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AGRICULTURAL EDUCATION AND YOUTH EMPOWERMENT: A STRATEGIC APPROACH FOR CURBING RURAL-URBAN MIGRATION IN AN ERA OF UNCERTAINTY IN EDO STATE

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Abstract

The present study examined the agricultural programmes and youth empowerment: Strategic approach for curbing rural-urban migration in an era of uncertainty in Edo State. Four (4) research questions were raised and answered and 4 null hypotheses formulated and tested at .05 level of significance. The Study adopted descriptive survey research design. The population for the Study was 344, comprised of 318 agricultural science teachers and 26 extension agents. The Sample of the Study was 178 of the entire population drawn using Purposive techniques and was made up 153 teachers of agriculture and 25 extension agents. The instrument for data collection was a 50 items structured questionnaire divided into 4 sections to reflect the specific objectives of the study. The items were face and content validated by three experts while the reliability of the items was determined with Richardson K_{21} which yielded a coefficient of 0.77. Data were collected by the authors and three research assistances. Data collected were analyzed using descriptive statistics (mean and Standard, deviation) to answer research questions while t-test statistic was used to test the hypothesis at $p<.05$ level of significance. The study revealed that the 13 items in agricultural education programmes when implemented will equip young youths with practical, market-relevant skills that foster self-reliance and economic resilience 12 items in agricultural technology and innovation were accepted and will *significantly enhances productivity and unlocks new avenues for youth-driven enterprises. 13 items in value chain in agriculture if integrated into youth programme will boost the economy and 12 items in agricultural entrepreneurship were accepted and this will that can increase sustainable rural business development that discourages migration to urban centers. It was therefore recommended among others that government and policy makers should develop curriculum that will be tailored to the specific needs of the rural youth focusing on practical skills to promote*

experiential learning through internships, farm based projects and community engagement to provide hands on experience, promote entrepreneurship by providing financial support through microcredit schemes, grants or subsidies to youth starting agribusiness ventures.

Keywords: Agricultural Education, Youth Empowerment, Agricultural Technology and Innovation, Entrepreneurship, Value Chain

Introduction

Technical and Vocational Education and Training (TVET) is designed to provide students with knowledge and skills that will allow them to successfully secure and retain their jobs. TVET is seen as a mixture of formal, informal, and non-formal learning that provides youngsters with the knowledge and skills required for employment (UNESCO, 2021). Agricultural Education emphasizes the salient role of equipping young youths with the necessary knowledge, skills, and attitudes in agriculture to reduce the trend of rural-urban migration and to encourage them to contribute to productive agriculture and rural development. Agricultural education according to Ezhim, Abolade, Okadi, Onu and Haruna (2021) is an academic field aims at imparting knowledge, skills, and attitudes in agriculture to learners at any level, which gives the learner sound academic knowledge, skills, and ample opportunity to apply the acquired skills and knowledge. Agricultural education according to Onuka and Okafor (2021) is a programme of study developed to provide learners with pedagogical and technical skills to enable them to teach relevant aspects of agriculture to learners in formal institutions of learning, such as primary, secondary and tertiary institutions. In the opinion of Nwoye, Bassey and Ugwuka (2021), agricultural education deals with equipping people to become teachers of agriculture, extension workers, and other professionals in areas that require a broad knowledge of agriculture. The authors stated that the primary goal of Agricultural education at any level is the production of values knowledge, and skilled individuals who would be useful to themselves and the society at large through their contributions to productive agriculture as well as the raising of professional Agricultural educators. Agricultural education plays a fundamental role in addressing the economic uncertainties faced by rural youth, by imparting technical and entrepreneurial skills, which enables them to diversify their income streams, reducing their vulnerability to economic shocks and overall development of the rural communities. Agricultural education and youth empowerment are essential strategies for reducing rural-urban migration and addressing economic uncertainties. Youth empowerment fosters entrepreneurship by equipping young youths with innovative sustainable livelihoods.

Entrepreneurship involves recognizing and acting on business opportunities, mobilizing resources, and accepting calculated risks to create or improve products and services for profit and growth (ILO, n.d.; Investopedia, 2023). Entrepreneurship in the opinion of Okafor, Onugu and Orusha (2021) involves ways of identifying new opportunities and approaches towards solving problems through the application of strategic planning. The authors stated that strategic planning is an essential part of the concept of Entrepreneurial development of an individual which implies dexterity of competencies in an occupation to achieve a goal. Alaribe, Agege and Olaitan (2019) stated that entrepreneurship is the ability to seek and bring innovation to boost new production methods, new products new markets, and new forms of organization. The authors added that entrepreneurship is the ability to combine various inputs, factors of production in an innovative manner to generate value to the customer with the hope that this value will exceed the cost of the factors of production thereby generating superior returns that result in the creation of wealth and value. The concept of a value chain, as described by Muflikh, Smith and Aziz (2021) encompasses a series of activities, institutions, and entities that are involved in the transformation, processing, transportation, value addition, delivery, and final disposal of a product or service from the producer to the end-user. As suggested by Roger

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(2014), a value chain is a network of interconnected activities that collectively enhance the value of a product. For example, an agricultural value chain could involve a wide array of activities such as input supply, farmer organization, post-harvest handling, processing, storage, transport, and market feedback. Value chain development is notably enhanced by agricultural technology and innovation

Agricultural technology and innovation refer to the integration of advanced tools and methods such as digital platforms, precision farming, biotechnology, and sensor-based systems—into agricultural practices to increase productivity, resource efficiency, and sustainability. These innovations enable farmers to make data-driven decisions, automate processes, and improve yield quality (Hasanov, Gasimzade, & Asadov, 2024). Agricultural technology and innovation in the opinion of O'Connell, Forno, and Faure, (2020), encompass both high-tech and low-tech advancements that support farmers in improving yield, reducing labor, and promoting environmental sustainability. Innovations such as climate-smart tools, remote sensing and mobile-based advisory services have broadened access to agricultural solutions, especially for smallholder farmers. The author stated that these technologies not only enhance productivity but also create pathways for knowledge sharing, empowering farmers to adopt context-specific practices and reduce dependency on traditional, less efficient methods. Agricultural technology and innovation drive youth participation by transforming agriculture into a modern, tech-driven sector that offers viable employment, entrepreneurship, and skill development opportunities.

The participation of rural youth in agriculture appears to be very low, with many migrating to urban areas in search of better economic prospects. This research present several factors contributing to this trend, such as the limited use of modern technology in agricultural training, insufficient emphasis on value-chain development (including processing, packaging, and marketing), and limited support from governments and NGOs to encourage youth involvement in agriculture. Moreover, there is a growing need to focus on agricultural entrepreneurship as a way to establish sustainable rural businesses, reduce economic uncertainties, and curb migration to cities. Therefore the study aims to identify strategies for empowering youth through education, technology, and entrepreneurship, motivating them to remain and prosper in rural communities.

Purpose of the Study

The purpose of this study was to examine the strategic role of Agricultural Education and youth Empowerment: in curbing rural-urban migration. Specifically, the study sought to examine:

1. the role of agricultural Education programmes in equipping youths with the necessary skills for self-reliance and economic empowerment in rural areas.
2. the role of agricultural technology and innovation in empowering youths and promoting rural economic stability.
3. the impact of agricultural value – chain development in fostering youths to reduce economic uncertainties and discourage migration from rural areas.
4. the potentials of agriculture in entrepreneurship creating sustainable rural business development

Research Questions

The following research questions were raised to guide the study.

1. What are the roles of agricultural education programmes in equipping youths with the necessary skills for self-reliance and economic empowerment in rural areas?
2. What are the roles of agricultural technology and innovation empowering youths and promoting rural economic stabilities?

3. What is the impact of agricultural value-chain development in fostering youth empowerment, reducing economic uncertainties and discouraging migration from rural areas?
4. What are the potential roles of agricultural entrepreneurship increasing sustainable rural business development?

Research hypotheses

The following null hypotheses were tested at a 0.05 level of significance

H_{01}: Agricultural education programmes does not significantly equip young youths with the necessary skills for self- reliance and economic empowerment in rural areas.

H_{02}: Agricultural technology and innovations does not significantly empower young youths and promote rural economic stabilities.

H_{03}: Agricultural value-chain development does not significantly foster young youths empowerment, reduce economic uncertainties and discourage migration from rural areas.

H_{04}: Agricultural entrepreneurship does not significantly create sustainable rural business development.

Methodology

A descriptive Survey research design was adopted to actualize the purpose of the study. Descriptive Survey design according to Ogana and Ukonze (2021) is one in which a group of people or subjects is studied by collecting and analyzing data from only a few people or subjects considered to be representative of the entire group. This design is appropriate for this study since it obtained data from Agricultural science teachers and extension agents through a questionnaire on agricultural programmes and youth empowerment as a strategy for curbing rural-urban migration.

The population for the Study was 344, comprised of 318 agricultural science teachers and 26 extension agents. The sample of the study was 178 of the entire population drawn using A purposive sampling procedure and was made up 153 teachers of agriculture and 25 extension agents. The instrument for data collection was a structured Questionnaire with a four-point rating scale (AEYESACRUMUQ) which was developed by the authors through the help of existing literature. The questionnaire had 50 items and was subjected to face and content validity by three experts, who are specialist in Agricultural Education. The validated instrument was administered on Agricultural science teachers and extension agents.

The reliability of the instruments was established using Cronbach's Alpha reliability and thus was administered to 30 Agricultural science teachers which was randomly selected from the public secondary schools the data collected were analyzed to determine the internal consistency of the items and reliability coefficient value of 0.77 was obtained; which signifies that the instrument was reliable for the study. The data collected was analyzed using Mean and Standard Deviation for answering the research questions and t-test analysis was used to test the hypothesis at 0.05 level of significance. In making a decision, a Mean value of 2.50 was used for decision making; any mean score value of 2.50 and above indicates that the respondents agreed on the item while any mean score below was regarded as not agreed.

Results

Research Question 1

What are the roles of agricultural education programmes in equipping youths with the necessary skills for self-reliance and economic empowerment in rural areas?

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Hypothesis 1
Agricultural education programmes does not significantly equip young youths with the necessary skills for self- reliance and economic empowerment in rural areas.

Table 1: Mean and T-Test Analysis of the Respondent on Agricultural Education Programmes That can Equip Young Youths With the Necessary Skills For Self- Reliance and Economic Empowerment in Rural Areas. (N=173)

S/No	Item Statement	$\bar{x}$	SD	P-value	Remark
1.	I know the agricultural education programmes in my community.	3.11	0.75	0.75	Accepted
2.	The curriculum targets rural youth with practical, modern farming skills.	3.15	0.73	0.83	Accepted
3.	Programmes are updated through partnerships with global agricultural institutions	3.45	0.34	0.69	Accepted
4.	Programmes effectively teach hands-on agricultural skills.	3.00	0.64	0.61	Accepted
5.	Digital tools and e-learning improve access, in remote areas.	3.25	1.53	0.71	Accepted
6.	Programmes are tailored to rural youth needs.	3.89	1.04	0.86	Accepted
7.	I've personally benefited from agricultural education.	2.89	0.84	1.00	Accepted
8.	Youth gain experience through internships and farm projects.	3.67	0.93	0.98	Accepted
9.	Agricultural education is accessible to rural youth	3.80	1.16	0.45	Accepted
10	Programmes provide tools and materials for skill development.	3.50	0.85	0.67	Accepted
11.	Agricultural education helps tackle rural youth challenges.	3.89	0.97	0.86	Accepted
12.	Programmes should adopt more modern farming technologies.	3.76	0.56	0.97	Accepted
13.	Programmes support youth in starting agribusinesses.	3.58	0.75	0.61	Accepted
	Grand Mean Total	**3.46**	**0.85**	**0.77**	

Source: Field Survey 2024

Table 1 revealed that all the 13 items had mean values ranging from 2.89 to 3.89 which were above the cut - off point of 2.50. This means that the respondents agreed to the 13 items indicating that implemented agricultural education programmes can equip young youths with necessary skills for self-reliance and economic empowerment in rural areas. The standard deviation of the response of the respondents on the 13 items ranged from 0.34 to 1.53, indicating that the respondents were not far from the mean and from the opinion of one another in their responses

Hypothesis tested in table 1 revealed that all the 13 items had their p-value ranging from 0.45 to 1.00 which was greater than the alpha-value of 0.05. This indicated that there is no statistical significance difference in the mean ratings of the responses of the respondents on agricultural education programmes which can equip young youths with necessary skills for self-reliance and economic empowerment in rural areas.

Research Question2
What are the roles of agricultural technology and innovation empowering youths and promoting rural economic stabilities?

Hypothesis 2
Agricultural technology and innovations does not significantly empower young youths and promote rural economic stabilities.

Table 2: Mean and T-Test Analysis of Respondents on Agricultural Technology and Innovation Significantly Empower Young Youths and Promote Rural Economic Stabilities. (N=173)

S/No	Item Statement	$\bar{x}$	SD	P-value	Remark
1.	Digital apps improve youth access to agricultural markets.	3.55	0.43	1.35	Accepted
2.	Modern tools boost efficiency on youth-led farms.	3.56	0.34	1.34	Accepted
3.	New technologies increase rural youth productivity.	3.24	0.45	1.20	Accepted
4.	Agri-tech encourages more youth participation.	3.00	0.50	0.73	Accepted
5.	Drones help youth farmers monitor and boost crop yield.	3.12	0.41	1.06	Accepted
6.	Tech-based farming strengthens rural economic stability.	3.73	0.67	1.11	Accepted
7.	Modern tools help youth reduce rural-to-urban migration.	3.60	0.41	0.92	Accepted
8.	Young agri-entrepreneurs benefit from crop-monitoring tech.	3.50	0.56	0.41	Accepted
9.	Innovations reduce manual labor for young farmers.	3.27	0.92	0.40	Accepted
10.	Youth are more likely to farm if they access modern tools.	3.64	0.73	0.26	Accepted
11.	Precision farming helps optimize water and fertilizer use.	3.64	0.87	0.64	Accepted
12.	Advanced irrigation systems boost young farmers' output.	3.96	0.53	0.43	Accepted
	Grand Mean Total	**3.48**	**0.57**	**0.82**	

Source: Field Survey 2024

Table 2 revealed that all the 12 items had mean values ranging from 3.00 to 3.96 which were above the cut - off point of 2.50. This means that the respondents agreed to the 12 items indicating that agricultural technology and innovations significantly empower young youths and promote rural economic stabilities**.** The standard deviation of the response of the respondents on the 12 items ranged from 0.34 to 0.92, indicating that the respondents were not far from the mean and from the opinion of one another in their responses. Hypothesis tested in table 2 revealed that all the 12 items had their p-value ranging from 0.26 to 1.35 which was greater than the alpha-value of 0.05. This indicated that there are no statistical significance difference in the mean ratings of the responses of the respondents on how agricultural technology and innovations significantly empower young youths and promote rural economic stabilities.

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Research Question3
What is the impact of agricultural value-chain development in fostering young youth's

Hypothesis 3
Agricultural value-chain development does not significantly foster young youths empowerment, reduce economic uncertainties and discourage migration from rural areas.

Table 3: Mean and T-Test Analysis of Respondents on Agricultural Value-Chain Development in Fostering Young Youths Empowerment, Reduce Economic Uncertainties and Discourage Migration From Rural Areas. (N=173)

S/No	Item Statement	$\bar{x}$	SD	P-value	Remark
1.	Value-chain development creates jobs for rural youth.	3.45	0.41	0.87	Accepted
2.	Marketing training helps youth sell farm products better.	3.67	0.23	0.65	Accepted
3.	Value chains teach youth agro-processing skills.	3.54	0.39	1.29	Accepted
4.	Processing crops extends shelf life and boosts market reach.	3.43	0.38	1.19	Accepted
5.	Good packaging helps youth earn more from their products.	3.58	0.40	1.17	Accepted
6.	Marketing skills are key to selling value-added goods.	3.69	0.68	0.53	Accepted
7.	Agro-processing in youth programs curbs rural-urban migration.	3.99	0.38	0.57	Accepted
8.	Value-chain training helps youth boost profit margins.	3.89	0.42	0.37	Accepted
9.	Agro-processing adds extra income beyond crop sales.	3.40	0.41	0.36	Accepted
10.	Packaging skills improve the appeal of farm products.	3.24	0.55	0.36	Accepted
11.	Value chains build long-term rural economic growth.	2.98	0.70	1.21	Accepted
12.	Full value-chain participation builds youth entrepreneurship.	3.91	0.43	1.31	Accepted
13.	Youth marketing cuts out middlemen and increases profits.	3.39	0.64	0.65	Accepted
	Grand Mean Total	**3.55**	**0.46**	**0.78**	

Source: Field Survey 2024

Table 3 revealed that all the 13 items had mean values ranging from 2.98 to 3.99 which were above the cut - off point of 2.50. This means that the respondents agreed to the 13 items indicating that agricultural value-chain development in fostering young youth's empowerment, reduce economic uncertainties and discourage migration from rural areas**.**
The standard deviation of the response of the respondents on the 13 items ranged from 0.23 to 0.70, indicating that the respondents were not far from the mean and from the opinion of one another in their responses

Hypothesis tested in table 3 revealed that all the 13 items had their p-value ranging from 0.36 to 1.31 which was greater than the alpha-value of 0.05. This indicated that there are no statistical significance differences in the mean ratings of the responses of the respondents on how agricultural value-chain development fosters young youth's empowerment, reduce economic uncertainties and discourage migration from rural areas.

Research Question 4
What are the potential roles of agricultural entrepreneurship increasing sustainable rural business development?

Hypothesis 4
H_{04}: Agricultural entrepreneurship does not significantly create sustainable rural business development.

Table 4: Mean and T-Test Analysis of Respondents on Agricultural Entrepreneurship Increasing Sustainable Rural Business Development. (N=173)

S/No	Item Statement	$\bar{x}$	SD	P-value	Remark
1.	Agribusiness training is key to empowering rural youth.	3.00	0.38	0.91	Accepted
2.	Youth agribusinesses need microcredit, grants, or subsidies.	3.17	0.40	0.25	Accepted
3.	Entrepreneurial skills are as vital as farming skills.	3.44	0.71	0.14	Accepted
4.	Policies should support agribusiness startups.	3.64	0.71	0.75	Accepted
5.	Partnering with local markets builds sustainable youth ventures.	3.25	0.25	1.04	Accepted
6.	Microfinance should offer loans to young agri-entrepreneurs.	3.10	0.15	0.81	Accepted
7.	Entrepreneurship fosters youth independence and self-reliance.	3.18	1.44	0.91	Accepted
8.	Land and resources access is a major barrier for youth.	3.40	0.48	0.35	Accepted
9.	Agri-education should include value addition skills.	3.75	0.75	0.38	Accepted
10.	Youth-led agribusinesses can reduce rural-to-urban migration.	3.49	1.18	0.62	Accepted
11	Youth stay rural when they have financial support.	3.65	0.96	0.34	Accepted
12	Mentorship helps youth launch successful agri-businesses	3.66	1.03	0.56	Accepted
	Grand Mean Total	**3.39**	**0.70**	**0.59**	

Source: Field Survey 2024

Table 4 revealed that all the 12 items had mean values ranging from 3.00 to 3.75 which were above the cut - off point of 2.50. This means that the respondents agreed to the 12 items indicating that agricultural entrepreneurship increases sustainable rural business development. The standard deviation of the response of the respondents on the 12 items ranged from 0.15 to 1.44, indicating that the respondents were not far from the mean and from the opinion of one another in their responses

Hypothesis tested in table 4 revealed that all the 12 items had their p-value ranging from 0.14 to 0.91 which was greater than the alpha-value of 0.05. This indicated that there is no statistical significance difference in the mean ratings of the responses of the respondents on agricultural entrepreneurship that can increase sustainable rural business development.

Discussion of Results
Research Question 1 and Hypothesis 1 was on the roles of agricultural education programmes in equipping young youths with the necessary skills for self-reliance and economic empowerment in rural areas. Findings revealed that young youths are aware of the agricultural education

programmes in my their community, curriculum targets rural youth with practical, modern farming skills, Programmes are updated through partnerships with global agricultural institutions, Programmes effectively teach hands-on agricultural skills. Findings on the test of hypothesis also revealed that no significance in the mean ratings of responses of the respondents on agricultural education programmes which can equip young youths with necessary skills for self-reliance and economic empowerment in rural areas. This findings affirms the report of Nwoye, Bassey and Ugwuka, (2021), who found out that the primary goal of Agricultural education at any level is the production of values, knowledge, and skilled individuals who would be useful to themselves and the society at large through their contributions to productive agriculture as well as the raising of professional Agricultural educators.

Research Question 2 and Hypothesis 2 was on the roles of agricultural technology and innovation empowering youths and promoting rural economic stabilities. Findings revealed that digital apps improve youth access to agricultural markets, modern tools boost efficiency on youth-led farms, new technologies increase rural youth productivity, agri-tech encourages more youth participation, drones help youth farmers monitor and boost crop yield, among others. The findings are similar to a study by **Hasanov, Gasimzade, and Asadov (2024) on the** *technological innovations in agriculture: Impact on production efficiency, who find out that* Technological innovation ranging from low-tech tools to advanced digital systems—have significant potential to enhance agricultural productivity and sustainability. The authors also noted that digitalization, when correctly adapted, improves access to information, strengthens collaboration among farmers, and promotes participatory innovation, especially within agro ecological systems.

Research Question 3 and Hypothesis 3 was on the impact of agricultural value-chain development in fostering youth empowerment, reducing economic uncertainties and discouraging migration from rural areas. Findings revealed that value-chain development creates jobs for rural youth, marketing training helps youth sell farm products better, value chains teach youth agro-processing skills, good packaging helps youth earn more from their products, full value-chain participation builds youth entrepreneurship among others. The findings was in consonance with the study carried out by Roger (2014), who opined that value chain is a network of interconnected activities that collectively enhance the value of a product. For example, an agricultural value chain could involve a wide array of activities such as input supply, farmer organization, post-harvest handling, processing, storage, transport, and market feedback.

Research Question 4 and Hypothesis 4 was on the potential roles of agricultural entrepreneurship increasing sustainable rural business development. Findings revealed that, agribusiness training is key to empowering rural youth, youth agribusinesses need microcredit, grants, or subsidies, entrepreneurial skills are as vital as farming skills, policies should support agribusiness startups, land and resources access is a major barrier for youth, mentorship helps youth launch successful agri-businesses, agri-education should include value addition skills, youth stay rural when they have financial support, among others. The study was in line with study carried by Siregar, Ridho, Nasution, Nasution and M. D. T. P (2024), who found out that rural entrepreneurship is vital for economic advancement, job creation, and poverty reduction in rural areas, policies tailored towards support systems, the authors noted that entrepreneurship enhances the resilience and sustainability of communities through innovative business models and economic diversification.

Conclusion

The study was conducted to examine the strategic approach for curbing rural-urban migration in an era of uncertainty with agricultural education and youth empowerment in Edo State. Based on the findings of the study, it is concluded that well-structured agricultural education programs

equip young youths with practical, market-relevant skills that foster self-reliance and economic resilience. Moreover, access to agricultural technologies and innovations significantly enhances productivity and unlocks new avenues for youth-driven enterprises. The development of the agricultural value chain presents a strategic opportunity for integrating young youths into economically viable sectors, reducing uncertainties and reinforcing local livelihoods. Finally, agriculture's entrepreneurial potential remains largely untapped but holds immense promise for driving sustainable rural business development.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Government and educational institutions should expand the implementation of agricultural programmes that are practical, locally relevant, and entrepreneurial in focus, thereby equipping rural youth for self-reliance and income generation.
2. Policymakers and stakeholders should invest in affordable agricultural technologies and strengthen extension services to train youth in modern innovations such as drones, mobile applications, and precision farming tools aimed at empowering youths and promoting rural economic stability.
3. Government and private sector should collaborate to support agro-processing, marketing, and packaging initiatives. Access to markets and infrastructure for processing and storage must be improved to enhance value addition and reduce rural-to-urban migration.
4. Policymakers should make policies that support the development of youth-focused agri-business, mentorship programmes, accessible microcredit schemes, access to land and resource allocation which is essential for fostering sustainable rural entrepreneurship among young agricultural innovators.

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