in order for them to understand what is basically happening to the environment and also how to preserve it. Furthermore, the existing teaching technique that is being applied use the old technique such as drawings and sketches on whiteboard.

## **1.3 OBJECTIVE**

The main objective of this project is to develop a courseware that teaches students aged from 7-9 years old (Phase I of primary school) about global warming issues and the 'Go Green' concept.

## **1.4 SCOPE OF STUDY**

- I. The project research is mainly concerns about the learning habits of the targeted group of students and their behaviour of learning. This courseware will include various multimedia integration (eg: animations, audio) that will make the teaching and learning experience to be more interesting and effective.

- II. Study will also touches on theories to develop the courseware itself. Further explanations on the steps of the development process also being included.
- III. Study of the appropriate content appropriate to the students' level of intelligence. They will learn through visual and audio learning. Interactive game will also be included according to the module.

## 1.5 PROJECT SIGNIFICANCE

- **Use assistive technology.**  
Students can benefit from the use of technology for education, which can help to make learning processes to be more visual and allow them to participate more.
- **Create a new teaching environment**  
As a result, this courseware will create a new ways of teaching environment for the students. It also will act as a teaching aid for teachers.
- **For teachers.**  
The CD can be play repeatedly according to their needs and this will improve the learning for the students who are lost in their learning steps.
- **Ease of use.**  
Students can go through the lesson at their own pace. The content of this courseware is easy for student and teacher to use.
- **Flexibility**  
This courseware can also be used for environmental campaigns in primary schools all over the country.
- **Cost saving**  
We don't need to outsource the courseware from outside in order to teach our students. We can save cost by producing it locally.

## CHAPTER II

### LITERATURE REVIEW

#### 2.1 AWARENESS ABOUT GLOBAL WARMING AND THE “GO GREEN” CONCEPT.

*Saving the environment* .The world now is facing a major problem which is global warming issue. As the earth is getting older, this matter has become worst by time. How well do the people acknowledge this problem? The awareness amongst the citizens is very vital in overcoming this critical situation. The effects of global warming will not only harm our generation, but also the future generations. Noam Chomsky strongly stated that a global warming issue is a major issue and that it is being overlooked. Chomsky emphasizes that the government itself needs to be alert and take major steps and take the matter seriously due to the potential destruction that the earth is facing (Chomsky, 2005). If this matter is not being taken seriously by the government, the earth will face the effect and human beings can be negatively affected by global warming.

*‘Go Green’ concept*. Major steps towards overcoming the global warming issue have been conducted. Besides the ‘earth hour’ event, a bigger concept were introduced which is the going green concept. The idea of going green itself is to change the way of living for human beings, being friendlier to the environment. This concept itself is one of the ways to really bombarding the peoples’ thought in preserving the environment.

*Awareness*. An expert author named Charley A. believes that green campaign is one of the hot topics among the Malaysian. The main objective of green campaign is to create awareness among the public to protect our environment. Green campaign not only popular in Malaysia, is also very famous in foreign country (Charley, 2010). It’s about time that Malaysians need to increase their awareness on this critical issue. The green campaign is being conducted worldwide. Awareness among public is really needed in order to control global warming issue. The spread of the awareness will help many people to realize how important it is to live green.

*Children*. Awareness about such issue does not just apply to adults but also towards the youngsters and children. At a young age, a child needs to be taught how important it is to

preserve whatever it is left now because soon the earth is getting older. Environmental education (EE) in India has been passed down to children for generations, but formal EE at the national level began in the early 1980s with the Ministry of Environment and Forests introducing its National Environmental Awareness Campaign. Now many governmental and nongovernmental organizations are involved in EE, ranging from the Ministry's Centre for Environment Education to citizens' groups. Yet, EE still has no formal place in today's school curriculum (Rao, 1992). Environmental awareness should be thought into the curriculum, so that children are able to care more about the earth. They may have been thought by the parents on the particular matter, but then they really need to construct more knowledge on prevention. We must recycle our waste products so we can still save our planet. We can start this by teaching our kids the importance of waste recycling (Charley, 2010). On the other hand, children who are concern about the environment and all geared up to save the planet might as well make their parents to be conscious as well.

## **2.2 LEARNING APPROACH THE STUDENTS.**

Teachers are meeting the needs of children unique learning styles in classrooms today. Children learn and process information in a variety of ways. Most children show a preference for one of the following basic learning styles: visual, auditory, kinesthetic/manipulative (Sade, 2008). Teaching students in primary school usually involves many activities considering at a very young age they are very active during learning. A more interactive approach would really intrigue these students to learn from the courseware.

### **2.2.1 Multimedia Courseware**

Courseware is also an alternative method of teaching. It is usually in the form of stand-alone CDs or DVDs (Baharuddin et al, 2006). Courseware is also known as educative program because it includes educational materials in it. It either can be utilized as a self-learning process where it evaluate the performance of students individually or in a group. Courseware should be considered to be beneficial and helpful resource, especially when compared to traditional methods (Galvao, Baretto, 2006).

### **2.2.2 Benefits in using courseware**

Courseware is meant to adopt a multimedia training and education in an organization. It can be a firm and it can also be a school. Courseware will help to enhance the learning process and help to improve the performance results. The following are common benefits in using a multimedia courseware (Hick, 1997).

#### **Improves Learning**

Many studies have shown that interactive multimedia learning such as courseware is less time consuming and is enjoyed more compared to other learning methods. In a review of numerous meta-analysis studies (Najjar, 1996) found that "learning was higher when information was presented via computer-based multimedia systems than traditional classroom lectures". Multimedia learning can also accommodate multiple learning styles by using a variety of delivery methods aimed to different learners. This will be more effective for certain learners

#### **Interactive**

Interactivity is related to the level of responsiveness and is synonym as a communication process where each message is related to the previous messages that have been exchanged. For courseware, it is interactive because the communication processes include learners, the learning system and the learning materials. For example, a case study on 75 learning studies found that learners can learn faster and have better attitude towards learning when they used an interactive multimedia such as courseware.

#### **Flexible**

Courseware on CD-ROM can easily be used either at home or while traveling as long as you have a computer. This learning approach allows flexibility because it is stored in CDs and DVDs. Because of the size, it is handy and easy to bring anywhere and be access at anytime. Courseware can also be used on Internet. However there might be some lower quality images based on the connection speed.

### **Modular**

In most of the courseware, the topic or section can stand alone. Therefore, learners and trainers can look into the topic areas that they need to learn deeply and skip over on the topic that they do not want to. In many cases, applications of courseware include custom build for a specific use where users can select the module.

### **Practical**

Courseware has all the effective methods for developing practical skills by presenting true life situations that learners face almost every day. Learners will learn faster when they faced with real problems that have real consequences. Video simulation or simple animation makes courseware more practical and it allows learners to:

- Learn-by-viewing
- Learn-by-doing
- Learn-by-coaching.

### **Consistent**

Computer based courseware results in learning advantages because it usually focuses on instructional design. This design and arrangement is to make sure that the learning materials is well organized and consistent so that it will ease the users.

### **Timely**

Courseware works in an “on-demand” access which means learning can happen precisely when needed by the students. This make the courseware timely because studies reveal that learning is enhanced and better retained when the topic is relevant with the current needs. The learning process is self-paced which gives the power on the hand of the students to speed up or slow down in their own pace.



### **Engaging**

As been stated before, courseware is an interactive learning. When it contains multimedia elements such as audio, graphics, live-action video, animation and etc, it keeps learners interested and reinforces the skills. It makes the learners engaged with the learning materials because it is exciting, challenging and fun to use. Through continual practices, learning is absorbed and integrated into a daily performance.

In the field of speech Cronin's work has demonstrated some of the positive effects of computer-aided instructions. Cronin looked at a spectrum of communication topics including speech apprehension, constructing speaking outlines, and listening skills; he used interactive-video instruction to engage students "through humorous graphics, visual memory cues and workbook exercises (Cronin, Grice & Olsen, 1994).

### **Cost-effective**

Multimedia courseware might be expensive in its development process, however to an overall perspective; we can see that by using multimedia courseware, we can actually save more money. By using courseware, travel time and associated costs such as parking, fuel and vehicle maintenance are reduced or eliminated. Overall students costs will also be lessen such as tuition fee. In fact, it also has potential to lower the costs for companies needing training as they would not have to book a venue and call for an instructor. They can learn it by their own.

## **2.3 FLASH TECHNOLOGY**

Flash CS5 is the latest version of Adobe Flash. This version provides users with more tools and advancement animation tools, improved typography controls, and providing more Action script 2.0 snippets from the internet, some new data formats, and better ability to add cue points to videos. There are also tricks where developers can publish their project at place where Flash was not allowed before.

## 2.4 ACTION SCRIPT

This is the programming language that is being used for the development of courseware using Flash. Same concept as Object-Oriented programming, this language allows developers to create new features that can be accessed through methods of new classes. This gives a more structured way in making the code flexible in term of transferring it to be reused in other applications and also easing the transferring of the code to other users. This comes in handy when it comes to design environment involving Action script 2.0 coder and several non-scripting designers.

## 2.5 LEARNING SLYLBBUS

The formation of the New Primary School Curriculum - **the Integrated Curriculum for Primary Schools (ICPS)** or *Kurikulum Bersepadu Sekolah Rendah (KBSR)* consists of three areas namely: Communication, Man and His Environment, and Self – Development. These three areas can be subdivided into six areas which are:

1. Basic Skills
2. Humanities and Environment
3. Arts and Recreation
4. Spirituality, Values and Attitudes
5. Living Skills

Since there is no specific module provided to the students to learn about global warming, the courseware is specially developed to assist the students to learn about it which can be included under the humanities and environments component.

### 2.5.1 Other courseware for learning purposes.

There are other coursewares being implemented as tools for the students to learn from in primary schools around Malaysia. Under The Smart School Project (SSP), students are utilized with browser-based teaching and learning materials for Bahasa Malaysia, English Language, Science, and Mathematics. The SSP also encourages the development of teaching and learning courseware in the classroom that would be incorporated in the Smart School Integrated System or SSIS (Hamidah Atan, 2009)

### **2.5.2 Resources**

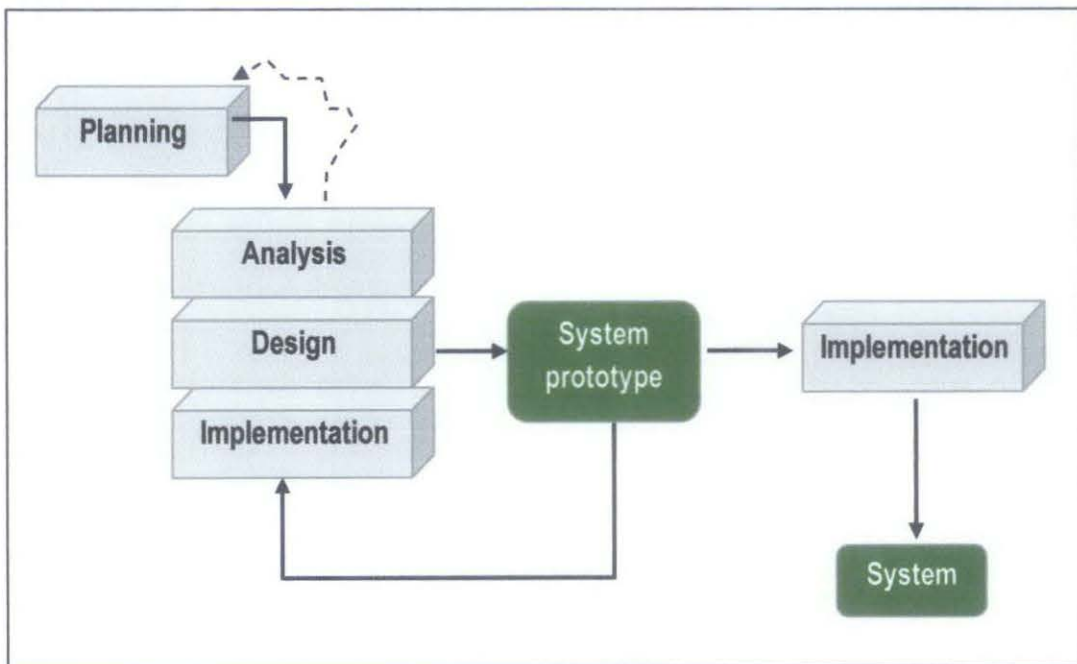
Appropriate contents were collected as materials for this product. There are many videos being referred to and could be found through the internet. Many videos were developed for the understanding of the young minds about global warming. These videos are very helpful in term of developing the animations in flash for the courseware. Research was made also through books and official global warming websites to find appropriate materials for the students. There is one courseware was developed in Philippines called the 'ECOHEROES' courseware that is developed similarly to this courseware. There is only the video of the courseware is available on the internet not the courseware itself. This courseware helped structuring the basic ideas for the project itself. As for the book, 'Global warming for young minds' is referred to because of the content of the book itself is appropriate for the target users of my courseware. Flemming Bermann (2010) stated that "The book is aimed for children from 6 to 10 years old, older age group may find the content of interest for starting point for further research".

## CHAPTER III

### METHODOLOGY

#### 3.1 PROTOTYPING-BASED METHODOLOGY

A prototyping-based methodology performs the analysis, design and implementation phases concurrently and all the 3 phases are performed repeatedly in a cycle until the system is completed. With this methodology, the basics of analysis and design are performed and work immediately begins on a system prototype, a “quick-and-dirty” program that provides a minimal amount of features. Advantage using this methodology is it can be reanalysis and redesign until the system complete (Alan et al, 2005).



**Figure 1:** A Prototyping-based Methodology  
(Source: System Analysis and Design, p12, Figure 1-5)

### **3.1.1 Planning**

During planning phase of the project, the development began with research regarding current educational system by reading journals and conference papers. Based on the research done, objectives and problems statement of the project been identify. Interviews have been conducted with the teacher of a chosen primary school.

### **3.1.2 Analysis**

Interview conducted with the teacher of the primary school and observations among the students the primary school itself on their behaviour of learning. All the information gathered from interview are then being analysed to find out the feedback from users regarding current system and what they expected from to-be system. The courseware requirements will then be listed out based on the analysis.

### **3.1.3 Design**

During the design phase, work immediately begins on a system prototype, a rough program that provides a basic storyboard on the system flow. The system framework is also been identified in design phase. The system prototype will be given to the end user to ask for feedback. All the feedback in improving the system from the end user will be recorded for further justification to improve the system.

### **3.1.4 Implementation**

Based on the feedback, the full completed system is built before it was tested by the end user. During installation, end users will try to run the system under inspection, if there is anything wrong then the process will go back to the analysis phase until the system meets the expectations of the end users. The feedback from users will be used for reference in refining the system. The completed system will be run in users' environment as scheduled.

## **3.2 TOOLS**

### **3.2.1 Hardware**

For this courseware, the hardware that will be used are:

- CD-ROM
- PC or laptop
- Projector
- Speakers

### **3.2.2 Software**

The softwares that are planned to be used in the completion of this project:

- Adobe Photoshop CS2
- Adobe Flash CS5
- Macromedia Director Mx
- QuickTime plug-in – version 7 and above
- Audio and Video code

### 3.3 GANTT CHART

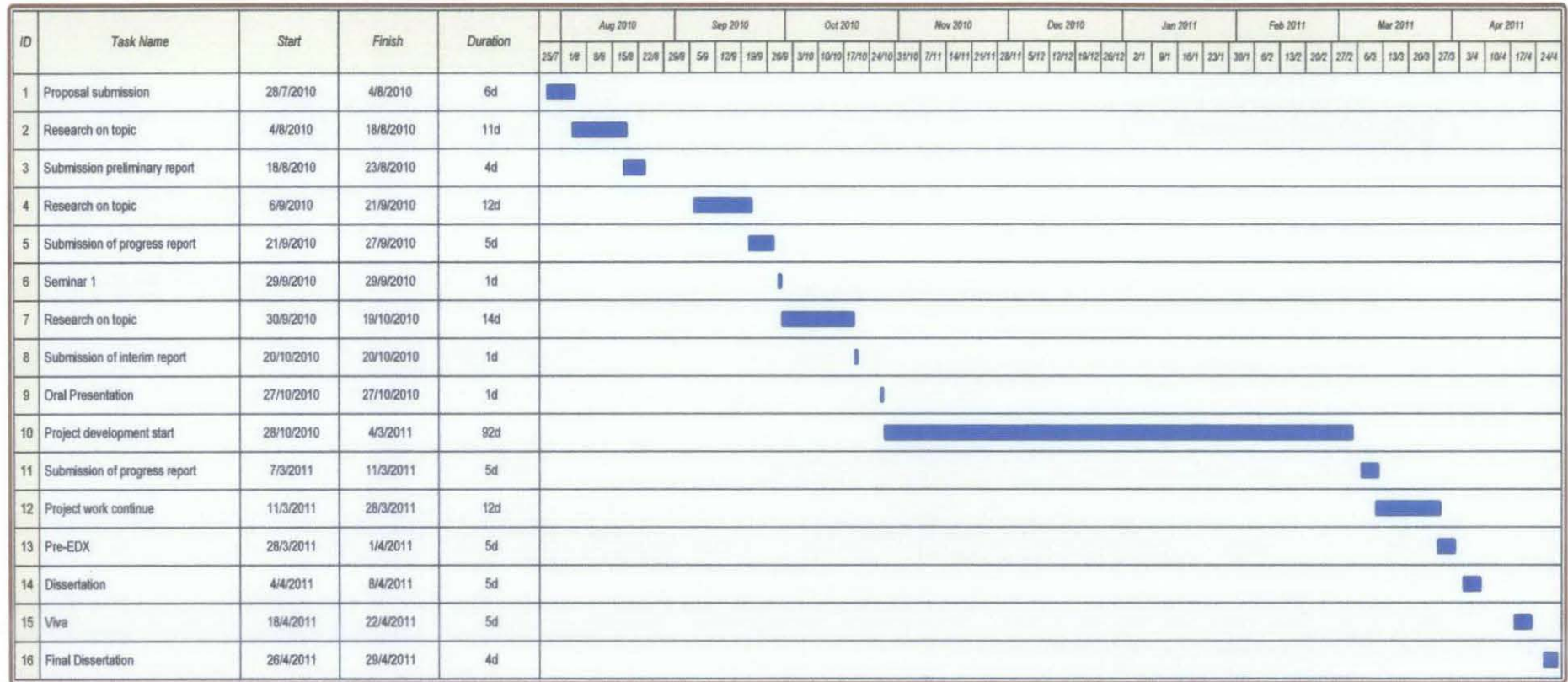


Figure 2: Gantt Chart For The Project

## **CHAPTER IV**

### **RESULTS AND DISCUSION**

#### **4.1 THE INTERVIEW**

An interview was conducted to collect requirements for the courseware. The interview was conducted with a teacher from a primary school in Ipoh. A list of questions was asked for specifications and depth of requirements. The interview was held formally at first and turned into a discussion where more inputs and insights were gained.

The objective of the interview was to;

##### **4.1.1 Obtain certain requirements for the courseware.**

Some basic requirements such as what should the courseware do and type of interface that is appropriate for the level of learning. Deeper understanding on the courseware for the teacher as the information about the courseware was explained further.

##### **4.1.2 Is there any specific syllabus that is being used to teach the students about global warming?**

From the finding, there is no specific syllabus being used in teaching them about global warming issues. Somehow, it is thought to the students by embedding it in general subjects like in language subjects. Plus, the learning courseware only limited to certain subjects, global warming topic is not one of them.

##### **4.1.3 To ask what kind of learning tools are appropriate for the students.**

The students usually learn from simple interactive activities. They learn through singing, storytelling and simple games. With their level of age, they are more interested to learn something if there are sense of 'fun' in the teaching tools.



**4.1.4 How aware those students are about the 'go green' concept.**

There are only thought about recycling. The lesson was not thought in depth, it is just teaching them to put the right item inside the right recycle bin. There are not being exposed to the 'Go Green' concept very well.

**4.1.5 Will they be able to learn effectively by using the courseware?**

As long as the courseware involve with interactive tools, the students will be interested to learn. They seem to learn more effectively through activities. Some lessons are thought to them via simple games.

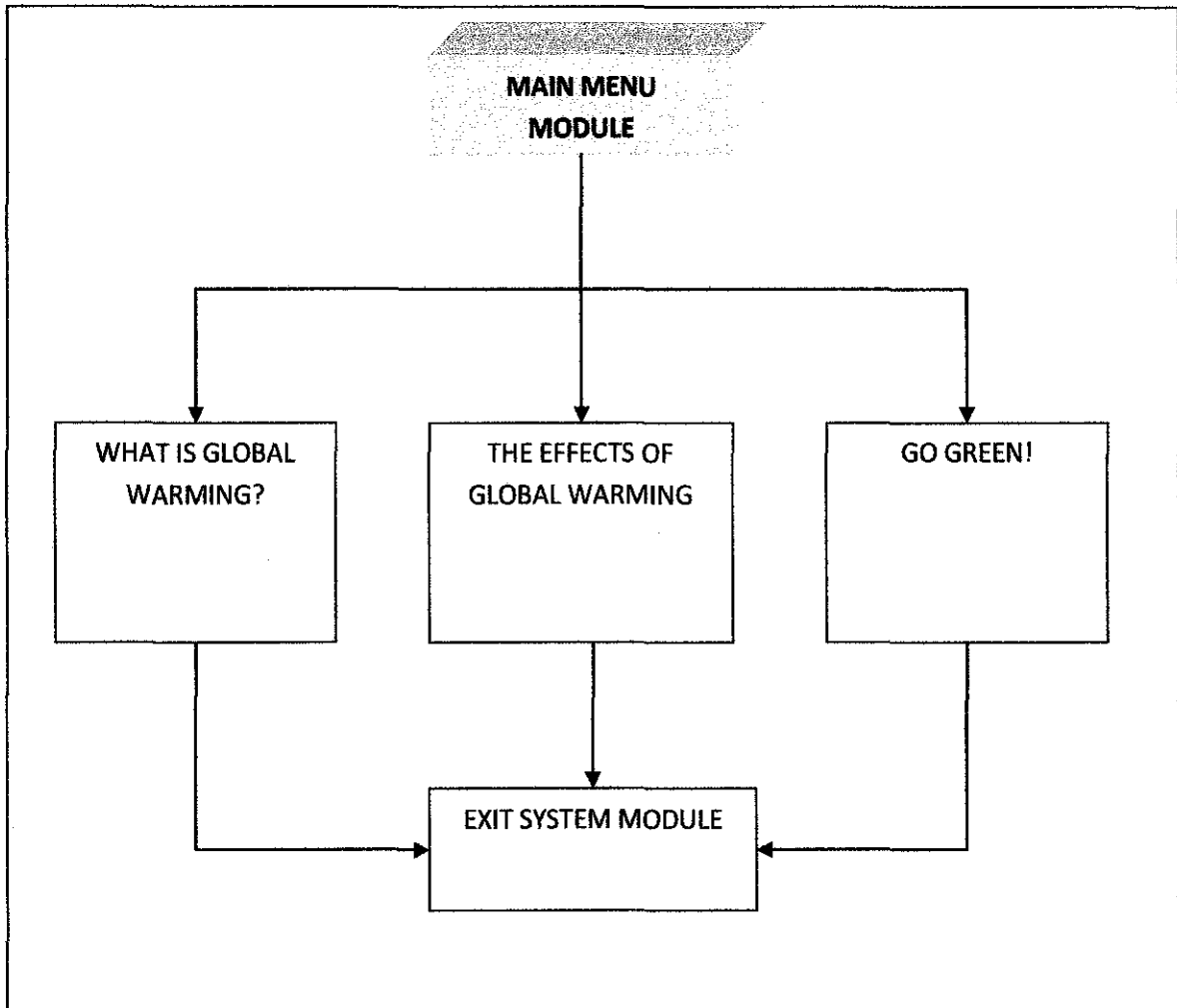
**4.1.6 How will this courseware help assisting the teacher to teach the students about 'Go Green' concept.**

This courseware will certainly help the teacher to teach the primary school students about the 'Go Green' concept. It will provide the teacher with an interactive tool for the children to learn from. Rather than using traditional method, teaching them by using this courseware can also bring them closer to the technology. Perhaps after learning by using the courseware, the student will be able to learn more about the 'Go Green' concept and be a beginning to them to live a 'green' lifestyle.

## **4.2 DISCUSSION**

After the interview session, some observations were also being made about the primary school student. They are likely to learn from activities. If there is an element of fun in the learning session, they would be more interested to learn. The traditional way of teaching is still being implemented by the teacher - children sitting down and the teacher writes on the whiteboard. At this tender age, their curiosity to learn new things is high. Through my observation, they were pretty much excited to learn and also to be ahead among each other. Children nowadays has become more and more intelligent, they are more close to the technology. Perhaps with the help of this courseware will attract them more to learn and will effectively teach them about global warming. The objective of this courseware is at the end of the day, the students learned by heart what is 'Go Green' concept all about.

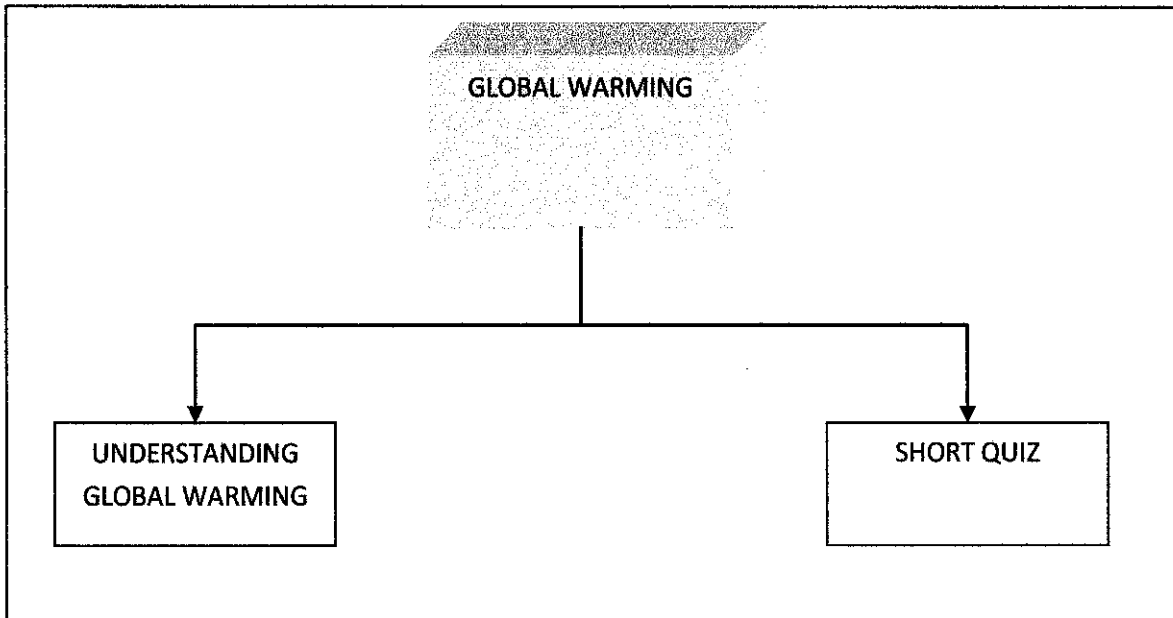
### 4.3 CONCEPTUAL FRAMEWORKS



**Figure 3:** A general structure view of the working core modules in the courseware

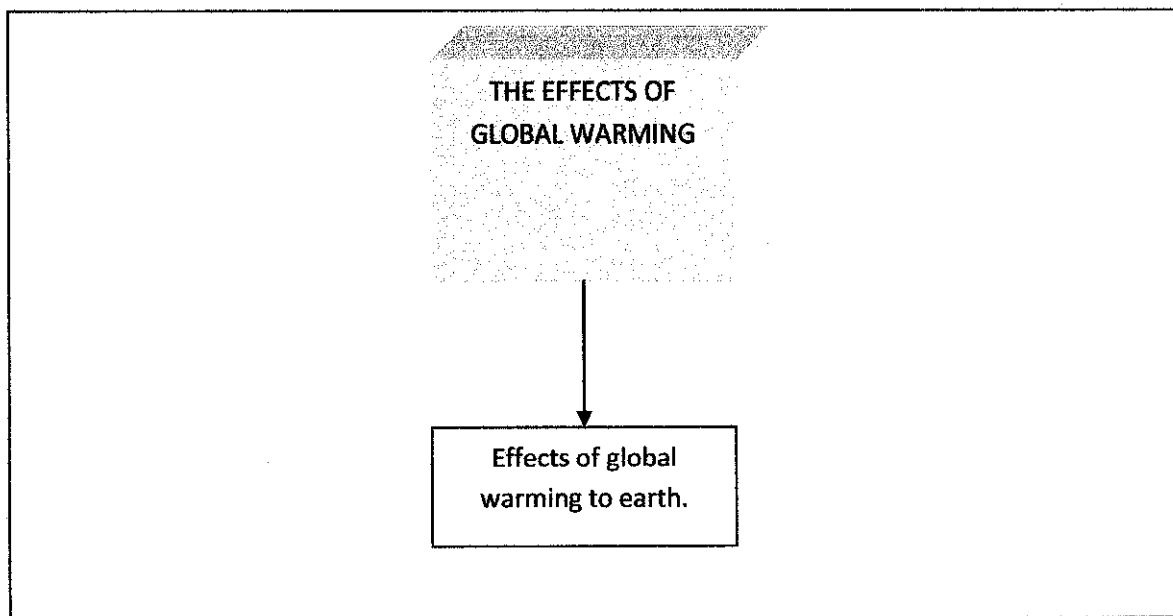
Figure 3 is the general structure of the courseware where it contains three modules which are;

- What is global warming module
- The effects of global warming module
- Go green module



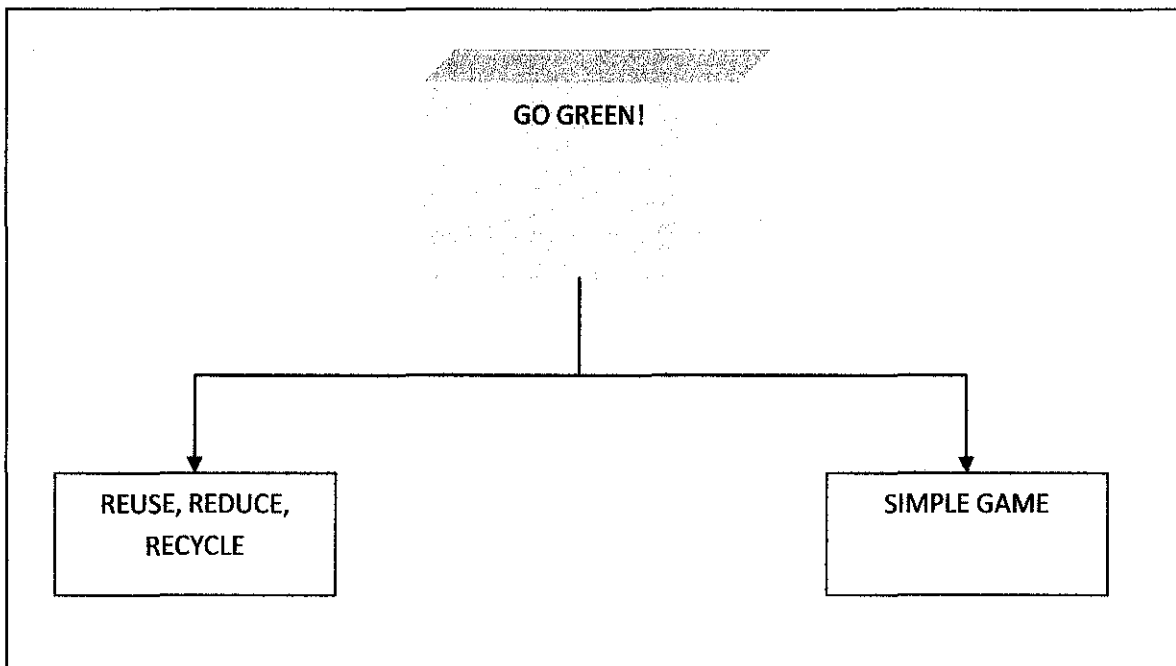
**Figure 4:** A structure view of sub-modules that exist in the Global Warming Module

Figure 4 explains about the sub-modules for the global warming module. From this module the children will be able to learn about basic information about global warming, the effects of global warming and a short quiz to test their understanding.



**Figure 5:** A structure view of sub-modules that exist in The Effects of Global Warming Module

Figure 5 contains the sub-modules for the effects of global warming. This module will explain the effects of global warming to the earth in general, to the nature and lastly to the human beings



**Figure 6:** A structure view of sub-modules that exist in the Go Green Module

As for this module, the students will learn the solution to overcome the global warming issues, which is to live green. They will sub-modules about reusing waste items, reducing and recycling used items. There will be a simple game to engage the student into deeper understanding for this module.

### 4.4 FLOW CHARTS

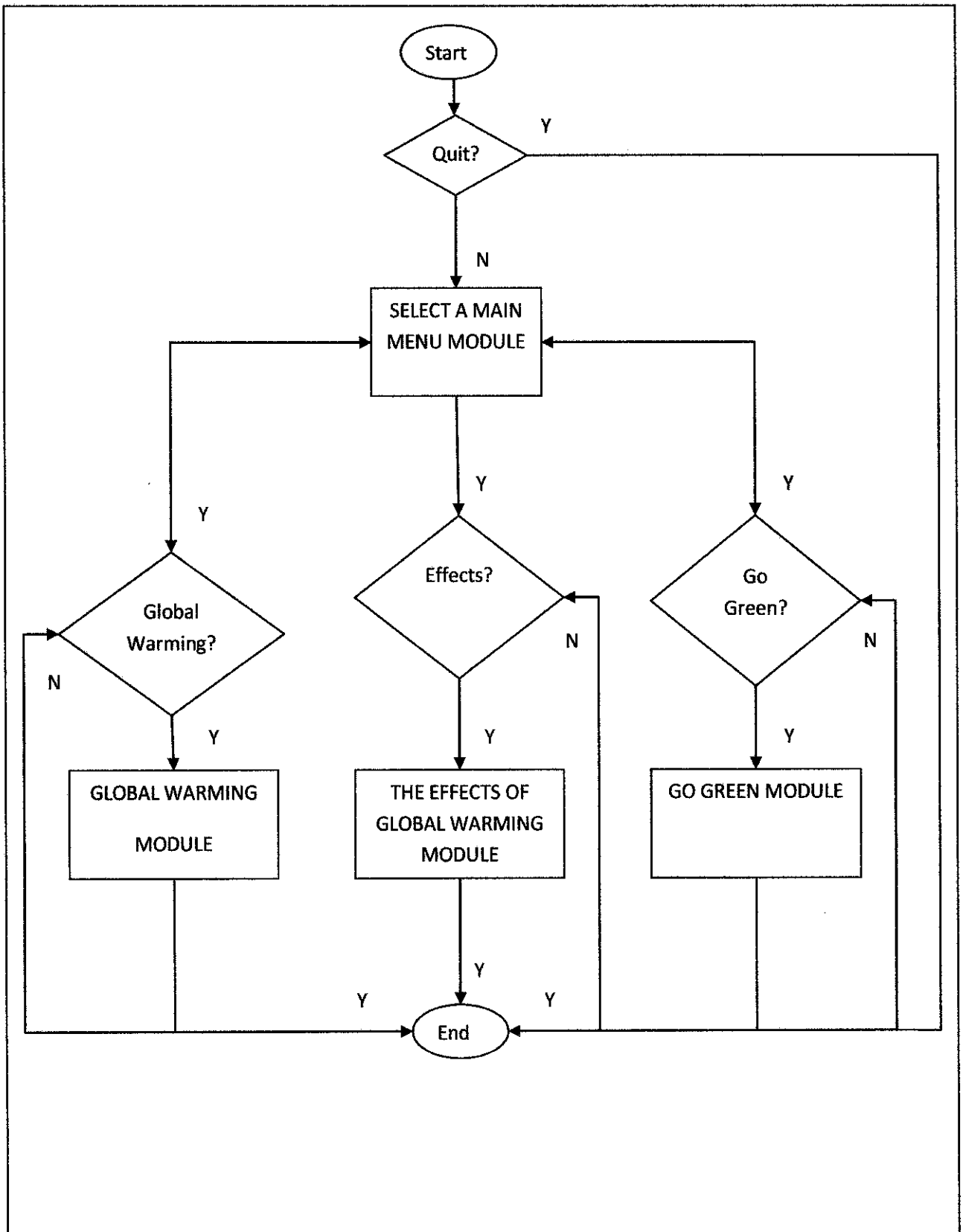


Figure 7: A general program flow of the main modules in the courseware. (Note:- N: No, Y: Yes)

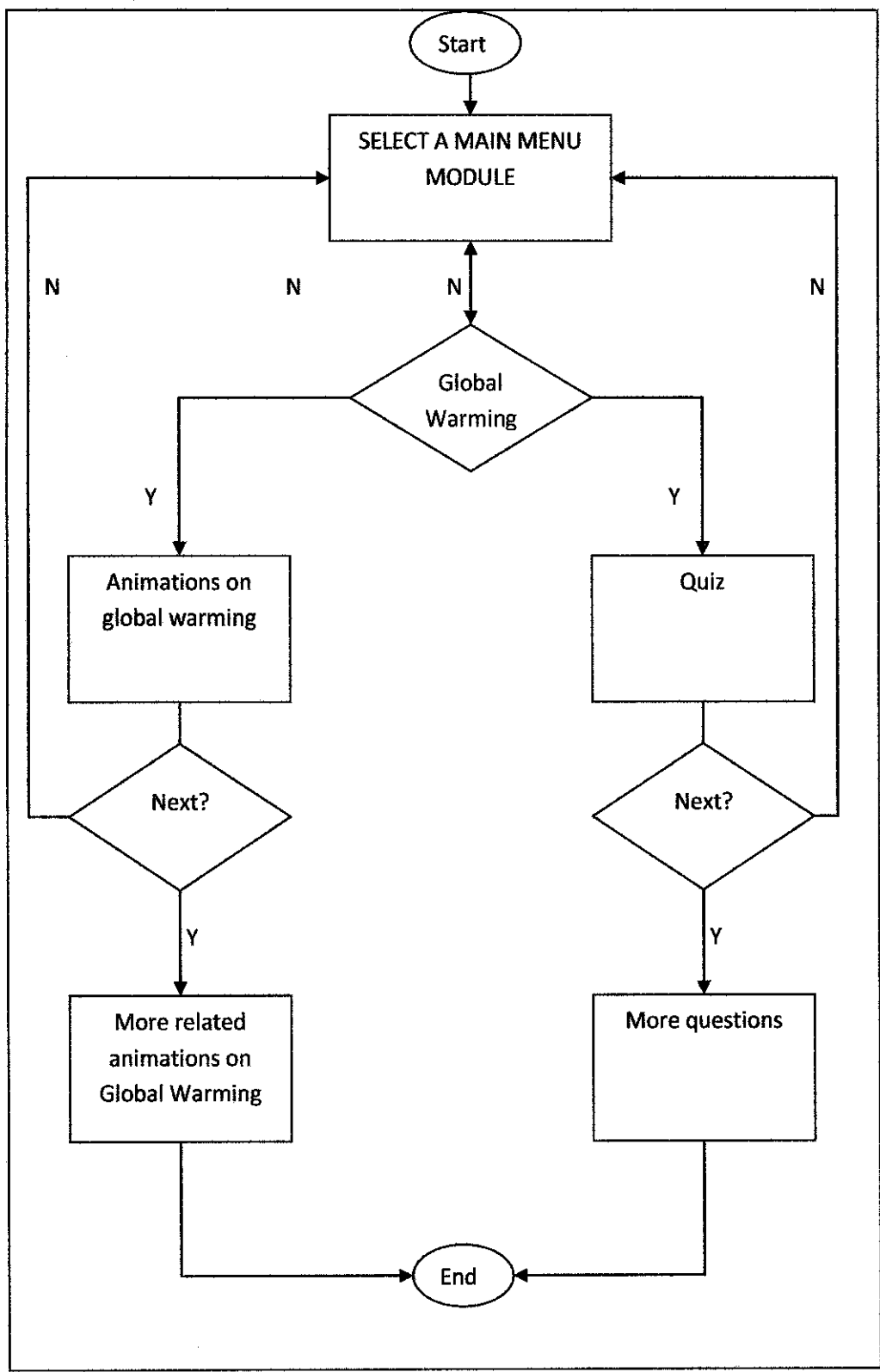


Figure 8: A Global Warming module flowchart and the associated sub modules.

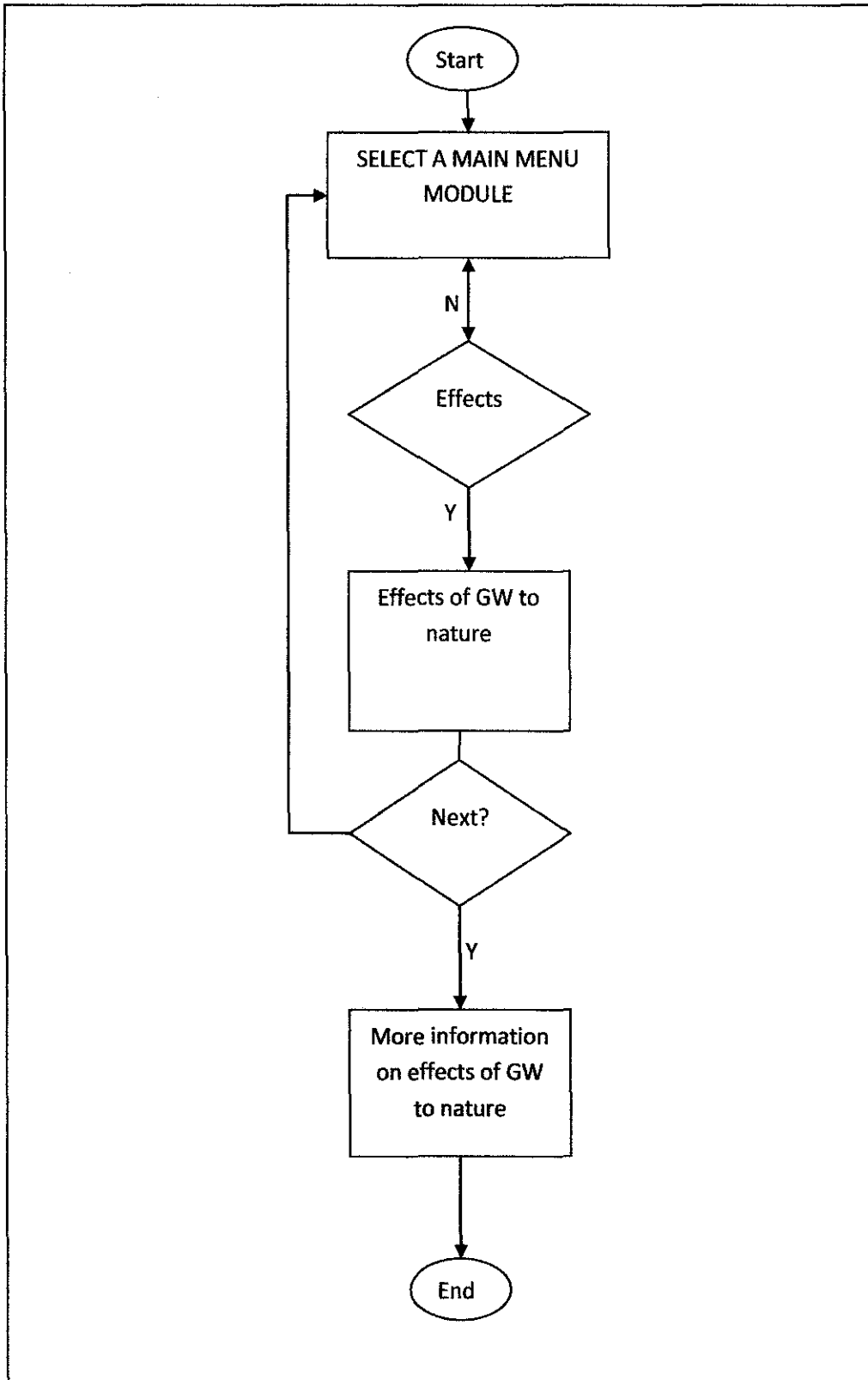


Figure 9: A module flowchart on Effects of Global Warming Module (Notes;- GW:Global Warming)

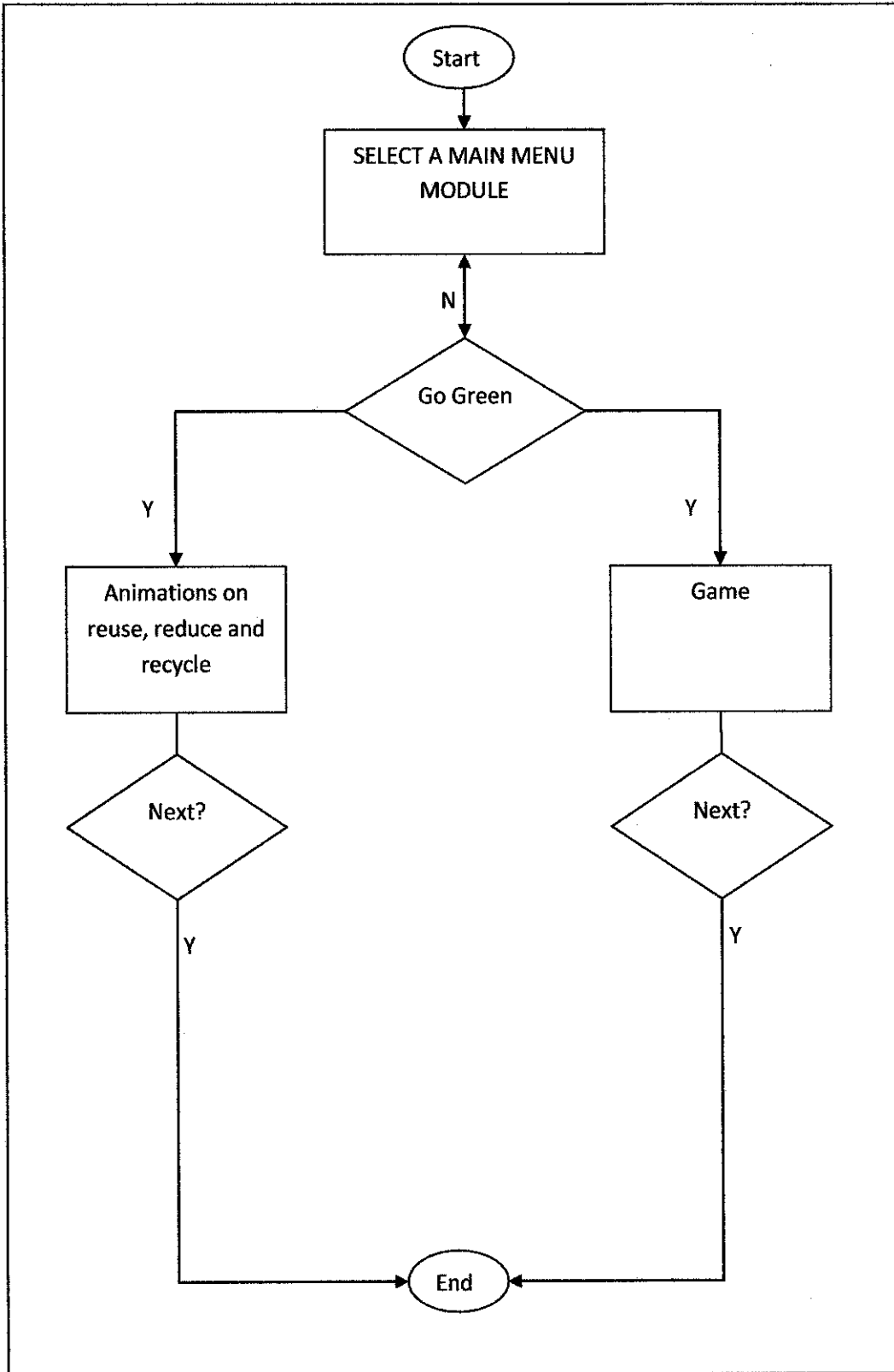
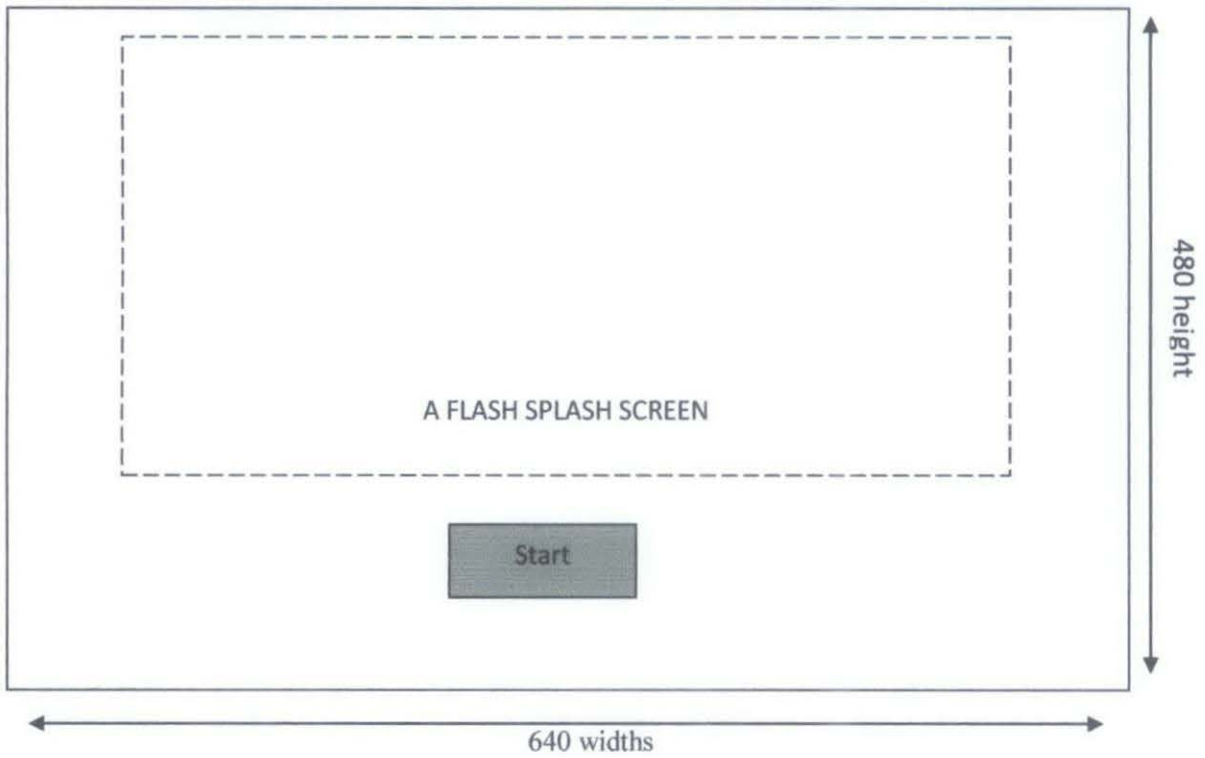


Figure 10: A flow diagram of the Go Green module and its related sub-module.



## 4.5 SYSTEM DESIGN

### Introduction Storyboard

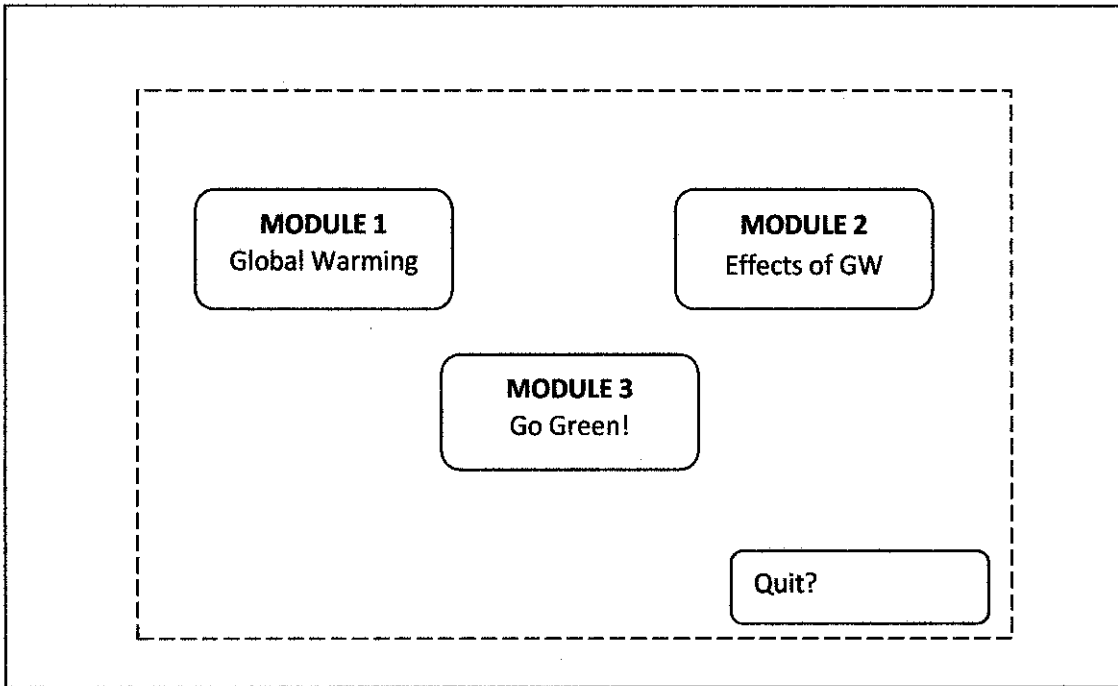


**Figure 11:** Introduction screen to the courseware system

FLASH SPLASH SCREEN - Introduction screen to the system.

START - Button on-click links to main menu interface.

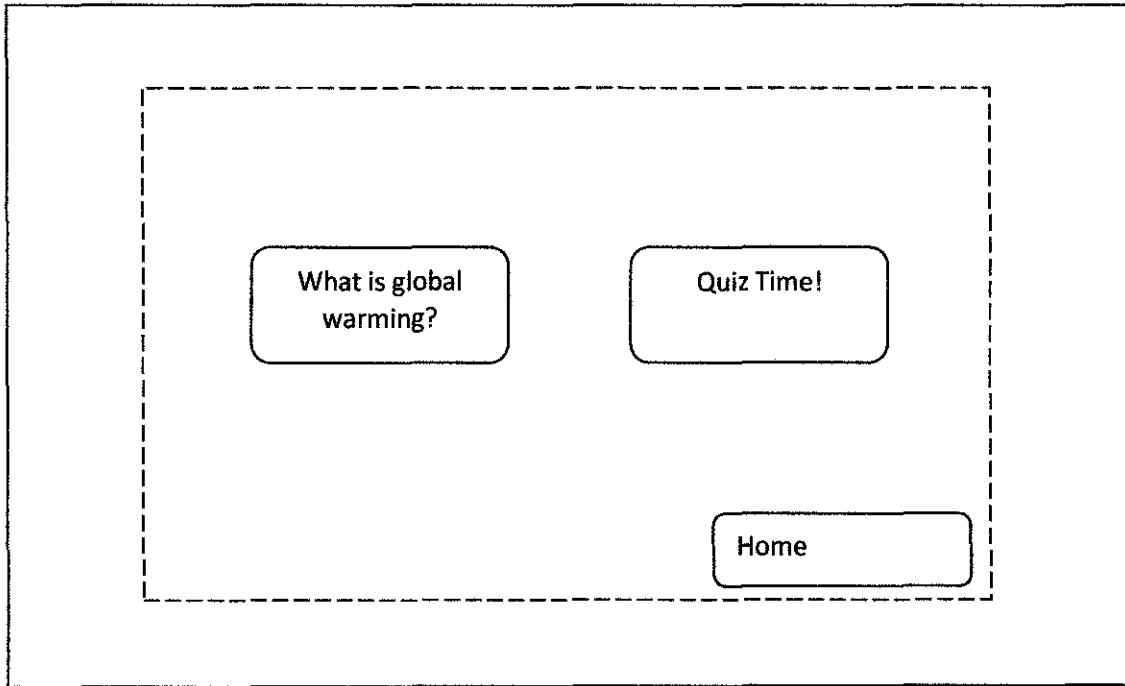
### Main Menu Storyboard



**Figure 12:** Main menu interface containing the core modules in the application

GLOBAL WARMING, EFFECTS OF GW, GO GREEN, QUIT - Navigational buttons to the respective interfaces comprising of global warming, effects of global warming and go green module. Exit button quits the system.

### Global Warming Main Module Storyboard

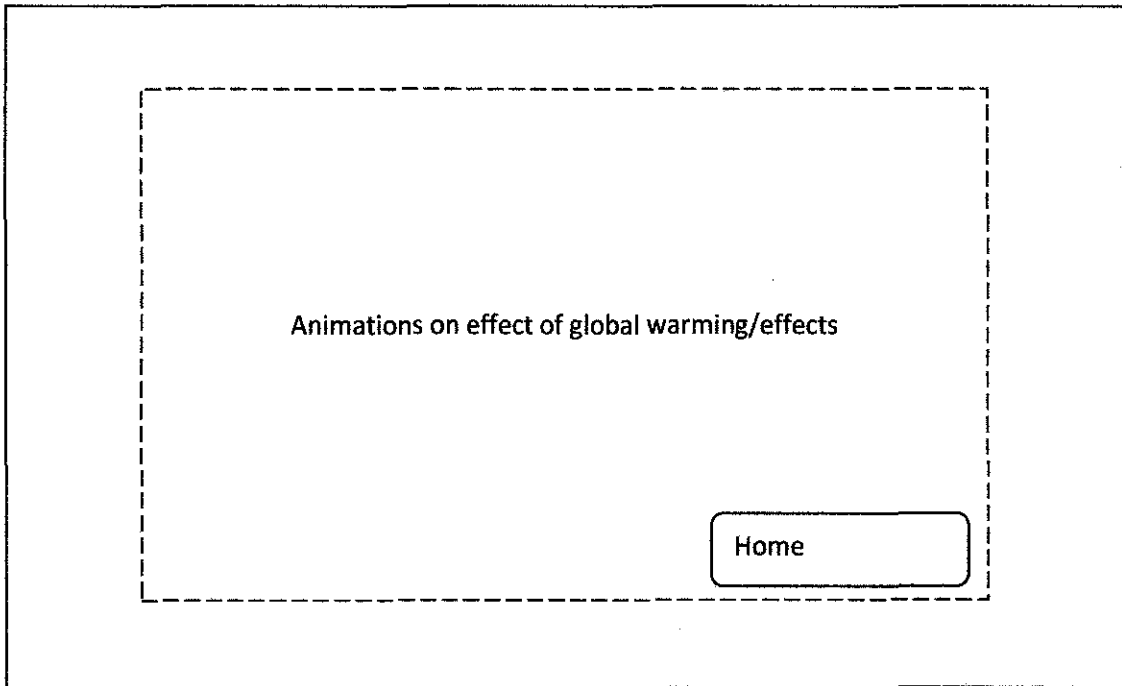


**Figure 13:** Overview screen example for the Global Warming module. The interface for the remaining main modules is alike but differs in content.

**WHAT IS GLOBAL WARMING** – once this button is clicked it will leads to the animations explaining about global warming.

**HOME** - Button on-click returns back to the individual main menu for each main module.

**Effects Main Sub-Module Storyboard**

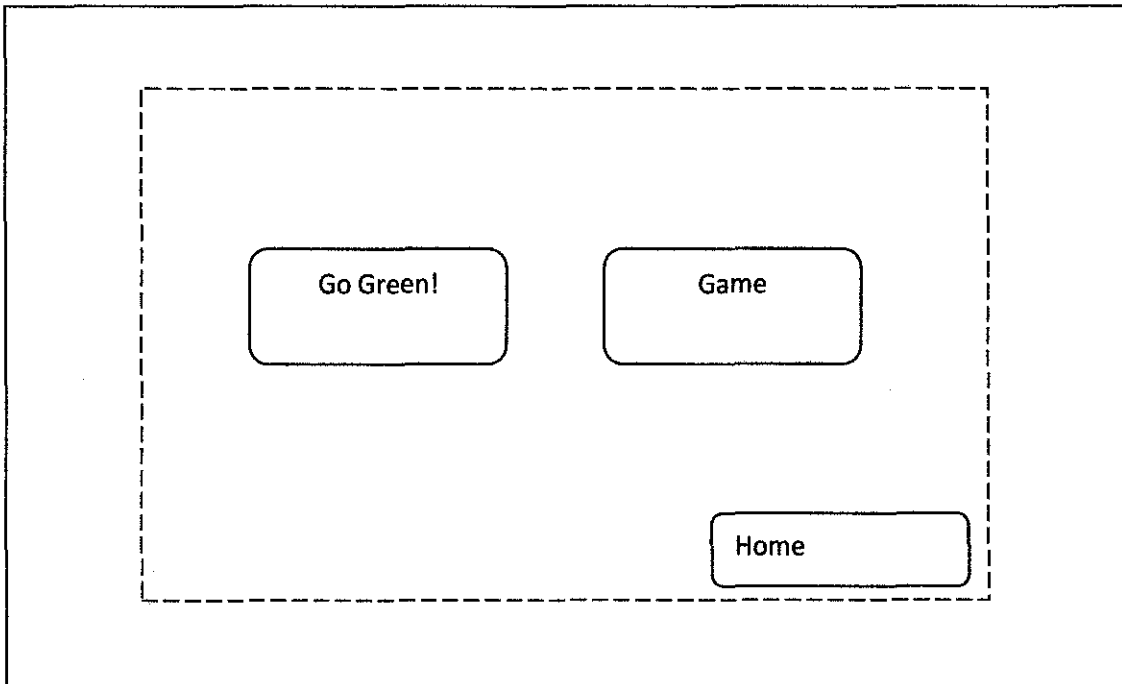


**Figure 14:** Sample sub module with its associated animations. The interface for the remaining main modules is alike but differs in content.

**MIDDLE OF SCREEN** – will display the animations explaining about the effects of global warming.

**HOME** - Button on-click returns back to the individual main menu interface.

### Go Green Main Module Storyboard



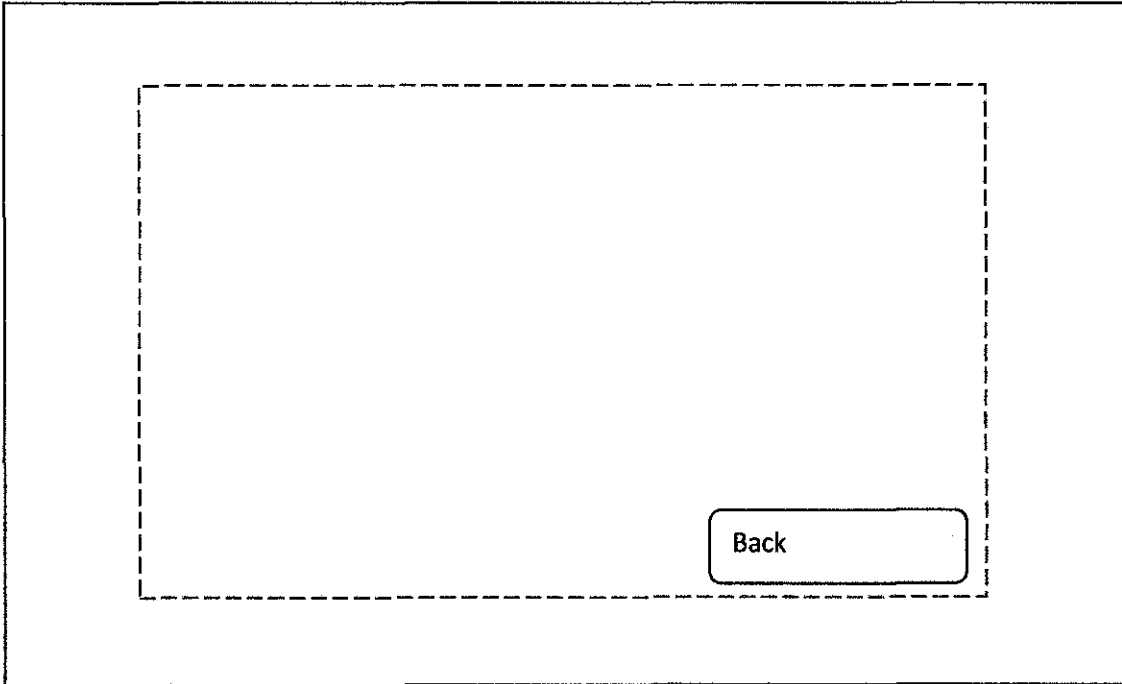
**Figure 15:** Tips sub module with its associated content variation that differs for each module.

**GO GREEN!** – Once this button is clicked it will display the animations about the go green concept.

**GAME** – This button leads to a simple game for further understanding on the module.

**HOME** - Button on-click returns back to the individual main menu interface.

### About Page Storyboard



**Figure 16:** The about page that will explain what the application is all about

**BACK** - Button on-click returns back to the individual main menu interface.

## 4.6 INTERFACE

This section describes the layout and pages that makes up the interface of the courseware.

### 4.6.1 The Start page



Figure 17: Start Page

Figure 17 shows the start page that will display what is mainly the courseware is all about. There is also a *START* button which allows users to start the program once it is clicked.

### 4.6.2 The Main Menu

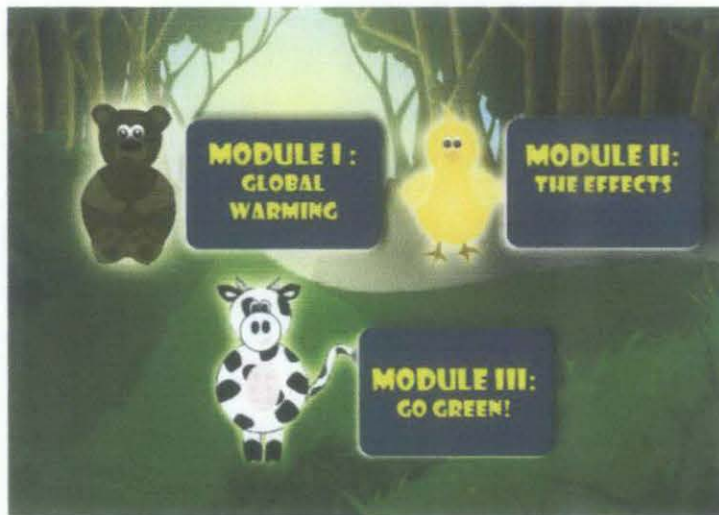


Figure 18: The Main Menu

Figure 18 shows the interface for the main menu which will display the main menu of the program. Users can click on the button on whichever module that they want (module I,II and III). These buttons will lead them to the particular module which will provide them with specific learning materials for that module.

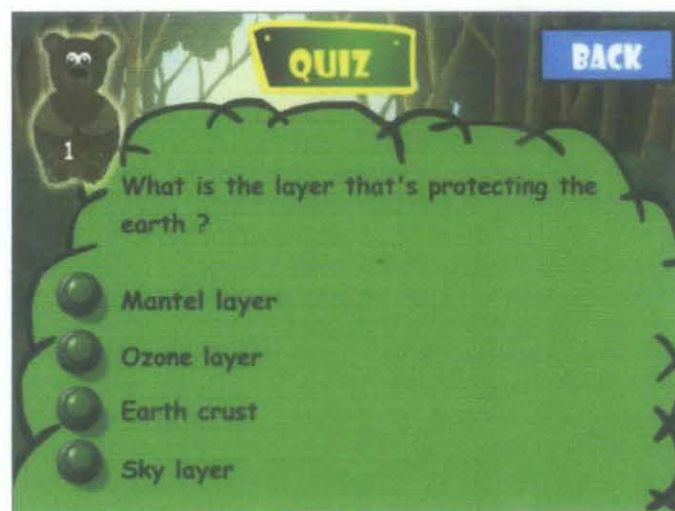
### 4.6.3 The animated learning modules



**Figure 19:** Animated module page

Figure 19 is the animated learning modules for the students to learn from. It contains animated visuals for learning, audio and also reading materials for the students. The BACK button allows students to go back to the main page, and the Triangle buttons allows students to go to the next and previous page of the module. This will be the same for the other modules (module II and III).

### 4.6.4 The Quiz page



**Figure 20:** The quiz page

Figure 20 shows the quiz page which will be included under module I: Global Warming. The will be simple multiple choices questions asked, users can click on the alphabet to choose the answer. The BACK button allows users to go back to the main



menu. In the end of the game, the user's marks will be given and wrong answers will be showed.

#### 4.6.5 The Game page



**Figure 21:** The Game page

Figure 21 is the game page which is under the third module. This is a simple drag and drop game for users. They simply drag the items into the right recycle bin. Simple instructions will be provided in the small box. Users will be notified if they placed the item correctly or wrongly. They can repeat the process until they get all the right items inside the correct recycle bin. BACK button allows users to go back to the main page.

#### 4.7 TESTING

The courseware has been tested with a group of 10 children from the range of age 7-9 years old. The observation of how they navigate the application was being focused on. This is for the testing purpose of the system prototype for further refinement. From the testing session, we can say that 9 out of 10 of the children are able to use the courseware very well. Their understanding also tested through the activities within the courseware. The result was a satisfactory.

## CHAPTER V

### CONCLUSION

The importance of awareness among youngsters has been highlighted. In fact, based on the study that has been done, teaching children about environmental awareness at a young age is really essential. With this kind of awareness being instilled to the students, we can train them to live green. They are able to learn about global warming itself in a more interactive and attractive ways. Students nowadays are getting eager of learning things through technology; they will be more interested to learn by using this software.

From this report, thorough analysis has been done on learning habits and behaviours of the students of the primary school in phase I. Evolution has been shown from traditional classroom approach up to nowadays' e-learning approach. This study is to show differences and to compare which method stands out in the preference of students. Several thesis's have also been referred to, to see the effectiveness of the learning by using courseware.

The government also supports learning via ICT. The modules included inside this application are appropriate with the student's level of understanding. With the aid of visual and audio learning they will learn more effectively compared to the traditional method of writing on paper of whiteboards. The development of this project is still at the design phase. The upcoming system is using prototype methodology, so there will be added features on the courseware after the first prototype has been created.

For the recommendation, the next step will be the thorough courseware design with contents, implementation stage and also evaluation phase. In the design, thorough design will be developed and contents of the courseware will be included as well. At the implementation stage, prototype will be implemented and will be refined if there is any problems. After all stages has completed, the final product which is the courseware will be tested by end users and the level of effectiveness will be measured.

The courseware also can be further developed to have a multi language option. The users can choose whether to learn in English (the default language) or in Bahasa Melayu. This is for an easier understanding for the less literate students in English language.

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## **APPENDICES**

## **The Interview Questions**

The objective of the interview is to collect information about the students' behaviour in learning and also to know about their learning modules.

The questions being asked were:

- What is the range of the student's age in this school?
- Explain about their daily learning activities?
- In those activities, describe the student's interest in learning?
- What are the modules of learning used to teach the student?
- In what activity did the student engage more to learn?
- Are they being taught about the environmental concern?
- Do they have basic idea about global warming?
- Is there any module teaching them about the 'going green' concept?
- What is the method being used to teach the students?
- Is the method being used effective enough?
- Is there any e-learning module being implemented?
- How will the children react in learning if the courseware is being used to teach them?
- What is actually their most effective ways of learning?
- Do these children have any computers at home?
- Are they close to the technology?
- Would this school implement the courseware as a learning module for the students?