EVALUATION OF STUDENTS INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES) IN FEDERAL TECHNICAL COLLEGE, SHIRORO, KUTA, NIGER STATE.

BY

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PGD/ITE/04/2000/2001

DEPT. OF INDUSTRIAL AND TECHNOLOGY EDUCATION,
SCHOOL OF SCIENCE AND SCIENCE EDUCATION,
FEDERAL UNIVERSITY OF TECHNOLOGY,
MINNA.

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A RESEARCH PROJECT SUBMITTED TO THE DEPT. OF INDUSTRIAL AND TECHNOLOGY EDUCATION, SCHOOL OF SCIENCE AND SCIENCE EDUCATION, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA. NIGER STATE.

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APPROVAL PAGE

This is to certify that this project was carried out by **Mahmoud, Abdulganiy Onaolapo** (PGD/ITE/04/2000/2001), that it has been read and approved as meeting the requirements of the Department of Industrial and Technology Education, School of Science and Science Education, Federal University of Technology, Minna for the award of Post Graduate Diploma in Industrial and Technology Education (PGDTE).

SUPERVISOR — 10/9/03 DATE

HEAD OF DEPARTMENT — 10/9/03 DATE

Dr. K.A. Salami — 01-11-03 DATE

EXTERNAL EXAMINER

DEDICATION

The project is dedicated to Almighty Allah and to the loving memory of my father, late Alhaji Mahmoud B. Mamah, who was a source of inspiration to me in the development of my career and to my loving mother Ajiya Asiata Mahmoud, for her affection, love and moral support in seeing me through the programme

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First and foremost, I tender my profound thanks to Almighty Allah for his guidance, mercy and protection on me throughout my course.

My heart-felt thanks go to my supervisor Dr. Tukura. H. M. who took the pains to go carefully through the manuscript and make useful suggestions and comments for improving the quality of the work and for his brotherly role. May Almighty Allah continue to bestow His blessing upon him (Amen).

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ABSTRACT

This study was designed to evaluate the Students Industrial Work Experience Scheme (SIWES) in Federal Technical College Shiroro, Niger State. Three research questions were formulated to guide the study. A 60 items questionnaire was developed and used to collect relevant data from a sample of 90 out of 146 students of Building/Wood Technology (BWT) and Electrical Installation and Maintenance (EIM) departments of Federal Technical College, Shiroro, Niger State. The data was analysed using the mean, average mean and also chi-square test for testing the statement of hypothesis. Based on the findings, it was recommended among others that students Industrial Work Experience Scheme should serve as an opportunity for students who pursue practical oriented courses to practice. The responsibility for placement should not be shifted to students if they will not be closely monitored by the SIWES coordinator. Adequate time should be allocated for supervision of the students during SIWES, since the success or otherwise of the programme depends largely on the supervision of students. Payment of students allowance and supervisor's touring allowance by the college and the Federal Ministry of Education or the Agency concerned should be made more effective to prevent the attendant frustration by the affected students and the college based supervisors.

CHAPTER ONE

INTRODUCTION

Background of the Study

The Oxford English dictionary defined training simply as "given teaching and practice to a student in order to bring him/her to a standard of behavior, efficiency and effectiveness".

Practical skill development can also be said to embrace all diverse processes which aim at transforming people to enable them contribute more effectively to social and economic development of a nation. A nation's human resources can thus be improved through purposeful and result oriented education and training (Wendell, 1980).

In Nigeria, Student Industrial Work Experience Scheme (SIWES) was established in 1973 by the Industrial Training Fund (ITF). Industrial Training Fund (ITF) itself is a Federal Government Training Agency established under decree number 47 of 1971 with the aim of promoting and encouraging the acquisition of skills in industry and commerce with a view to generating a pool of indigenous trained manpower sufficient to meet the needs of the economy (Okeke, 1975).

Before the inception of SIWES in 1973, there was glaring evidence that inadequacy of practical exposure of students in tertiary institutions posed a

serious challenge to both the quality and standard of engineering and technology education in the country (Olawumi, 1994). This inadequacy of practical exposure of students was seriously criticized by the industries, which found the engineering graduates lacking in practical skills to undertake industrial work.

SIWES is therefore a skills training programme designed to expose and prepare students for the industrial working situation they are likely to meet after graduation. It is also meant to expose students to work methods and experience in handling equipment and machinery that may not be available in their educational institutions. It was thus introduced to bridge the gap between theory and practice (Olawumi, 1994).

The introduction and implementation of the new policy on education (NPE) added increased responsibilities both in scope and range to Vocational - Technical Education. In an attempt to achieve the objectives of the NPE, the National Board for Technical Education (NBTE), a body charged by the Federal Government of Nigeria to oversee the affairs of Vocational - Technical Colleges in the country, introduced a harmonized syllabi which emphasized among others, the need for Vocational and Technical Education students to participate in SIWES which was hitherto neglected by these colleges.

Federal Government established ten Federal Technical Colleges in 1988 with Federal Technical College, Shiroro, among others. The college took off in 1990 administratively and 1991 academically with two trade courses in Carpentry and Joinery and Electrical Installation and Maintenance. With 44 pioneer students, the college started to participate in SIWES programme in 1993.

The euphoria with which the introduction of SIWES was welcomed initially and the commendation received by the planners as well as the mode of operation are dwindling down today. In recent times, there are reported cases of participants of the scheme who are placed or who placed themselves in business settings or industries not relevant to their chosen career, with little or no skill learned (Okonkwo, 1996).

Ideally, students are expected to participate in the scheme because it provides practice to what has been learned in theory, to equip them adequately, for successful entry and progress in their chosen career. Now, the scheme is merely seen as one to be done to satisfy the academic requirement for graduation. Model, (1971) observed that real validation of any educational programme is made not when students pass their examination but when the graduates succeed in the world of work. The programme was therefore designed to ensure that the students have a taste of the world of work.

It is a programme that uses the work environment to expose students to work methods and provide needed experience in handling equipment and machinery that may not be available in educational institutions (Aina and Beecroft, 1982).

The SIWES programme is managed by the Federal Government, the Industrial Training Fund (I.T.F.), the collaborating agencies – National University Commission (NUC), the National Board for Technical Education (NBTE) and employers of labour.

The primary purpose of the scheme is to promote and encourage the acquisition of skills in industry with a view to generating a pool of indigenous trained manpower (I.T.F, 1994). According to Fakorede (1998) the I.T.F. uses the following approaches for the development of effective manpower training:

a. In-plant Training programmes for small and medium sized companies.
b. Industry oriented vocational training programmes.
c. Apprenticeship training scheme.
d. Continuous direct training courses, seminars, conferences and workshops for employees from both private and public sectors of the economy.
e. Improved reimbursement and grants schemes.

In 1974, following complaints from the employers of labour that graduate students from Institutions of higher learning were theoretical and in most cases strange to industrial machines, environment and complex nature of activities (Evans, 1971); the ITF initiated and established SIWES.

Statement of the Problem

A greater proportion of problems confronting technical education in Nigeria today is rooted in the failure of technical institutions to impart appropriate skills, knowledge and attitude readily for gainful or self-employment of the graduates. It has been observed that employers prefer workers with skill training to those with formal training in institutions (Dikko, 1978).

The government became practically committed when in 1973 it established a statutory body, the Industrial Training Fund, (ITF) with responsibilities which include: to ensure the graduating students from technical institution are place in cooperating industries for field training relevant to their chosen field of study. To carry out this responsibility, the I.T.F. established the Students' Industrial Work Experience Scheme (SIWES) with the following objectives which have benefited students tremendously: To promote and encourage skills in industry and commerce with a view of

generating indigenous trained manpower sufficient to meet the needs of the country, provision of opportunities for participants to gain supervised experience of working in industries as a supplement to their studies and exposure of students to experience manual work skills, machine operating skills and public reactions (Renaissance, 1975:p. 13).

Part of the problem facing Federal Technical College, Shiroro, is that some of the trade courses workshops are not well equipped for the translation of classroom theory into practice or simulation of real-work situation. In recognition of the existence of these lapses in technical institutions programmes and the need to train competent men for the much desired technological take – off, the Nigeria government formulated the National Policy on Education in 1977, (Revised in 1981) in which the national technical education objectives were reviewed and specified to include:

The acquisition of appropriate skills, abilities and competencies both mental and physical as the equipment for individuals to live in and contribute to the development of the society (NPE, 1981).

Base on the foregoing, therefore this study is designed to evaluate SIWES on final year students of Building/Wood Technology, and Electrical Installation departments of Federal Technical College Shiroro, Niger State, because they have all benefited from the programme.

Purpose of the Study

The purpose of this study was the evaluation of the effect of SIWES on students industrial work skills in Federal Technical College, Shiroro, Niger State. Specifically, the study was to:

1. Find out the extent of student's awareness of the aims and objectives of SIWES.
2. Find out the factors relating to work and training that prevent the students from benefiting fully from the SIWES programme.
3. Determine the modalities to be adopted to ensure the achievement of the objectives of SIWES in Federal Technical College, Shiroro.

Delimitation of the Study

This study is limited to final year students of Building/Wood Technology department, and Electrical Installation department.

The above courses were established in 1991 and 1995 respectively, and got the approval to participate in 1993 and 1997 programme to date.

Additional three courses were created in year 2000 and 2001/2002 sessions. They are:

Electronic & Radio TV department and Business study department.

But these two courses are yet to participate in the Student's Industrial Work Experience Scheme (SIWES) in Federal Technical College Shiroro, Niger State.

Significance of the Study

This study will provide direction or suggestion to the management of the Federal Technical College, Shiroro, Niger State and serve as a feedback or forum for bridging the gap between theory and practice for the technically oriented courses in the College.

It will also review related literature on factors relating to work and training that prevent the students from benefiting fully from SIWES. The role of the scheme (SIWES) in development of skills in vocational and technical education in the provision of job opportunities.

It will be useful to policy makers in formulating suitable policies concerning SIWES.

Research Questions

This study will seek answers to the following research questions from the final year students of Federal Technical College, Shiroro who had benefited from the scheme (SIWES):

1. To what extent has the SIWES scheme succeeded in achieving the aims and objectives for establishing it?
2. What are the factors relating to work and training that prevent the students from benefiting fully from the SIWES programme?
3. What are the modalities to be adopted to ensure the achievement of the objectives of SIWES in Federal Technical College, Shiroro?

Hypothesis

There is no significant difference between the response of students in Building/Wood Technology department and there counterpart in Electrical Installation departments of Federal Technical College, Shiroro, regarding the success or otherwise of SIWES programme in the college.

Decision Rule

Before taking any decision there is need to compute the degree of freedom df = (r-1) (c – 1) from Chi-square analysis table (x^2).

Where: r = number of rows

c = number of column

therefore the null hypothesis of independence may be rejected at 0.05 level of significance if the computed value of x^2 exceeds the critical value of x^2 for df = 4 = 9.488 at 0.05 level of significance as is contained in Appendix III.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this chapter, works related to the present study are reviewed under the following headings:

1. Historical Development of Technical Education in Nigeria
2. (i.) SIWES: Experience from other Countries and Nigeria
   (ii) The experience of Federal Technical College, Shiroro 1993 to date.
   (iii) The objectives of SIWES in Nigeria.
   (iv) Impact of SIWES on Nigeria Economy.
3. (i) The values of students industrial training.
   (ii) Economic Importance of Skill.
   (iii) Political Importance of skill.
   (iv) Social importance of skill
4. (i.) Technical Colleges and the NBTE
   (ii) Commercialization of Workshop products and services.
   (iii) Industrial Internship for Technical teachers.
   (iv) Funding and management of technical colleges in Nigeria.
   (v) The role of Technical Colleges in National Development.

1. Historical Development of Technical Education in Nigeria

Technical Education had a slow start and developed less quickly than other forms of education in Nigeria. This was partly due to the fact that the voluntary agencies which pioneered Western Education in Nigeria were unable to increase or popularize Technical Education while the Christian Missions were more interested in a native's ability to read the Bible than in his ability to turn screws and prime water pumps.

Indigenous Technical Education existed before the debut of Western Education in Nigeria in 1842. The origin is easily traced to the learning of craft, which often began with personal service to the master. Young boys would become house servants to close relatives who would feed and cloth them, and after some years of promising usefulness they would then gradually be introduced to the craft of the Master.

Craft varied depending on the area, but including mat-making, carving of doors and figures for shrines, building houses, leather work, black smithing etc, therefore it is fair to say that the aim of technical education in the traditional way is character training and job orientation (Fafunwa, 1974).

Following the adoption of the 1925 Education Policy for British African colonies, the policy stressed the need for Vocational and Technical Education and this led go the establishment of Trade Centres and Technical Institutes.

However, most of the technical education given was offered through government departments such as the public works departments and the Post and Telegraph Department. These departments as well as the Nigerian Railway Corporation and some industrial companies provided a system for the training of their workers.

In 1934 the Yaba Higher College was officially opened (Fafunwa 1974). The first students were medical students but the college soon developed courses in engineering, agriculture and teacher training. The education given at the Yaba Higher College was mainly vocational and led to the award of the college diploma.

Similar institutes were established by the colonial masters in Enugu (1950); Ilorin (1951); Kano (1953); Ijebu-Ode and Ogbomoso (1959); all geared towards the provision of adequate manpower for future developments.

Fifty-three years after the establishment of the first technical college in Nigeria, the country still occupies an unenviable position in the league of technologically backward nation. UNESCO International Conference on Education and Training of Technicians (1976) recommended about seven thousand seven hundred and fifty technical colleges with about two million students for a population of one hundred million people.

What we have on ground is a far cry from this specification. Had we ordered our priorities well and had followed the UNESCO standards, there would have been over two million young, energetic and well informed artisans servicing our broken sewage systems and maintaining same, efficiently and cheaply too. More than half that number would have been fully and gainfully employed in the building sector, supervising jobs of un-professional building contractors thereby drastically reducing the national shame of collapsing Federal Government Housing estates.

2(I) SIWES: Experience from Other Countries and Nigeria

Work experience has traditionally been part of technical biased school training either informally through on the job learning or more formally as a component of occupational training programme. Records indicate that industrial on the job training was first used in Cincinnati, United States of America, in 1906, where cooperative relationship between industries in the state and Universities was evolved for giving the students practical experience (Harris, 1960). The objective was to have students learn through apprenticeship, using industries as extension of laboratories of the school.

In the United States, the industrial training of students is known by various names with varying characteristics and concepts. These include

internship, cooperative work experience or cooperative educational experience, work - study etc. (Mason et al 1981). Internship was designed to enable students gain specific technical skill related to their academic fields while being exposed to the political (social) and administrative processes within an organization. It is often referred to as "Practicum" and designed for professionals such as student engineers, accountants and medical doctors. The students are paid and given credit for the experience as part of schoolwork.

Cooperative occupational experience on the other hand is similar to the SIWES in Nigeria. It uses two approaches towards integrating theory with field experience; the alternative field placement and the parallel model (see fig. 1 & 2).

In the AFP Model (Fig.1), the students spend period on full-time study at school and full-time periods in the fields usually in paid work situation. They are closely supervised by school and industry based staff.

In the parallel model (Fig.2), the students attend classes and are placed in the fields at the same time. Usually, they take full course load at the College and 15 to 18 hours work per week in industry and are paid.

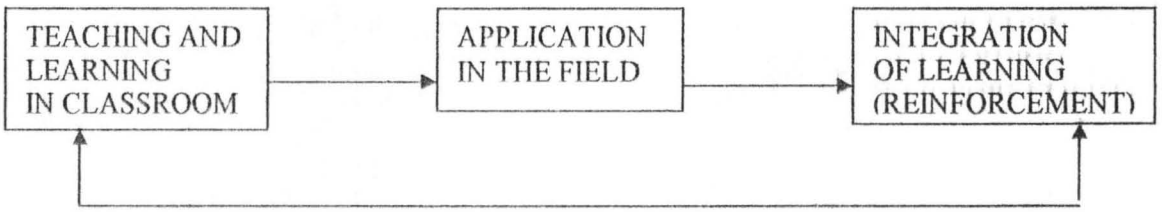

Fig. 1. Alternative Field Placement (AFP) Model. (Mason et al 1981)

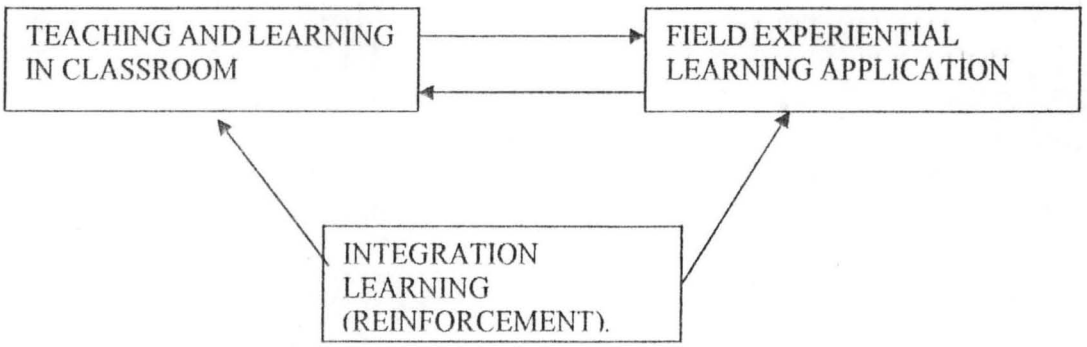

Fig.2 Parallel Model (PM) (Mason et al, 1981).

In the work - study plans, the students are enrolled in vocational curriculum in high schools and are paid with the approval of the school but the job may or may not be related to the instruction in school.

This is merely for work exploration. Anthony (1981) observed that success of each of the programmes is measured by the positive response of the students and the attitude of employer's, who in most cases hire them later.

In the then German Democratic Republic (now Unified Germany), what exists is based on the concept of part-study, part work, similar to the American

parallel model (PM) where the learner moves between theory class and practical field (comfort at al, 1983). The length of time spent in the work experience and the intensity of school course is related to the training objective. Most products of this arrangement are said to be competent in their fields, due to its emphasis on marrying theory with practice.

In the United Kingdom, Work Experience Programmes different from the usual internship for professionals are organized under the Youth Opportunities Programme (YOP) launched in 1983 by the Manpower Services Commission (MSC) with increased scope to cater for more categories of youths (comfort et al 1983). The belief of the British Government is that participants are more likely to be predisposed to learning if they have chances to try things out, make discoveries for themselves and practice what they have learned in theory. In scope, the YOP programme practically resembles the National Open Apprenticeship Scheme for unemployed youth organized by the National Directorate of Employment.

The SIWES as practiced in Nigeria is similar in design and scope to the cooperative occupational experience (Alternative model) in use in the United States and former German Democratre Republic. It is appropriate for the Nigerian situation since industries and business establishments are few and are far removed from the schools. However, differences exist in the consistency in

the pursuit of the objectives of the American Scheme compared with that in Nigeria.

The Manpower Services Commission that was set up in 1970 by the Labour Government under Harold Wilson in Britain is in existence today but renamed Training Enterprises and Education Directorate (TEED). Though, it was originally aimed at improving vocational educational and training, it was used to setup schemes to deal with the increasing numbers of young unemployed people living school during the recession of the Mid 1970s. Today the directorate is the power-house of the vocational thrust in government policy (Aina, 2000).

2(II) The Experience of Federal Technical College, Shiroro 1993 to Date

It has been only the Universities, Polytechnics and Colleges of Education (Technical) that were involved in Student Industrial Work Experience Scheme (SIWES), this was because the Federal Technical Colleges were established in 1988. In a bid to improve the practical content of their NBTE curriculum and provide an effective skilled craftsmen and Artisan due to the fact that the practical component of the content for the most of the subject areas appeared to be inadequate with minimum hours allotted, instructional materials were minimal while enabling objectives for workshop

practices were too vague, that was why in 1993 SIWES was introduced to the Federal Technical Colleges in the country to compliment the workshop practice (NBTE 1994).

TABLE 1

SUMMARY OF SIWES PARTICIPANTS, 1993-DATE
NTC YEAR II

TRADE COURSE AREA	PLACEMENT LIST								
	1993	1994	1995	1996	1997	1998	1999	2000	2001
CARPENTRY & JOINERY	14	19	10	6	10	20	26	13	16
ELECTRICAL INSTALLATION & MAINTENANCE	30	33	22	22	35	43	54	51	84
BLOCKLAYING & CONCRETING	–	–	–	–	7	24	43	23	48
CATERING CRAFT PRACTICE.	–	–	–	–	2	9	9	14	25
TOTAL	**44**	**52**	**32**	**28**	**54**	**96**	**132**	**101**	**173**

(SIWES units F.T.C Shiroro, 2002)

The first participants as can be seen from the summary of SIWES participants (1993 – 2001) in Table 1. There were 44 students from Carpentry and Joinery, and Electrical Installation and Maintenance Trades all together.

Blocklaying and Concreting, and Catering Craft Practice trades joined the other two trades in 1997 with 7 and 2 students respectively.

The number of students participating in this scheme has been increasing every year from a modest 44 in (1993) to 173 in year (2001).

The unit is operated by an officer who serves as both Coordinator and placement officer. Students are placed in line with their trades and much as possible close to their place of domicile. Provision is made for change of placement within 2 weeks from the period of commencement of attachment. The period of attachment is 2 months (8 weeks) for all students of Federal Technical College, Shiroro (as stipulated in the NBTE Curriculum and the ITF operational guidelines).

An orientation programme is organised for the students by the college usually a week or so to the commencement of the programme. The students are shown how to fill, use and keep the logbook, and other relevant forms.

Allowance was given to the participating students as well as the supervisors initially, but it has been stopped since 1996 or so, probably due to poor funding from the Federal Ministry of Education and the coordinating agencies. This could have been an effective motivating factor to the participating students.

2(III) The Objectives of SIWES in Nigeria

A greater percentage of problems confronting technical education in this country today is due to the failure of these institutions to impart appropriate skills, knowledge and attitudes readily for gainful or self employment of the graduates, a problem traced to colonial heritage (Okonkwo, 1996). Looking at a accreditation exercise by the NBTE between 1989 and 1992, about ten percent (10%) of technical colleges/schools were closed down, while about fifty percent (50%) were not granted full accreditation in all trade while just 40% were granted full accreditation in their trade courses among which FTC Shiroro falls, due to their human resources, physical resources and tools and equipments (NBTE 1994). This epileptic performance at the accreditation portrays pathetic picture of the state of technical colleges in Nigeria, quantitatively and qualitatively.

The scarcity of technical manpower and the problem of their production in adequate numbers, in scope and range of skills and in depth of competence constitute the greatest obstacle in Nigeria's quest for technological advancement. Part of the problems is that most schools are not well equipped for the translation of classroom theory into practice or simulation of real work situation.

In recognition of the existence of these lapses in the technical institutions' programmes and the need to train competent men for the much-desired technological take-off; the Nigerian government formulated the National Policy on Education in 1977 (Revised in 1981), in which the national technical education objectives were reviewed and specified to include the acquisition of appropriate skills, abilities and competencies both mental and physical as the equipment for individuals to live in and contribute to the development of the society (NPE,1981).

Also the government became practically committed when, in 1993, it established a statutory body, the ITF, with responsibilities which include: to ensure that graduating students from institutions of higher learning are placed in cooperating industries for field training relevant to their chosen fields of study. To carry out this responsibility, the ITF established the SIWES scheme with the following objectives as outlined in its first programme announcement in 1975.

1. The promotion and encouragement of skills in industry and commerce with a view to generating indigenous trained manpower sufficient to meet the need of the country.

2. The setting up of skilled technical manpower requirements of the right type and numbers in all sectors of the economy and in all sectors of projected national development targets and objectives.
3. Provision of opportunities for participant to gain supervised experience as a supplement to their studies.
4. Exposure of student to experience manual work skills, machine operating skills and public relations.
5. The preparation of the participating students for better future use of their hand and brains (Renaissance 1975).

From the foregoing it becomes clearer that the emphases of these objective is on training the students to acquire specific skills and the development of occupational competence expected to form part of the total educational plan. Mason et al (1981) agreed that the purposes of industrial training are far reaching beginning from the formation of good work habits, attitudes and understanding employed to building of self-confidence and appreciation of dignity of labour etc. The American National Advisory council on Vocational Education report of 1968 stated among other things, that providing for an individual employability as he leaves school through out his working life is one of the major goal of such a scheme (Report of Advisory Council, 1968, p30). Recognizing that the orientation of the training of

technicians should largely include practical work, Preece & Page (1974) observed that such a programme should be seen as integrative by enabling beneficiaries to make direct amplification of the theoretical concepts of their work in industry. When students learn this way, it could be illuminating and motivating and thus enable one to consolidate academic ideals leaned abstractly in the classroom.

More credence was given to the importance of these objectives by UNESCO International Conference on Education and Training of Technicians (1976) when it stressed that there should be no theory without practice at every stage of the technician training recommending that where industries are either very few or non-existing for students industrial training, technical colleges should be encourage to established centers for work experience. The conferences further recommended that Technical institution workshop should be so equipped that there is the opportunity to test, service and maintain a large variety of specialized equipment or to actually practice in the speciality. Since these standards are rarely attained in Technical Institutions, arranging work experience for schools in relevant industries and firms where the speciality equipment and practical men exist will ensure that a good training is provided for the right habits.

2(IV) Impact of SIWES on Nigerian Economy

The skilled craftmen and women are responsible for the handicraft product richly available in our society. Techno-culture has since become the order of the day with science and technology accounting for all the products and services available in the home and at work. Handicraft occupations practiced in the various sections of the Nigeria economic society are building craft, woodworking, boat and shoe making, printing, tailoring, knitting, weaving, pottery, leather work, hair-dressing, furniture making and metalwork. Occupational skills (craft or industrial) accounts for a very large proportion of human wants not only in Nigeria but the world over. It is in recognition of the role skilled craftsmen play in the development of the Nigeria Economy that some sections of the National Policy on Education (1981) laudably uplifted the development of arts and crafts. Section 6, sub-section 50 (xxii) says craftsmen training schools should be opened to exceptionally able persons who qualified as trained craftsmen. Section 6, sub - section 50 (xxv) says National Board for Technical Education (NBTE) should restructure craftsmen course so that they are offered on a sandwich basis for school - based students and on part-time day release for industrial - based students (Mohammed, 2000).

There has been a major breakthrough in arts and craft in Nigeria, which is evident by the demand on Nigeria products like fashion design, furniture leatherwork, pottery product, etc. The credit of such achievements must be given to the skilled craftsmen being produced in our various technical colleges since they are the makers of the wonders we find enchanting in our day to day life in Nigeria (Mohammed, 2000).

Through SIWES, the cost of acquiring the necessary practical skills relevant to our economic and technological need is reduced to minimum level compared to what it was costing before to send Nigerians abroad to acquire such skills or to maintain foreign expatriates in the country. Apart from the cost, the local training provided approaches for solving of manpower problems through appropriate technique.

It could be observed that the ITF's primary objective of generating a pool of trained and skilled indigenous manpower sufficient to meet the needs of the nation's economy are being met to a large extent through SIWES. It is apparent that the skilled craftsmen and women is in-equivocally a metamorphosing power in the Nigerian Economy. They form the central working body of the economy without which little or no economic development can be achieved. The engineer creates plans and the skill craftsmen actualize the plan (Mohammed, 2000).

3(I) Values of Students Industrial Training.

Value connotes benefits derived from an activity. It is also the determinant of attitudes as well as behavior on a work. Some of the educational value which are held to be the outcome of industrial work experience are as follows:

(a) The student,

- it exposes him to real life problem.
- it ensures that he becomes proficient in his field.
- it boosts his curriculum vitae.
- it exposes him to leadership/management skills
- he convinces himself and others that he is capable of working independently.
- it affords easy registration with professional bodies.
- it ensures that he can investigates an exiting situation and design improvement.
- it promotes friendship with the organization.

(b) The institution

- it serves as a feedback channel on the adequacy or otherwise of the academic program.

- it promotes the image of the institution
- it provides good linkage with the industry
- it exposes the instructors to the industry.

(c) **The Industrial Establishment**

- it provide a source of cheap skilled/semi-skilled labour
- it offers training to future skilled manpower.
- it provides a source of organizational survival.

On the economic factors, work experience will promote commercial and industrial growth which stimulates inventions and innovations that will in turn tend to increase demand for goods. Mechanization of the industry makes possible a greater division of labour which increases productivity. On political scene, a stable government to ensure industrial and commercial growth is also an improvement factor in the progress of technology. Such government encourages those who venture in the development of industry's facilities to have confidence in reaping the benefits of their enterprise (Okeke, 1975).

3(II) Economic Importance of Skill

The wealth of a society determines to a large extent the development of that society. A rich society is one which is capable of meeting her economic,

social, moral and political needs. A nation enjoys economic stability if it is industrially buoyant.

Nigeria is endowed with mineral resources like oil, coal, tin, and columbite among others. When these are harnessed and sold, the country realizes huge sums of money. If Nigeria's agricultural and mineral resources are to be properly harnessed and economically used, there is need for emphasis to be placed on the acquisition of skill. Skill promotes economic stability (Hauestein 1970). When efficient hands are employed in any field of human endeavor, productivity is usually maximized. On the other hand, in ability of a nation to develop her raw material due to lack of appropriate skill needed for the manufacture of other desirable products needed by its citizens is a cankerworm that eats deep into the fabric of economic stability (Hauestein, 1970).

3(III) Political Importance of Skill:

A person who distinguishes himself or herself in an acclaimed field in the society is usually looked upon as a hero or a potential leader. The same situation applies in the case of a nation. Skill acquisition promotes personal and national greatness (Hoover 1976). The behavior of a nation in the

committee of nations may be influenced by the skill possessed by that nation.

A look at the world powers like USA, RUSSIA, Germany, Britain, France, China, etc will immediately reveal the relationship between skill and power. The skill possessed by these advance countries influence in no small measure, their attitudes towards many countries especially the third world countries. The effect their domineering attitude could be seen when these developed Countries enter into any dialogue with the developing nations on such issue as financing development programmes (Hoover, 1976).

3(IV) Social Importance of Skill

Welfare theory states that every body needed to be cared for feels comfortable and free without any molestation. There is an inherent desire in human being to be cared for, loved and to be free and happy. Hence, the need for artists to entertain people at home and in gatherings, resulting to improvement in music technology. Manipulative skills, are important for providing amusement, happiness, love, affection and enjoyment for individuals. Skills have other societal value.

According to Mercer (1979), skills acquired through apprenticeship programmes are useful to society in the following ways:

1. A Young person acquires skill that provides them financial and psychological security, since they can thereafter work as trained craftsmen.
2. The employer or master also receives productive work from apprentices during their training.
3. Society at large receives continuous supplies of skilled labour and quality goods.

Evidently, the possession of skill is important in preventing youths from becoming social misfits, instead, these skilled persons become gainfully employed through Vocational Training. Acquisition of skill, therefore, helps to arrest some social ills such as armed robbery, stealing, etc.

4(I) Technical Colleges and the NBTE

The Federal Government in accordance with its enabling decree no. 9 of 1977 stated, "Education in Nigeria is no more a private enterprise only, but a huge government venture that has witnessed a progressive evolution of government complete and dynamic intervention and active participation. Therefore, what is worth doing is worth doing well if maximum gains are to

be realized. Education of all types and levels like all other business enterprises to be successful must be well planned, have well defined philosophy, goal and objectives in line with those enunciated in the National Policy on Education.

During the planning of the third National Development plan 1975-80, it was time to review the performance of all sectors of economy including education during the second National Development plan 1970-74. In the review, the Federal Government as contained in the white paper 1975 accepted employers views that they could not employ many products of our Universities, Technical Colleges, (which have since become Polytechnics/ Colleges of Technology) because the curriculum they followed lacked practical content. The same was true of Technical Colleges where the rate of pass at the national examinations has been very low. If therefore, Federal Government has adopted education as an instrument per excellence for effective national development, it became necessary that something should be done to correct the situation. Among others, some of the steps taken by the Federal Government to correct the situation in the technical education sector include:

(a) the introduction of the Student Industrial Work Experience Scheme (SIWES), and

(b) the promulgation of the National Board for Technical Education Decree No.9 of 11th January 1977.

Among the function of the Board as contained in the Decree are:

1. to advice Federal Government on and to co-ordinate all aspects of Technical and Vocational education falling outside the Universities and to make recommendations on a national policy necessary for full development of technical and vocational educations for the training of technicians, craftsmen and other skilled manpower;
2. to lay down standards of skill to be attained and to continually review the standards as necessitated by technological and national needs;
3. to advice on and take steps to harmonize entry requirements and duration of courses of technical institutions; and
4. to review methods of assessment of students and trainees and to develop a scheme of national certificate for craftsmen, technician and other skilled personnel.

In addition to the provision of its enabling decree, NBTE was also given the mandate by the Education National Maximum Standards and Establishment of Institution decree No.16 of 1985 to accredit programmes of Technical Colleges for the purpose of entry training their candidate for zonal

or national examinations. By this mandate the NBTE plays a supervisory role to all Technical Colleges.

4(II) Commercialization of Workshop Products And Services

Non - availability of training materials in Technical Colleges is undoubtedly a major issue. Several people have suggested various methods of funding the programmes or at least supplementing it (Olaitan, 1988; Agbo and Ndomi, 2001). It is hoped that the resources meant for Technical Colleges will appreciate upward, thereby development of skill and practical competence will be enhanced among learners. With enhanced practical competence, students as well as technical teachers would be able to embark on commercial services through the production and sales of goods as they carry out practical worth in the workshop. The school management in turn should monitor the venture with some permissible allowance to ensure that academic pursuit is not compromised for money. This circle will continue to supplement the generation of fund for the supply of training material, maintenance of the equipment and at the same time improving the practical competence of both the student and the teachers on the job.

4(III) Industrial Internship for Technical Teachers:

Studies have shown that technical teachers are operating far remotely from the contemporary realities of the industries they prepare student for. For instance, Ohize (1998) observed that it has become a common phenomenon to see graduates of technical education programmes undergo period of pupilage in industries before they can fit in adequately. A compulsory periodic industrial internship for technical teachers will further equip them with relevant knowledge and techniques that they can pass on to the students. A similar programme to this, which is already yielding fruit in Kaduna Polytechnic according to Dangana & Amasa (1994), is the staff industrial training committee programme (SIT COMP). Under this scheme, the polytechnic management sends some technical staff to well established industries for between 3 - 4 months industrial training in order to update their skill and enhance knowledge. This scheme could be extended to Federal Technical Colleges too. Dangana and Amasa (1994) recommended in their report that due to the success and eminent benefits of the programme to both staff and the Organizations, all technical institutions and other technically related institutions that have not started this kind of programme should as a matter of urgency effect it in their staff development Scheme.

4(IV) Funding and Management of Technical Colleges in Nigeria.

The provisions of necessary finance for the smooth operation of Technical Colleges are important but they need dedicated people to manage them for production. Technical school Education is capital intensive, a lot of capital outlay is needed for the procurement of equipment, tools and consumable materials. Governments and industrialist should jointly fund. Technical Schools as practiced in Germany, Japan and Australia (Foldharn 1986, p6). A skillful and creative Technical instructor can collaborate with the students and fabricate most tools and instruments through effective and efficient workshop management.

4(V) The Role of Technical Colleges in National Development.

The importance of technical colleges in the production of skill crafts level manpower required for national economic development cannot be over - emphasized. In fact going by the United Nation ratio of 1: 4:30 for the technical workforce, which forms the base for technological growth of any vibrant economy, the highest proportion of 30 refers to the craft level manpower which the Technical College is expected to produce. This represents about 87% of the total technical workforce. This had informed the wisdom of the original authors of our National Policy on Education who

advocated that every local government of the Federation should have a Technical College, though, this goals is far from being achieved (Okeke, 1997).

Also one of the cardinal objectives of the 3rd National Development Plan was to make an impact in the area of technological education so as to meet the growing needs of the economy (Okeke, 1997). All said, the production of the Crafts level manpower in the Technical College would very much depend on the availability of the appropriate number and calibre of training personnel who in turn should be generated through a sound recruitment policy. Thus the lack of adequate recruitment policy or procedure in the system would consequently emasculate the Technical Colleges to the detriment of manpower development effort of the nation.

CHAPTER THREE

METHODOLOGY

This chapter describes the design of study, area of study, target population and sample, description of the instrument for data collection, the technique of data analysis and method of testing hypothesis.

Design of Study

This study is a survey research. Questionnaire was use to obtain responses from the students on evaluation of students industrial work experience scheme in Federal Technical College Shiroro Niger State.

Area of the Study

This study covered the Building/Wood Technology department and Electrical department in Federal technical college shiroro, Niger State.

Population

The total population of this study is 90 students of Building/Wood Technology department and Electrical department of Federal Technical College Shiroro, Niger State.

Sample

All the 90 students drawn from the department of Building/Wood Technology and Electrical Installation of Federal Technical College, Shiroro in Niger State were the sample used this is because they have benefited from the programme.

Instrument for Data Collection

The instrument used for this study is questionnaire. The questionnaire is so constructed as to sample relevant responses needed for the study. In all, 60 – item Questionnaires was developed to bring out relevant information for answering the research questions and test the hypotheses formulated to guide the study. The questionnaire is as contained in Appendix I.

Validation of Instrument

The questionnaire in original form was used by Dikko (1978), in similar study, but modified here to suit the peculiar nature of this study. It was validated and considered relevant by the researcher's supervisor. All the 60 items drafted were certified as adequate for the study.

The validated instrument was administered to the 90 out of 146 students who have gone for SIWES programme for a period not less than 8 weeks in different types of Companies.

Administration of Instrument

The questionnaire was administered to the 90 students from Building/Wood Technology department and Electrical department of Federal Technical College Shiroro, who have gone for SIWES programme for a period of not less than 8 weeks in different type of industries.

These students were instructed on how to fill the questionnaire. They were also aided wherever they were in difficulty of understanding the questionnaire. The questionnaire was collected as soon as they were completed.

Scoring of the Instrument:

Five point rating scale was developed using:

Strongly Agree	(S.A) = 5
Agree	(A) = 4
Undecided	(U) = 3
Disagree	(D) = 2

Strongly disagree (SD) = 1

as response options

The mean was calculated by using the formula below.

$$Mean\ X = \frac{\sum fx}{\sum f}$$

Where

$\bar{X}$ *mean of the score*

$\sum$ = *sum of*

X = *score of the item*

F = *frequency*

$$The\ Mean\ value\ therefore = \frac{5+4+3+2+1}{5}$$

$$= \frac{15}{5} = 3.00$$

Decision Rule

To determine the acceptance, a Mean score of 3.00 was considered as the decision point. Any items with a Mean of 3.00 and above implied awareness or Agree, while Mean response that was less than 3.00 implied unaware or Disagree.

Method of Data Analysis:

The analysis of the data for research questions that guided this study was accomplished by using frequency count and Mean to determine the level of awareness or Agree with each of the questionnaire items.

Method of Testing Hypothesis

The analysis of the data for research hypothesis that guided this study was accomplished by using chi-square test (X^2) to evaluate its null hypothesis.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter deals with the presentation of data collected to answer the research questions.

The Mean was used to decide on the research questions by determine the level of Agree or Disagree to each of the questionnaire items. A five point rating scale was adopted for the study with the following response options.

Strongly Agree	S.A = 5
Agree	A. = 4
Undecided	U = 3
Disagree	D = 2
Strongly disagree	SD = 1

Chi-square (x^2) test was used to test the research hypothesis by using observed and expected frequencies. That is to say,

$$Eij = \frac{ni \ x \ nj}{n}$$

$$= \frac{ninij}{n}$$

$$X^2 = \sum_{i=1}^{nr} \sum_{j=1}^{nc} \frac{(oij - Eij)^2}{Eij}$$

where Oij = Observed Frequency

Eij = Expected Frequency

TABLE II: A SAMPLE OF STUDENTS WHO TOOK PART IN SIWES

INSTITUTION	DEPARTMENTS	POPULATION	TOTAL SAMPLE
Federal Technical College Shiroro, Niger states.	Building & Wood Technology (BWT)	62	45
	Electrical Installation & Maintenance. (EIM)	84	50

TABLE III: DISTRIBUTION OF THE QUESTIONNAIRES

DEPARTMENTS	NO OF QUESTIONNAIRE	NO RETURN	RETURN RATE
BWT	45	45	100%
EIM	50	45	90%

RESEARCH QUESTION 1

To what extent has the SIWES scheme succeeded in achieving the aims and objectives for establishing it?

Data needed to answer these research questions are presented in the table below.

TABLE IV: RESPONSES OF STUDENTS ON AWARENESS OF THE AIMS AND OBJECTIVES OF SIWES AND BENEFIT FROM IT

$N_1 = 45, N_2 = 45$

S/N	ITEMS	$\bar{X}_1$	$\bar{X}_2$	Average Mean	REMARK
1	SIWES gave me a good opportunity of relating my theoretical knowledge to practice.	4.60	4.40	4.50	Agree
2	Much of what I learned in theory became real when I saw them in industry.	4.60	4.59	4.59	Agree
3	Through SIWES, I made more meaning out of my theoretical knowledge.	4.30	4.47	4.38	Agree
4	I leaned about the latest developments in my course through SIWES	4.28	4.16	4.22	Agree
5	The time I spent in industry was especially valuable for learning how a firm works.	4.50	4.14	4.32	Agree

6	SIWES added a good deal to my scientific knowledge	4.20	4.28	4.24	Agree
7	The time I spent in industry was an unwelcome distraction from my studies.	2.80	2.52	2.66	Disagree
8	I forgot a great deal of what I had learned before.	2.48	2.38	2.43	Disagree
9	The time I spent in industry could have been more usefully spent during academic work.	1.30	1.45	1.37	Disagree
10	SIWES enhanced my ability to tackle technical problems.	3.77	4.21	3.99	Agree
11	Industrial experiences gave me an excellent opportunity to discover what jobs I am suited for.	4.40	4.45	4.42	Agree
12	I was given helpful instructions about the work I did.	4.50	4.28	4.39	Agree
13	I received very good guidance for the work I did.		4.35	4.40	Agree
14	I worked to a considerable extent on my own without being told constantly what to do.	3.50	3.50	3.50	Agree
15	During my stay in industry I was simply a form of Cheap labour.	3.15	3.59	3.37	Agree

16	I had a strong sense of purpose because the results of my work were clearly useful.	4.37	4.35	4.36	Agree
17	I found out a great deal about the attitude of workmen in industry though SIWES.	4.00	4.28	4.14	Agree
18	My period of industrial training was valuable in giving me an idea of industrial management.	4.02	4.09	4.05	Agree
19	I developed more self-confidence in dealing with men in industry through SIWES.	4.20	4.00	4.10	Agree
20	I gained a lot of insight into the practice of workmen in industry through SIWES.	4.17	3.90	4.04	Agree

KEY

$\bar{X}_1$ - Mean response of students of Building and Wood Technology department.

$\bar{X}_2$ - Mean response of students of Electrical Installation and Maintenance.

N_1 - Number of Building & Wood technology department students.

N_2 - Number of Electrical Installation and Maintenance department student.

$\frac{\bar{X}_1 + \bar{X}_2}{2}$ Average Mean of Both groups.

Above table revealed that both groups of respondents agree that items 1,2,3,6,15 and 16 which are concerned with students awareness of the aims and objectives of SIWES. ITEMS 4, 5, 10, 11, 12, 13, 14, 17, 18, 19, 20, are also agreed upon and are concerned with the benefit of aims and objectives of SIWES with Mean scores ranging from 3.50 to 4.46.

Both groups unanimously disagreed with items 7, 8, and 9, with Mean scores of 2.66, 2.43 and 1.37. They are also concerned with students awareness of the aims and objectives of the SIWES.

RESEARCH QUESTION 2.

What are the factors relating to work and training that prevent the students from benefiting fully from the SIWES programme?

The data needed to answer this research question are presented in Table V below:

TABLE V: RESPONSES OF STUDENTS ON FACTORS RELATING TO WORK AND TRAINING THAT PREVENT THE STUDENTS FROM BENEFITING FULLY FROM SIWES PROGRAMME.

N1 = 45, N2 = 45

S/N0	ITEMS	$\bar{X}^1$	$\bar{X}^2$	AVERAGE MEAN	REMARK
21	The instruction received in school was related to the practices in industry	4.60	4.14	4.37	Agree
22	The equipment trained with in School were a replica of the ones found in industry	2.64	2.11	2.38	Disagree
23	The school personnel attitude to work compared favorably With that of personnel in industry.	4.14	3.14	3.64	Agree
24	The management of the firm was very receptive.	4.44	3.92	4.18	Agree
25	The contact had with industry personnel was more with top personnel	2.42	2.26	2.34	Disagree
26	The cooperation of industrial staff	2.42	2.26	2.34	Agree

	was cordial				
27	The acceptability experienced was encouraging	4.35	4.04	4,19	Agree
28	Working with people in structural setting is all right with me.	4.40	3.76	4.08	Agree
29	Working under strict supervision is alright with me	4.13	3.57	3.85	Agree
30	The quality of work that I was exposed to was high	3.97	3.69	3.83	Agree
31	I have love for routine and uninterrupted tasks	3.60	3.25	3.41	Agree
32	I have initiative and love independent work	4.37	4.14	4.26	Agree
33	I cherish recognition for job well done.	4.42	4.21	4.32	Agree
34	The duration of stay in particular workstation was satisfactory.	4.33	4.00	4.27	Agree

35	My impressions of the industry were in consonance with my experience in industry. The following were useful in my industrial training:	4.28	3.73	4.01	Agree
36	The instruction received at school	4.42	4.00	44.21	Agree
37	The equipment trained with at school	4,13	3.52	.83	Agree
38	The caliber of staff at school	3.77	3.72	3.75	Agree
39	The management of the firm	3.60	3.73	3.65	Agree
40	The contact with the management staff of the firm	4.17	3.95	4.06	Agree
41	The contact with skilled staff of the firm and professionals	2.57	66	2.29	Agree
42	The contact with unskilled staff of the firm	2.57	2.6	2.62	Disagree
43	The quality of work I was exposed to	4.22	4.07	4.15	Agree

KEY

$\bar{X}_1$ - Mean response of students of Building and Wood Technology department.

$\bar{X}_2$ - Mean response of students of Electrical Installation and Maintenance.

N_1 - Number of Building & Wood Technology department students.

N_2 - Number of Electrical Installation and Maintenance department Student.

$\frac{\bar{X}_1 + \bar{X}_2}{2}$ - Average Mean of Both groups.

The first set of questions items 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 shows the responses of the two group of respondent on the factors that participant benefits from during SIWES while the second set of items, 16, 17, 18, 19, 20, 21 and 22 with Mean scores ranging form 3.65 to 4.21 are of most benefit to participant of SIWES programme. Both group unanimously disagreed with items 2, 5 and 22 with Mean scores of 2.38, 2.34 and 2.62.

RESEARCH QUESTION 3

What are the modalities to be adopted to ensure the achievement of the objectives of SIWES in Federal Technical College, Shiroro?

Data needed to answer the above research question is presented in Table VI below.

TABLE V1: RESPONSES OF STUDENTS ON MODALITIES TO BE ADOPTED TO ENSURE THE ACHIEVEMENT OF THE OBJECTIVE OF SIWES IN FEDERAL TECHNICAL COLLEGE SHIRORO

N=45, N2=45

S/N	ITEMS	$\bar{X}_1$	$\bar{X}_2$	AVERAGE MEANS	REMARK
44	Technical teachers should be encouraged to go for more training.	4.50	4.60	4.55	Agree
45	Students should be adequately equipped for successful Entry and progress in their chosen Carrier	4.46	4.50	4.48	Agree
46	Commercialization of workshop products and services will improve the practical competence of both the students and the teachers on the job.	4.68	4.50	4.59	Agree
47	Students should be expose to method of handle equipment and machinery that are available in the workshop.	4.42	4.57	4.49	Agree

48	Adequate fund should be provided for the teaching materials.	4.50	4.47	4.49	Agree
49	A compulsory periodic industrial internship for technical teachers will further equipped them with relevant knowledge.	4.55	4.57	4.56	Agree
50	National Board for technical education should monitor the programme adequately.	4.66	4.69	4.67	Agree
51	More attention should be paid to workshop practice.	4.48	4.29	4.39	Agree
52	Vocational and Technical education should be an avenue for people to be self-reliant.	4.00	4.38	4.19	Agree
53	Adequate and qualified instructors should be recruited for various trade courses.	4.33	3.96	4.05	Agree
54	Workshops should be adequately equipped with necessary tools and equipment compared to the industry.	4.20	3.85	4.03	Agree
55	Adequate attention should be given to the scheme by the college authority.	3.97	3.66	3.81	Agree

56	College supervision of SIWES should be improved upon.	4.20	4.38	4.29	Agree
57	Allowance should be paid to the participant to boost there moral and attentions.	4.66	4.22	4.44	Agree
58	Fund should be made available for the proper running of the scheme	4.00	3.96	3.96	Agree
59	Proper orientation be given to students by the college SIWES coordinator.	4.00	3.80	3.90	Agree
60	Eight weeks duration is not adequate for the programme should be increase to ten weeks.	3.93	4.23	4.08	Agree

KEY

$\bar{X}_1$ - Mean response of students of Building and Wood Technology department.

$\bar{X}_2$ - Mean response of students of Electrical Installation and Maintenance.

N_1 - Number of Building & Wood technology department students.

N_2 - Number of electrical installation and maintenance department Student.

$\frac{\bar{X}_1 + \bar{X}_2}{2}$ _ Average Mean of Both groups.

Above table reveal that both groups of respondents agreed that items 44-60 are significant approaches in developing skills and also good modalities to the achievement of SIWES objectives in Federal Technical College, Shiroro.

HYPOTHESIS TESTING

HYPOTHESIS ONE:

It was hypothesised that there will be no significant difference between the response of students in Building/Wood technology department and Electrical Installation and Maintenance department of Federal Technical College Shiroro, regarding the success or otherwise of SIWES progamme in the college.

Data needed to test this hypothesis is presented in table VII below.

TABLE VII: CHI-SQUARE ANALYSIS SHOWING BUILDING/WOOD TECHNOLOGY AND ELECTRICAL INSTALLATION AND MAINTENANCE STUDENTS RESPONSES TO OBJECTIVES OF SIWES.

DEPARTMENTS	SA	A	U	D	SD	TOTAL
BUILDING & WOOD TECHNOLOGY (BWT)	384	315	55	127	19	900
ELECTRICAL INSTILLATION AND MAINTENANCE (EIM)	349	287	69	95	32	840
TOTAL	**733**	**602**	**124**	**222**	**51**	**1740**

TABLE VIII: CALCULATION OF CHI-SQUARE:

O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
384	379	5	25	0.065
315	311	4	16	0.051
127	114.8	12.2	148.8	1.26
19	26.38	-7.38	-54.46	2.06
349	353.9	-49	24	0.068
287	290.6	-3.6	12.9	0.81
67	60	7	49	0.81
95	107.2	-12.2	7.38	54.46
				2.20
				9.228

From the chi-square distribution table, X 0.05, 4 = 9.488.

The computed chi-squire of 9.228 is lower then the table value of 9.49 at 0.05 level of significance therefore the above null hypothesis is accepted

HYPOTHESIS TWO:

It was hypothesised that there will be no significant difference between the response of student in Building and Wood Technology department and Electrical Installation and Maintenance department of Federal Technical College, Shiroro regarding the success or otherwise of SIWES programme in the college.

Data required to test the above hypothesis is presented in table IX Below.

TABLE IX: CHI-SQUARE ANALYSIS SHOWING BUILDING/WOOD TECHNOLOGY AND ELECTRICAL INSTALLATION AND MAINTENANCE STUDENTS RESPONSES TO FACTORS OF WORK AND TRAINING.

DEPARTMENTS	SA	A	U	D	SD	TOTAL
BUILDING/WOOD TECHNOLOGY (BWT)	441	387	96	71	22	1017
ELECTRICAL	298	390	130	90	58	906

INSTALLATION & MAINTENANCE						
TOTAL	**739**	**777**	**226**	**161**	**80**	**1983**

CALCULATION OF CHI-SQUARE:

O	E	O-E	(O-E)	(O-E) /E
441	379	62	384.4	0.14
387	398.5	-11.50	132.25	0.33
96	115.9	-19.90	396.01	3.42
71	82.57	-11.57	133.86	1.62
22	41	-19	361	8.80
298	359.9	-61.9	3831.6	10.65
390	378.5	11.50	123.25	0.35
130	110	20.00	400	3.64
90	78.4	11.6	134.56	1.72
58	38.97	19.03	362.14	9.29
				49.96

FROM TABLE X^2 0.05, 4 = 9.488.

The computed chi-square value is 49.96, which is greater than Table value of 9.49 at 0.05 level of significance.

The above null hypothesis is rejected Therefore, the alternative hypothesis is accepted.

HYPOTHESIS THREE

It was hypothesises that there will be no significant difference between the response of students in Building/wood technology and Electrical installation and maintenance's department of Federal Technical College, Shiroro, regarding the success or otherwise of SIWES programme in the college.

Data required to test the above hypothesis is presented in table X below.

TABLE X: CHI-SQUARE ANALYSIS SHOWING BUILDING/WOOD TECHNOLOGY AND ELECTRICAL INSTALLATION AND MAINTENANCE STUDENTS RESPONSES ON MODALITIES TO BE ADOPTED TO ENSURE THE ACHIEVEMENT OF THE OBJECTIVES OF SIWES IN THE COLLEGE.

DEPARTMENTS	SA	A	U	D	SD	TOTAL
BUILDING/WOOD TECHNOLOGY (BWT)	406	177	89	59	34	765

ELECTRICAL INSTALLATION AND MAINTENANCE	347	189	85	57	48	726
ELECTRICAL INSTALLATION AND MAINTENANCE						
TOTAL	**753**	**366**	**174**	**116**	**82**	**1491**

TABLE XI: CALCULATION OF CHI-SQUARE:

O	E	O-E	(O-E)	(O-E) /E
406	386.3	19.70	388.09	1.00
177	187.79	-10.79	116.42	0.62
89	89.28	-0.28	0.078	0.002
59	59.52	-0.52	0.270	0.005
34	42.09	-8.07	65.13	1.55
347	366.65	-19.65	386.12	1.05
189	178.21	10.79	116.42	0.65
85	84.72	0.28	0.078	0.0011
57	56.48	0.52	0.270	0.005
48	39.93	8.07	65.13	1.63
				6.513

From Table X^2 0.05, 4=9.488

The computed chi-square value is 6.513, which is lower than Table value of 4.49 at 0.05 level of significance.

Therefore, the above null hypothesis is accepted.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This Chapter deals with findings, discussion of the findings of the study, conclusion based on the findings and recommendations based on conclusion drawn from the study and suggestions for further research are contained in this chapter.

FINDINGS

In the presentation of the findings, research question that addressed the same issues were presented together, and separately if they treated different issues.

Findings related to the objectives of SIWES were stated in the questionnaire to which respondents were to express their assessment of the extent to which the objectives were being achieved.

The respondents for the study accepted that they are aware of the aims and objectives of Students Industrial Work Experience Scheme (SIWES). They are listed inn order of priority and they include:

(a) SIWES gave me a good opportunity of relating my theoretical knowledge to practice.

(b) Much of what I learned in theory became real when I saw them in practice in industry.

(c) The time I spent in industry was especially valuable for learning how a firm works.

(d) I received very good guidance for the work I did.

(e) I was given helpful instruction about the work I did.

(f) Industrial experience gave me an excellent opportunity to discover what jobs I am suited for.

(g) Through SIWES, I made more meaning out of my theoretical knowledge.

(h) I learned about the latest developments in my course through SIWES

(i) SIWES added a good deal to my scientific knowledge.

(j) I developed more self-confidence in dealing with all kind of people through SIWES.

Findings related to the factors relating to work and training that are hindering students from benefiting fully from SIWES programme.

The respondents agreed with the following factors relating to work and training that are hindering them from benefiting fully from SIWES.

(a) The instruction received in school was related to the practices in

Industry.

(b) The equipment trained with in school was a replica of the ones found in industry.

(c) The management of the firm was very receptive.

(d) The acceptability experience was encouraging.

(e) The school personnel attitude to work compared favorably with that of personnel in industry.

Findings related to the modalities to be adopted to ensure the achievement of the objectives of SIWES in Federal Technical college shiroro.

The respondent for the study accepted the following modalities to be adopted to ensure the achievement of SIWES objectives. In the college.

(a) Adequate fund should be provided for the practical teaching materials.

(b) More attention should be paid to workshop practice.

(c) Adequate and qualified instructors should be recruited for various trade courses.

(d) College supervision of SIWES should be improved upon.

(e) Allowance should be paid to the participants to boost their moral and attentions.

(f) Proper orientation should be given to the students by the college SIWES Coordinator.

(g) Funds should be available for the proper running of the scheme.

DISCUSSION OF THE FINDINGS

The discussion of the findings are organized and presented based on the research questions.

The results on table III showed that 17 out of 20 items under this research question were accepted. A ranking of the factors based on their mean scores showed that Student Industrial Work Experience Scheme (SIWES) gave them a good opportunity of relating their theoretical knowledge to practice. The study revealed that students had a strong sense of purpose because the results of their work were clearly useful. Mason et al (1981) agreed that the purposes of Industrial Training are far reaching, beginning from the formation of good work habits, attitudes and understanding of employers to building of self-confidence and appreciation of dignity of labour.

This study revealed that industrial experience gave students an excellent opportunity to discover they are job suited for. This is in accordance with the report of American National Advisory Council on Vocational Education

report of 1968. The report stated among other things that 'providing for an individual employability as he/she leaves school and throughout his/her working life is one of the major goals of such a scheme'.

Furthermore, students learnt about the latest development in their courses through Students' Industrial Work Experience Scheme. The study also revealed that students were given helpful instruction about the work they did. And added a good deal to their scientific knowledge.

The period of industrial training allowed students to develop more self-confidence in dealing with all kinds of people whom they met in the industry.

Their high degree of awareness gives credence to the wok of Derrick (1969) who postulated that students thought of their industrial training under four perspectives; securing of professional recognition, social, skills, enhancement of personality and acquiring of status and money.

Factors relating to Work and Training that may prevent respondent from benefiting from SIWES.

The result in table IV revealed that 20 out of 23 items were accepted. Respondents for this study showed that instructions they received in schools were related to the practice in industry and therefore useful during the attachment. The above finding is in conformity with the views of Prosser

(1929) who posited that technical training will be useful only when the instructions given to students are related to, or the same with those found in industry.

This study however shows that the school equipment were not replica of those in industry; hence they did not prove useful during the industrial training.

Of importance is their affirmation that management of the firms were found receptive, even when initially they were reluctant to accept students on placement. This is a welcome development. This study also revealed that acceptability of the students by the industry was very encouraging and this is a good indication of better future and good relationship between schools and industries. Curray (1976) found out that the contemporary workers do not often loose their jobs because of incompetence in terms of use of skill, but because they fail to get along with others.

The result in table VI revealed that all the 17 items were accepted. Respondents revealed the state of instructors in the college, which shows that there are no adequate instructors in their various trade courses, and the few available do not have the pedagogical experience, several people have suggested various methods of improving technical Education (Olaitan, 1998); Agbo and Ndomi 2001). It is hoped that the resources meant for technical

colleges will appreciate upward, thereby development of skill and practical competence will be enhanced among learners. The respondent also accepted the provision of fund for the practical materials, workshops and laboratory equipment. Technical school education is capital intensive, a lot of capital outlay is needed for the improvement of equipment, tools and consumable materials, government and industrialist should jointly fund technical school as practiced in Germany, Japan and Australia (Fordham 1986, p6).

The respondents for this study also attached greater importance to the statement that inadequate supervision of the students by the school and industry based supervisors have prevented them from benefiting fully from the programme, this confirms an observation by Comfort et al, (1983) that on the job experiences for students must be planned and supervised by the college based and industry based supervisors so that each Contribute to the education of the students. This study further revealed that responsibility for the placement has been shifted to students. This agreed with Veblen (1964) that it leads to wrong placement. Placing student in industrial establishment congruent with their fields of study is a first condition to fulfilling the SIWES.

The result also indicates that students on SIWES are not being paid their usual allowances including the College based supervisors and these are special incentive that can motivate the students towards the achievement of

SIWES objectives and goals. The results also revealed the inadequate attention given to the scheme by the College authority, which includes non-payment of students allowance, and College based Supervisor, shifting placement of SIWES on students among other things.

CONCLUSIONS

Restatement of the Problem

It is a known fact that government policy on Students Industrial Work Experience Scheme in recent time is quite favourable. However, despite these favourable policy provisions on Students Industrial Work Experience Scheme, inadequate supervision has continued to be a major problem facing SIWES. This study therefore was conducted to evaluate the Students Industrial Work Experience Scheme (SIWES) in Federal Technical college shiroro, Niger State.

A review of related literature provides the evidence that several factors were responsible for the impact that SIWES is making in practical skill development of students, SIWES gave students a good opportunity to relate their theoretical knowledge to practice, and an excellent opportunity to discover what job they are suited for.

A survey design was adopted for the study. Three Research questions were posed for the study. A 60 items questionnaire was prepared and validated by the researcher's supervisor and administered to 90-year III students of Building/Wood technology and Electrical Installation and maintenance departments of Federal Technical College Shiroro, Niger state who have gone through industrial attachment.

Data obtained were analysed using frequency count and means. Chi-square test was used in testing the hypotheses.

The findings that emerged from data analysis for this study formed the basis of the following conclusions:

(1) This research indicates that the SIWES objectives are being achieved although there are some constraints such as lack of industrial type equipment. If the scheme is not adequately implemented, it becomes difficult for graduates of the system to secure employment in the occupation or make a smooth transition from school to work.

(2) Incompetence in workplace is related to the kind or quality of training in the schools.

(3) There is need for greater cooperation between industries and educational institutions on how best to implement the SIWES programme.

(4) It can be concluded that SIWES in Federal Technical College Shiroro attaining its objectives, and that industrial experience in real setting is very necessary if the attainment of SIWES objectives will be fully realized because it offers the students learning experience, which cannot be directly gained in the classroom.

Therefore, in order to evaluate or measure the outcome of SIWES, at the planning stage, it must be clearly stated what constitutes an acceptable work experience for every course or trade. The school workshops and laboratories should be well equipped with similar industrial outfits to provide good background for successful industrial experience.

The project has also identified the shortcomings with regard to implementation of SIWES programme in achieving the aforementioned goals. These shortcomings include lack of adequate equipment in the workshops and laboratories, inadequate qualified Technical Instructors to cater for the increasing students.

With regard to these, it is believed that more could still be done to enhance the status of SIWES in relation to acquisition of skills

RECOMMENDATIONS

Having examined the scheme so far in Federal Technical College, Shiroro. The following recommendations based on the conclusion are made to improve the scheme success rate in the school:

1. Student should be well oriented on the importance of SIWES as it serves as a medium for relating their theoretical knowledge to practice as they pursue practical oriented courses.
2. Student should be encouraged to take this programme seriously since it is an excellent opportunity for them to discover the type of job they are suitable for.
3. Adequate instructional training should be provided to the students, this should be a replica of what is to be found in industry.
4. The college workshops need to be properly equipped with modern equipment and tools that are replica to these of industry. This will enhance the acquisition of adequate attitude, knowledge and skill.
5. For effective supervision of the programme, the institution should employ qualified full-time coordinator with good public relations skill. This will improve the degree of cooperation between industries and school.

6. Adequate time should be allocated for supervision of the students during SIWES since the success of the programme depends largely on the supervision of students.
7. The responsibility for placement should not be shifted to students if they will not be closely monitored by the SIWES coordinator, because placing students in industrial establishment congruent with their fields of study is a first conditions to fulfilling the SIWES objectives.
8. Payment of student allowance and supervisor's touring allowance by the College and the Ministry of Education (Federal) or the agency concerned should be made more effective, to prevent the attendant frustration of the affected students and college based supervisors.
9. To improve on the scheme's implementation, students should be placed in industries related to their field of study.

SUGGESTION FOR FURTHER RESEARCH

The following suggestions are made for future research:

1. Evaluation of college based and industrial-based supervisors of SIWES.
2. Strategies for improving SIWES programme in Nigeria technical schools.

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APPENDIX 1

QUESTIONNAIRES

EVALUATION OF STUDENTS INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES) IN FEDERAL TECHNICAL COLLEGE, SHIRORO, NIGER STATE.

INTRODUCTION

Please kindly take the column that best represents your perception about the above topic. You are therefore questions to the best of your ability. Any information given therein will be treated as strictly confidential.

PERSONAL DATA

1. NAME
2. DEPARTMENT
3. CLASS
4. SEX MALE ( ) FEMALE ( )

SECTION A

STUDENTS AWARENESS OF THE AIMS AND OBJECTIVES OF SIWES AND BENEFIT FROM IT.

s		RESPONSE OPTION				
S/N	ITEM	SA	A	U	D	SD
1	SIWES gave me a good opportunity for relating my theoretical knowledge to practice.					
2.	Much of what I learned in theory become real when I saw them in practice in industry.					
3.	Through SIWES, I made meaning out of my theoretical Knowledge.					
4.	I leaned about the latest developments in my course through SIWES.					
5.	The time I spent in industry was especially valuable for learning how a firm works.					
6.	SIWES added a good deal to my scientific knowledge.					

7.	The true I spent in industry was an unwelcome distraction from my studies.					
8.	I forgot a great deal of what I had learned before.					
9.	The time I spent in industry could have been more usefully spent doing academic work.					
10	SIWES enhance my ability to tackle technical problems.					
11	Industrial experience gave me an excellent opportunity to discover what jobs I'm suited for.					
12	I was given helpful instructions about the work I did.					
13	I received very good guidance for the work I did.					
14	I work for a considerable extent on my own without being told constantly what to do.					

15	During my staying in industry I was simply a form of cheap lab our.					
16	I had a sense of purpose because the results of my work were clearly useful.					
17	I found out a great deal about the attitude of workmen in industrial through SIWES.					
18	My period of industrial training was valuable in giving me an ideal of industrial management					
19	I developed more self-confidence in dealing with all kinds of people through SIWES.					
20	I gained a lot of insight into the practices of workmen in industry through SIWES.					

SECTION B

FACTORS RELATING TO WORK AND TRAINING; THAT PREVENTS THE STUDENTS FROM BENEFITING FULLY FROM SIWES PROGRAMME.

		RESPONSE OPTION				
S/N	ITEMS	SA	A	U	D	SD
21	The instruction received in school was related the practice in industry.					
22	The equipment trained with in school were a replica of the ones found in industry.					
23	The school personnel attitude to work compared favorably.					
24	The management of the firm was very receptive.					
25	The contact had with industrial personnel was more with top personnel.					
26	The cooperation of industrial staff was cordial.					

27	The acceptability experienced was encouraging.					
28	Working with people in structural setting is alright with me.					
29	Working under strict supervision is alright with me.					
30	The quality of working that I was exposed to was high.					
31	I have love for routine and interrupted tasks.					
32	I have initiative and love independent work.					
33	I cherish recognition for job well done.					
34	The duration of stay in particular workstation was satisfactory.					

35	My impressions of the industry were in consonance with my experience in industry.					
The following were useful in my industrial training.						
36	The instruction received at school					
37	The equipment trained with at school.					
38	The Calibre of staff at school.					
39	The management of the firm.					
40	The contact with the management staff of the firm.					
41	The contact with skilled staff of the firm and professionals.					
42	The contact with unskilled staff on the firm.					
43	The contact with skilled staff of the firm.					

SECTION C

MODALITIES TO BE ADOPTED

S/N	ITEMS	$\bar{X}_1$	$\bar{X}_2$	AVERAGE MEANS	REMARK
44	Technical teachers should be encouraged to go for more training.				
45	Students should be adequately equipped for successful Entry and progress in their chosen Carrier				
46	Commercialization of workshop products and services will improve the practical competence of both the students and the teachers on the job.				
47	Students should be expose to method of handle equipment and machinery that are available in the workshop.				
48	Adequate fund should be provided for the teaching materials.				
49	A compulsory periodic industrial internship for				

	technical teachers will further equipped them with relevant knowledge.				
50	National Board for technical education should monitor the programme adequately.				
51	More attention should be paid to workshop practice.				
52	Vocational and Technical education should be an avenue for people to be self-reliant.				
53	Adequate and qualified instructors should be recruited for various trade courses.				
54	Workshops should be adequately equipped with necessary tools and equipment compared to the industry.				
55	Adequate attention should be given to the scheme by the college authority.				
56	College supervision of SIWES should be improved upon.				
57	Allowance should be paid to the participant to boost there moral and attentions.				

58	Fund should be made available for the proper running of the scheme				
59	Proper orientation be given to students by the college SIWES coordinator.				
60	Eight weeks duration is not adequate for the programme should be increase to ten weeks.				

APPENDIX II

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

AUTO TECHNOLOGY
BUILDING TECHNOLOGY
ELECT/ELECT TECHNOLOGY
METAL TECHNOLOGY
WOOD TECHNOLOGY

YOUR REF: _____ DATE: 10-04-02

OUR REF: SP/ITE/PGD/04/2002

LETTER OF INTRODUCTION FOR CANDIDATE CARRYING OUT RESEARCH WORK

MAHMOUD, A. O. is a postgraduate student of the Department of Industrial and Technology Education of the Federal University of Technology, Minna. He/~~She~~ is currently under taking a research work on.

EVALUATION OF STUDENTS INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES) IN FEDERAL TECHNICAL COLLEGE, SHIRORO, ICUTA, NIGER STATE.

It would be highly appreciated if you could supply him/~~her~~ with the information he/~~she~~ may require from you. All information from you will be treated confidentially.

Thank you so much for your cooperation.

Bale

DR. K. A. SALAMI
Project Coordinator

APPENDIX III

The Chi-square Distribution (Values of χ^2_α)*

d.f.	$\chi^2_{.995}$	$\chi^2_{.99}$	$\chi^2_{.975}$	$\chi^2_{.95}$	$\chi^2_{.05}$	$\chi^2_{.025}$	$\chi^2_{.01}$	$\chi^2_{.005}$	d.
1	.0000393	.000157	.000982	.00393	3.841	5.024	6.635	7.879	
2	.0100	.0201	.0506	.103	5.991	7.378	9.210	10.597	
3	.0717	.115	.216	.352	7.815	9.348	11.345	12.838	
4	.207	.297	.484	.711	9.488	11.143	13.277	14.860	
5	.412	.554	.831	1.145	11.070	12.832	15.086	16.750	
6	.676	.872	1.237	1.635	12.592	14.449	16.812	18.548	
7	.989	1.239	1.690	2.167	14.067	16.013	18.475	20.278	
8	1.344	1.646	2.180	2.733	15.507	17.535	20.090	21.955	
9	1.735	2.088	2.700	3 325	16.919	19.023	21.666	23.589	
10	2.156	2.558	3.247	3.940	18.307	20.483	23.209	25.188	1
11	2.603	3.053	3.816	4.575	19.675	21.920	24.725	26.757	1
12	3.074	3.571	4.404	5.226	21.026	23.337	26.217	28.300	1
13	3.565	4.107	5.009	5.892	22.362	24.736	27.688	29.819	1
14	4.075	4.660	5.629	6.571	23.685	26.119	29.141	31.319	1
15	4.601	5.229	6.262	7.261	24.996	27.488	30.578	32.801	1
16	5.142	5.812	6.908	7.962	26.296	28.845	32.000	34.267	1
17	5.697	6.408	7.564	8.672	27.587	30.191	33.409	35.718	1
18	6.265	7.015	8.231	9.390	28.869	31.526	34.805	37.156	1
19	6.844	7.633	8.907	10.117	30.144	32.852	36.191	38.582	1
20	7.434	8.260	9.591	10.851	31.410	34.170	37.566	39.997	2
21	8.034	8.897	10.283	11.591	32.671	35.479	38.932	41.401	2
22	8.643	9.542	10.982	12.338	33.924	36.781	40.289	42.796	2
23	9.260	10.196	11.689	13.091	35.172	38.076	41.638	44.181	2
24	9.886	10.856	12.401	13.848	36.415	39.364	42.980	45.558	2
25	10.520	11.524	13.120	14.611	37.652	40.646	44.314	46.928	2
26	11.160	12.198	13.844	15.379	38.885	41.923	45.642	48.290	2
27	11.808	12.879	14.573	16.151	40.113	43.194	46.963	49.645	2
28	12.461	13.565	15.308	16.928	41.337	44.461	48.278	50.993	2
29	13.121	14.256	16.047	17.708	42.557	45.722	49.588	52.336	2
30	13.787	14.953	16.791	18.493	43.773	46.979	50.892	53.672	3

Source: Biometrika Tables for Statisticians, Volume I, 3rd ed., Cambridge: University Press, 1966.