



PREPAREDNESS OF FORESTRY STUDENTS OF TERTIARY INSTITUTIONS FOR INDUSTRIAL TRAINING EXPERIENCE AT THE FORESTRY RESEARCH INSTITUTE OF NIGERIA, IBADAN, NIGERIA

¹Adeoye, A.S., ¹Oke, O.O., ²Oke, O.S., ¹Aluko O.J., ²Adesina, Y.O. and ²Oyetoki, A.O.

¹Department of Agricultural Extension and Management, Federal College of Forestry, Forestry Research Institute of Nigeria, P.M.B 5087, Jericho Hills, Ibadan, Nigeria, ²Department of Forest Economics and Extension, Forestry Research Institute of Nigeria, Ibadan
saadeoye06@gmail.com; +2347036335225

ABSTRACT

The challenge of requisite skills acquisition among many students of tertiary institutions had created joblessness after graduation in Nigeria. However, the Forestry Research Institute of Nigeria (FRIN) is saddled with the responsibility of training students in the ivory towers especially the students of forestry in different skills to break the vicious cycle of unemployment in Nigeria. Hence, this study examined the preparedness of forestry students of tertiary institutions for industrial experience at FRIN. A purposive sampling procedure was used for selection of 2 institutions that specialize in training of forestry students, while the 2nd stage was a random selection of 77 respondents from both institution. A well-structured questionnaire was used to obtain information from the parameters of the study. Data on the parameters were analyzed with frequencies and percentages, while the hypotheses were tested with Chi square test of independence and Pearson product moment correlation, PPMC at a 0.05. The results from the study revealed that majority (81.8%) were in the age range of 21-30 years with 61.0% of respondents being male. Further, 59.7% of respondents felt that skill acquisition through exposure to entrepreneurial training in forestry and agriculture related practical was unbiased. There was significant association between some demographic characteristics of respondents; sex ($p=0.000$), marital status ($p=0.000$) and students' preparedness for industrial experience. Also, there was no significant linear correlation between students' prior needs and preparedness for industrial experience ($r=0.644$, $p=0.691$). In conclusion, majority of respondents were exposed to training needs other than practical skills which could affect industrial learning experience.

Keywords: Students preparedness, Training needs, Industrial training, FRIN

Introduction

Industrial training referred to a program that offers an excellent learning experience in the specified time frame (Tunde, 2016). It is offered by private companies as well as by the government

organizations. Industrial training provides students with significant skills and practical knowledge and motivates them to become experts and successful in their chosen fields of studies (ITF, 2022). The students will gain both theoretical and practical knowledge



during the training period (Yong, 2012). The industrial training scheme in Nigeria is a planned, supervised training and intervention programme based on specific learning and career objectives, leading to development of occupational competencies of the participants (Eze, 2018). According to Oyeniyi (2012), the industrial training experience exposes and prepares students in institutions of higher learning for the industrial work situations which they are to meet after graduation. Craig *et al.* (2020) reposed that SIWES is generic because it cuts across more than 60 programmes in the universities, over 40 programmes in the polytechnics and about 10 programmes in the colleges of education. Akerejola, (2008) opined that industrial work experience is an integral aspect of educational programme for students to learn job skills and acquisition as part of learning processes.

Employers in Nigeria generally feel gaps in graduates' skills, and suggested that universities do not necessarily provide enough opportunities for students to develop the abilities critical to the labor market (Aziz, 2018). Recently, the Education Minister of Malaysia reported that over 60% of degree holders remain unemployed after one year of graduating a situation that has made the government to pay serious attention to industrial training programs (Malaymail, 2019).

Several authors have reported the benefits of internship to the students, universities, and employers. Cannon and Arnold, (2010) reported that industrial training provides a valuable work skills and foster a sense of professionalism that could lead to permanent positions for student interns. Schambach and Dirks, (2002) reported that motivation of the participating students could increase, improve retention of materials, and enforce a greater sense of success. Also, internships provide an opportunity to the students to work with professionals thus, enables them to explore and crystallize job interests and abilities (Cannon and Arnold, 2010).

The skills needed by students are capacity building and competence required to carry out practical activities (Abdulrahman, 2013). Nevertheless, if these students lack the needed practical skills required to be integrated into the industry, it will hamper their access to job opportunities after their graduation, thus it is needful for students to be prepared for the industrial training experience. Furthermore, most tertiary institutions in Nigeriado not have the necessary equipment and facilities to equip the students with the necessary skills and competencies (Grant, 2017). It is then necessary for tertiary institutions to liaise with industries where these modern facilities can be found for students to create opportunities for real life practical experience. It was onthis backdrop that the following objectives were posed: to



examine personal characteristics of the respondents, to identify students training needs prior to industrial training experience, and to examine the preparedness of students for industrial learning experience.

Methodology

Study area

The Forestry Research Institute of Nigeria (FRIN) is an agency that is saddled with the responsibilities to carry out forestry research. FRIN is headquartered in Jericho Ibadan, and was established as the Federal Department of Forestry Research in 1954. The Institute's Decree 35 of 1973, and an Act establishing Forestry Research Institute of Nigeria in August 2018 was assented into law and commenced for forestry research, education and training, and other related matters. The institute is supervised by the Federal Ministry of Environment as the only Research Institute of the Ministry. FRIN operates the Federal College of Forestry in Ibadan (FCF, Ibadan) as one of the FRIN colleges.

The college is charged with the training of middle level manpower and development in Forestry. Federal College of Forestry (FCF, Ibadan) has specialized academic and research departments. It is a monotechnic institution, offering both the National Diploma (ND) and Higher National Diploma (HND). Furthermore, the second selected institution is the University of Ibadan. The University of Ibadan was established in 1948 as the

foremost academic institution and a public research institution in Nigeria from which forestry students were selected in the faculty of Renewable Natural Resources.

Sampling procedure and data collection

A purposive sampling procedure was used for selection of two institutions involved in training of forestry students in Ibadan, and these are the Federal College of Forestry and the University of Ibadan. The sampling frame for collection of registered students of both institutions were as follows; Agricultural Technology, AGT department had 54 registered students, Wood and Paper Technology, WPT (4), Horticultural Technology, HLT (18), Forestry Technology, FOT (29) from the FCF, Ibadan, whereas the Forest Production and Products, FPP department had 24 registered students and Social and Environment Forestry, SEF department also had 24 students from the University of Ibadan. In the 2nd stage, a random sampling selection was used based on homogeneous students' population with 50% of the population randomly selected. Hence, a sample size selected from the FCF, Ibadan was 27 from AGT, WPT (2), HLT (9), FOT (15) while FPP had 12 and SEF (12), both from the UI respectively. In all, a total sample size of 77 respondents were selected for the study.

Data collection

Data for the study were basically collected from the primary source with a well-structured questionnaire.



Method of data analysis

Data for the study were analyzed with both descriptive and inferential statistical tools. The descriptive statistics were frequencies, percentages, while the inferential statistics were Chi square of independence and Pearson product moment correlation, PPMC.

The test statistical tools for hypotheses for the study are as follows:

Chi-square Model

$$\chi^2 = \frac{\sum(O-E)^2}{E} \dots\dots\dots (i) \text{ Where:}$$

χ^2 = Chi-Square

S = Summation

O = Observed values of frequencies of nominal variables like sex, marital status; that is the personal characteristics of students for the study.

E = Expected values are frequencies determined from response categories.

The Chi square of independence was used to test the personal characteristics of respondents by preparedness for industrial learning experience.

Pearson product moment correlation

$$r = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{(n\sum X^2 - (\sum X)^2)(n\sum Y^2 - (\sum Y)^2)}} \dots\dots$$

(ii)

Where:

r = correlation coefficient

n = sample size of respondents in the study area

S = summation sign

X = independent variables were the training needs for the study

Y = dependent variable was students for the study preparedness for industrial learning experience

Results and Discussion

The results in Table 1 reveals the demographic characteristics of the respondents, 81.8% of the respondents were within the age range of 21- 30 years. This indicated that majority of the respondents were youths and responsive to learning. This corroborates the submission of Yosuf and MohmFauzim (2013) that the younger students were mostly involved in practical training and learning. The results further shows that 61.0% of the respondents were male, which indicates that male gender had higher enrolment in the forestry based tertiary institutions, signifying more engagements in industrial internship among males. This result aligns with Lam and Ching, (2007) that through all evaluation on practical studies revealed more male internship programs. Further, 63.6% of respondents had their secondary education in urban centers. This indicated that most respondents had relatively quality education in a cosmopolitan centers. The majority of respondents (81.8%) was single indicating that majority of respondents were youthful and would focus on their academics. Also, 48.1% of respondents started learning agriculture at the tertiary institution for the first time. This implies that the proportion



of students who learnt agriculture and forestry at the tertiary level never offered agriculture at the post-primary level of education. The finding was corroborated with Coren, (2016) that most respondents never had prior training and knowledge in agriculture until they got enrolled into tertiary institutions.

Furthermore, Table 1 shows that 66.2% of the respondents were unemployed which aligns with the submission of Ekwue,

(2010) that most students were not engaged with any form of job due to focus primarily on their education. Also, majority of respondents (79.2%) had no income indicating that they had no gainful employment. This corroborates with Kazis *et al.* (2007) that there is no financial gain and allowance among students due to no gainful employment except for some that self-sponsored their education.

Table 1: Demographic characteristics of respondents in the study area (n= 77)

| Variables | Frequencies | Percentages |
|---------------------------------------------------|-------------|-------------|
| Age | | |
| < 20 | 14 | 18.2 |
| 21-30 | 63 | 81.8 |
| Sex | | |
| Male | 54 | 61.0 |
| Female | 25 | 39.0 |
| Secondary School location | | |
| Urban | 49 | 63.6 |
| Peri urban | 28 | 36.4 |
| Marital status | | |
| Single | 63 | 81.8 |
| Engaged | 13 | 16.9 |
| Married | 1 | 1.3 |
| Learning inception of Agriculture/Forestry | | |
| Primary school | 23 | 29.9 |
| Secondary school | 17 | 22.1 |
| Tertiary institution | 37 | 48.0 |
| Employment | | |
| None | 51 | 66.2 |
| Catering | 2 | 2.6 |
| Pay center | 3 | 3.9 |
| Self-employed | 15 | 19.5 |
| Poultry | 2 | 2.6 |
| Hairdressing | 2 | 2.6 |



| | | |
|---------------------------------|----|------|
| Fashion designing and modelling | 2 | 2.6 |
| Income (₦) | | |
| No income | 61 | 79.2 |
| 5,000-10,000 | 5 | 6.5 |
| 11,000-15,000 | 6 | 7.8 |
| 16,000 above | 5 | 6.5 |

The result in Table 2 shows that majority of the respondents (81.8%) had adequate orientation by the Department of student affairs, followed by the majority of respondents (84.4%) that agreed to having practical experience based on the theoretical aspect of forestry in the field. This results concurs with Uvah, (2004) who asserted the importance of linking theoretical knowledge with practical skills among students of higher learning. Also, 88.3% of the respondents had rigorous practical training in horticulture, farming systems, forest establishment, poultry, Agroforestry, marketing and cooperative formations in FRIN. This is in conformity with the submission of Craiget *al.* (2020) that there is increasing engagements of students on industrial practical training in agriculture and farming skills.

Furthermore, the results in Table 2 shows that 36.4% of respondents had acquisition of theoretical knowledge from exposure to training in forestry and agriculture. This corroborates Oyeniyi (2012) who observed that students were exposed to relevant skill-sets in their academic training. In addition, 50.6% of respondents were relatively exposed through expedition to various organizations with forestry and agriculture mandates which is binding on the roles of industrial training. This corroborates with Tunde (2016) that acquisition of skills in the field of forestry and farming systems are germane to production of many industrial enterprises. Moreover, 62.3% of the respondents were adequately facilitated to learning in small groups. This aligns with Peters (2013) who submitted that not too many students had skills to demonstrate teaching and learning techniques. Also, 45.5% of respondents had adequate exposure to tools, laboratories, greenhouse, tractors and subject matter specialist help in facilitating learning.

Table 2: Training Needs Prior To Preparation for Industrial Training(n= 77)

| Variables | Frequencies | Percentages |
|----------------------------------------------------------|-------------|-------------|
| Orientation and reorientation of Students by department | | |
| Adequate | 0 | 0.0 |
| Neutral | 14 | 18.2 |
| Inadequate | 63 | 81.8 |
| Linking theory of Agriculture and Forestry with practice | | |
| Adequate | 0 | 0.0 |



| | | |
|-------------------------------------------------------------------------------------------------------------|----|------|
| Neutral | 12 | 15.6 |
| Inadequate | 65 | 84.4 |
| Rigorous practical training in horticulture, farming systems, forest establishment | | |
| Adequate | 68 | 88.3 |
| Neutral | 6 | 7.8 |
| Inadequate | 3 | 3.9 |
| Skills acquisition through exposure to entrepreneurial job skills in forestry and agriculture related areas | | |
| Adequate | 26 | 33.8 |
| Neutral | 46 | 59.7 |
| Inadequate | 5 | 6.5 |
| Exposure through expedition to various organization with forestry and agriculture related areas | | |
| Adequate | 3 | 3.9 |
| Neutral | 35 | 45.5 |
| Inadequate | 39 | 50.6 |
| Theoretical skills acquisition in forestry | | |
| Adequate | 28 | 36.4 |
| Neutral | 40 | 51.9 |
| Inadequate | 9 | 11.7 |
| Understanding every stages of production | | |
| Adequate | 23 | 29.9 |
| Neutral | 44 | 57.1 |
| Inadequate | 10 | 13.0 |
| Facilitation of learning in smaller groups | | |
| Adequate | 48 | 62.3 |
| Neutral | 18 | 23.4 |
| Inadequate | 18 | 14.3 |
| Demonstration and models techniques in teaching and learning | | |
| Adequate | 16 | 20.8 |
| Adequate | 42 | 54.5 |
| Neutral | 19 | 24.7 |
| Inadequate | | |
| Tools, laboratories, greenhouse, tractors with subject matter specialists | | |
| Adequate | 64 | 83.1 |
| Neutral | 5 | 6.5 |



| | | |
|-------------------------------------------------------------------|----|------|
| Inadequate | 8 | 10.4 |
| Information & communication technology facility also aid learning | | |
| Adequate | 23 | 29.9 |
| Neutral | 29 | 37.6 |
| Inadequate | 25 | 32.5 |

The results in Table 3 shows that all respondents (100%) completed all required and recommended practical courses in forestry and agricultural related courses. This is in line with the submission of Craiget *al.*(2020) that all courses required and recommended in forestry and agriculture were adequately attended by all students who chose thefields. Furthermore, all respondents did compulsory general farm practice, and continuous assessments as well asexaminations. Mostrespondents (71.4%) effectively used all the tools, tractors, laboratory and farm plots, all the respondents had intensive practical knowledge acquisition, and all the respondents had efficient farm management practice and establishment. This aligns with Oyeniyi (2012) who submitted that when all necessary evaluation are attended to, there is positive outcome and effectiveness in industrial experience among students. (81.8%) of respondents have understands about labour personnel.

Table 3: Preparedness of forestry students for industrial training (n= 77)

| Variables | Frequencies | Percentages |
|--------------------------------------------------------------|-------------|-------------|
| Completed all required and recommended practical courses | 77 | 100 |
| Pass all required and recommended courses | 77 | 100 |
| Compulsory general farm practice completed | 77 | 100 |
| All practical log books completed | 77 | 100 |
| Continuous assessment and examinations were completed | 77 | 100 |
| Effective use of tools, tractors, experiments and farm plots | | |
| Yes | 55 | 71.4 |
| No | 22 | 28.6 |
| Intensive practice of knowledge acquired | 77 | 100 |
| Efficient farm management practice and establishment | 77 | 100 |
| Understanding labour personnel psychology | | |
| Yes | 63 | 81.8 |
| No | 14 | 18.2 |

The results in Table 4 shows chi-square test of independence between the selected demographiccharacteristics and students' preparedness for industrial experience. The table reveals that sex of respondents had significant association with forestry



students' preparedness ($\chi^2 = 48.25$, $p < 0.05$). Also, there was significant association between the respondents' marital status ($\chi^2 = 39.20$, $p < 0.05$). This results indicated that

demographic characteristics of respondents had positive influence on forestry students' preparedness for industrial experience.

Table 4: Chi-square results showing association between demographic characteristics and forestry students' preparedness for learning experience

| Variables | Chi square | p-value | Decision |
|----------------|------------|---------|-------------|
| Sex | 48.253 | 0.000 | Significant |
| Marital status | 39.200 | 0.000 | Significant |

The results in Table 5 show Pearson product moment correlation reveals that there was no significant correlation between training needs and forestry students' preparedness for industrial experience ($r = -0.644$, $p > 0.5$). This indicated that most students do not have enough training needs which affected their

acquisition of necessary skills and knowledge needed to improve their physical and mental perception and learning required for industrial training. This aligns with Schambach and Dirks (2002) that high level of perception is needed to acquire some degree of internship experience.

Table 5: Correlation results showing relation between training needs and forestry Students preparedness for learning experience

| Variables | r-value | p-value | Decision |
|------------------------------------------------------------------|---------|---------|-----------------|
| Students' training needs by preparedness for learning experience | -0.644 | 0.691 | Not significant |

Conclusion

From the foregoing of the findings, it can be concluded that most students had sufficient exposure to training needs other than practical skill acquisition which could affect students' physical and mental perception about industrial learning experience.

Recommendation

Based on the findings, the study recommends that the institutions should expose their forestry students to an

efficient and up-to-date training that will scale up their physical and mental capacity for theoretical and practical forestry, and to facilitate global learning experience and practice driven by information and communication technologies.

References

Abdulrahman, W.L. (2013). Foundation of technical and vocational education: A tool for national development in Nigeria. *Mediterranean J. Soc. Sci.* 14



- (8): 85-89 Available at <https://www.researchgate.net>2719...>
- Akerejola, O. (2008). Information and Guidelines for Students Industrial Work Experience Scheme. 35pp. Available at <http://www.itfnigeria.org/docs/siwes-op-guide.pdf>
- Aziz, H. (2018.) Graduate skills gap. New Straits Times. October 3, 2018 4pp. Available at <https://www.nst.com.my/education/2018/10/417327/>
- Cannon, J.A. and Arnold, M.J. (2010). Student expectations of collegiate internship programs in business: a 10-year update. *J. of Edu. Bus.*73 (4): 202-205 Available at <https://doi.org/10.1080/8883239809601630>
- Coren (2016). Supervised industrial training scheme in forestry council of registered foresters in Nigeria. Coren documents. 49pp. Available at <https://coren.gov.ng>coren-education...>
- Craig, R.G., Xin, L., Yishan, C., Yong, Y., Bo, L., Caiyun, M. and Fei, G. (2020). Understanding vocational accounting students' attitude towards sustainable development. *J. Voc. Edu. Training* 74 (2): 249-269. Available at <https://doi.org/10.1080/13636820.2020.1760333>
- Ekwue, U.N. (2010). A hybrid exploration of the impact of summative assessment: A-level students' motivation and depth of learning and the extent to which this is a reflection of self. A PhD thesis submitted to King's College London. 271pp. Available at <http://kclpure.kcl.ac.uk>files>
- Eze, E.A. (2018). Relevance of industrial training in preparing business education students for office occupation in Ebonyi State, Nigeria. A Bachelor of education thesis submitted to the faculty of education, Godfrey Okoye University, Enugu State. 42 pp Available at <http://eprints.gouni.edu.n>...>
- Grant, C. (2017). The contribution of education to economic growth: Knowledge, evidence and learning for development. 25pp. Available at <https://assets.publishing.service.gov.uk>...>
- Industrial Training Fund, ITF (2022). The 2022 Brochure: Learning and development. 145 pp. Available at <https://www.itf.gov.ng>
- Kazis, R., Callaham, A., Davidson, C., McLeod, A., Bosworth, B., Choitz, V. and Hoops, J. (2007). Adult learners in higher education: Barriers to success and strategies to improve results. 72 pp. Available at <https://files.eric.ed.gov>fullt...>
- Lam T. and Ching, L. (2007). An exploratory study of an internship program: The case of Hong Kong students. *Intern. J. Hosp. Mgt.* 26 (2): 336-351 Available at www.sciencedirect.com



- Malaymail. (2019). Minister: almost 60-c of graduates remain unemployed a year after graduation, available at <https://www.malaymail.com/news/malaysia/2019/10/15/minister-almost-60pc-of-graduates-remain-unemployed-a-year-after-graduation/1800574> (accessed 3 April 2020).
- Oyeniya, A. (2012). Students' industrial work experience (SIWES) and incidence of occupational misfit in Nigeria. 16 pp. Available at [https://files.eric.ed.gov/fulltext...](https://files.eric.ed.gov/fulltext/...)
- Peters A.A. (2013). Building human capital for sustainable development: Role of University. A paper delivered at University of Ibadan on 26th December, 2023. 28pp. Available at <https://www.ui.edu.ng>
- Schambach, T. P. and Dirks, J. (2002). Student perceptions of internship experiences. Proceedings of the 17th Annual Conference of the International Academy for Information Management (IAIM) Annual Conference: *International Conference on Informatics Education Research (ICIER)*, Spain. 11-16pp
- Tunde, O.V. (2016). Students' industrial work experience scheme (SIWES) technical report. September 2016. A Bachelor's of Engineering Report submitted to Landmark University, Omu-Aran, Kwara State. 67pp. Available at <https://www.researchgate.net>3284...>
- Uvah, I. I. (2004). The Place and Relevance of SIWES in the Curricula of Science, Engineering and Technology (SET) Programmes. Workshop on the Students' Industrial Work-Experience Scheme, University of Lagos. 115pp.
- Yong, T. (2012). The mode of theoretical knowledge and practical knowledge combination: The significance of internship. *World Journal of Education*. 2 (4): 55-63. Available at www.sciedu.ca/wje
- Yusof, N. and MohmFauzi, S.F. (2013). Students' performance in practical training: Academicians evaluation. *Procedia- Soc. &Beh. Sci.* 93: 1275-1280 Available at www.sciencedirect.com