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ARTIFICIAL INTELLIGENCE (AI) TOOLS FOR ASSESSING STUDENTS' ACQUISITION SKILL OF AGRICULTURAL TECHNOLOGY TECHNIQUE: RECIPE FOR CURBING FOOD CRISIS IN RURAL AREAS OF EBONYI STATE

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Abstract

The study investigated measures for promoting functional agricultural technology education to enhance human capacity building with the primary aim of curbing food crises in Ebonyi State. This becomes necessary since the poverty index of the rural people is on the increase annually. A survey research design was adopted to sample the opinions of the respondents. The study focused on the roles of technology education in manpower development, problems of technological education, measures for promoting functional technology education and education imperatives for empowering farmers and would-be framers in ensuring food security in rural areas of Ebonyi State, Nigeria. Four research questions and four hypotheses guided the study. The entire 64 teachers in two technical colleges in Ebonyi State were used in this study because the size was small. A 45-item questionnaire was constructed by the researcher and used for data collection. The instrument was validated by three experts, and the reliability index of 0.86 was determined using the Cronbach alpha method. The data collected were analysed using mean statistics with standard deviation to answer research questions, whereas ANOVA was used to test the null hypothesis at a 0.05% probability level. The result of the study revealed that agricultural technology education plays a leading role in human capacity building in the rural area of Ebonyi State, and the provision of resources constitutes a roadblock for functional agricultural technology education for manpower development. It was concluded that there was no significant difference between the mean responses of the agricultural science teachers in the two technical colleges on the areas investigated. Implications and recommendations were based on the findings of the study.

Keywords: Agricultural technology education, human capacity building, food crisis and rural area, artificial intelligence

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Introduction

The lifewires of any developing and developed nation today lie in science and technology in ensuring food security for that nation. The Federal Republic of Nigeria (2004) defined technology education as that aspect of education which leads to the acquisition of practical and applied industrial skills, coupled with basic scientific knowledge and attitude. This notion paved the way for tremendous growth in the establishment of technical institutions and training centres basically for acquiring production skills for more efficient participation in industrial and agricultural production for self-reliance. But these institutions and training centres had to face numerous crises ranging from curriculum, teaching and learning, funding, and administrative bottlenecks resulting from inexperienced planners with poor knowledge of the nature of available human resources, among others. In support, Agwubike, Akpomedeye and Bestmark (2021) opined that schools mount technical subjects with only emphasis on theoretical aspects without corresponding practical work to drive home skills acquisition that would build students' capacity for their day-to-day services in industry and agriculture. This situation revealed that a proper foundation was not laid for technology in schools and training institutes/centres; hence, recipients were not exposed to adequate practical orientation for enhanced skill acquisition. It was further noted that agricultural and industrial development in the study is grossly inadequate.

It is obvious to acknowledge the fact that no system of education can effectively achieve its purpose without adequate teaching and corresponding facilities for the pedagogy. Even now the available introductory technology equipment imported by federal government in 1980s are still packing in most rural schools where agriculture can deploy them for farming purposes; this is due to paucity of personnel with practical skill experience. Despite the shortcomings in mounting technological education programmes, their indispensable role in human capacity building cannot be sacrificed, because for our agriculture and industries to increase their production capacity, corresponding human machinery capable of moving production forward must be available in quantity and quality. Hence, scientific, technological and developmental approaches must be adopted to improve the skills of students and would-be farmers, which would have a multiplier effect in curbing food crises in rural areas.

Food crises are mostly dominant in rural areas since the occupants are more prone to being unskilled food producers characterised by low productivity. This syndrome is a shock to the food system that usually leads to severe disruption and causes a surge in acute food insecurity. This scenario requires urgent intervention to protect and save the lives and livelihoods of the occupants of the area, a situation which exceeds local resources and capacities to respond and encroaches into famine, which is the most severe kind of hunger crisis, inducing extreme

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shortage of food, mostly in rural areas.

There is no doubt that agriculture is a rural phenomenon, and over 90% of its inhabitants are predominantly farmers with a high poverty index. Idenyi (2018) opined that a person whose 80% of his income is spent on food alone is living below the poverty index, and this is exactly the situation in the rural area of Ebonyi State. A rural area is conceived as an area whose 90% of its inhabitants (population) make their income from agricultural enterprise (Ntuade, 2016). Hence, a rural area is traditionally seen as a farming settlement (agrarian community) with villages surrounded by farms and forest, where the majority of the inhabitants are engaged in farming as their main occupation or means of livelihood; this is true of Ebonyi State. These categories of people possess little or no industrial skill acquired in lieu of becoming efficient food producers; therefore, there is a need for this type of education and training.

To determine the extent of students' skill acquisition of agricultural technology practices, a refined technology tool is being adopted for its assessment. This technology is referred to as artificial intelligence. Artificial intelligence is therefore referred as a set of technologies that enable computer to perform a variety of advanced functions for analysing and recommending possible solutions to problems. In view of Oyekan (2025). AI is the ability of a digital computer system to perform tasks that are normally associated with intelligent beings. It is used because it can supersede human beings' rate of responses to specific tasks. This technology has, in recent times, altered the way teaching and learning are conducted, including assessment of learning outcomes. This technology integrates diverse tools that facilitate assessment of teaching and learning outcomes. These tools include natural language processing, robotics processing, machine language, expert systems, automation, and computer vision tools, among others, and are essential in conducting educational assessment with ease.

In addition, technology education is skill-orientated for the cultivation of intellectual, vocational and technological skills. These skills so acquired by an individual remain as a lifelong utilitarian capacity. Moreover, it is an education which equips the learners with potential and capability for self-reliance, economic independence and self-reliance in the world of work; hence, the need to investigate practical measures for ensuring functional technology education in agriculture for self-actualisation.

It is disheartening to observe in rural areas of Ebonyi State that farmers still rely on their physical power in carrying out farm operations and their dependence on primitive farming methods for success in food production. Under these prevailing circumstances, food production and supply become inadequate to the teeming population, which is increasing geometrically against the current arithmetical increase in food production, giving rise to an exorbitant

increase in prices of farm produce. Even with the current development in technologies via ICT in facilitating knowledge and skills development, much advancement has not been recorded. Hence, Ebonyians are left with no other option than to import a cheaper source of food items from the neighbouring state. Due to the outrageous negative impact of the importation on Nigeria's economy, some were banned after serious agitation by Nigeria. Notwithstanding this, Agarawal (2011) noted that Nigeria has become one of the largest importers of fish in the developing world, importing over 600,000 metric tonnes annually. The current ban on poultry (frozen) and live cattle have resolved rural farmers to go back to land, fish and poultry production in order to meet large demand. Then the need arises to produce more skilled, efficient and productive manpower in the agricultural industry in Nigeria and Ebonyi State in particular.

Ogunlade in Idenyi (2014) found that farmers need education and training on management practices in all competency areas in crop and animal production to be able to address and sustain food security in the study area. In addition, extension education approaches can be used to improve the performances of farmers. However, no study has addressed ways and methods of enhancing farmers' competencies in crop and animal production with emphasis on the agricultural technology approach. Therefore, little has been done technologically to ameliorate the problems of farmers in rural areas of Ebonyi State. Asewuyi (2009) maintained that the major constraint to sufficient food production and supply to consumers in Nigeria and in most developing countries was the limitation imposed on the competency level of the farmers and the non-integration of ICT technology improving students' acquisition of more relevant skills; consequently, the problem of the study is what are the strategies for promoting farmers' capacities for sustainable food security in rural areas of Ebonyi State, Nigeria?

The main purpose of the study is to identify measures that would promote manpower development in agriculture for curbing food crises in the rural area of Ebonyi State, Nigeria. Specifically, the study sought to:

1. Examine roles of technology education in manpower capacity building in Ebonyi State.
2. Identify constraints facing technology education in manpower development.
3. Identify strategies for promoting functional technology education in development of human capacities
4. Determine extension education approaches for sustainable manpower development in agriculture.
5. Identify AI tools for assessing students' competency acquisition of agricultural production skills.

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Research questions

The following research question guided the study

1. What are roles of technology education in manpower capacity building in Ebonyi State?
2. What are the constraints facing technology education in manpower development?
3. What are the strategies for promoting functional technology education in development of human capacities?
4. What are the extension education approaches for sustainable manpower development in agriculture?
5. What are the AI tools for assessing students' competency acquisition of agricultural production skills?

Hypotheses

Three null hypotheses guided the study tested at 0.05 level significance:

Ho_1: There is no significance difference between the mean responses male and female teachers in technical colleges in Ebonyi State regarding the roles of technology education in human capacities building.

Ho_2: There is no significance difference between the mean responses of male and female teachers regarding the constraints facing technology education in manpower development in Ebonyi State.

Ho_3: There is no significance difference between the mean responses of male and female teachers regarding the strategies for promoting functional technology education in development of human capacities.

Method

The study adopted survey research design. This design was considered appropriate because it involves the collection of data from teachers in two government owned technical colleges in Ebonyi state. 45 teachers from Agba technical colleges and 34 teachers from government technical college Abakaliki making a total of 64 respondents for the study. The entire population was used for the study because the population was small hence there was no sampling.

A 45- item questionnaire was constructed and was validated by three experts one from measurement and evaluation unit of Alex-Ekwueme Federal University Ndufu-Alike and two from Ebonyi State University, Abakaliki. The reliability of the instrument was determined

through pilot testing, and the data generated were computed using the Cronbach alpha method, and a coefficient of 0.86 was obtained, which is high enough to permit the conclusion that the instrument was reliable. The researcher administered the questionnaire with the help of two research assistants trained for the purpose and had a 100% return rate due to on-the-spot collection of the completed instrument.

Data analysis

The data collected was organised and analysed using mean statistics with standard deviation to answer the four research questions, whereas a t-test was employed in testing the three null hypotheses at a 0.05 level of significance. A four-point rating scale of strongly agree (4), agree (3), disagree (2) and strongly disagree (1) was developed and utilised in getting respondents' level of agreement.

A mean of 2.50 was set as a benchmark for acceptance or rejection. Any item with the mean of 2.50 and above was accepted as agreed, while any item with the mean less than 2.50 was rejected. The null hypothesis was rejected if the calculated value of the t-test statistic is either equal to or greater than the critical value at the appropriate degree of freedom (63); otherwise, do not reject.

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Results

Research question one: what are the roles of technology education in human capacity building in Ebonyi State?

Table 1

Mean Responses of Male And Female Teachers On The Roles Of Technology Education In Human Capacity Building In Ebonyi State

Item Description	Male		Female		Overall		Decision
	X_1	SD	X_2	SD	X_3	SD	
1. Provision of trained personnel in applied science and technology	2.75	0.10	2.93	0.09	2.84	0.10	A
2. Provision of technical knowledge and vocational skills for agriculture, industry, commercial and economic development	2.81	0.15	2.67	0.13	2.74	0.13	A
3. Provision of skills in solving environmental challengers	2.59	0.08	2.66	0.18	2.63	0.14	A
4. Imparting necessary skills leading to development of craftsman and technicians	2.65	0.12	3.12	0.23	2.89	0.22	A
5. Provision of awareness on the increasing complexity of technology for necessary precaution measures	2.85	0.21	3.06	0.20	2.96	0.21	A
6. Provision of professional study area in engineering and technologies	2.73	0.18	2.81	0.19	2.77	0.19	A

The result in Table 1 above revealed that male and female teachers in technical colleges in Ebonyi State agreed that the six-item statements investigated were all viable roles of technology education in human capacity building. This was observed from the overall mean values, which ranged from 2.63 to 2.89, indicating agreement because the mean values were all above the benchmark of 2.50. The grand mean of the two groups of the respondents (2.73 and 2.88) with an overall grand mean of 2.81 were all above the criterion mean (2.50), showing that they all agreed to the items as roles of technical education in empowering the recipients. The

closeness of standard deviation (SD) indicates homogeneity in their responses.

Table 2

Mean Responses of Male and Female Teachers on Constraints of Technology Education in Government-Owned Technical Colleges in Ebonyi State.

Item Description	Male		Female		Overall		Decision
	X_1	SD	X_2	SD	X_3	SD	
7. Curriculum crisis	2.15	0.05	2.30	0.11	2.23	0.08	DA
8. Poor funding	2.31	0.15	3.31	0.12	2.81	0.14	A
9. Teaching and learning approaches	2.63	0.23	2.61	0.18	2.62	0.21	A
10. Administrative crisis	3.07	0.09	2.51	0.19	2.79	0.14	A
11. Inadequate training facilities	2.74	0.06	2.84	0.09	2.75	0.08	A
12. Poor emphasis on skill acquisition for literacy knowledge	3.10	0.18	2.70	0.15	2.90	0.17	A
13. Insufficient industrial skill practices in lesson delivery	2.46	0.24	3.02	0.06	2.74	0.15	A
14. Bias in University admission crisis	2.83	0.12	2.35	0.21	3.05	0.17	A
15. Poor interest assessment in parents' decision on choice of courses for their wards.	2.56	0.13	2.69	0.16	2.63	0.15	A
16. Poor entry level into technical and vocational job-orientated courses	2.61	0.07	2.73	0.12	2.67	0.10	A
Grand x	**2.65**	**0.13**	**2.71**	**0.14**	**2.68**	**0.14**	**A**

Table 2 above shows the mean (x) and standard deviation (SD) of the responses of the two groups, with X and SD ranging from 2.31 to 3.10 and 0.06 to 0.24. These mean ranges, which were all above the criterion mean of 2.50 except item numbers 7 with X of 2.15 and 2.30, indicate that the remaining 9 item statements investigated were road blocks (constraints) to effective implementation of technology education programmes in government-owned technical schools in Ebonyi State. More so, the overall mean ranged from 2.62 to 3.15, except for item number 7 with an overall mean of 2.23, indicating disagreement, while the remaining 9 items were all above the benchmark of 2.50, indicating acceptance of the items investigated as constraints facing technology education in the study area.

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Table 3

Mean Responses of Male and Female Teachers On The Strategies For Promoting Technology Education In Ebonyi State

Item Description	Male		Female		Overall		Decision
	X_1	Decision	X_2	Decision	X_3	SD	
17. Increasing facilities for training of technical teachers Provision of special interest on female students	2.62	0.12	2.68	0.16	2.65	0.14	A
18. Increase in government allocation for funding technical education	3.20	0.11	3.24	0.13	3.22	0.12	A
19. Sorting for international aids and cooperation in operating technical colleges	2.67	0.23	2.58	0.20	2.63	0.22	A
20. Provision of demonstration workshop for trials	2.54	0.17	2.60	0.23	2.57	0.20	A
21. Enlarging the horizon of technical school to cover all industrial and agricultural skill areas	3.05	0.16	2.83	0.18	2.79	0.17	A
22. Provision of scholarship grant to persons with industrial and technological talents (aptitude).	2.70	0.14	2.66	0.15	2.68	0.15	A
23. Partnering with established farms for on-the-job training.	2.68	0.18	2.61	0.17	2.65	0.18	A
24. Conducting method demonstration in all farm and industrial skill areas	2.71	0.13	2.58	0.10	2.65	0.12	A
25. Avoidance of causal workers rather students in Carrying out minor technological jobs in schools.	2.62	0.12	2.69	0.19	2.66	0.16	A
Grand x	2.75	0.15	2.72	0.17	2.74	0.16	A

The result, as shown in Table 3, reveals that the 9 items investigated regarding strategies for promoting technology education were all agreed upon by the two categories of the respondents, as their mean ranged from 2.58 to 3.24, which were all above the benchmark for acceptance. Equally, the overall mean ranged from 2.65 to 3.22 with a standard deviation range of 0.14 to 0.22, as well indicated agreement to the item statements. However, the closeness

of the responses as revealed by the entire standard deviation (SD) indicates homogeneity in their responses. In conclusion therefore, the finding on this cluster shows that all the identified strategies were viable enough in promoting technology education in Ebonyi State.

Table 4:

Mean Responses of Male and Female Teachers On Extension Education Approaches For Sustainable Manpower Development in Ebonyi State

Item Description	Male		Female		Overall		Dec
	X_1	Dec	X_2	Dec	X_3	SD	
26. Assigning supervised project on works requiring specific skills.	2.54	0.72	2.74	0.80	2.64	0.78	A
27. Organizing workshop with emphasis on specific industrial and agricultural skills.	3.06	0.76	2.83	0.75	2.95	0.76	A
28. Delivery published bulletin, pamphlet and leaflet with emphasis on stubborn skills	2.73	0.84	2.73	0.68	2.73	0.76	A
29. Organizing group lecture on farm skills practices.	2.71	0.69	2.90	0.70	2.81	0.70	A
30. Exposing students and would be farmers to re-training programme on farm skill acquisition	2.57	0.79	2.86	0.66	2.72	0.73	A
31. Preparing and delivery extension package to would be farm and students on farm skills acquisition	3.21	0.74	2.77	0.69	2.99	0.72	A
32. Conducting visit to established farms to learn the real situations.	2.67	0.81	2.70	0.71	2.69	0.76	A
Grand x	2.80	0.77	2.79	0.72	2.80	0.7	A

The result presented in table 4 indicates that the responses of technical education teachers in government-owned technical schools agreed to the extension education approaches to be adopted for sustainable manpower development, having a mean range between 2.54 and 3.06, which were all above the criterion mean of 2.50 for accepting an item. In addition, the overall mean also indicated agreement, since the mean ranged between 2.54 and 2.95, also above the benchmark of 2.50. The SD of the two categories of the respondent and the overall SD were close enough, indicating homogeneity in their responses. Therefore, the identified extension education approaches were found to be viable enough in equipping technology education recipients with needed skills for technology operation in agricultural industry. In

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conclusion, therefore, the findings on this cluster show that all the identified extension education approaches were viable enough in promoting technology education in Ebonyi State.

Table 5

AI Tools for Assessing Students' Competency Acquisition of Agricultural Production Skills

Item statement	Poultry farmers		Senior agric sc. Teachers		Extension officers		Overall		Dec.
	X_1	SD_1	X_2	SD_2	X_3	SD_3	X_4	SD_4	
1. Natural language processing (NLP)	2.79	0.88	2.54	1.10	2.65	1.49	2.66	0.98	A
2. Machine learning (ML)	2.74	1.09	3.08	0.77	2.91	0.93	2.91		A
3. Expert system	3.09	0.81	2.72	0.97	2.91	0.89	2.91	0.84	A
4. Robotic process automation (RPA)	3.02	0.87	3.07	1.11	3.04	0.99	3.04	0.89	A
5. Computer vision tools	3.08	1.03	2.54	1.09	2.81	1.06	2.81		A
6. Productive analytics tools	2.64	1.06	3.02	0.86	2.83	0.96	2.86	0.99	A
7. Chatbots	2.60	0.93	3.08	1.03	2.84	0.98	2.84	0.9	A
8. Virtual assistants	3.18	1.12	2.64	1.06	2.91	1.09	2.91	1.12	A
9. Decision support system	2.98	0.89	3.09	1.81	3.04	0.85	3.04	0.93	A
10. Clustering tools	2.62	0.96	2.79	0.88	2.71	0.92	2.72	0.97	A
11. Recommendation system	2.54	1.11	2.74	1.09	2.64	1.10	2.69	1.11	A
12. Text analytical tools	3.98	0.78	2.60	0.93	2.84	0.86	2.85	0.86	A
13. Speech recognition	2.72	0.97	3.16	1.13	2.95	1.05	2.91	0.93	A
14. Image recognition	3.07	1.10	2.90	0.87	2.99	0.99	2.99	0.98	A
15. Artificial general intelligence (AGI)	2.54	1.09	2.63	0.95	2.59	1.02	2.98	0.99	A
Cluster mean	**2.75**	**0.85**	**2.70**	**0.71**	**2.73**	**0.78**	**2.73**	**0.81**	**A**

Table 5 showed that the mean rating of items ranged between 2.54 and 3.18 for both male and female respondents, and the overall mean ranged between 2.59 and 3.04 with an overall grand mean of 2.73, which were all above the benchmark of 2.50 for accepting an item. Hence, the 15-item statements examined were all accepted as appropriate AI tools for assessing students' skill acquisition in agriculture for student acquisition of skills for curbing the food crisis in the rural area of Ebonyi State. The closeness of the standard deviation indicates homogeneity in the responses of both male and female respondents regarding the AI tools for assessing teaching and learning outcomes.

Table 6

Summary of t-test result regarding null hypotheses one (Ho_1)

S/N	Item	No	X	SD	DF	SE	T-cal	T-cril	Level sign	Dec
1.	Male teachers	36	2.73	0.14	62	0.557	1.5	1.98	0.03	Do not reject
2.	Female teacher	28	2.88	0.17						

Table 6 presents the summary of the t-test analysis of the difference between the mean ratings of male and female teachers in government-owned technical schools in Ebonyi State on the roles of technology education in human capacity building. The result shows that the t-calculated value of 1.5 is less than the t-table at 0.05 level of significance. Then, since the calculated t-value is 1.5 while the table value is 1.98, showing that the t-calculated is less than the table value of t, the null hypothesis is therefore not rejected. The result of this test suggests that the difference between the mean ratings of male and female teachers in technical college is not significant. Hence, there is every reason from the results to conclude that there is no significant difference between the mean responses of the two sets of respondents. In fact, any observed difference is not a true difference but a mere chance which could be from sample error.

Table 7

Summary of t-test regarding null hypotheses two (Ho_2)

S/N	Item	No	X	SD	DF	SE	T-cal	T-cri	Level sign	Dec.
1.	Male	36	2.65	0.13	62	0.367	2.64	1.98	0.05	Reject
2.	Female	28	2.71	0.14						

The analysis on table 6 above showed that the t-calculated value of 2.64 is greater than the critical value of 1.98 at 0.05 level of significance at the appropriate degree of freedom (62). Therefore, the null hypothesis was rejected. Hence, the alternative hypothesis was upheld, meaning that there is a significant difference between the mean ratings of the two sets of respondents regarding the constraints facing technology education in Ebonyi State.

Table 8

Summary of t-test regarding null hypotheses three (Ho_3)

S/n	Item	No	X	SD	DF	SE	T-cal	T-cril	Level sign	Dec
1.	Male	36	2.75	0.15						
2.	Female	28	2.72	0.17	62	0.4	0.30	1.98	0.05	

Table 8 above presents the summary of the t-test analysis of the difference between

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the mean responses of male and female technology teachers in the two technical colleges in Ebonyi State regarding strategies for promoting technology education in Ebonyi State. The result shows that the t-calculated value of 0.30 is less than the t-table value of 1.98 at 0.05 level of significance at 62 degrees of freedom. Therefore, the null hypothesis was not rejected. This implies that a significant difference does not exist in the mean ratings of the two groups of the respondents on strategies for promoting technology education in Ebonyi State.

Discussion of findings

The result of this study revealed that technology education is the basic instrument for human capacity building with emphasis on technical knowledge and vocational skill acquisition necessary for industrial and agricultural operations, which would likely have a multiplier effect on productivity. This finding is in line with the finding of Chibuike (2015), which showed factors such as providing trained personnel in applied science and technology, providing technology knowledge and vocational skills, and empowering persons who can effectively apply scientific knowledge in improving and solving environmental challenges, among others, constitute basic roles of technology education in Nigeria.

The result equally indicated that curriculum crisis and bias in university admission criteria constitute a hindrance to technology education programmes in Nigeria. This is in agreement with findings of Okere (2010), who outlined factors influencing technology education to include, but not be restricted to, poor funding, more emphasis on knowledge not skill, and inadequate technological teachers, among others, which constitute roadblocks to effective implementation of technology education programmes. The study examined measures for promoting technology education, to include expansion of facilities for training technological teachers, giving preference to female technology students in utilisation of facilities, increasing allocation of government funds to technical schools, among others, capable of promoting technological education in Nigeria as a resource base. However, resources play a leading role in the achievement of any educational goal. This is also in consonance with findings of Egu in Chibuike (2015), in which he noted that resources are instrumental to the achievement of technical education programme objectives.

Finally, the study examined extension education approaches vital in equipping farmers with manipulative skills for increased productivity, which include, demonstration, field trips, organising seminars and workshops geared toward skill acquisition, organizing public lectures for farmers on skill acquisition and exposure of farmers to training for imparting farm skills to farmers. This is in agreement with the finding of Idenyi (2014) on skill acquisition strategies for promoting personnel performance.

The finding regarding AI tools for assessing students' skills acquisition in agriculture is in line with the finding of Vasconcelos and do Santos (2023), in which they reported that AI tools such as Bing and ChatGPT are objects individuals can think with, especially in the teaching and learning situation for learners to enhance their ability to think critically and reflectively and grasp concepts effectively.

Based on the findings of this study, the following implications were deduced:

1. It was revealed that training resources/facilities are paramount in the acquisition of performance skills; where these facilities are either not available or inadequate, the tendency to turn out half-baked graduates that would not fit into the world of work is imperative.
2. The social tendency for the society to become moribund is possible, and hence the society stands to lose industrially, where technical schools could not furnish recipients with minimum functional training to fully develop their potentialities.
3. The scenario tends to increase the poverty index of the society until technology education and its programme equip the recipients with prerequisite skills.
4. The lapses observed in the implementation of functional technology education prevents geometrical progression and growth of mechanised agricultural development and its sister industrial sectors in rural areas of Ebonyi State.
5. Agriculture education lecturers should incorporate Ai tools identified in their teaching and learning encounters.

Conclusion

Technology education as an aspect of general education is designed and capable of leading recipients in developing their full capacity in securing food security for the nation. In spite of the numerous constraints hindering effective implementations of technology programs, it plays a leading role in human capacity building in Ebonyi State and Nigeria in general. Viable measures have been identified for strengthening implementation of technology education programmes in meeting even increasing industrial skills needs in various

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agricultural enterprises/sectors for improved productivity.

Recommendations

The following recommendations were proffered based on the findings of the study:

1. Teachers of technical schools and colleges should be regularly exposed to training and retraining programmes on specific skills acquisition with necessary facilities for implementation.
2. Female counterparts in technical schools should be encouraged through positive reinforcement to study technology courses in higher institutions of learning / training centres.
3. Practical aspects of technology training, emphasised through the establishment of demonstration farms and production units for trials in schools, should be encouraged.
4. Adequate human and material resources in terms of technical experts, funds, tools/ equipment and facilities should be made available in the right quantity and quality for effective implementation of the programme.

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