A TECHNICAL REPORT

STUDENT INDUSTRIAL WORKING EXPERIENCE SCHEME

(SIWES)

Held at

EAGLE ICT SERVICE, ILORIN

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DEDICATION

This work is dedicated to the Almighty Allah, for His love, mercies, guidance and protection during and even after this work.

ACKNOWLEDGEMENT

I wish to acknowledge and thank everyone who contributed one way or the othertowards the success of my industrial training.

My special thanks goes to the management and my supervisor for their numerous contribution and effort to make this research a success.

Also my beloved parents and my colleagues for giving me the great opportunity.

I want to say a big thanks to my siblings and my friends for their support and love, also my friends for their encouragement and advice.

ABSTRACT

The Student Industrial Work Experience Scheme (SIWES) Relevance to the Department of Computer Science was researched upon. The instruments used was practicalized and this practical were used to answer the research questions. The results were collected and analyzed in the chapters that make up this study report and project works.

Based on the analysis, Major findings emerged revealing that students did receive practical work on the job training. The SIWES scheme further exposes students to proper methods of using and handling information technology (IT) equipment and development.

However, the study concluded that if students are adequately exposed to research materials and facilities, if students are provided with thorough and proper supervision by supervisors, if orientation towards equipment and machinery handling was well fashioned out, there will necessarily be an upsurge in performance rates Therefore, the researcher recommends the following

That employers ought to accept students supervisors need to be attached to individual's students. Students should be allowed to express and get themselves exposed to information technology (IT) practices in order to acquire a deeper orientation before the commencement of the programme if adequate performance isto be guaranteed.

CHAPTER 1

CHAPTER ONE

1.1 INTRODUCTION TO SIWES

Students Industrial Work Experience Scheme (SIWES) is a Skills Training Program designed to prepare and expose Students of Universities, Polytechnics, Colleges of Technology, Colleges of Agriculture and Colleges of Education for the Industrial Work situation they are likely to meet after graduation. The Scheme affords Students the opportunity of familiarizing and exposing themselves handling equipment and machinery that are usually not available in their institutions.

1.2 HISTORY OF SIWES

The Students' Industrial Work Experience Scheme (SIWES) was initiated in 1973 by the Federal Government of Nigeria under the Industrial Training Fund (ITF) to bridge the gap between theory and practice among products of our tertiary Institutions. It was designed to provide practical training that will expose and prepare students of Universities, Polytechnics, and Colleges of Education for work situation they are likely to meet after graduation.

Before the establishment of the scheme, there was a growing concern among the industrialists that graduates of 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 labour.

As a result of the increasing number of students' enrolment in higher institutions of learning, the administration of this function of funding the scheme became enormous, hence ITF withdrew from the scheme in 1978 and was taken over by the Federal Government and handed to National Universities commission (NUC), National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE). In 1984, the Federal Government reverted back to ITF which took over the scheme officially in 1985 with funding provided by the Federal Government.

1.3 OBJECTIVES OF THE PROGRAMME

The specific objectives of SIWES are to:

- Provide placements in industries for students of higher institutions of learning approved by relevant regulatory authorities (NUC, NBTE, NCCE) to acquire work experience and skills relevant to their course of study
- Prepare students for real work situation they will meet after graduation.
- Expose students to work methods and techniques in the handling of equipment and machinery that may not be available in schools.
- Make transition from school to the labour market smooth and enhance students' conduct for later job placement

- Provide students with the opportunity to apply their knowledge in real life work situation thereby bridging the gap between theory and practice
- Strengthen employer involvement in the entire educational process and prepare students for employment in industry

Promote the desired technological knowhow required for the advancement of the nation.

CHAPTER 2

About The Organization

Our Information and Communications Technology (ICT) organization, often referred to as an IT organization, is a crucial component of modern businesses and institutions. Our primary purpose is to manage and leverage technology to support the organization's goals, operations, and strategic objectives. Here's a general overview of the key aspects of our ICT organization:

1. **Infrastructure Management:** ICT organizations are responsible for maintaining and expanding the technology infrastructure, which includes networks, servers, data centers, and cloud services. They ensure that these components operate efficiently, securely, and reliably.

2. **Software Development and Application Management:** Developing and maintaining software applications and systems is a core function. This includes custom software development, integrating third-party applications, and ensuring that software aligns with the organization's needs.

3. **Information Security:** Protecting sensitive data and systems is paramount. ICT organizations implement security measures to safeguard against cyber threats, including firewalls, antivirus software, encryption, and employee training.

4. **User Support and Helpdesk:** Providing technical support to end-users is essential. This includes addressing issues, troubleshooting, and offering guidance to ensure that employees can work effectively with technology.

5. **Data Management and Analytics:** Managing and analyzing data is vital for informed decision-making. ICT organizations oversee data storage, retrieval, and analysis, often utilizing tools and technologies for business intelligence and data analytics.

6. **Project Management:** Managing IT projects efficiently is crucial. ICT organizations use project management methodologies to ensure that technology initiatives are completed on time and within budget.

7. **Vendor Management:** Engaging with technology vendors and suppliers is a common task. ICT organizations negotiate contracts, maintain

vendor relationships, and assess the value of third-party services and products.

8. **Compliance and Regulatory Adherence:** Staying compliant with industry regulations and standards, such as GDPR or HIPAA, is vital, especially in sectors like healthcare or finance.

9. **Innovation and Strategy:** ICT organizations need to stay abreast of technological advancements and assess how emerging technologies can benefit the organization. They also develop IT strategies that align with the broader organizational goals.

10. **Cost Management:** Budgeting and cost control are critical to ensure that technology investments are financially sustainable and provide value to the organization.

11. **Disaster Recovery and Business Continuity:** Planning for and mitigating the impact of disasters, including data breaches or system failures, is a significant aspect of ICT. This involves creating backup and recovery strategies.

12. **Training and Skill Development:** Keeping IT staff up-to-date with the latest technologies and certifications is essential for maintaining a skilled and capable workforce.

CHAPTER 3

Activities during the programs as follows:

Graphics Design

Networking

GRAPHICS DESIGN

Introduction and Icebreaker:
- Start with an icebreaker to help participants get to know each other and set a positive, collaborative tone for the program.

Design Principles Workshop:
- Conduct a workshop on essential design principles, including composition, balance, contrast, typography, color theory, and visual hierarchy.

Design Challenges:
- Assign design challenges that require participants to create graphics for various purposes (e.g., posters, logos, social media posts) within time constraints.

Mood Board Creation:
- Have participants create mood boards to gather inspiration, experiment with color palettes, and explore design styles for specific projects.

Software Tutorials:
- Provide hands-on tutorials using graphic design software like Adobe Photoshop, Illustrator, or Canva.
- Teach essential design tools and techniques.

Branding Exercise:
- Challenge participants to develop a branding concept for a fictional or real company, including logo design, color schemes, and brand guidelines.

Typography Exploration:
- Explore typography in-depth, including font pairing, hierarchy, and layout techniques.
- Assign typography-focused design projects.

Photo Manipulation and Retouching:

- Teach photo manipulation and retouching techniques, allowing participants to enhance their digital imaging skills.

Poster Design Contest:
- Host a poster design contest where participants create posters on a specific theme or topic, encouraging creativity and visual storytelling.

Critique Sessions:
- Organize design critique sessions, where participants provide constructive feedback on each other's work.
- Discuss design choices and improvements.

Client Mock-Up Scenario:
- Simulate a client-designer scenario, with participants acting as designers and clients.
- Encourage negotiation, communication, and project briefing skills.

Infographic Design:
- Explore infographic design principles and task participants with creating engaging and informative infographics.

Visual Identity Projects:
- Assign participants to develop a visual identity for a brand, including logos, business cards, letterheads, and style guides.

Final Project Showcase:
- Allow participants to present their final graphic design projects to the group.
- Encourage them to explain their design process and decision-making.

Certification or Awards:
- Recognize participants' achievements with certificates or awards for outstanding designs or improvements.

A processor is the logic circuitry that responds to and processes the basic instructions that drive a computer.

NETWORKING

MAKING ETHERNET CABLES

Ethernet cables are the medium with which data is transmitted from the IDU through the router to the computer system, thus, to prevent disrupting the data flow process cables should be properly attached to the connected. In general, Ethernet cables are made by attaching RJ45 connectors to each end of a cable with an Ethernet crimper. Making proper fittings on the ends of Ethernet cables require a bit of training, and the steps involved are described Ethernet Cables and Ethernet Crimper Firstly, the ½ inch of the insulation covering the back of cable is peeled off. Secondly, similar colours are unwind, arranged and cut straight across. Thirdly, the wires are pushed into the RJ45 connector until they reach the end of the connector, and the blue plastic shielding reaches a position. Finally, the connector is placed into the Ethernet crimper. Copper splicing tabs enters into each of the cables when the handles of the crimper is pressed down. On removal of the cable from the crimper it will be readyfor use.

RESOLVING NETWORK PROBLEMS

Taking the time to investigate the methods available for monitoring network I/O andidentifying possible causes of slow networking is well worth the effort.

If an application owner reports slow networking, then it is essential to make sure that the cause is not a bottleneck in the wide-area network. Poor network performance can often be attributed to sources outside of virtualization. There may be an outage or routing problem that has yet to be reported or discovered.

Another area to check is the IP configuration. Simple tools like ping, pathing, tracerand lookup can still be useful in diagnosing network problems.

One of the most common problems is a poor or incorrect domain name server (DNS) configuration. Another place to check is the configuration of the application within the virtual machine (VM). If there is a setting or an option that could significantly degrade network performance perhaps the application polls the network for availability of external network components, then this can lead to unnecessary traffic.

Once you have excluded these as potential problems, it's worth confirming whether the optimized components have been configured correctly. Next, check whether the network problems affect just the VM in question or all the

VMs on the same host.

This is also a good way to determine whether the problem is specific to the application owner's VM or whether it is a systemic problem. Most hypervisor vendors offer network tools that allow you to monitor traffic coming in and out of theVM.

VMware has a utility called esxtop that can see network statistics and troubleshoot network performance problems. Hitting *n* on the keyboard toggles esxtop to a network mode, and *f* on the keyboard allows the administrator to add additional fields.

These utilities allow you to see how much bandwidth is actually being used by the VM and whether the physical system is seeing a significant number of dropped network packets. They also show the transmit and receive rate of the system.

When a machine sends out packets but does not receive an acknowledgement, it can indicate a problem with network interface card (NIC) teaming algorithms, referred to as the reverse NIC team problem. In this scenario, advanced NIC teaming has been enabled, and although packets leave the physical host via one network layer, they arrive back at the host via the wrong physical switch and to the wrong NIC. Serious problems such as these may need wider investigation. In some cases, it can result in the abandonment of a particular NIC teaming policy that has been deemed unreliablefor the wider network.

Plenty can be done to improve and monitor network performance for VMs as your consolidation ratios grow. The key to the best optimization is following your virtualization vendor's best practices, while modifying them to suit the unique traffic characteristics of your network. The most critical part is to understand the relationships between your VMs and the wider physical world.

The term processor has generally replaced the term central processing unit (CPU). The processor in a personal computer or embedded in small devices is often called amicroprocessor.

A motherboard is the physical arrangement in a computer that contains the computer's basic circuitry and components. On the typical motherboard, the circuitry is imprinted or affixed to the surface of a firm planar surface and usually manufactured in a single step. The most common motherboard design in desktop computers today is the AT, based on the IBM AT motherboard. A more recent motherboard specification, ATX, improves on the AT design. In both the AT and ATX designs, the computer components included in the motherboard are:

The microprocessor

(Optionally) coprocessors

Memory

basic input/output system (BIOS)

Expansion slot

Interconnecting circuitry

HTML & CSS: HTML (HyperText Markup Language) and CSS (Cascading

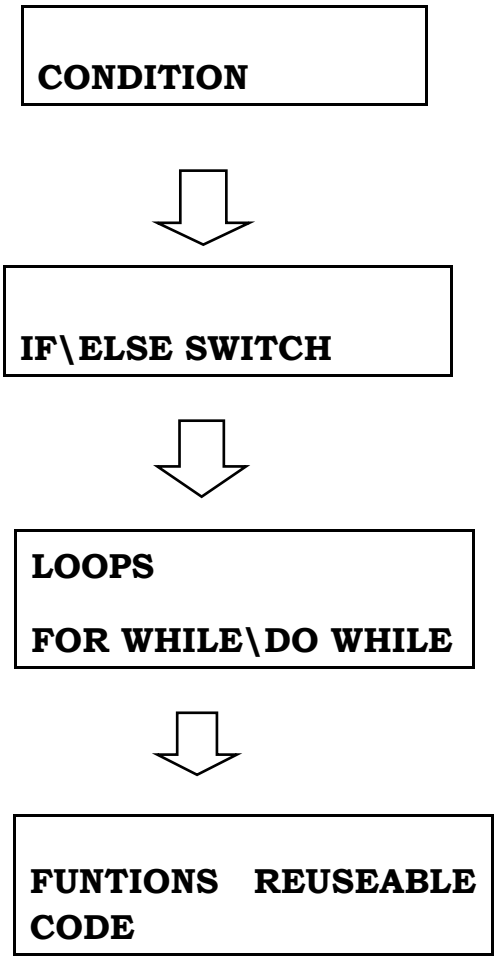
Style Sheets) were essential in creating the structure and styling of web pages. HTML was used to define content layout, while CSS allowed me to customize colors, fonts, and other design elements to create visually appealing and responsive web pages.

Under html I was also able to look into sub division like the linking, link bookmarking, heading, creation of ID tags, iframe tags, styling and so on. I was also able to run codes written on the vs code with an extension called live server.

JavaScript: JavaScript enabled interactive elements on web pages, such as animations, form validations, and dropdown menus. I also used JavaScript frameworks, particularly React.js, to manage complex user interfaces. Where i focused on java script basics, the use of data types, variables and operations

Proceeds to learn about the control structures in javascript like the conditional statement and so on.

JAVASCRIPT CONTROL STRUCTURE



React.js: React.js is a popular JavaScript library used for building dynamic and interactive user interfaces, particularly for single-page applications."

WORDPRESS: I learnt a little about wordpress which only includes the basic of wordpress including (installation, configuration and dashboard navigations). Moved on to worpress themes and plugins as well as understanding heading post, pages categories, tags and so on.

1. **Setting Up the Development Environment**

Installed VS Code and configured extensions like Live Server, Prettier, and Emmet.

Organized project files into folders for efficient project management.

2. **Website Design and Development**

Created static web pages using HTML and styled them with CSS.

Implemented responsive designs using media queries.

Added interactivity to web pages using JavaScript.

3. **Using VS Code Features**

Intelligence: VS Code's intelligent code suggestions enhanced my productivity.

Integrated Terminal: Used to run commands like npm install and git commit.
Debugging: Utilized VS Code's debugging tools to identify and fix errors in JavaScript.

4. **Version Control**

Learned to use Git for version control directly within VS Code.
Pushed changes to GitHub for collaborative projects.

5. **Testing and Deployment**

Tested websites locally using Live Server.

Deployed projects to hosting platforms like Netlify and GitHub Pages.

CHAPTER 4

CHALLENGES OF ICT FOR SIWES

The ICT environment has created new modus operandi for the profession by virtue of new tools for information exchange. When they note that the library profession in India, like their colleagues everywhere, particularly those serving high-tech institutions, are already subject to challenges resulting from ICT. They assert that the new technology may call for organizational change in the traditional library and that librarians may function more like consulting information engineers than as the traditional, passive custodians of information and dispersers of documents.

This poses a challenge to educators, practitioners, and students, as discussed below:

Digital Environment

ICT created a new digital environment that led to the development of digitization, the conversion of print and other formats to digital form, as an enhanced storage and preservation technique. Digital libraries are one result of these new information acquisition and distribution techniques all information resources are available in computer processable form and the functions of acquisition, storage, preservation, retrieval, access, and display are carried out through the use of digital technology.

The ICT environment calls for librarian to be managers and organizers of digital content. It requires new management skills and other roles such as content creators,web page planners and designers, and Internet navigators.

New career specializations

The digital environment facilitated by ICT created new platforms for professional activities, where librarians can be more proactive than in the analog era. Librarians operating in this information environment may be called Internet librarians, digital librarians, “cybrarians,” or “webarians,” all coined from ICT jargon. These changes are positioning librarians for the global information arena.

CHAPTER 5

CONCLUSION

During the course of the four months' period of SIWES (Student Industrial Work Experience Scheme) at Eagle ICT Service. I have acquired technical skills in the field of Website Design, Microsoft Office, Graphics Design and technical skills such as networking and managerial skills, and have had the opportunity to experience the application of theoretical knowledge acquired in the classroom to solve real problems. Thus, SIWES has been a success, because I have gained knowledge that ordinarily would not be obtained in the lecture hall.

RECOMMENDATION

As a result of difficulties experienced during the four months SIWES program, I would like to recommend the following changes: The duration of SIWES should be extended so as to enable students be more experienced. The ITF should make monthly allowance available for students, so as to put an end to financial difficulties that may arise as a result of transport problems. The Institutions and ITF should help students to get a place of attachment so that the program may commence as planned.

The following recommendations were based on the findings of the study and as a solution to the identified problems.

PROPER COORDINATION AND SUPERVISION OF THE EXERCISE: The various bodies involved in the management of the SIWES exercise i.e. Industrial Training Fund (ITF), NUC, NBTE and NCCE should come together and fashion out a modality that will ensure smooth operation of the SIWES exercise. Efforts should be made to ensure that students attached to the organization are properly supervised to ensure that what they are doing is in line with the objectives of the SIWES exercise.

The various bodies involved in the management of the SIWES programme should liaise with the various industries ahead of time so as to minimize or reduce to the barest minimum the high level of refusal to accept students for their industrial training participation.

ISSUING OF LOG BOOKS/IT LETTERS ON TIME: The log books used by the student during the industrial training period and the IT letters should be issued to the students at the end of the first semester exam as against the end of second semester examination as this will afford the students enough time to search for place that are relevant to their field of study.

EMPLOYMENT OF EXPERTS: The various institutions should endeavor to employ experts in the areas of career development to manage the student's industrial placement centers.