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# Students' Industrial Work Experience Scheme (SIWES) in Nigeria Prospects, Challenges, and Strategies for Improvement

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**Abstract**

The Students' Industrial Work Experience Scheme (SIWES) is an important component of technical and vocational education in Nigeria, designed to provide students with practical industrial experience and bridge the gap between theoretical instruction and workplace requirements. Despite its potential contributions to skills acquisition, professional development, and graduate employability, the implementation of the scheme continues to face several challenges. This paper examines the prospects and challenges of SIWES in Nigeria and identifies strategies for improving its effectiveness. The paper adopts a narrative review approach, drawing on relevant literature and existing discussions on the implementation of industrial training programmes. The review highlights the prospects of SIWES in facilitating the application of theoretical knowledge, acquisition of practical and technical skills, career development, understanding of industrial operations, and development of professional, interpersonal, and entrepreneurial competencies. However, major challenges include inappropriate industrial placement, poor alignment between institutional curricula and industry requirements, inadequate commitment by students and industrial supervisors, limited placement opportunities, insufficient financial support, weak institutional-industry collaboration, and ineffective communication and supervision. The paper concludes that the effectiveness of SIWES depends on coordinated efforts among government, educational institutions, the Industrial Training Fund, and participating industries. It recommends stronger institutional-industry partnerships, improved student orientation and supervision, curriculum alignment with industrial practices, adequate financial support, and effective monitoring and evaluation mechanisms. These measures are necessary to strengthen the contribution of SIWES to practical skills development, graduate employability, and national economic development.

***Keywords:*** Industrial Training, Industrial Work Experience, Practical Skills, Students' Industrial Work Experience Scheme, Technical and Vocational Education.

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## Introduction

### Background

Technical and Vocational Education (TVE) is an important aspect of education that focuses on equipping individuals with the practical skills, technical knowledge, competencies, and attitudes required for effective performance in specific occupations (UNESCO, 1989).. Its development can be traced to the traditional apprenticeship system, through which young people acquired occupational skills by working under experienced craftsmen and artisans in trades such as carpentry, blacksmithing, weaving, metalwork, building construction, and farming. With industrialization and technological advancement, the need for a more structured system of technical and vocational training became increasingly important. Consequently, formal technical institutions, vocational schools, polytechnics, and colleges of education (technical) were established to provide systematic theoretical instruction and practical training for the development of a skilled workforce (Oladejo, 2020; Tikly, 2013; Yusuf et al., 2008). Industrial training emerged as a complementary component of technical and vocational education to bridge the gap between classroom learning and actual workplace practices. It provides students with opportunities to apply theoretical knowledge, develop occupational skills, become familiar with industrial equipment and processes, and understand workplace ethics, safety procedures, and professional expectations.

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Through direct exposure to real work environments, students gain practical experience that may not be fully obtainable within the classroom or school workshop.

In Nigeria, the importance of industrial training is reflected in the establishment of the Industrial Training Fund (ITF) in 1971 and the introduction of the Students' Industrial Work Experience Scheme (SIWES) in 1973. These initiatives were designed to strengthen the relationship between educational institutions and industries by providing students with supervised practical experience relevant to their fields of study. (ITF, n.d.). Thus, technical and vocational education and industrial training are closely related components of workforce development, as both contribute to the production of skilled, competent, and employable graduates capable of responding to the changing demands of industry and national development. (Industrial Training Fund [ITF], n.d.; UNESCO, 2022).

The increasing importance of technical and vocational education in national development has made industrial training an essential component of students' professional preparation. However, despite the introduction of the Students' Industrial Work Experience Scheme (SIWES) in Nigeria, concerns remain about the extent to which the scheme effectively bridges the gap between theoretical instruction and practical workplace skills. Issues relating to inadequate industrial placements, poor supervision, limited access to modern equipment, and weak collaboration between educational institutions and industries may affect the achievement of its objectives. These concerns justify the need for a review of the scheme.

This study adopted a narrative literature review approach to examine the Students' Industrial Work Experience Scheme (SIWES) in Nigeria, with particular emphasis on its historical development, objectives, framework, prospects, contributions to students' practical skills development, and

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challenges affecting its implementation. The narrative review approach was considered appropriate because it enabled the examination and synthesis of relevant literature, policy documents, institutional reports, and scholarly publications relating to industrial training and technical and vocational education.

## The Historical Development of the Scheme

The Students' Industrial Work Experience Scheme (SIWES) was introduced in Nigeria in 1973 by the Industrial Training Fund (ITF) in response to concerns expressed by employers of labour about the inadequate practical skills and industrial experience of graduates from higher institutions. At the time, employers observed that the theoretical training provided in tertiary institutions was not sufficiently aligned with the practical requirements of industries. Consequently, SIWES was designed to expose students to real work environments and provide opportunities to acquire practical skills in the use of industrial equipment, machinery, tools, and work processes. (ITF, n.d.).

The historical development of the scheme can be summarized in the following stages:

1. 1973 – Establishment of SIWES: The ITF initiated and introduced the scheme to bridge the gap between theoretical instruction and practical industrial experience. The Fund initially financed and managed the programme.

2. 1978 – Withdrawal of ITF: Due to financial constraints and the increasing cost of administering the scheme, the ITF withdrew from its funding and management.

3. 1979 – Transfer of Management: The Federal Government transferred the management of SIWES to the National Universities Commission (NUC) and the National Board for Technical Education (NBTE), recognizing the importance of industrial training in tertiary education.

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4. 1984 – Return to ITF: In November 1984, the Federal Government returned the management and implementation of SIWES to the ITF, with the Federal Government assuming responsibility for funding the scheme.

5. 1985 – Resumption of ITF Administration: The ITF effectively resumed administration of the scheme in July 1985. Since then, the Fund has continued to play a central role in its coordination and implementation in collaboration with relevant educational regulatory bodies.

## Objectives and Framework of SIWES

The Students' Industrial Work Experience Scheme (SIWES) was designed to bridge the gap between theoretical knowledge acquired in higher institutions and the practical competencies required in the workplace. According to the Industrial Training Fund (ITF), the scheme seeks to provide students with relevant industrial skills and experience, prepare them for post-graduation employment, and familiarize them with industrial equipment, machinery, work methods, and professional practices that may not be available in their institutions. (ITF, n.d.).

Specific objectives of SIWES include the following:

1. To provide students with opportunities to acquire practical and occupational skills relevant to their fields of study.
2. To expose students to modern industrial equipment, machinery, tools, and production techniques.
3. To enable students to apply theoretical knowledge acquired in the classroom to real workplace situations.

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4. To prepare students for the responsibilities, demands, and expectations of the industrial and professional working environment.

5. To facilitate students' transition from educational institutions to the world of work and improve their employment prospects.

6. To develop students' problem-solving abilities, technical competence, work ethics, discipline, teamwork, and safety consciousness.

7. To strengthen collaboration between educational institutions and industries in the development of relevant human resources

Over the years, SIWES has developed into an important component of technical, vocational, scientific, agricultural, and other professional programmes in Nigerian tertiary institutions. Its implementation involves three major stakeholders: students, educational institutions, and employers of labour. The scheme is intended to ensure that students acquire relevant practical experience before graduation and that the skills developed in educational institutions are more responsive to the needs of the labour market. It has therefore become an important instrument for promoting industry–institution collaboration, improving graduate employability, and strengthening national manpower development. (ITF, n.d.; UNESCO, 2022). .

The framework of SIWES is based on a tripartite relationship involving students, educational institutions, and employers of labour, with the ITF and relevant supervisory agencies providing coordination, monitoring, and policy guidance. The framework ensures that industrial training is properly planned, supervised, monitored, and evaluated to achieve its intended objectives.

The major components are:

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1. Students: Participate in industrial attachment, undertake assigned practical tasks, observe workplace regulations, maintain training logbooks, and submit reports on their experiences.

2. Educational institutions: Identify eligible students, organize orientation programmes, facilitate industrial placements, assign institutional supervisors, monitor students' progress, and assess their performance.

3. Employers of labour: Provide suitable training opportunities, assign workplace supervisors, expose students to relevant industrial operations, and assess their practical performance.

4. Industrial Training Fund (ITF): Coordinates the scheme, provides operational guidelines, organizes orientation and monitoring activities, processes relevant documentation, and facilitates the administration of approved student allowances and insurance arrangements.

5. Supervisory agencies: The National Universities Commission (NUC), National Board for Technical Education (NBTE), and National Commission for Colleges of Education (NCCE) provide academic and institutional oversight in their respective sectors.

The framework operates through a cycle of student registration and placement, pre-attachment orientation, industrial training, workplace supervision, institutional monitoring, logbook documentation, assessment, and submission of reports. This collaborative arrangement is intended to ensure that students acquire meaningful practical experience and that the training received is relevant to their academic programmes and future occupational responsibilities. (ITF, n.d.; UNESCO, 2022).

## Prospects of the Student Industrial Work Experience Scheme

The prospects of industrial training include the following:

**Bridging the Gap between Theory and Practice**

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The scheme provides students in tertiary and vocational institutions with opportunities to work in organizations relevant to their fields of study, enabling them to apply theoretical knowledge to practical situations.

**Career Guidance and Development**

It exposes students to various career opportunities, helps them develop interest in different occupations, and enables them to make informed decisions about their future careers and areas of specialization. (Alao et al., 2022; UNESCO, 2022).

**Acquisition of Practical and Technical Skills**

Industrial training enables students to acquire relevant industry skills and apply basic knowledge and procedures in equipment operation, maintenance, troubleshooting and repair.

**Understanding Industrial Operations**

It familiarizes students with industrial processes, workplace practices and the relationship between industry and society.

**Application of Scientific and Engineering Principles**

It enables students, particularly those in engineering, to apply fundamental scientific and engineering principles to identify, formulate, analyze and solve practical problems systematically.

**Development of Communication and Interpersonal Skills**

The scheme improves students' ability to communicate effectively, work in teams and interact professionally with colleagues, supervisors and other stakeholders.

**Development of Professional and Entrepreneurial Competencies**

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Industrial training helps students develop multidisciplinary technical knowledge, management, leadership and entrepreneurship skills, preparing them for employment and self-reliance. (Alao et al., 2022; UNESCO, 2022).

**Encouragement of Further Studies and Professional Development**

The experience gained may motivate students to pursue further education, professional certifications or specialized training in areas of interest.

## Impact of Student Industrial Work Experience Scheme (SIWES)

Since the inception of the Student Industrial Work Experience Scheme in Nigeria in 1979, the program has helped bridge the gap between theory and practice for students who have faithfully participated in the scheme. Studies have revealed a correlation between the labour market's skill needs and SIWES skill development and utilization among beneficiaries. Students who participate in the SIWES programme are exposed to modern technologies, equipment and industrial practices, which enhance their technical knowledge and practical competencies. Furthermore, interaction with industry personnel, colleagues and other professionals provides opportunities for developing communication, interpersonal, teamwork and problem-solving skills (Adebanji et al., 2023; Babalola & Obianeri, 2017). Participation in SIWES has also been associated with improvements in students' thinking skills (Ayoola, 2026).. Aderonke, A.O. (2012) opined that the student industrial work experience scheme has significantly contributed to skill acquisition and utilization in industrial development. Furthermore, it offers engineering students the opportunity to become multi-skilled engineers with strong technical knowledge, as well as management, leadership, and entrepreneurship skills. The program, however, has faced setbacks due to challenges confronting it.

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## Challenges of Student Industrial Work Experience Scheme

**Mismatch of area of study with place of industrial training**

A good number of students who go on industrial attachment find themselves in areas that have no bearing on the course they are reading in their schools hence at the end of the program no meaningful learning actually take place (Alao et al., 2022; Ibrahim et al., 2024).

**Non-alignment of institutions' curricula with industry needs**.

Many students find it difficult to relate what they are taught in school to what they are exposed to in industry. This gap damped their zeal and commitment toward the program. (Alao et al., 2022).

**Lack of commitment on the part of the students and industry-based supervisors**

A good number of students consider period of their industrial training as a period of rest and possibly do other things they consider more important thus frustrating the whole essence of the program (Ibrahim et al., 2024).

**Wrong perception of the program by the students**

A lot of students participate in IT program as casual onlookers with the sole driving force as the prerequisite to graduate rather than the opportunity to grasp as much of the skills and knowledge relevant to their profession as possible. The industrial base team on their part does not see the direct benefits that may accrue to them as a result of equipping students with such practical knowledge

**Limited space for IT students**

Most schools don't make provision for place of industrial training for their students. The responsibility of doing so now rests on the students who may hardly know what to do because of their low level of exposure. They simply settle for any place for IT. In the end, they makeup

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things for the lecturer just to pass .

**Lack of financial motivation on the part of the students**

Some indigent students who cannot afford the cost of transporting themselves to the place of industrial attachment just settle for any place and in the end miss out in the program (Alao et al., 2022).

**Gap between the institutions and the industry**

The institution, the students and the industry are supposed to be stakeholders that should work together to actualize the objectives of the programs. As it stands today there is a wide gap which is making it difficult to do proper monitoring of the program (Ibrahim et al., 2024).

**Lack of communication between industry-based supervisors and the students**

One hindrance to any kind of instruction is a poor trainer. On the job the supervisor may be an excellent boss, he may know the job very well , but teaching is a skill and the supervisor may not have this particular skill, hence finds it difficult to communicate some technical facts effectively. In such scenario the gap that exist between theory and practice in the mind of the students is sustained years after such students graduate from school.

**Fear of taking newly acquired skill to benefit Rival Company**

Some well equip industries do not accept student on industrial training because of fear that they will take the advantage of newly obtained skills to benefit another rival company.

## Strategies for Improving SIWES Implementation

The effective implementation of the Students' Industrial Work Experience Scheme (SIWES) requires coordinated efforts among the Industrial Training Fund (ITF), educational institutions,

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industries, government, and students. Although the scheme provides opportunities for practical skills acquisition, its effectiveness depends on the quality of industrial placements, supervision, monitoring, funding, and collaboration among stakeholders. The following strategies are proposed to strengthen its implementation in Nigeria.

1. Strengthening Institution–Industry Collaboration: Educational institutions should establish stronger partnerships with industries, companies, workshops, and other relevant organizations to provide students with appropriate industrial placements. Regular consultations between academic institutions and industry representatives would also help align training activities with current occupational and technological requirements.

2. Improving Industrial Placement: Students should be placed in organizations that are directly relevant to their fields of study. Placement arrangements should be properly coordinated to minimize situations where students undertake duties unrelated to their academic specializations. (Alao et al., 2022; Ibrahim et al., 2024).

3. Adequate Funding and Financial Support: Government and relevant agencies should provide sufficient funding for the administration, monitoring, and evaluation of SIWES. Students should also receive their approved allowances promptly to reduce financial difficulties that may affect their participation and commitment. (Alao et al., 2022).

4. Effective Supervision and Monitoring: Both institutional and industrial supervisors should regularly monitor students' activities to ensure that they acquire relevant practical competencies. Supervisors should provide guidance, assess students' progress, and ensure that assigned tasks are consistent with the objectives of the scheme. (ITF, n.d.; Ibrahim et al., 2024).

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5. Capacity Development for Supervisors: Training and orientation should be organized for institutional and industry-based supervisors to improve their understanding of SIWES objectives, supervision techniques, assessment procedures, and reporting requirements. (ILO, 2023).

6. Provision of Modern Tools and Equipment: Industries and participating organizations should expose students to functional tools, machinery, equipment, and emerging technologies relevant to their disciplines. This would improve students' technical competence and prepare them for contemporary workplace demands.

7. Strengthening Student Orientation and Preparation: Pre-attachment orientation programmes should be organized to familiarize students with workplace expectations, professional ethics, occupational health and safety, communication, teamwork, and the importance of maintaining accurate training records.

8. Regular Review of SIWES Guidelines and Curriculum: Relevant educational authorities and the ITF should periodically review SIWES guidelines in response to technological developments and changing labour-market requirements. Training activities should reflect current industrial practices and emerging occupational skills. (UNESCO, 2022; ILO, 2023).

9. Effective Assessment and Evaluation: Assessment should go beyond the completion of logbooks and industrial attachment reports. It should include practical demonstrations, supervisor evaluations, students' ability to perform assigned tasks, and evidence of competencies acquired during the training period. (ILO, 2023).

10. Strengthening Accountability and Stakeholder Commitment: The ITF, educational institutions, industries, and students should demonstrate commitment to their respective responsibilities.

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Appropriate mechanisms should be established to address poor supervision, absenteeism, inadequate training opportunities, and other implementation challenges.

Digitalization of SIWES administration: The implementation of SIWES can also be improved through the adoption of digital platforms for student registration, industrial placement, logbook documentation, supervision, assessment, and allowance processing. (ITF, n.d.). Digital systems can enhance transparency, facilitate communication among stakeholders, reduce administrative delays, and make monitoring more efficient. The ITF's SIWES Management System already provides a platform for student management, placement tracking, reporting, and payment integration. .

**Implications for Technical and Vocational Education**

The Students' Industrial Work Experience Scheme (SIWES) has significant implications for the development and effectiveness of Technical and Vocational Education (TVE) in Nigeria. As an important component of vocational training, the scheme strengthens the connection between classroom instruction and practical workplace experience. Its effective implementation can improve the quality of technical education and ensure that graduates acquire competencies relevant to the demands of industry and the labour market. (UNESCO, 2022).

The major implications include the following:

1. Strengthening Practical Skills Development: SIWES reinforces the practical orientation of TVE by providing students with opportunities to apply theoretical knowledge, operate industrial equipment, use appropriate tools, and develop occupational competencies in real work environments. (ITF, n.d.; UNESCO, 2022).

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2. Promoting Curriculum Relevance: Industrial exposure provides feedback on the skills and competencies required by employers. This can guide educational institutions in reviewing and updating their curricula to reflect current industrial practices, technological developments, and labour-market demands. (UNESCO, 2022).

3. Enhancing Industry–Institution Collaboration: The scheme encourages partnerships between technical institutions and industries through student placements, joint supervision, equipment support, staff development, and exchange of technical knowledge. Such collaboration can improve the quality and relevance of vocational education. (UNESCO, 2022).

4. Improving Graduate Employability and Self-Reliance: By developing technical competence, workplace experience, communication skills, and professional attitudes, SIWES enhances students' readiness for employment. It also provides a foundation for entrepreneurship, self-employment, and small-scale business development. (Alao et al., 2022; UNESCO, 2022).

5. Encouraging Technological Adaptation and Innovation: Exposure to modern industrial technologies enables students and lecturers to understand emerging production methods, automation, digital systems, and contemporary technical practices. (UNESCO, 2022). This knowledge can encourage innovation and continuous improvement in vocational training.

6. Strengthening Competency-Based Education: SIWES supports competency-based learning by emphasizing the demonstration of practical skills rather than relying solely on theoretical knowledge and written examinations. It provides opportunities for assessing students' ability to perform actual occupational tasks.

7. Improving the Quality of Technical Education: Feedback from industrial supervisors and employers can help institutions identify weaknesses in their training programmes, improve

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workshop facilities, strengthen instructional methods, and establish more effective practical assessment procedures. (UNESCO, 2022; ILO, 2023).

## Conclusion

SIWES has important implications for repositioning Technical and Vocational Education in Nigeria as a practical, industry-oriented, and employment-focused system. However, these benefits depend on effective coordination, adequate funding, relevant industrial placements, proper supervision, and sustained collaboration between educational institutions and employers. Therefore, strengthening SIWES implementation is essential to producing technically competent, innovative, and employable graduates capable of contributing meaningfully to national development.

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