**CHAPTER ONE**

**GENERAL INTRODUCTION**

# 1.1 BACKGROUND OF THE STUDY

At the early stage of science and technology education in Nigeria, students were graduating from their respective institutions with little or no technical knowledge or working experience. It was in view of this that student studying science and technology related courses in different institutions were mandated to undergo the Student Industrial Work Experience Scheme(SIWES) so as to widen their horizons and to enable them have technical knowledge or working experience before graduating from their various institutions. This leads to the development of students in various area of expertise which they had graduated from. All these activities mandated by the authorities for the graduating students to undergo require suitable form of documentation so that a record of such experiences may exist for the purposes of referencing in the future (Akerejola, 2004).

Documentation in itself can take different forms but are largely categorized into two the manual and digital/electronic form. Manual documentation as a form record keeping has been in existence since the beginning of civilization while the digital form appears to be gaining grounds from about the 19th century till now.

Digital or electronic forms of documentation exist in a plethora of types. Each of this type can possess a unique set of characteristics that are peculiar to the organization that owns them. Such types of electronic documentation that exist include portal system which can describe in different ways depending on different point of views. To a user of portal, it is a web system that provides the functions and features to authenticate and identify users. It provides an easy, intuitive, personalized and user-customizable web-interface for facilitating access to information and services that are of primary relevance and interests to them. However, to the institution that set up the portal, it is a system that helps the institution to catalogue or organize collection of different information for dissemination to many users according to their specific privileges, needs and interests. Therefore, the main purpose for setting up a portal is to bring vast information and resources available from many sources to many users in an effective manner.

There have been several efforts in Nigeria and in other part of the world to build portal systems that can facilitate administration and learning in higher institutions. It is designed to help the students who are undergoing SIWES training and give them necessary information as regards to their ongoing academic program

(ITF, 2004).

At the same time the portal provides personalized interface to the computer applications for supporting e-learning, e-administration, online library services and other services that are commonly needed and important to the daily life of individual students and staff members. The portal also allows individual users to include their interested internet information resources as part of their own tailored campus portal service.

# 1.2 PROBLEM STATEMENT

In the department of Computer Science, Kano University of Science and Technology, Wudil. Participation in SIWES has become a necessary pre-condition for the award Degree certificate in Computer Science discipline in the University in accordance with the education policy of government. Therefore, school management has to provide SIWES introduction letters to students.

The idea to develop an INFORMATION SYTEM FOR SIWES MANAGEMNET occurred from the several problems that have been identified from the current manual system were by a student is given and introduction letter and acceptance letter to submit to their preferred placement organizations and may not be able to submit it to the organization in time before returning the stamped copy to the department due to one unforeseen reason or the other and student might have lost their introduction letter and acceptance letter. The above problems make it necessary to develop a system that will eliminate or reduce the following:

1. Time consumption and financial involvement.
2. Large cost of travelling to the long distanced students.
3. Risking lives.
4. Student’s failure to return their acceptance letter as scheduled.
5. Losing of acceptance letter.

# 1.3 AIM AND OBJECTIVES

The primary aim of undertaking this project is to automate major part of SIWES where students can print their introduction letter and acceptance letter and submit them online and can be monitored online by the admin, and these would be achieved through the following objectives:

1. To develop an automated system that allows online registration of students for SIWES
2. The system that will provide an interface for students to print an introduction letter and acceptance letter.
3. The system that will provide an interface for students to upload acceptance letter.
4. The system that will provide an interface for supervisors to be allocated
5. To design and implement a database that keep the students record.

# 1.4 MOTIVATION

With the increasing number of students, it becomes more difficult for a departmental coordinator to be able to compile the list of all who have submit their acceptance letter in other to know the placement locations before allocating supervisors for them. Students from far distance find it difficult when they submit their introduction letter to a placement organization before being accepted and issued a stamped copy and then returned to the School. The costs in cases where the students have to travel to their own state and sometimes the risk involved may include accident due to poor roads within the country. Also, some student does claim that they have less time to submit their acceptance letter but with the implementation of this project, it can fasten the process of acceptance letter submission.

# 1.5 SCOPE AND LIMITATION OF THE STUDY

This project mainly focuses on creating an online platform for SIWES introduction letter and acceptance letter printing and submission where departmental SIWES coordinator can view record of registered students and students who have submitted a stamped copy of acceptance letter.

**CHAPTER TWO**

**LITERATURE REVIEW**

# 2.1 INTRODUCTION

A literature review is an account of what has been published on a topic by accredited scholars and researchers. Occasionally you will be asked to write one as separate assignment (sometimes in the form of an annotated bibliography), but more often it is part of the introduction to an essay, researches report, or thesis. In writing the literature review, your purpose is to convey to your reader what knowledge and ideas have been established on a topic, and what their strength and weaknesses are. As a piece of writing, the literature review must be defined by a guiding concept (e.g., your research objective, the problem or issue you are discussing or your argumentative thesis). It is not just a descriptive list of the material available, or a set of summaries (Taylor, 2008).

Beside enlarging your knowledge about a topic, writing a literature review lets you gain a demonstrate skills in two areas;

1. Information seeking: the ability to scan the literature efficiently, using manual or computerized methods, to identify a set of useful articles and book.
2. Critical appraisal: the ability to apply principles of analysis to identify unbiased and valid studies.

**2.1.1 PURPOSE OF LITERATURE REVIEW**

1. It gives readers easy access to research on a particular topic by selecting high quality article or studies that are relevant.
2. It gives readers easy access to research on a particular topic by selecting high quality articles or studies that are relevant, meaningful, important and valid and summarizing them into one complete report.
3. It provides an excellent starting point for researchers beginning to do research in a new area by forcing them to summarize, evaluate, and compare original research in that specific area.
4. It ensures that researchers do not duplicate work that has already been done.
5. It can provide clues as to where future research is heading or recommend areas on which to focus.
6. It highlights key findings.
7. It identifies inconsistencies, gaps and contradictions in the literature.
8. It provides a constructive analysis of the methodologies and approaches of other researchers.

**2.2 REVIEW OF SIWES PROGRAM**

The students Industrial Work Experience Scheme (SIWES) is a Skills Training Program designed to expose and prepare students of Universities, Polytechnics/Colleges of Technology/Colleges of Agriculture and Colleges Education for the Industrial Work situation they are likely to meet after graduation. The scheme also affords students the opportunity of familiarizing and exposing themselves to the needed experience in handling equipment and machinery that are usually not available in their Institutions. Before the establishment of the scheme, there was a growing concern among our Industrialists that graduates of our Institutions of Higher learning lacked adequate practical background studies preparatory for employment in Industries. Thus, the employers were of the opinion that the theoretical education going on in higher institutions was not responsive to the needs of the employers of labor. It is against this background that the rationale for initiating and designing the scheme by the Fund during its formative years – 1973/74 was introduced to acquaint students with the skills of handling employers’ equipment and machinery. The ITF solely funded the scheme during its formative years. But as the financial involvement became unbearable to the Fund, it withdrew from the Scheme in 1978. The Federal Government handed over the scheme in 1979 to both the National Universities Commission (NUC) and the National Board for Technical Education (NBTE). Later the Federal Government in November 1984 reverted the management and implementation of the SIWES Programme to ITF and it was effectively taken over by the Industrial Training Fund in July 1985 with the funding being solely borne by the Federal Government (Akerejola, 2008).

## **2.2.1 OBJECTIVE OF SIWES**

Specifically, the objectives of the Students Industrial Work Experience Scheme (SIWES) are to:

1. Provide an avenue for students in institutions of higher learning to acquire industrial skills and experience in their course of study, which are restricted to Engineering and Technology including Environmental studies and other courses that may be approved. Courses of NCE (Technical), NCE Agriculture, NCE (Business), NCE (Fine and Applied Arts) and NCE (Home Economics) in Colleges of Education are also included.
2. Prepare students for the industrial work situation they are to meet after graduation.
3. Expose students to work methods and techniques in handling equipment and machinery that may not be available in their institutions.
4. Make the transition from school to the world of work easier, and enhance students’ contacts for later job placement.
5. Provide students with an opportunity to apply their knowledge in real work situation thereby bridging the gap between theory and practice; and vi. Enlist and strengthen employers, involvement in the entire educational process and prepare students for employment in Industry and Commerce.

# 2.3 REVIEW OF THE RELATED WORK

A portal system can be described in different ways depending on differing point of views. To a user of a portal, it is a web based system that provides the functions and features to authenticate and identify users. It provides an easy, intuitive, personalized and user-customizable web-interface for facilitating access to information and services that are of primary relevance and interests to them. However, to the organization that sets up the portal, it is a system that helps the organization to catalogue or organize collections of different and multiple sources of information for dissemination to many users according to their specific privileges, needs and interests. Therefore, the main purpose for setting up a portal is to bring vast information and resources available from many sources to many users in an effective manner (Howard, 2012).

There have been several efforts in Nigeria and in other parts of the world to build portal systems that can facilitate administration and learning in higher institutions.

A BlogSpot designed and hosted by Federal Polytechnic Oko Anambra, Nigeria SIWESFEDPOLYOKO, for the purpose of helping students on SIWES scheme to have access to information regarding the institution while away. They learn of what is required of them in the institution. That is, this system does not support any form of supervision but only provides information for students’ consumption so as to act accordingly (FEDPOLYOKO, 2012).

Adetiba, Matthews, Egunjobi & Olajide (2012) developed an e-SIWES portal in order to enhance the manual task of carrying out SIWES activities such as registration, dissemination of information, filling of log book for students’ day-today activities and supervision/assessment by lecturers and industry based supervisors. The portal is web-based and allows all tasks to be carried out using the personal computer and the Internet. They digitized the SIWES logbook and assessment forms for filling by students and grading by the supervisors electronically. The system allows supervisors to be assigned immediately the students commence their industrial training and facilitate their monitoring in realtime. With the e-SIWES portal, important messages can be broadcast to all students at once and on a prompt and regular.

Babalola, Adeyemo & Adewole (2015) developed a web-based portal for the Afe Babalola University, Nigeria following the challenges faced by the manual processes involved in the university when it comes to SIWES. For supervision, assessment and mentoring, lecturers are required to travel to all the industry where students are trained which makes the process very tedious and ineffective. Therefore, the system implemented was to solve such problems.

Babangida & Yabuwat (2016) developed a cloud-based system for the management and supervision of Students’ Industrial Work Experience Scheme (SIWES) in the Nigerian context where the research was taken. The system is cloud-based and hosted on Google Compute Engine trial version at

http://104.197.108.118/, allow for near real-time collaborative supervision of students’ experience during SIWES and recommendations can be made; proper management of the processes by the Institutions, Industries, and Industrial Training Fund (ITF); students can report their daily activities and also upload picture of themselves in such sessions; and both the ITF, Industrial, and Institution-based supervisors can monitor and make recommendations to the students.

Segun & Kolawole (2016) developed a Mobile based system that would be deployed and used on-the-go, automatically recommending suitable organizations based on the discipline and locational preferences of the prospective students. Data on suitable organizations on a locational basis was obtained from the SIWES unit of the research host institutions, based on previous Industrial trainings/internships was used to populate the database from which the mobile application does recommendations.

At the University of Hong Kong (HKU), the Computer Centre set up a Campus Portal in 2003 based on the uPortal of JA-SIG to enable convenient and effective communications among University members. However, a new HKU Portal was launched on October 25, 2010. This is a newly developed enterprise type portal for accessing the SIS (Student Information System) and HCM (Human Capital Management System). Also, the University Library set up MyLibrary which is the Library services portal. The HKU portal provides a single-sign-on entry to the e-mail and other university-wide network communications functions. At the same time, the portal provides personalized interface to the computer applications for supporting e-learning, e-administration, online library services and other services that are commonly needed and important to the daily life of individual students and staff members. The portal also allows individual users to include their interested Internet information resources as part of their own tailored Campus Portal service (HKU Portal, 2003).

# 2.4 WEB APPLICATION TOOLS USED

## **2.4.1 PHP**

PHP is a popular programming language that powers many websites. It originally started out as a way to make dynamic websites by generating HTML. Today it stands on its own as a general purpose programming language and is available on most web hosting sites. Because of its roots, it is very easy to insert bits and pieces of PHP inside standard HTML/XHTML code. It has the following advantages:

1. Easy to learn, use, and implement.
2. Free for access.
3. Executes on any platform.

The PHP functions will be used in the research project in order to achieve some of the objectives of this research work such as login process, student’s entry process, scores entry process etc.

## **2.4.2 MYSQL**

Database management system (DBMS) is a collection of computer program that allow stored, modification and interaction of information from a database. Database control the security and integrity of the database. The DBMS that will be used for storing data in this research work is MySQL. MySQL is the database construct that enable PHP and Apache to work together to access and display data in a readable format to a browser.

In this project research, MySQL will be used as the back-end storage for all records. All data saved from creation of user account, student’s entry, scores entry, teachers entry will be saved on the SQL database.

## **2.4.3 JAVASCRIPT**

JavaScript is a dynamic programming language. It is most commonly used as web browsers whose implementation allow client to side script to interact with users, communicate asynchronously, control the browser and alter the document content that is displayed. More recently it has become common in both game development and the creation of desktop applications. It is the most popular programming language in the world with the following features:

1. Read elements from documents and write new elements and text into documents
2. Perform actions based on conditions such as alerting users if they enter the wrong information into a form

The JavaScript will be used in this research work in authenticating user login i.e. if a username or password is entered wrongly, it alerts the user. Also it will be used in the process of deleting records i.e. it will enable an alert if definitely a record is to be deleted.

## **2.4.4 HYPERTEXT MARKUP LANGUAGE (HTML)**

Web pages are text files, written in a language used to describe the content and format of documents called markup language. Html was developed from the standard generalized markup language (SGML), and a language used for largescale documents. It has the following application:

1. Page can be linked together to form a continuous interactive session.
2. Allows web designer to create documents that can be display across different operating systems.

The benefit of using HTML in this research work it enables us to markup the interfaces such as interface for login form.

## **2.4.5 CASCADING STYLE SHEET (CSS)**

Cascading style sheet (CSS) is a style language use for describing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML, CSS is a cornerstone specification of the web and almost all web pages us CSS style sheets to describe their presentation. CSS specifies a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities or weights are calculated and assigned to rules, so that the results are predictable.

In this research work the CSS will be used for layout and to specify exactly how big a font will be, exactly where an element will be on a page, what a page will look like when printed.