A TECHNICAL REPORT

ON

STUDENT'S INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

UNDERTAKEN AT

KWARA STATE UNIVERSITY TEACHING HOSPITAL, ILORIN

BY

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DEDICATION

This Student Industrial Work Experience Scheme (SIWES) report is dedicated to Almighty God who made this programme to be a successful one.

ACKNOWLEDGMENT

All thanks, Glorification, adoration, and appreciation is given to nobody except God.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF SIWES

SIWES was established by Industrial Training Fund (ITF) in 1973 to solve the problem of lack of adequate practical skills preparatory for employment in industries by Nigerian graduates of tertiary institutions.

The Scheme exposes students to industry-based skills necessary for a smooth transition from the classroom to the world of work. It affords students of tertiary institutions the opportunity of being familiarized and exposed to the needed experience in handling machinery and equipment which are usually not available in the educational 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 believed the theoretical education going on in higher institutions was not responsive to the needs of the employers of labour.

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.

Therefore, participation in SIWES has become a necessary pre-condition for the award of Diploma and Degree certificates in specific disciplines in most institutions of higher learning in the country, in accordance with the education policy of government.

1.2 OBJECTIVES OF SIWES

i. To provide students with industrial skills and needed experience while the course of study.

ii. To create conditions and circumstances, this can be as close as possible to the actual workflow.

iii. To prepare specialists who will be ready for any working situations immediately after graduation.

iv. Make the transition from school to the world of work easier and enhance students contact for later job placement.

v. Provides students with an opportunity to apply their knowledge in actual work situations bridging the gap between theory and practice.

CHAPTER TWO

DESCRIPTION OF THE ESTABLISHMENT OF ATTACHMENT

2.1 LOCATION AND BRIEF HISTORY OF KWARA STATE UNIVERSITY TEACHING HOSPITAL, ILORIN

The Kwara State University Teaching Hospital (KWASUTH), was established in 2024 to enhance medical education and healthcare services in Kwara State. The hospital is situated in Ilorin, the state capital, on the premises of the former General Hospital Ilorin, which was converted to serve as the teaching hospital for the Kwara State University (KWASU).

The transformation of the General Hospital Ilorin into KWASUTH was part of the state government's efforts to support the training of medical students and elated professionals at KWASU. The Kwara State Executive Council approved this initiative in December 2023, allocating a seed fund of ₦906.7 million for infrastructural upgrades, equipment acquisition, and administrative restructuring necessary for the hospital's new role.

The conversion of the General Hospital Ilorin into KWASUTH not only facilitates the practical training of medical students but also aims to improve healthcare delivery in Ilorin and its environs. This strategies move is expected to enhance the state's healthcare infrastructure and provide residents with access to quality services.

2.2 AIMS AND OBJECTIVES

The objectives for which the Hospital was set up are:

i. To Train Medical and Paramedical Personnel

ii. To deliver Health Care Services

iii. To serve as referral Centre for other Hospitals around and

iv. To conduct research.

2.3 ORGANIZATION STRUCTURE (INCLUDING ORGANOGRAM)

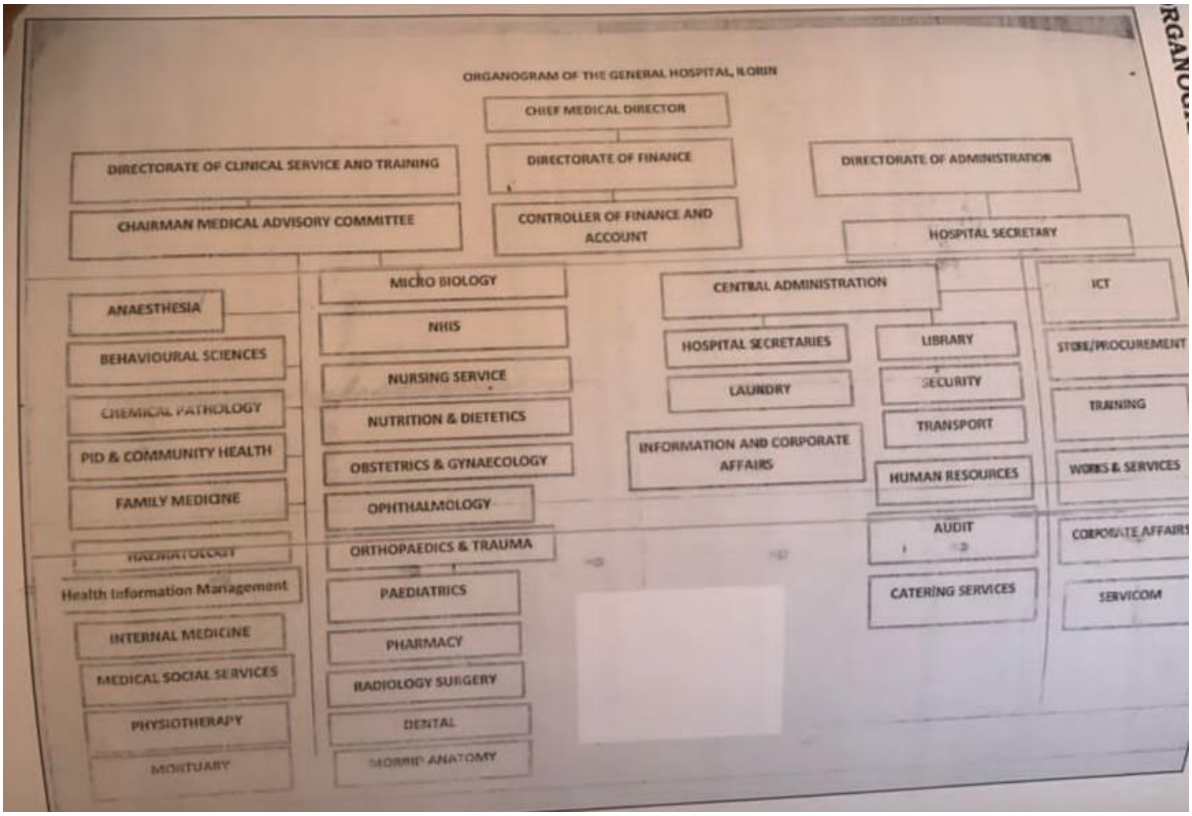

FIG 1 Organogram of Kwara State University Teaching Hospital

2.4 THE VARIOUS DEPARTMENTS AND UNITS IN THE ESTABLISHMENT AND THEIR FUNCTIONS

1. Dietetics Department:

* Assessing patients' nutritional needs and creating personalized diet plans

* Providing medical nutrition therapy for patients with various conditions (e.g., diabetes, obesity)

* Educating patients on healthy eating habits and meal planning

* Developing and implementing nutrition policies for the hospital

* Collaborating with healthcare teams to ensure nutritional care is integrated into patient treatment plans

2. Physiotherapy Department:

* Evaluating patients' physical function and mobility to develop treatment plans

* Providing physical therapy interventions (e.g., exercises, manual therapy, modalities) to improve mobility, strength, and function

* Educating patients on proper body mechanics and injury prevention

* Collaborating with healthcare teams to ensure patients receive comprehensive care

* Conducting research to improve physiotherapy practices

3. Obstetrics and Gynaecology Department:

* Providing prenatal, antenatal, and postnatal care for pregnant women

* Managing normal and complicated deliveries, including cesarean sections

* Diagnosing and treating gynaecological disorders (e.g., fibroids, ovarian cysts)

* Conducting gynaecological surgeries (e.g., hysterectomies, tubal ligations)

* Providing family planning and reproductive health services

4. Surgery Department:

* Evaluating patients for surgical interventions and developing treatment plans

* Performing surgical procedures (e.g., laparoscopic, open, robotic assisted) in various specialties (e.g., general, orthopaedic, neurosurgery)

* Managing postoperative care and complications

* Collaborating with anaesthesiologists to ensure safe anaesthesia practices

* Participating in surgical research and quality improvement initiatives

5. Medicine Department:

* Diagnosing and managing acute and chronic medical conditions (e.g., diabetes, hypertension, pneumonia)

* Conducting medical histories and physical exams

* Ordering and interpreting diagnostic tests (e.g., lab work, imaging studies)

* Prescribing medications and therapies

* Collaborating with other healthcare professionals to ensure comprehensive care

6. Pediatrics Department:

* Providing primary and specialty care for infants, children, and adolescents

* Diagnosing and managing pediatric conditions (e.g., asthma, pediatric surgery)

* Conducting well-child visits and vaccinations

* Educating parents and caregivers on child health and development

* Collaborating with other healthcare professionals to ensure comprehensive care

7. Radiology Department:

* Interpreting imaging studies (e.g., X-rays, CT scans, MRI scans) to aid in diagnosis and treatment

* Conducting image-guided procedures (e.g., biopsies, drainages)

* Developing and implementing radiology protocols and guidelines

* Ensuring radiation safety practices

* Participating in research and quality improvement initiatives

8. Anaesthesia Department:

* Evaluating patients for anaesthesia care and developing treatment plans

* Administering anaesthesia for surgical, obstetric, and other medical procedures

* Managing pain and sedation in various settings (e.g., ICU, ER)

* Collaborating with surgeons and other healthcare professionals to ensure safe anaesthesia practices

* Participating in anaesthesia research and quality improvement initiatives

9. Orthopaedics Department:

* Diagnosing and managing musculoskeletal disorders (e.g., fractures, joint replacements)

* Conducting orthopaedic surgeries (e.g., joint replacements, osteotomies)

* Providing non-surgical treatments (e.g., casting, bracing)

* Educating patients on proper body mechanics and injury prevention

* Collaborating with rehabilitation teams to ensure comprehensive care

10. Ophthalmology Department:

* Diagnosing and managing eye disorders (e.g., cataracts, glaucoma)

* Conducting eye surgeries (e.g., cataract removals, LASIK)

* Prescribing medications and treatments for eye conditions

* Educating patients on eye health and vision care

* Collaborating with other healthcare professionals to ensure comprehensive care

11. Otorhinolaryngology (ENT) Department:

* Diagnosing and managing ear, nose, and throat disorders (e.g., sinusitis, hearing loss)
* Conducting ENT surgeries (e.g., tonsillectomies, cochlear implants)
* Prescribing medications and treatments for ENT conditions
* Educating patients on hearing and speech health
* Collaborating with other healthcare professionals to ensure comprehensive care

12. Pathology Department:

* Examining tissue and cell samples to aid in diagnosis and treatment
* Conducting autopsies to determine cause of death
* Developing and implementing pathology protocols and guidelines
* Ensuring quality control and quality assurance in pathology testing

13. Community Medicine Department:

* Promoting health and preventing disease through community-based initiatives
* Conducting health education and outreach programs
* Developing and implementing public health policies and interventions
* Collaborating with community leaders and organizations to improve health outcomes
* Conducting research to inform community health practices

14. Psychiatry Department:

* Diagnosing and managing mental health disorders (e.g., depression, schizophrenia)
* Conducting psychiatric evaluations and therapy sessions
* Prescribing medications and treatments for mental health conditions
* Educating patients and families on mental health and wellness
* Collaborating with other healthcare professionals to ensure comprehensive care

15. Family Medicine Department:

* Providing primary care to individuals and families across the lifespan
* Diagnosing and managing acute and chronic medical conditions
* Conducting well-person visits and health screenings
* Educating patients on healthy lifestyles and disease prevention
* Collaborating with other healthcare professionals to ensure comprehensive care

16. Dentistry Department:

* Diagnosing and managing oral health disorders (e.g., cavities, periodontal disease)
* Conducting dental procedures (e.g., fillings, extractions, crowns)
* Educating patients on oral hygiene and preventive care
* Collaborating with other healthcare professionals to ensure comprehensive care

17. Nursing Department:

* Providing direct patient care and support to patients and families
* Conducting health assessments and developing care plans
* Administering medications and treatments as prescribed by healthcare providers
* Educating patients and families on health and wellness
* Collaborating with other healthcare professionals to ensure comprehensive care

18. Kitchen Department:

* Preparing and serving nutritious meals to patients and staff
* Ensuring food safety and sanitation practices
* Accommodating dietary restrictions and preferences
* Collaborating with dietitians and healthcare teams to ensure therapeutic nutrition

19. Medical Microbiology and Parasitology Department:

* Examining samples for microorganisms and parasites to aid in diagnosis and treatment

* Conducting susceptibility testing and antibiotic resistance monitoring

* Developing and implementing infection control policies and guidelines

* Participating in research and quality improvement initiatives

20. Haematology Department:

* Examining blood samples to aid in diagnosis and treatment of blood disorders

* Conducting blood transfusion services

* Developing and implementing haematology protocols and guidelines

* Participating in research and quality improvement initiatives

21. Chemical Pathology Department:

* Examining bodily fluids to aid in diagnosis and treatment of metabolic disorders

* Conducting toxicology testing and monitoring

* Developing and implementing chemical pathology protocols and guidelines

* Participating in research and quality improvement initiatives

22. Radiotherapy Department:

* Planning and delivering radiation therapy to cancer patients

* Conducting radiation safety monitoring and quality assurance

* Collaborating with radiation oncologists and healthcare teams to ensure comprehensive care

23. Dermatology Department:

* Diagnosing and managing skin disorders (e.g., acne, psoriasis)

* Conducting dermatological procedures (e.g., biopsies, laser treatments)

* Prescribing medications and treatments for skin conditions
* Educating patients on skin health and sun protection

24. Medical Rehabilitation Department:

* Providing rehabilitation services to patients with physical disabilities or injuries
* Conducting physical, occupational, and speech therapy sessions
* Collaborating with healthcare teams to ensure comprehensive care
* Educating patients and families on injury prevention and wellness

25. Nuclear Medicine Department:

* Conducting diagnostic and therapeutic nuclear medicine procedures
* Interpreting nuclear medicine images and results
* Collaborating with healthcare teams to ensure comprehensive care
* Participating in research and quality improvement initiatives

26. ICU Department:

* Providing critical care to patients with life-threatening conditions
* Conducting close monitoring and treatment of patients in intensive care
* Collaborating with healthcare teams to ensure comprehensive care
* Educating patients and families on critical care and recovery

27. Therapeutic Services Department:

* Providing physical, occupational, and speech therapy services to patients
* Conducting assessments and developing treatment plans
* Collaborating with healthcare teams to ensure comprehensive care
* Educating patients and families on injury prevention and wellness

CHAPTER THREE

WORKS ACTUALLY CARRIED OUT

3.1 WORKS ACTUALLY CARRIED OUT AT THE KITCHEN DEPARTMENT OF THE UNIVERSITY OF ILORIN

As a SIWES student attached to the Kwara State University Teaching Hospital, I had the opportunity to work in both the Food Production Unit and the Dietary Services Unit under the Kitchen Department. These units delivered essential services that ensured both the nutritional needs of the patients and the overall functioning of the hospital were met.

In the Food Production Unit, I participated in several activities that focused on the planning, preparation, and presentation of meals for the patients, staff, and visitors of the hospital. These tasks included calculating the meal requirements, considering each patient's specific dietary needs and restrictions, and assisting in the preparation and cooking processes, which required knowledge of different dietary guidelines and hospital procedures.

In relation to meal preparation, my responsibilities also included portioning and presenting the meals attractively to promote the enjoyment and intake. Assisting in implementing the menu cycle preparation by considering seasonal availability of different food ingredients was also my learned skill. Besides direct involvement in food preparation, I also had to manage and maintain the cleanliness of both the kitchen area and the tools and equipment we used to ensure a safe and sterile environment.

Rotation between different dietary kitchens like vegetarian, non-vegetarian, diabetic, and cardiac was carried out to get hands-on experience for handling different diet needs of patients. Ensuring temperature control during meal preparation and meal delivery was a critical aspect to avoid food spoilage.

In the Dietary Services Unit, I used the skills and knowledge acquired from the Food Production Unit to provide enhanced services to the patients and the hospital. My key responsibilities included evaluating the nutritional status of patients, planning, and implementing diets based on

their nutritional needs and medical conditions, counseling patients and relatives about their dietary plans, and ensuring that the dietary plans were followed correctly.

Working in close co-ordination with the nurses and doctors to monitor the patient's progress and adjusting the dietary plans accordingly was crucial. Managing records of patients' food allergies, sensitivities, and preferences also fell under my purview. Several rounds to the wards were undertaken to understand patient's food acceptance and make changes in the meal plan if required.

Furthermore, therapeutic food for inpatient and outpatients such as soybean milk, was also prepared in the Kitchen Department. I was enlightened on how to calculate ideal body weight for adult and children above or below a year. Also on the meaning, types, causes, risk factors, symptoms, and diet modification of diabetic patient.

3.1.1 PREPARATION OF SOYMILK

At the Kwara State University Teaching Hospital, Ilorin, soymilk is the affordable, state-subsidized therapeutic or fortified food helping underweight children recuperate, boosting their battered immune defenses in the process. It is prepared through the following processes.

1. **Sorting:** This is a process of removing impurities from soybeans such as stones, dirt, or damaged soybeans. In other words, it is a process of separating soybeans from external objects, dirt, stones etc. Sorting of soybeans has the following importance.
    i. It improves the quality of the flour/powder produced.
    ii. It helps to protect the grinding machine.
    iii. It makes it more desirable to patient's parent thereby increasing market value.
2. **Soaking:** This is a process is to Soak the soybean grains in water for at least 4 hours or overnight. This process changes the structure and composition of the soybeans, making them easier to dehull and grind into paste. This process has the following importance.
    i. It helps to destroy any harmful microorganisms that may be present in the beans.

ii. It reduces the level of anti - nutritional factors such as phytic acid, which can interfere with the absorption of certain minerals.

iii. It enhances the digestibility of soybeans protein, making it easier for the body to use.

iv. It improves the overall taste and flavour of the beans, making it more appealing or palatable to the consumers.

v. It also increases the availability of certain amino acids such as lysine and tryptophan which are important for growth and development of children.

3. **Dehulling:** Dehulling is the process of removing the husk or shell of the soybeans. This is typically done using the machine which help in breaking the beans open and separates the hull from the kernel. Then dehulled beans are then sifted and any remaining hulls are removed. This process is important because the hull contains antinutritional factors that can Interfere with the digestion and absorption of nutrients from the beans. The importance of this dehulling process includes.

    i. Improvement of the bioavailability of certain nutrients such as calcium, magnesium, and zinc.

    ii. It removes the antinutritional factors that can interfere with the digestion and nutrient absorption.

    iii. It increases the efficiency of the grinding process.

    iv. It increases the digestibility of soybeans.

4. **Grinding:** After the soybeans has been dehulled, they are ready to be grounded into paste or meal for children's consumption. This is done by using the grinding machine until it is grounded to a very fine particles or texture.

5. **Mixing with Water:** Mix the ground millet with water in a large bowl. The ratio of millet to water is typically 1:3 (1 part millet to 3 parts water). Mix well until the millet is fully dissolved

and the mixture is smooth.

6. **Fermentation:** Transfer the millet mixture to a fermentation vessel, such as a plastic container. Cover the vessel with a cloth or lid and let it ferment in a warm place for 2-3 days. Stir the mixture every few hours to prevent it from forming a crust.
7. **Filtering:** After fermentation, filter the mixture through a cheesecloth or a fine mesh to remove any solids. Squeeze the cheesecloth or mesh to extract as much liquid (soymilk) as possible.
8. **Cooking:** Transfer the filtered liquid to a pot and cook over medium heat until it thickens. Stir constantly to prevent lumps from forming.

3.1.2 PREPARATION OF MILLET PASTE (OGI)

1. Selection and Cleaning: The high-quality millet grains that are free from impurities and stones. They are then rinsed in water to remove any dirt or debris and soaked the millet grains in water for at least 4 hours or overnight. The water was then drained and rinsed the again.

2. **Grinding:** Grind the soaked millet grains into a fine paste using a grinding machine.

3. Mixing with Water: Mix the ground millet with water in a large bowl. The ratio of millet to water is typically 1:3 (1 part millet to 3 parts water). Mix well until the millet is fully dissolved and the mixture is smooth.

4. Fermentation: Transfer the millet mixture to a fermentation vessel, such as a plastic container. Cover the vessel with a cloth or lid and let it ferment in a warm place for 2-3 days. Stir the mixture every few hours to prevent it from forming a crust.

5. Packaging: Transfer the cooled millet paste to a container or bag. Seal the container or bag tightly to prevent contamination. Label the container or bag with the date and contents.

Millet paste, also known as ogi, is a fermented food made from millet grains. The fermentation process breaks down the proteins and carbohydrates in the millet, making it easier to digest. The fermentation time can vary depending on factors such as temperature, humidity, and the desired

level of fermentation. Millet paste can be consumed on its own or used as an ingredient in various dishes. It is a nutritious food that is high in protein, fiber, and minerals.

3.4 PREPARATION OF FORTIFIED PAP

1. In a clean pot, add one and a half cup of water and boil.

2. In the boiled water, add soya milk and stir consistently till lumps disappear and cook for 10 minutes.

3. In a clean bowl add 2 tablespoon of pap (millet) and mix with a little water to perform a paste, set the millet aside.

4. In the boiling soy milk, add 4 tablespoons of palm oil and 2 tablespoon of vegetable oil, stir, and allow to cook for another 5 minutes.

5. Add the millet and stir consistently to avoid lumps formation.

6. Add sugar and continue stirring.

7. If thick add water to attain a lighter pap, after 5 minutes the fortified pap is ready and can be served to the patient.

3.5 EQUIPMENT USED IN THE KITCHEN DEPARTMENT AT HOSPITAL.

For the proper functioning of the kitchen, some equipment was used in producing therapeutic meals easily especially during the production of soy flour in the kitchen.

1. ***Grinding machine:*** This is used specifically for grinding soybeans into flour to compliment breastmilk for children above 6 months of age.

2. ***Gas cylinder:*** This is used in providing a fuel source for the indigenous stove. Thereby making the cooking therapeutic diets easier and the roasting process of soybeans.

3. ***Industrial gas cookers:*** They are used for cooking activities in the kitchen, and they are of various sizes ranging from small to large.

4. ***Muslin clothes:*** This is used to drain water form food items. It is also used to remove strains of food particles from blended food.

5. ***Electric Blender:*** This is used in making blend.

6. ***Wooden spoon:*** This is used in the stirring process because it can withstand high temperature and safe to use due to its resistance to heat nature.

7. ***Kitchen Scale:*** i is used for adequate measure the serving sizes of ingredients and food items in the kitchen.

8. ***Measuring Cup:*** This is used primarily to measure the volume of liquid or bulk solid cooking ingredients such as flour and sugar.

CHAPTER FOUR

EXPERIENCES GAINED DURING THE SIWES ATTACHMENT

I was lectured on vitamins, importance, balance, and moderation. The major types of vitamins and their functions in the body were elaborated on. I was taught the various sources of vitamins such as foods or supplement. More light was shed on the deficiency and the symptoms of vitamins. I learnt vitamins retention capacity of foods.

I often go forward round under the supervision of the senior staff. Visitation to the neurology ward made me to see and observe some stroke patients. I visited emergency pediatric ward where children various health conditions are attended to. More light was shed on the modification of diet to suit various health condition in which I received lecture on therapeutic diet, its purpose to health. Different types of therapeutic diets such as Low sodium diet, for hypertensive patient, low cholesterol diets for overweight and obese patient and diabetic etc. Emphasis laws laid on the benefits of therapeutic diets to the management of various health complications. I was taught how to encourage patient to stick to the therapeutic diet tailored to suit their health conditioned.

I clearly understand the clear difference between the concept of synergism and antagonism of nutrients and their condition. I gained knowledge of how to use some equipment such as MUAC tape, Hight meter, infant weighing scale; (weighing scale & measuring cup). Under this, I learnt how to use a food composition table (F.C.T). I also assisted in the preparation of fortified pap and got the knowledge of the ingredient used and procedures. I was taught how to prepare the fruit salad constituting coconut, watermelon, pawpaw, carrot and garden egg.

CHAPTER FIVE

SUMMMARY, SUGGESTION, AND RECOMMENDATION

5.1 SUMMARY OF ATTACHMENT ACTIVITIES

My four (4) months program at the Kwara State University Teaching Hospital has been one of the interesting and productive experiences in my life. Through this training, I have gained new insight and more comprehensive. It has also broadened my dietetics knowledge.

All these valuable experiences and knowledge that I have gained were not only acquired through the direct involvement in task but also through other aspect of the training such as work, observation, interaction with colleagues, superior and other people related to the field.

As a result of the program, I am more confident to build my future career as a dietitian which I have started with Kwara State University Teaching Hospital.

5.2 PROBLEMS ENCOUNTERED DURING THE PROGRAM

- ✓ **Problem of searching a place of attachment:** I had some problems when searching for a place of attachment for my SIWES because of limited places and moreover, I experienced rejection in some hospitals giving one reason or the other that they do not want SIWES student.
- ✓ **Cost of Transportation:** Also encountered challenges in the aspect of transport fee during the course of my training due to the distance of my place of attachment.

5.3 SUGGESTIONS FOR THE IMPROVEMENT OF THE SCHEME

- ✓ The institution should be encouraged to create financial autonomy for Institution based SIWES Units/Directorates.
- ✓ The establishment should provide the adequate facilities to make the programme enjoyable for the SIWES Students.
- ✓ SIWES should be properly presented to potential sponsors, such as multinational companies and other corporate institutions for support in creating placement Opportunities, Training, Equipment, Facilities, as well as direct funding of SIWES.

- ✓ The hospitals/company should be willingly to accept and encourage students that are seeking for SIWES placement in their company without requesting for any money.
- ✓ Students on industrial training should leave a good legacy behind at their place of placement to help students coming behind them. This will give them easy acceptability when sourcing for place of attachment.