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ANALYSIS OF ENTREPRENEURIAL SKILLS AND JOB PREFERENCE AMONG UNDERGRADUATE STUDENTS OF AGRICULTURE: EVIDENCE FROM FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE, NIGERIA

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ABSTRACT
Against the backdrop of the challenges bedevilling the African youths, including limited job opportunities, skills limitations and mismatch, the study used agriculture students of the Federal University of Technology Minna, Niger State, Nigeria to unearth the entrepreneurial skills acquired by students; assess Students' Industrial Work Experience Scheme (SIWES) and ascertain their job preferences. The study deployed mixed analytical tools comprising descriptive analyses, Likert perception procedure and Probit model. The study established that only 4.3% of the students attended technical schools, 42.1% chose agriculture as first choice, 95.0% never attended career sessions on entrepreneurship and agribusiness, 68.9% had previous work experiences, 14.8% were previously involved in agro-based endeavours, 90.9% liked agriculture as a profession and only 49.3% affirmed that they acquired agro-based skills after SIWES. Based on Likert weighted means of 4.26, 4.49 and 3.87, the students perceived SIWES as useful, relevant and adequate, respectively; and 86.6% preferred agro-based jobs. The key challenges to effective acquisition of skills during the SIWES year were difficulties in securing placement and inadequate funding. The study concluded that the type of schools attended and perception of relevance of curriculum were drivers of agro-based job preference. The study recommended regular sensitization at the pre-tertiary education levels on the opportunities that abound in the agriculture profession; formation of agro-based entrepreneurship networks and partnership with established entrepreneurship outfits with innovative and sustainable approaches; regular conduct of skill gap analysis to provide direction to relevant and trending 21st Century skills-set, and building capacity for feasible agribusiness plans and feasibility studies.

Keywords: Agriculture-based undergraduates; Entrepreneurial skills; Job preference; 21st century Skills-set; Students' Industrial Work Experience Scheme; Youths.

INTRODUCTION
Africa is currently the most youthful continent across the globe, accounting for estimated 20% of the World's youth population (United Nations, 2015). Dr Zuma, former Chairperson of the African Union Commission, affirmed that a quarter of the World's youth population will be African by 2025. She hinted that the continent harbours 200 million youths and that as the rest of the world ages; Africa remains a young continent (Zuma, 2017). African Development Bank [ADB] (2016) also established that the continent's youth population has been on the increase and is expected to reach a peak of 830 million by 2050. Ironically, only 3 million formal jobs are available annually, relative to the 10-20 million youths entering the

labour market yearly without requisite skills (African Development Bank, 2016); International Institute for Tropical Agriculture (IITA, 2018). Zuma (2017) further noted that 60% of the unemployed in Africa are young, with their unemployment rate doubling that of the adults. In addition, the Bank posited that the challenges hindering the continent's development advancement is the high rate of unemployment, not unconnected to skills' limitations and capacity development of the youths, thus leading to a structural incompatibility between employers' needs, youth's skills and entrepreneurial capacities. According to the regional development institution, where the jobs are available, resources for skill improvement are generally limited, in-spite of the gains in education access over the past several decades (ADB, 2016; and ADB *et al.*, 2019). The Bank also worried that 40% of rebel movement converts are motivated by lack of economic opportunities, while over 3,500 deaths were recorded among migrants attempting to cross the Mediterranean Sea in 2015 (ADB, 2016). In a related discourse, the United Nations (2018) affirmed that youths are facing incredible and life threatening risks in the process of accessing rights, including quality education and employment.

In Nigeria specifically, the International Fund for Agricultural Development (IFAD, 2017) affirmed that employments are difficult to get in rural areas, while estimated 27% (22 million) of the youths are unemployed. Worse still, of the 64 million Nigeria's youth population (National Bureau of Statistics, 2012), only about 23.2% (14.63 million) were actively involved in agriculture and agro-allied work (AfDB Data Base, 2019). IFAD further noted that youth unemployment in the country is not unconnected to limited access to technical skills, land and productive assets, limited, inappropriate and inaccessible finance, environmental challenges, low opinion of agriculture as un-attractive for generating income and settling bills. The NBS (2012) further posited that estimated 37% of the youths are involved in agriculture. Worrisome too, is the fact that transitions from school to employment have become difficult, while there are no structured paths, nor role model to copy, within the agribusiness ecosystem (IFAD, 2017). IITA (2019) further did not establish that the problem of unemployment is a key challenge among African countries, given that their youths, who account for the largest chunk of the population, are not effectively involved in the main economic activities, nor are they contributing to the development of the country and labour market.

Using the Federal University of Technology, Minna, Nigeria as a case study, the study assessed entrepreneurship skills and job preference among undergraduates of the School of Agriculture and Agricultural Technology. The objectives of the study were to: (i) describe the socio-economic characteristics of the respondents;(ii) determine the types of skills acquired by students; (iii) ascertain the sufficiency, usefulness and relevance of SIWES' curriculum for agriculture undergraduates; (iv) determine students' job preference and their drivers; and (v) identify the challenges faced by students under the current SIWES curriculum. The study hypothesized that the respondents do not have preference for agro-based related jobs. Given the need to unearth empirical evidence on the nature and extent of youth skills deficit among agriculture-based undergraduates, inform country and regional strategies in the education and labour sectors and policy makers alike, the conduct of this study thus become imperative. The study further ascertains the extent to which SIWES has been able to bridge skill gap in the agro-based sector.

THEORETICAL AND CONCEPTUAL DISCOURSE

Some Theories of Skills and Entrepreneurship

The theories underpinning skills and entrepreneurship are quite diverse and have been evolving over time in numerous forms, but essentially in theoretical form, as models and

frameworks. However, majority of these theories have their roots in economics, psychology, sociology, anthropology and management (Kwabena and Simpeh, 2011). The economic entrepreneurship theory for instance, explored the fact that economic factors enhance entrepreneurial tendencies. The theory stems from the classical and neo-classical theories of economics and Austrian Market Process. On this, the neo-classist argued that the importance of exchange coupled with diminishing marginal utility created enough impetus for entrepreneurship (Murphy *et al*., 2006). On the other hand, the psychological entrepreneurship theory emphasized that personal attributes of individuals define entrepreneurship, while associating qualities like risk taking, innovativeness, tolerance, management skills, business know-how, hard work, transformational nature of individuals to entrepreneurship traits, one's ability and external forces. However, Kwabena and Simpeh (2011) noted that trait model is yet to be backed up by research evidence. In their own contribution, the sociological school of thought adduced entrepreneurial traits to environmental factors, sociological background of individuals, social networks and experiences of people. On their part, the anthropological school argued that individual's culture, ethnicity affects their entrepreneurship behaviour.

North (1990) posited that cultural environment can produce entrepreneurship behaviour differences. The situation in Nigeria supports this position, given that indigenes of the south eastern part of the country are known for their entrepreneurial qualities and vibrancy, not unconnected to their cultural setting, which encourages and has indeed institutionalised the mentorship approach to skill acquisition and entrepreneurship activities. The opportunity based theory on the other hand is of the opinion that entrepreneurs search for opportunities which they exploit and are indeed resourceful (Stevenson and Harmeling, 1990). From this perspective, the resource-based theorists posited that access to resources has correlation with entrepreneurship activities. These are supported by the positions of the financial capital, social and human capital theorists (Kwabena and Kwabena, 2011). Other related theories, framework approaches ranged from the drivers of entrepreneurship intentions to the focus on relevance of skills and entrepreneurship, the issues of labour mobility, skills, employability and productivity, involving bench marking, policy analysis and priority setting, the flow and ecosystem approaches.

Van Gelderen *et al.* (2008) for instance deployed the theory of planned behaviour to explain entrepreneurship intentions. The theory, which consolidated on that of reasoned action and information integration, maintained that human behaviour are governed by attitudes and behavioural intentions, characterised by social norms and exercise of volitional control. However, the World Bank (2010), in its "Skills Towards Employability and Productivity (STEP) Framework", premised the understanding of skills requirement in the labour markets on thoughtful backward linkages between skill acquisition and educational achievement, personality and social background, in addition to forward linkages between skill acquisition and living standards, reduction in inequality and poverty, social inclusion and economic growth (World Bank, 2019). Furthermore, the Parson functional perquisite postulate and modernisation theories were deployed to justify the relevance of entrepreneurship and skills development in nations' social and economic development (Fajobi *et al*., 2017). While the Parson functional postulate opined that youths needed to acquire appropriate skills to be relevant and functional in the society, the modernisation theory affirmed that nations' development outcomes can only be achieved through embracing apprenticeship programmes. Aside these, the flow approach found applicability in resolving skill, entrepreneurship and job mobility issues. Steven *et al.,* (2006) and ADB (2017) placed reliance on this approach to analyse labour market and youth unemployment from the demand and supply angles. Recently, the African Development Bank has had to depend on the ecosystem approach in solving youth

employment malaise within the African continent. The approach is an integrated strategy that entails inclusive employment and entrepreneurship, human capital development and better labour market linkage (ADB, 2017). Despite the coming of these theories, the sub-Saharan region in still battling the challenges of unemployment, deficient and skills mismatch, amongst others. Another interesting theory on this discourse is the Jack of all trade theory of entrepreneurship which argued that entrepreneurs should possess varied skills, while their employees should have specific skills. This position is viewed with mixed reactions from researchers. Astebro and Thompson (2009) for instance, reached a different conclusion, having associated varied work experiences with lower household income.

On the theory of youth intervention model, Cooper and White (1994) argued that youth needed to have clear understanding of what they wanted to achieve and the impact of the method used. Their arguments prompted the development of youth intervention models to cover treatment (discipline), reform, advocacy and empowerment. With respect to the social theory of youth empowerment, Jennings *et al.* (2006) identified critical factors to youth empowerment to include hospitability and safe environment, meaningful participation and engagement, equitable power sharing, engagement in critical reflection, participation to effect change and empowerment. On the other hand, Subramanian (2016) in a study on life skills argued that defining youth life skills can improve assessment of how well-prepared young people are for life challenges and help identify overarching goals for targeted education and intervention practices. The study recommended developmentally informed life skills intervention for youth premised on a coherent, rational and sustainable intervention based on youth development perspective, while incorporating risk and resilience to ensure effective youth intervention. The latter argument thus justifies the need to review the current academic curricula, with the view to ensuring that relevant and necessary entrepreneurship skill acquisition parameters are covered. Thus, expectations are that evidence from this work will provide further insight on the situation on ground, unearth unsuccessful strategies and those working, while initiating recommendations to inform country, regional strategies and policy makers alike.

Conceptual Discourse

The World Bank (2010) defined skill as a set of competencies valued by employers and beneficial for self-employment. According to the Bank, skills include those relevant to specific job of workers and other skills that enhance productivity. The latter include problem solving skills, learning skills, communication skills, personal skills and social skills. The Jack of Trade theory categorised skills into varied and specific ones, with the former necessary for entrepreneurs, while subordinates are expected to possess specific skills. Entrepreneurship on the other hand, is a process of creating a business for profit motive and a transformational process to change the society through modern production and problem solving (Odusanya, 2018). On the concept of youth, the National Bureau of Statistics (NBS, 2012) defined youth as a Nigerian citizen between the ages of 18 and 35 years. The body established that the population of Nigerians below the age of 35 years comprises 60% of the entire population of the country and revealed that 69% of youths live in rural areas, while 17.5% had never been in school.

Skills Acquisition and Entrepreneurship Models in Nigeria

Numerous youth entrepreneurship models are operational in Africa and in particular, Nigeria, anchored by the private, public sector, the academia and the development organisations. Key amongst these is the Africa Projects Development Centre in Gwagwalada,

Federal Capital Territory, Abuja, Nigeria, International Institute for Tropical Agriculture Youth Agripreneurs (IYA), Leventis Foundation, Tony Elumelu Entrepreneurship Programme (TEEP), Fate Foundation, National Directorate of Employment (NDE), Job Creation and Youth Empowerment Programme, Central Bank of Nigeria Entrepreneurship Scheme and the University-based Students' Industrial Work Experience Scheme (SIWES). Essentially these initiatives have focused on capacity building, entrepreneurship and job creation, deploying varied strategies targeted at youths. The IITA Youth Agripreneurs IYA for instance, conflates innovation approaches, including agribusiness incubation centres, deployment of proven agricultural technologies, 18 months coaching, pilot agribusiness enterprises, training, mentorship and linkages, culminating in the development of bankable business plan along the value chain of targeted agribusiness interest. The Leventis Foundation on the other hand implements training programme for short term to 1 (one) year, which is 80% practical and 20% theory, technical backstopping, farmers' field days, micro-credit support to beneficiaries, supervision, oversight and extension support to beneficiaries. The key strategy for the NDE comprises skill acquisition, training, apprentices ranging from 3-24 months, operation of mobile training workshop and partnership, disbursement of resettlement loan, business training (development of business plan and feasibility studies), establishment of micro-businesses, provision of starter pack in cash or equipment, linkages to micro-finance. The Job Creation and Youth Employment Programme (N-Power) is a composite of training and certification (skill to job) programmes covering a period of 3 months - 2 years under the volunteer programme. The TEEP's strategies covers the operation of Alumni network, mentoring, building impactful pan-African entrepreneurial ecosystem, integrated programme to support entrepreneurship in Africa by enhancing competitiveness of Africa's private sector. The CBN model comprises pre-qualification of eligible youths, training, development of business plans and credit support.

The SIWES is a skill development initiative conceived by the Nigerian Industrial Training Fund (ITF) to obviate the gap between theory and practice among students in higher institutions, provide on-the-job practical experience for students, make transition from work to school easy, integrate and strengthen employee's involvement in the education process.

Empirical Studies on Skill Acquisition, Entrepreneurship and Youth Employment

As regards the linkage between capacity building and entrepreneurship, Brixiova (2010) argued that productive entrepreneurship cannot be left to the market alone, thus justifying the intervention of the State in capacity building of potential entrepreneurs and establishment of small, medium enterprises clusters. In a related development, the World Bank (2010) established that skills constraint impedes firm's performance, particularly in the more dynamic environment. It noted that the proportion of firms that worried about inadequate worker education and skills averages about 25% in the Organisation for Economic Cooperation Development and in Europe and Central Asia, 40% in sub-Saharan Africa and 50% in East Asia. The Organization further established that in the low-income countries where agriculture and the informal economy dominate the economic landscape, skill constraints are one of causes of persistent low productivity.

It posited that inadequacies in a range of skills, technical, scientific, managerial and entrepreneurial limit progress along the value chain and reduce potentials of pursuing newer and more lucrative opportunities. Fatoki (2014) revealed that targeted support to entrepreneurial trainings can lead to more efficient outcome than the decentralised solution, while reducing the gap in productive entrepreneurship between the cohorts. Specific design of skills and youth interventions needs to be country specific. The study identified constraints to youth entrepreneurship to cover low participation in professional network or lack of supportive

infrastructure (incubators). Basing arguments on the use of entrepreneurship as an approach to solving youth unemployment, DeJaeghere *et al*. (2013) drew attention to the challenges inherent in the way entrepreneurship is combined with programme intervention to enhance economic growth through business and job creation. The study argued on the need to consider youth values, social, material and institutional factors that facilitate how youth skills are transformed into livelihood opportunities and choices. Enu-Kwesi and Aditik (2012) concluded that even though the youths had entrepreneurial potentials, their low educational status, has been a challenge to their capacity building. The ADB (2010/2019) further noted that the challenge of building skills for growth and productivity is associated with three key phases, namely: bench marking of the current skill situation, gap analysis to assess the shortfall between current and idea; policy analysis and program design; coordination and priority setting.

The global organization further averred that building effective skills for employment and productivity is multi-faceted, involving three key elements; namely behavioural skills, path dependence and labour market clearing. From the supply side, the ADB (2017) noted that Africa lags behind other regions of the world due to lack of critical mass of skilled labour, in addition to having huge skills and competences that do not respond to labour market. From the demand end however, it established that there are not enough jobs to absorb the growing working age population in Africa and calls for private sector investment for high cum medium skill jobs. The challenges observed in building job relevant skills are largely attributed to market failures. The body suggested that both pre-employed and on-the-job trainings can be improved to promote job relevant skills. Thus, it was established that more than 50% of university graduates in Tunisia are in jobs that do not use the skills acquired. Key among the five priority areas of the United Nation's Youth Strategy, is that of the third priority, which advocates for a balanced approach to stimulate the youth labour demand and prompt improvements in skills development system, with the objective of easing the school-to-work transition. The strategy further guide and support youth enabling employment and self-employment ecosystem (United Nations, 2018).

With respect to employment creation and entrepreneurship, the Federal Ministry of Youth and Sports Development (2019) in its Youth Policy, benchmarks the creation of 3.7 million jobs per year, with priority for youth employment, job matching programme for new graduates, linkages to finance, capacity building through short term youth entrepreneurship capacity development to assist 10,000 emerging youths, among others. As regards entrepreneurship intentions among undergraduate business students in South Africa, Fatoki (2014) established that students with previous work experience have a higher level of entrepreneurial intentions compared to students who had never worked.

MATERIALS AND METHODS

The Study Area

The study was conducted in Niger State, North Central Nigeria. Nigeria is located in West Africa within Latitudes 4º and 14º N and Longitudes 3º and 14º E. It has an estimated land mass of 923,768 km^2 and it shares is border to the north with the Republics of Niger and Chad, to the west with the Republic of Benin and by the eastern borders right down to the shores of the Atlantic Ocean is the Republic of Cameroun (Sule, 2019). Niger State is located between Longitudes 3º 30´ and 7º 20´ and Latitudes 8º20´ - 11º.30´ in the Guinea Savannah region agro-ecological zone. Rainfall ranges between 1,100 mm and 1,600 mm, with a temperature range of between 23ºC and 37ºC and an estimated population of 4,525,911 (NBS, 2014). Minna serves the administrative headquarters of Niger State, with an estimated

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population of 0.5 million and land area of about 6,784 square kilometres. The Federal University of Technology Minna is located in Bosso Local Government Area, Minna covering two campuses, namely the Main Campus located in Gidan Kwanu and the other campus, located in Bosso (Federal University of Technology, Minna, 2009). Federal University of Technology Minna (2012) affirms that the University was established in 1983 with the objective of providing the nation with the drive for self-reliance in science, engineering and technology. It was conceived as a specialised University of Technology. The School of Agriculture and Agricultural Technology (SAAT) is one of the eight schools currently operational in the University. SAAT commenced operation in 1986 and operates six Departments, namely: Agricultural Economics and Extension Technology; Animal Production; Crop Production; Soil and Land Management; Water Aquaculture and Fisheries, Food Science and Technology. The School runs a five-year programme, with the fourth year devoted to SIWES.

The SIWES is an integral and compulsory component of the Degree Programme of each of the Schools under the University. SIWES is a skill development initiative conceived by the Nigerian Industrial Training Fund (ITF) to obviate the gap between theory and practice among students in higher institutions, provide on-the-job practical experience for students, make transition from work to school easy, integrate and strengthen employees' involvement in the education process.

In the Federal University of Technology, Minna, like in other institutions across Nigeria, the Scheme is an integral and compulsory component of the Bachelor of Technology (Agriculture) degree training programme. Students are attached to establishment (Public or Private) relevant to their specialisation areas for a continuous period of about six months in addition, students spend another three months for farm practice in the School after completion of their external engagement in their various establishments. However, students pay 14USD under the farm practice scheme (peculiar to the University) to cater for purchase of agro-inputs and basic equipment for farming. Thus, expectations are that students would fully put into practice the acquired theoretical knowledge and at same time acquire agricultural and related technical, practical and entrepreneurship skills, as well as administrative and managerial experiences. Students were supervised twice by lecturers during the scheme, followed by assessment, premised on performance in the host organisation, content of logbook, term-paper presentation and a mini-examination to be taken at the close of the attachment. The cumulative assessment accounts for three credit units. This study will be focusing on SIWES as an integral part of the curriculum of the under-graduate programme of SAAT of the Federal University of Technology, Minna.

Research Approach, Sampling Technique and Sample Size

The research approach was tri-fold, comprising literature, case study and survey. A multi-stage sampling technique was used for this study. The first stage involved the purposive selection of Federal University of Technology, Minna as a case study; the second stage covers the purposive selection of the School of Agriculture and Agricultural Technology among the seven (7) Schools within the University; the third stage entailed the selection of the final year students and the final stage was the selection of 209 students out of the 438 students in the six (6) Departments within the School (Table 1) using the Yamane Model (Equation 1) at 5% precision level, as detailed by Eboh (2009) specified as:

$$n = \frac{N}{(1+Ne^2)} \quad ...(1)$$

where; n = Number of samples, N = Total population and e = Error tolerance (5%).

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Table 1: Sample Selection and Distribution

Department	Population	Samples selected
Soil and Land Management	60	29
Food Science and Technology	74	35
Crop Production	70	33
Water, Aquaculture & Fisheries Technology	79	38
Animal Production	74	35
Agricultural Economics & Extension Technology	81	39
Total	**438**	**209**

Source: Federal University of Technology, Minna, 2019

Method of Data Collection

Data for this study were collected from primary and secondary sources. Primary data were obtained from the final year students of the School of Agriculture and Agricultural Technology (Table 1). Data collected covers background information on the students; skills acquired pre and post SIWES year, skill and job preferences, and challenges to effective SIWES participation. Secondary information on the University and SAAT were sourced from the University's Handbooks and prospectus.

Analytical Techniques

Descriptive statistics such as measures of central tendencies, percentages and frequency distribution were used to determine objectives (i), (ii) and (v); Likert procedure was deployed to achieve objective (iii), while Probit binary regression analysis was employed to determine objective (iv).

Model specification

Probit Regression Model

Probit binary regression model was used to ascertain the drivers of respondents' job preference among agriculture undergraduates of the Federal University of Technology, Minna. The empirical specification of the model is presented in equation 2:

$$Y_i = \beta_0 + \beta_i X_i + \varepsilon_i \quad ...(2)$$

The explicit form of the function is specified as follows:

$$Y = \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\ldots+\beta_nX_n + e_i \quad ...(3)$$

The dependent variable (Y) in this case is a binary variable indicating preference for agro-based jobs or otherwise.

where;

Y = Job preference. {1-Agro-based jobs, 0 - Otherwise}

X_1 = Age of the respondents (Years)

X_2 = Gender of respondents (1-Male: 2 - Female)

X_3 = Zone of Origin (North Central -1; North West-2; North East-3; South West-4; South East-5; South-South-6)

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X_4 = Zone of Residence (North Central -1; North West-2; North East-3; South West-4; South East-5; South-South-6)
X_5 = Religion (Islam - 1; Christianity - 2 and Others -3)
X_6 = Type of secondary school attended (Regular -1; Technical - 2; External candidate - 3 others - 4.
X_7 = Household Size (No)
X_8 = Occupation of father: Medicine/Nursing -1, Law- 2, Lecturing/Teaching -3 Civil Servant - 4, Engineering - 5 Military/Para-Military - 6, Mason/Carpentry - 7, Businessman/Women - 8, Food Vendor - 9, Farming -10, Entrepreneur -11 Retiree/Pensioner - 12, Unemployed -13, Transport services -14 and Others -15.
X_9 = Occupation of mother: Medicine/Nursing -1, Law- 2, Lecturing/Teaching -3 Civil Servant - 4, Engineering - 5 Military/Para-Military - 6, Mason/Carpentry - 7, Businessman/Women - 8, Food Vendor - 9, Farming -10, Entrepreneur -11 Retiree/Pensioner - 12, Unemployed -13, Transport services -14 and Others -15.
X_{10} = Attendance of Career Session (1- Yes, 2- No)
X_{11} = Previous work experience (1 - Yes, 2 - No)
X_{12} = Previous farming experience (1-Yes, 2-No)
-X_{13} = Membership of entrepreneurial organization (Yes -1, 0 - otherwise)
X_{14} = Perception of Curriculum
β_0 = Constant
β_1 - β_{14} = coefficient of the independent variables
X_1 - X_{14} = independent variables
ε_i = error term

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

The results in Table 2 shows that majority (94.3%) of the Undergraduate Students of Agriculture sampled were within the age bracket of 21-30 years, with mean age of 24 years. Adesugba and Mavrotas (2016) established that only 9.0% of youths between 25 and 29 years old were currently in school, 28.4% of population in same category had attended school before, while only 4.3% of youths between the age of 30 and 34 were in school. The global body also revealed that the highest proportion of uneducated youths is females and that more males than females received secondary and post-secondary education. Table 2 further shows that most respondents (72.2%) reside in the North Central, while 49.3% originated from same zone. This does not come as a surprise, given the placement of the institution in the North Central part of Nigeria and the fact that the zone is only one of the two zones made up of seven states in Nigeria. The distribution of respondents according to religion was estimated at par between Islam and Christianity. Federal University of Technology, Minna is located in Niger State, which has a dominant Muslim population; however, the Institution is federally owned and operates federal character admission principle. The results further indicated that majority (95.7%) attended regular secondary schools, while only 4.3% received technical secondary education.

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Table 2: Socio-economic Characteristics of the Respondents

Variables	Frequency	Percentage	Mean
Age			
Below 20	9	4.3	
21-30	197	94.3	
Above 30	3	1.4	
Total	**209**	**100**	24
Gender			
Female	99	47.4	
Male	110	52.6	
Total	**209**	**100**	
Zone of residence			
North Central	151	72.2	
North East	1	0.5	
North West	14	6.7	
South East	5	2.4	
South –South	1	0.5	
South West	37	17.7	
Total	**209**	**100**	
Zone of origin			
North Central	103	49.3	
North East	5	2.4	
North West	12	5.7	
South East	18	8.6	
South – South	16	7.7	
South West	55	26.3	
Total	**209**	**100**	
Religion			
Christianity	104	49.8	
Islam	104	49.8	
Traditional	1	0.5	
Total	**209**	**100**	
Types of secondary school attended			
Regular	200	95.7	
Technical	9	4.3	
Total	**209**	**100**	

Source: Analysed data from respondents, 2019

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Table 2: Socio-economic Characteristics of the Respondents (**Contn'd**)

Variables	Frequency	Percentage	Mean
Number of persons in family			
1- 5	50	23.9	
6 -10	129	61.7	7
11 – 15	20	9.6	
16 – 20	8	3.8	
Above 20	2	1	
Total	**209**	**100**	
Occupation of father			
Occupation of Father	13	6.2	
Civil servant	74	35.4	
Clergy	1	0.5	
Engineer	13	6.2	
Entrepreneur	5	2.4	
Farming	21	10	
Food vendor	6	2.9	
Lawyer	4	1.9	
Lecturer	29	13.9	
Mason/Carpentry	2	1	
Medicine	10	4.8	
Military/Para military	30	14.4	
Transport service	1	0.5	
Total	**209**	**100**	
Occupation of mother			
Businesswoman	5	2.4	
Civil servant	42	20.1	
Farming	12	5.7	
Food vendor	22	10.5	
Lawyer	1	0.5	
Lecturing/Teaching	37	17.7	
Mason/Carpentry	4	1.9	
Medicine/nursing	9	4.3	
Military/Para-military	69	33	
Others	3	1.5	
Retiree/Pensioner	5	2.4	
Total	209	100	
Attendance of career session			
No	95	45.5	
Yes	114	54.5	
Total	**209**	**100**	

Source:Analysed results from field data, 2019

Further on the characterization of the respondents, Table 2 shows that most of the students sampled are from households of between 6 and 10 persons, with mean household size

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of 7. This is in consonance with Nma (2019) who reported mean household size of 7 persons for rice consumers in North Central Nigeria. In addition, substantial proportion of respondents' parents was engaged in the civil service and para-military institutions, as represented by 35.4% and 33.0% for fathers, and mothers' occupations respectively. Almost all (95.0%) of the students had never attended career session on agribusiness or entrepreneurship.

Types of Skills Acquired by Students and Skills Preference

The details as presented in Figure 1 show that 49.3% of the students sampled affirmed they acquired one form of agro-based skill or the other during the compulsory industrial attachment scheme. Other skills picked were Information and Communication Technology (ICT), by 20.1%, marketing skills (17.25) and culinary skills (14.4%).

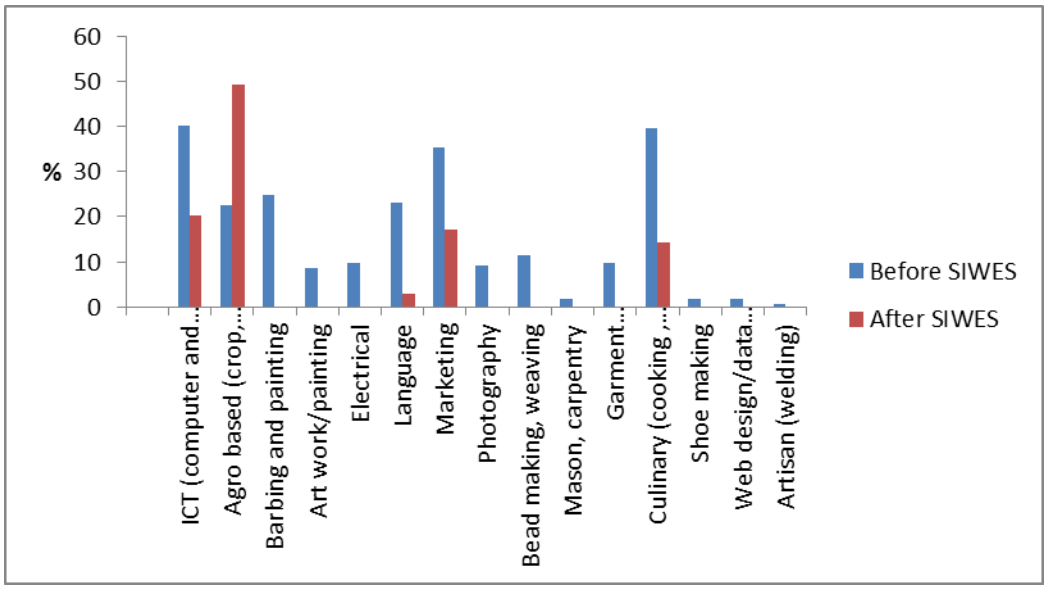

Figure 1: *Skills acquired by students before and after SIWES*

Assessment of students' most preferred skills as detailed in Figure 2 shows that 69.4% of students sampled preferred agro-based skills, followed by 12.0%, which indicated computer skills. The preference for agro-based skills may have been due to the exposure received during the SIWES, government's emphasis on agriculture and the reality on ground. It is however ironical that only 30.0% and 37.3% of the students was aware of the current Government's Agricultural Promotion Policy (APP) (2016-2020) and the Economic Recovery and Growth Plan (2017-2020) (Annex 1).

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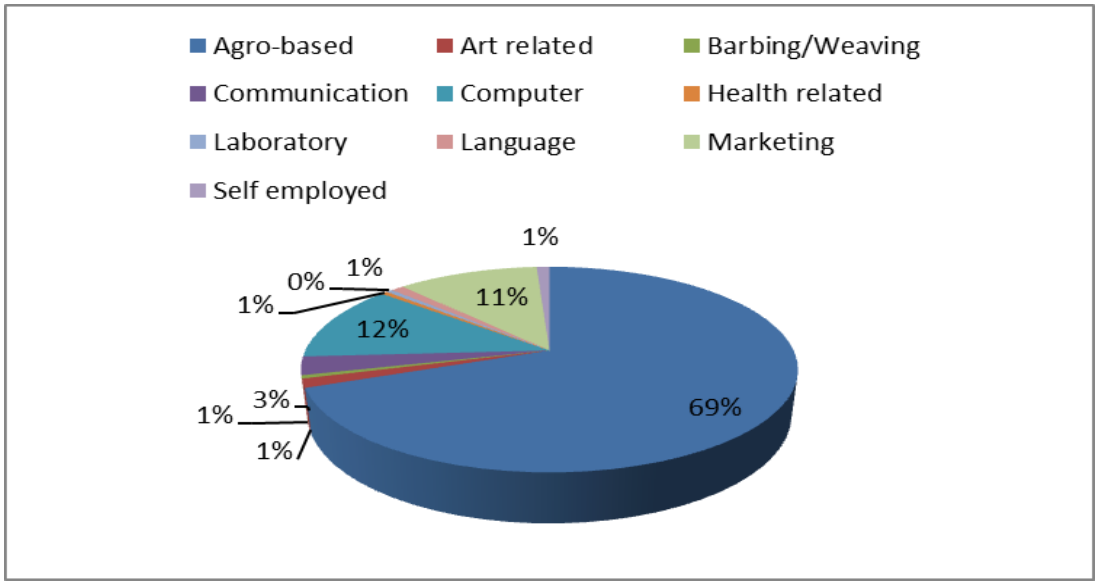

Figure 2: *Students' most preferred skills after graduation*

Annex 1: Other most Preferred Skills by Students after Graduation

Variables	**Frequency**	**Percentage**
Chose agriculture as first choice course	88.0	42.1
Chose agriculture for self-employment	165.0	78.9
Did not chose agriculture as a course due to low social opinion	99.0	47.0
No role model to emulate	32.0	15.0
Agriculture is unknown	58.0	28.0
Had work experience before admission	144.0	68.9
Farming experience	162.0	77.5
Membership of entrepreneurial association	14.0	6.7
Like agriculture as a profession	190.0	90.9
Awareness of agricultural policy document	63.0	30.1
Unaware of skill gap analysis	167.0	79.9
Will embark on agribusiness after graduation	179.0	85.6

Source: Analysed results from field survey data, 2019

Analysis of Sufficiency, Usefulness and Relevance of SIWES

The assessment of the SIWES based on the perceptions of the sampled students (Table 3) shows that they generally perceived the scheme to be useful from all assessment heads and relative to the weighted threshold mean score of 3. Thus, perception weighted mean under usefulness ranged from 3.75 under the provision of job opportunities to 4.63 with respect to usefulness of the scheme to agriculture profession. Similarly, the scheme is seen as relevant, going by the mean score of between 4.40 and 4.54. With respect to adequacy, the results returned positive, while perception on curriculum content and coverage of relevant thematic areas were 3.74 and 4.0, respectively.

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Table 3: Students' Perception of Usefulness, Relevance and Adequacy of SIWES

Perception statement	Weighted mean	Decisions
Usefulness of SIWES		
SIWES is useful to my course	4.63	Useful
Scheme created part-time job opportunities	3.75	Useful
Scheme impacted new skills in agriculture	4.27	Useful
Scheme exposed me to new technologies in agriculture	4.28	Useful
Scheme will enhance job creation among youths and income generation	4.36	Useful
Relevance of SIWES		
SIWES is relevant to my professional development	4.54	Relevant
Skills acquired will be relevant to labour market	4.40	Relevant
Scheme is relevant to the agricultural sector	4.54	Relevant
Adequacy of SIWES		
SIWES curriculum is adequate	3.74	Adequate
SIWES covers relevant areas of agriculture and agribusiness	4.00	Adequate

Source: Authors' computation from field data, 2019

Students' Job Preference and their Drivers

Assessment of job preference (Figure 3) shows that the students generally preferred agro-based jobs, as indicated by 86.6% of the respondents; other professions accounted for the remaining percentage. Adesugba and Mavrotas (2016) established that ATA's focus on agricultural value chain development enhanced youth involvement participation in these value chains and agriculture generally.

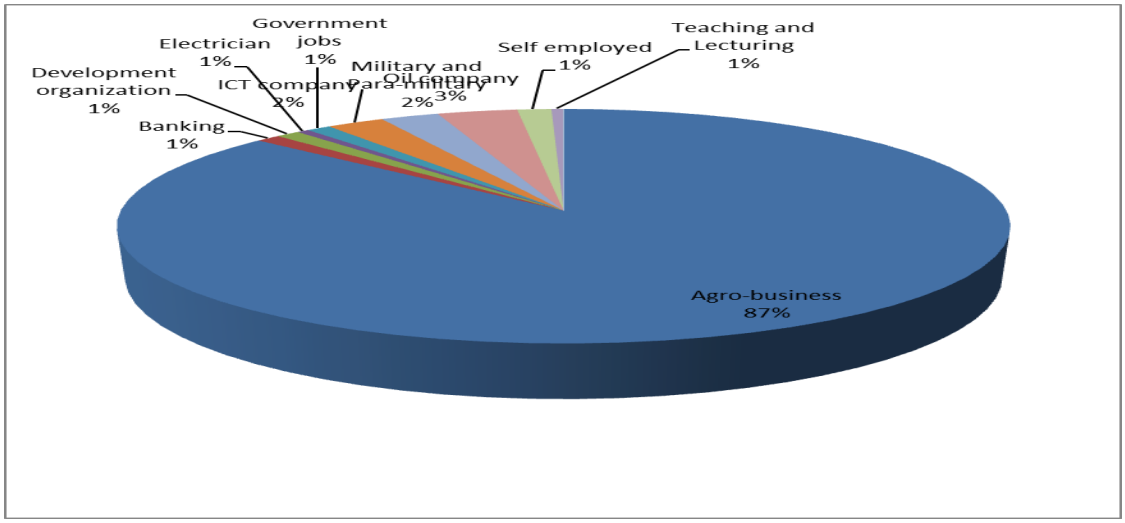

Figure 3: *Students' job preference*

Drivers of Job Preference among Agriculture Students

The identification of the determinants of job preference among the sampled students considered 17 variables, which were identified premised on theoretical underpinning covering skills and job preference, including youth employment. However, only nine variables were supportive of the model following iterative Probit analysis. The results of the analysis as detailed in Table 4 shows that only two variables were significant, namely; the school attended

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and students' perception of the relevance of SIWES. The positive coefficient (1.2874) of school attended means that the type of school attended increases the probability of choosing agro-based jobs. Similarly, the coefficient of the relevance of curriculum to job markets (1.6269) implies that the way students perceived the current curriculum increases the predicted probability of settling for agro-based related jobs. However, the value of the constant term (-1.3126), implies that the predicted probability of a student from a particular school or the way the curriculum is perceived relates to extremely low predicted probability of settling for agro-based jobs when they graduate. In a study conducted among business students in South Africa, Fatoki (2014) noted that there was no significant difference in the entrepreneurial intentions of undergraduates with previous work experience and those without experience.

Table 4: Drivers of Job Preference among Agriculture Students

Variables	Coefficient	Std. error	Z-value	Marginal effect
Constant	-1.3126	1.3366	-0.98	
Type of school attended	1.2874	0.7675	1.68*	1.66
No of persons in household	0.0044	0.0660	0.07	
Occupation of father	-0.5705	0.7376	-0.77	
Occupation of mother	0.4442	0.9657	0.46	
Career counselling attendance	-0.5074	0.4729	-1.07	
Involvement in farming	0.2785	0.4983	0.56	
Study entrepreneurship course	0.1377	0.5684	0.24	
SIWES and SAAT curriculum relevant to job market	1.6269	0.8507	1.91*	1.94
Previous work experience	0.5899	0.4515	1.31	
LR chi2(9)	9.30			
Prob. > chi2	0.4104			
Pseudo R2	0.0565			

Source: Field survey, 2019

Challenges faced under SIWES

Table 5 details the perceived challenges hindering effective implementation of the SIWES. In all, 32.7% perceived the difficulty in securing placement as a key challenge, followed by funding of the scheme, indicated by 31.8%, while 19.3% affirmed that limited duration of the scheme was the key problem.

Perceived Suggestions for SIWES Improvement

Generally, 47.1% of the students were of the opinion that technical and entrepreneurial knowledge should be deepened, while the scheme should deepen its practical content. Also, 16.2% opined that more equipment should be provided in support of the scheme. Other suggestions are as detailed in Table 6.

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Table 5: Perceived Challenges Hindering SIWES Implementation

Variables	Frequency	**Percentage**
Adequate funding of the Scheme	66.4	31.8
Limited duration	40.4	19.3
Difficulty in securing placement	68.4	32.7
Tedious	21.5	10.3
Not properly focused	11.1	5.3
Inadequate skill training	1.3	0.6
Total	**209**	**100**

Source: Analysed data from field survey, 2019

Table 6: Perceived Suggestions on SIWES Improvement from Students

Suggestions	**Frequency**	**Percentage**
Sharing best practices	9.2	4.4
Mentoring	7.7	3.7
Regular education on technical and entrepreneurship skills and practicalising it	98.4	47.1
Enhanced introduction of innovation	12.3	5.9
Linkages with other entrepreneurship outfit (Leventis Foundation, NDE, IITA, CBN Enterprises Scheme, Tony Elumelu Enterprises Foundation, and N-Power)	20.7	9.9
Provision of more equipment	33.8	16.2
No option (Non-response)	26.9	12.9
Total	**209.0**	**100.0**

Source: Analysed data from field survey, 2019

CONCLUSION AND RECOMMENDATIONS

The study concluded that substantial number of respondents did not choose agriculture as first choice of study due to low opinion of agriculture, limited knowledge of the course and lack of role models. Also, reasonable proportion had previous farming experience, only few belonged to entrepreneurship professional and networking groups. In addition, considerable proportion of students acquired agro-based skills through the School's curriculum. Most students perceived SIWES as useful, relevant and adequate in contents. The drivers of job preference were the type of schools attended and students' perception of SIWES curriculum. The key challenges to effective acquisition of skills during the SIWES year were difficulties in securing placement and inadequate funding. Arising from the findings of the study, it was recommended as follows:

i. The need for continuous sensitization of secondary school students and newly admitted students of agriculture on the opportunities abounds in the agriculture profession. It is also necessary to invite role models to frequently interact with the students;
ii. For proper exposure to best and innovative entrepreneurial practices, there is need to encourage students to join entrepreneurial groups or networks. Entrepreneurship activities can also be incorporated within students' social groups or fora;
iii. There is the need for regular skill gap assessment to guide the choice of or focus of skills development in order to prevent or minimize scenarios of skills mismatch;

iv. The Management of the University and School of Agricultural and Agricultural Technology could build on students' enthusiasms towards agro-based endeavours to effectively support their business plan preparation skills, followed with incentives in form of linkages to entrepreneurship outfits, such as the Central Bank of Nigeria's Entrepreneurship Scheme, National Directorate of Employment Windows, on-going N-Power Entrepreneur Scheme, Tony Elumelu Entrepreneurship Foundation, and Leventis Foundation;

v. There is the need to encourage students to produce bankable feasibility studies which will be handy and executed after they graduate from school;

vi. It is a step in the right direction to partner with private entrepreneurship outfits and development organisations like APDC, IITA and AfDB for technical assistance, and upgrade of existing model;

vii. There is the need for improved funding of the SIWES to enhance institutional and infrastructural development in support of students' practical engagements.

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