CHAPTER I

INTRODUCTION

1.1 Background

During the last decade, Information Technology (IT) has been the primary force driving the transformation of roles in the education industry. More specifically, the World Wide Web (WWW) and associated technologies provided a new playground with new rules and tools to conduct instruction and create novel approaches to learning. We have seen the application of IT in education in the form of CD-ROMs, web-based academic information system, school apps and etc. With the evolution of the WWW we saw education marketed as long distance learning, web based learner centered environments, internet based learning environments, and self-instructed learning. With all the different models used on the web, few have studied their acceptance and their effectiveness on learning. Many educational institutions today have embarked in the development of web based academic information system. The main objective of web based academic information system environments, is to enhance learning experiences and improve learning outcomes.

Information has become one of the basic needs for schools, because without information almost all the work will not be completed accordingly. With the developments in the field of science and technology is one that we are familiar with the Internet. The Internet is a circuit that connects a computer network that can be accessed in general around the world, which sends data in the form of data packets based on the standard internet protocol (IP). Internet has now become a bridge for people or students specifically to access a variety of information both local information and even information around the world quickly anywhere and at any time.

With the development of the Internet, web technology has also been developed also into various types, uses and medium. Now almost all medium such as

personal computers, laptops, netbooks and smartphones are capable of displaying websites corresponding to the device uses. A Website or written as web site or simply site is a set of pages of information on the Internet about a particular subject published by an individual or an organization. Internet and web are two different things where the Internet that can display its web, while the web is the display of an array of pages that use web technologies and are related to each other.

Technology development and utilization of information is needed, especially to help the process of the work that must be done efficiently and effectively. As the internet can be accessed by students, anywhere within range of an internet service provider, via mobile devices, the web based academic information system has made academic procedures much more flexible for many students and academics. Therefore, many schools worldwide have adapted the web-based academic information system to carry out their academic procedures.

In Papua New Guinea however, most schools are yet to implement the web-based academic information system. Wawin National High School (Wanaths) is one of the six national high schools in Papua New Guinea and it is located in Morobe Province. Wawin National High School was built as an aid to Papua New Guinea by the Chinese Overseas Engineering Corporation (COVEC) donated by the Republic of China. The school is also known as the School of Excellence. Wawin National High School as of its existence it has a good repetition of producing quality students in the national level of education and sending them to the universities and tertiary institutions in the country.

The students population has increase during the academic years as in 2015 around 150 grade 11 students were selected and enrolled in Wawin National School totaling up with the continuing students, the grade 12 to a total of approximately 300 students. The students' population has resulted in the increase of classes with five grade 11 classes and also five grade 12 classes. Each class contains 30 students.

However, in the academic system of Wawin National High School, there are still some obstacles, limitations and problems that occur in terms of new students when they are selected and enrolled and other academic issues. After officially becoming a student the unavailability of a system which informs the scheduling of lessons so that students obtain a timetable and know when classes begin, which class they are allocated in, choosing of subjects that they want to take weather science or social science as well as the general announcement to the new comers. There are also other problems regarding academic issues such as students' learning, in which daily tutorials, assignments and tasks which are given to the students by their respective teachers in the form of handouts or by writing on the board, viewing of their marks which takes a lot of time to process and is also done manually. Students' parents can also have access to the system by using their children id number which is sent to the student via their acceptance letter by the school in advance. Therefore it is in fact necessary to have a medium that is able to overcome the problems described above in which the system takes advantage of the internet and web development.

The problems encountered as described from the background, the school in fact really needs a web-based academic information system to cater for the problems. A web-based academic information system is an information system that uses internet web technologies to deliver information to the students. From the above background, the author has raised this issue into a research thesis titled "WEB-BASED ACADEMIC INFORMATION SYSTEM OF WAWIN NATIONAL HIGH SCHOOL.

1.2 Problem Identification and Formulation

1.2.1 Problem Identification

As from the background description, the author has identified some of the issues regarding the current academic system of WAWIN NATIONAL HIGH SCHOOL are as listed:

i. For new students, during their subject enrollment procedure, it takes one to two weeks or even more depending on the student's population for students to choose their subject weather it is a social science subject or a science subject and it is time consuming and also leads to classes behind schedule according to education calendar.

ii. The students' schedule or timetable which is created manually results in clashes of class and also goes through a long process before it is ready to be given to the students. Clashes of classes is a daily issue that is common in the current academic system of WAWIN NATIONAL HIGH SCHOOL and as a result it leads to poor academic performance of students because students missing out on the scheduled period of class.

iii. Students' learning which is facilitated by their respective teachers through materials such as daily tutorials, assignments and tasks are given to the students by the teachers through writing on the board or through the form of handouts which leads to more paper being use every day and also it's an expensive exercise of the school administration.

iv. Students' grades or academic report usually takes a long time to process and viewed by students. This result in the students not knowing their academic performance whether they are performing well or not.

1.2.2 Problem Formulation

Therefore based on the identified issues, the current problems of WAWIN NATIONAL HIGH SCHOOL academic system can be formulated as follows:

i. How to analyze the current academic information system of WAWIN NATIONAL HIGH SCHOOL in areas of, subjects enrollment, scheduling, grading and other academic sections.

ii. How to design a web-based academic information system for WAWIN NATIONAL HIGH SCHOOL to help solve problems that are encountered with the current academic information system.

iii. How to test the web-based academic information system at WAWIN NATIONAL HIGH SCHOOL so that it meets the students or users requirements for subjects' enrollment, scheduling, grading and other academic areas.

iv. How to implement the web-based academic information system so that it becomes a ready-made application package at WAWIN NATIONAL HIGH SCHOOL.

1.3 Research Objectives

The main purpose and objective of carrying out this research are as follows:

1.3.1 Purpose

The main aim of this research is to design and develop a reliable web-based academic information system for WAWIN NATIONAL HIGH SCHOOL which will boost in the academic performance of the students.

1.3.2 Objective

i. To analyze the current academic system of WAWIN NATIONAL HIGH SCHOOL and point out major issues or problems in areas such as subjects' enrollment, scheduling, grading and other academic sections that are usually encounter by the students.

ii. To design a web-based academic information system in WAWIN NATIONAL HIGH SCHOOL so that it helps solve the problems that are encountered with the current academic information system.

iii. To test the web-based academic information system at WAWIN NATIONAL HIGH SCHOOL so that it meets the students or users requirements for subjects' enrollment, scheduling, grading and other academic areas.

iv. To implement the web-based academic information system so that it becomes a ready-made application package at WAWIN NATIONAL HIGH SCHOOL.

1.4 Research Implications

It is expected that this research will be useful by the following parties:

1.4.1 Practical Uses

The development of web-based academic information system will be used by WAWIN NATIONAL HIGH SCHOOL, to improve the student's academic performance. In addition the system may also be implanted in other secondary high schools or national high school in Papua New Guinea which have similar issues or problems that are encountered by WAWIN NATIONAL HIGH SCHOOL.

1.4.2 Academic Uses

1. Institutions

Hopefully in other institutions, this research can be used as a reference journal for future students who are working on similar projects.

2. For Other Researchers

The ideas taken from this research may also be implemented by future researchers who wish to broaden their knowledge about information systems development.

1.5 Limitations of Research

Considering the time limit and ability of the researcher, the discussion of this research will be restricted on the following regarding the development of web-based information system of WAWIN NATIONAL HIGH SCHOOL. The development of web-based academic information system of WAWIN NATIONAL HIGH SCHOOL will contain:

1. Enrollment of student's subjects

2. Scheduling of students daily classes

3. E-learning section of the web-based academic information system where students and teachers can download and upload daily tutorials, materials, assignments and tasks and in addition students can view notices on their respective classes which will be put up by their respective teachers.

4. Attendance of the classes that the students attend during the schooling term.

5. Grading and viewing of their overall termly marks and there will be also some other sections in the development of the web-based academic information system such as, news and events of the school and etc.

1.6 Research Time and Location

This research was conducted at WAWIN NATIONAL HIGH SCHOOL P.O. Box 315, Lae, Morobe Province, Papua New Guinea. The duration of time allocated for this research was at 1st of October 2015 till the end of January 2016.

Table 1.1 Research Schedule

SCHEDULE	SEPTEMBER 2015				OCTOBER 2015				NOVEMBER 2015				DECEMBER 2015				JANUARY 2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1.IDENTIFICATION OF BASIC REQUIREMENTS																				
a. Observing	■	■																		
b. Interviewing		■	■																	
c. Collecting Data			■	■																
d. Document Analysis				■	■															
2. DEVELOP A WORKING PROTOTYPE																				
a. Design Process					■	■	■													
b. Database Design							■	■	■											
c. Coding									■	■	■	■	■	■	■	■				
3. USE THE PROTOTYPE																				
a. Black Box Testing															■	■				
b. Observe Users Satisfaction															■	■				
4. REVISE AND ENHANCE THE PROTOTYPE																				
Revision																■	■	■		
5. OPERATION OF PROTOTYPE																				
Operation																		■	■	■

1.7Thesis Outline

CHAPTER I: INTRODUCTION

This chapter proposes the research background, problem identification and formulation, research objectives, research usability and the limitations of the research.

CHAPTER II: THEORITICAL

This chapter contains the citing of theories and previous studies, related to the development of web-based academic information system.

CHAPTER: III RESEARCH METHODOLOGY

This chapter basically discusses the research methodology and procedures used in the development of the web-based academic information system.

CHAPTER: IV SYSTEM ANALYSIS AND DESIGN

This chapter elaborates more on the analysis and design of the web-based academic information system. It discusses the development of the proposed system, including process, data interpretation, database design, coding and software testing.

CHAPTER: V CONCLUSION

In this chapter, conclusions are made according to the research and certain recommendations are made concerning the usability and maintenance of the developed system will be outlined.