

# Effects of Teaching Gardening on Science Students' Attitudes toward Entrepreneurial Skills Acquisition in Jos South, Plateau State, Nigeria

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## ABSTRACT

This study investigated the effects of teaching gardening on science students' attitudes toward entrepreneurial skills acquisition in Jos South, Plateau State, Nigeria. The study employed the non-randomized pre-test post-test non-equivalent control group design. A sample of 75 senior secondary school students from two intact classes, randomly assigned to an experimental group (n=38) and a control group (n=37) was used for the study. An entrepreneurial attitude orientation scale was used to collect data for analysis. The findings indicated that the experimental group exposed to gardening activities showed positive attitudes toward acquiring entrepreneurial skills unlike the control group. However, gender was found not to be a significant factor in students' attitudes toward entrepreneurial skills acquisition. It was concluded that teaching gardening has a significant effect on students' attitudes toward entrepreneurial skills acquisition. It is recommended that students should be taught gardening to enhance their attitudes toward entrepreneurial skills acquisition for self-reliance, among others.

**KEY WORDS:** attitudes; entrepreneurial skills; gender; secondary school

## INTRODUCTION AND REVIEW OF LITERATURE

Unemployment has become a major problem bedeviling the lives of youths in the world's developing nations. This has led to frustration, dejection, and dependence on family members and friends for survival, giving rise to a high rate of poverty, and insecurity in society. Schools churn out large numbers of students year after year who roam the streets due to lack of employment. The National Manpower Board and Federal Bureau of Statistics, for instance, show that in Nigeria, out of the 80 million youth population, 60 million were underemployed and 1.6 million unemployed. Therefore, over 75% of the your population was either underemployed or unemployed. This scenario is not peculiar to only Nigeria. It seems to be about the same in most developing countries in Africa and elsewhere. The effect of youth unemployment as noted by Fanimu and Olayinka (2009) can be seen from the recent notable adverse social economic and political development in many nations of the world, such as increasing militancy, violent crimes, kidnapping, killing, and other forms of youth restiveness.

Alarmed by the unemployment trend in the country, the Federal Government of Nigeria developed a broad-based curriculum for secondary school students expected to have been fully operational from 2011 (Yusuf, 2013). The National Policy on Education (Federal Ministry of Education, 2013) further emphasized the need for the senior secondary school to be

comprehensive with a core curriculum designed to broaden students' knowledge and outlook. To this end, entrepreneurship education was introduced with entrepreneurial concepts infused as crosscutting concepts in the curriculum at the basic and secondary school levels of education, and, as a general course at the tertiary education level.

However, the effort by the government does not appear to yield the required results, and the impact on the youths is yet to be felt. Schools produce graduates who more often than not, are not qualified for the job market because some of the curricula do not equip students with sufficient or requisite skills/entrepreneurial skills for the job market. This scenario has created a gap between what is learnt in schools and the demands made by the job market.

The joblessness of the youths today according to Ofoha (2011) stems from their nonacquisition of entrepreneurial skills, aggravating youth negative attitudes, and behavior in the society leading to acts of thuggery, armed robbery, militancy, restiveness, ethnic, and political clashes and the like. The urgent need to ensure that students possess minimum entrepreneurial skills, which would enable them to be self-reliant and/or employees of labor particularly, in times of economic recession and lack of government jobs does not require any further elaboration (see Olagunju, 2009; Wenekers, et al., 2005).

Existing literature does not reveal any studies that explored the possibility of using gardening techniques as an intervention

for improving students' attitudes toward the acquisition of entrepreneurial skills. Highlighting the importance of this study.

Kuratko and Hodgets (2004) and UNESCO (2012) view entrepreneurial skills as skills that enable people, particularly young people, to acquire both academic knowledge and practical skills to prepare them for responsible citizenship and the world of work. Entrepreneurial skills have to do with the skills/ability of an individual to exploit an idea and create an enterprise (small or big) not only for personal gain but also for social and developmental gain (Olugunji, 2004). Kuratko (2005) sees entrepreneurial skill as a dynamic process of vision, change, and creation, which requires the transfer of its skills and knowledge from an expert to novice. Entrepreneurial skills education by this definition then is the preparation of learners for real challenges in life after graduation from school at any level but, especially at the basic secondary level. However, entrepreneurship education is defined or seen from the foregoing, as a measure for ensuring quality and functional education for self-reliance and job creation. This definition implies that the expert is the teacher or parent who mentors the learner.

Shaibu (2011) in citing Emeruwa (2006) and Ubanyi (2007) viewed entrepreneurship as attitude modification to create and develop an enterprising mind. Entrepreneurial skills acquisition-oriented education helps the students to see relevance of school to their own personal goals and achievement. It is this then, some form of mentorship by a skilled adult. This mentorship can take place either in the classroom or outside the class and all aimed at exposing the student to entrepreneurial experience toward better use of the vast opportunity he/she has to explore to solve contemporary problems. This can also be attained through teaching of biological concepts as targeted by this study.

The impact of modern science in society and business world has raised the problem of acquainting science teachers and students with the social implications of science teaching and learning. The science teachers of the modern world need to understand and appreciate the dependence of a modern society on science and the changes in the structure that have been brought about by the achievement of science and technology. They should not only be able to appreciate and wonder at the modern marvels of science in business world but should also understand the social use of entrepreneurial skills in their day-to-day science affairs in the classroom, outside the classroom, and in the society at large (Das, 2006). Attitude toward entrepreneurial skills acquisition also affects job competency and productivity.

An empirical study on the outputs from Nigerian tertiary institutions conducted by Chiemeké et al. (2009) ranked the developed countries higher than other developing countries for ranking academic productivity on research outputs, knowledge accumulation, and control of social and human capital formation, economic development, and improved living conditions.

This study investigated the effects of teaching gardening on science students' attitudes toward entrepreneurial skills acquisition in Jos South, Nigeria. The specific objectives of the study were to investigate the effects of teaching gardening on science students' attitudes toward entrepreneurial skills acquisitions, extent to which teaching gardening skills promoted entrepreneurial skills, students' attitudinal dispositions toward entrepreneurial skills acquisition, association between gender and students' attitudes toward entrepreneurial skills acquisition.

To achieve these objectives, two research questions were investigated and two hypotheses tested at the 0.05 level of significance.

- i. To what extent do gardening techniques promote entrepreneurial skills acquisition in students?
- ii. To what extent does teaching of gardening account for the attitudes of male and female students toward entrepreneurial skills acquisition?
- iii. There is no significant difference between the attitudes of students taught gardening, toward entrepreneurial skills acquisition and those of students not taught
- iv. There is no significant difference between the attitudes of male and female students exposed to gardening, toward entrepreneurial skills acquisition.

The theoretical framework for the study was anchored on Vygotsky's (1978) theory of social influence on cognitive development. Vygotsky posits that the learner seeks to understand the actions or instructions provided by the tutor (teacher or parent) then, internalizes the information using it to guide or regulate his/her own performance.

## METHODS

### Research Design

The study employed the non-randomized pre-test-post-test non-equivalent control group design. Two intact classes were used not to disrupt normal school arrangement. One class in each school was used as the experimental group and the other as the control group. The experimental group was exposed to gardening for 6 weeks and the control group was taught the same concepts for the same period of time without exposure to gardening. Both groups were administered a pre-test before their exposure to the different methods of teaching. Then, at the end the teaching period, a post-test was administered to both groups.

### Population and Sample

The population for the study consisted of 1973 senior secondary two (SS2) school students from 20 public schools in Jos South, Nigeria. The study sample comprised 75 SS2 students (46 males and 29 girls). The simple random sampling was employed in selecting the students from two senior secondary schools using the lottery method.

### Instruments

The instrument employed in the study was the entrepreneurial attitude orientation (EAO) scale adapted from Robinson et al.

(1991). The EAO scale consisted of three major sections, namely, Sections A, B, and C. Section A sought demographic information from the respondents and Section B contained observational questions that measured the status of teaching gardening for entrepreneurial skills acquisition in the selected schools. Section C had a five-point Likert-scale of strongly agrees - 4 to strongly disagree - 0 (made up of 21 items measuring the attitudes of science students toward gardening and entrepreneurial skills acquisition). The construct validity of the instrument was determined by an expert in tests and measurement using factor analysis. The content validity was also established by two experts in science education from the University of Jos, Nigeria and the reliability index was established as 0.82 using the Cronbach alpha method. The EAO was used to measure attitudes or mindsets of SS2 students that influenced behavior with regard to entrepreneurial activities. The mindsets of entrepreneurs consist of a set of attitudes that help the entrepreneur see and react to the world differently than most other people. This set of attitudes includes innovation or creativity in science entrepreneurship activities, achievement or a desire to achieve concrete results in science entrepreneurship, personal control or a desire to have personal control over science entrepreneurship activities for, and self-esteem or a strong sense of self-worth.

## RESULTS

Frequencies, percentages means and standard deviations were used to answer the research questions while the hypotheses were tested with the t-test statistic at 0.05 level of significance.

Research question one: To what extent do gardening techniques promote entrepreneurial skill acquisition in students?

Data in Table 1 indicates that gardening teaching skills promoted entrepreneurial skills of students to a large extent (53.30%).

Research question two: To what extent does teaching of gardening account for the attitudes of male and female students toward entrepreneurial skills acquisition?

Data in Table 2 reveal that students' attitudinal dispositions toward entrepreneurial skills acquisition were highly positive.

Hypothesis one: There is no significant difference between the attitudes of students taught gardening and those of them not taught toward entrepreneurial skills acquisition.

Data in Table 3 show that there was a significant difference between the attitudes mean scores of students taught using gardening toward entrepreneurial skills acquisition ( $\bar{X}=1.47$ ,  $SD=9.47$ ) and those not taught with that method ( $\bar{X}=1.24$ ,  $SD=6.86$ ,  $t_{0.031}$ ,  $p \leq 0.05$ ).

Hypothesis two: There is no significant difference between the attitudes of male and female students taught gardening toward entrepreneurial skills acquisition.

Result in Table 4 shows no significant difference between the attitudes mean scores of males ( $\bar{X}=1.41$ ,  $SD=0.50$ ) and females

**Table 1: Extent to which gardening techniques promoted entrepreneurial skill acquisition**

Extent of employment of gardening	Number of student (%)
Large extent	40 (53.30)
Small extent	35 (46.70)
Total	75 (100.00)

**Table 2: Students attitudinal dispositions toward entrepreneurial skills acquisition**

Attitudinal disposition to entrepreneurial skills acquisition	Number of students (%)
Positively disposed	57 (76.00)
Negatively disposed	18 (24.00)
Total	75 (100.00)

**Table 3: t-test of difference between the attitudes mean scores of students' taught gardening, toward entrepreneurial skills acquisition and those of students not taught**

Group	Number	$\bar{X} \pm SD$	df	p value
Experimental	38	1.47±9.47	74	0.031
Control	37	1.24±6.86		

SD: Standard deviation

**Table 4: t-test of comparison of means of attitudes of male and female students taught using gardening toward entrepreneurial skills acquisition**

Gender	Number	$\bar{X} \pm SD$	df	$\alpha$ -level
Male	46	1.41±0.50	74	0.409
Female	29	1.31±0.47		

SD: Standard deviation

( $\bar{X}=1.31$ ,  $SD=0.47$ ,  $t_{0.409}$ ,  $p \geq 0.05$ ) taught using gardening, toward entrepreneurial skills acquisition. The null hypothesis was therefore retained, meaning that gender had no significant influence on students' attitudes toward entrepreneurial skills acquisition.

## DISCUSSION

It has been argued that students need to possess minimum entrepreneurial skills which will enable them to function effectively in different settings (Adeyemo, 2003; Yager, 1996; Nwosu, 1995). This research was an attempt to therefore find solutions in this stead. Results in Table 3 show that there was a significant difference between the attitudes of students taught gardening toward entrepreneurial skills acquisition and those of students not taught. This result supports the efficacy of training on entrepreneurship skills acquisition and is consistent with the findings of other researchers (Rae, 2007; Pleshetter, 2009).

Experience shows that training students in skills acquisition is essential and should be encouraged and made to do

their training in a workplace relevant to their course of study to enable them gain more productive and profitable entrepreneurial skills. The youths need exposure in practical entrepreneurial work experience to be proficient in their chosen careers and be useful to themselves and the society.

Entrepreneurship which is a planned effort undertaken by an individual or individuals, institutions or agencies to develop the required competencies in people can easily be addressed through exposure to vocational options. Abubakar (2010) posited that educational institutions and the workplace were different contexts in which learning experiences may occur. Oziengbe (2009) identified technical colleges and trade centers as two places where teaching of skills takes place in the formal sector. In these centers, individuals were provided with needed skills that would enable them to become proficient in both public workplace and private employment.

The principal criterion of skillfulness must be effective action under varying conditions (Maigida et al., 2013). Skills can be cultivated or developed (Osemeke, 2012). Therefore, to develop entrepreneurial skills in students, they need to be exposed to practical orientations. According to Gamberi (2009), there is no greater issue that should be addressed as a matter of urgent national importance than that of skills acquisition by the youth. Especially, when considering the failure of our basic education to yield the expected positive results with its attendant consequences such as armed robbery, militancy, kidnapping, and abduction for ransom.

Therefore, the findings in this study, which are consistent with the literature reviewed, show that the importance of entrepreneurial skills acquisition cannot be overemphasized. Gamberi (2009) noted that if third world countries, such as Nigeria, must be economically self-reliant, they must diversify their economies, and encourage their youth to embrace self-employment through appropriate favorable policy environment that would facilitate skills acquisition, entrepreneurship, and self-reliance among its students.

The results in Table 4 indicate that there was no significant difference between male and female students in their attitudes toward entrepreneurial skills acquisition. This result is consistent with the work of Majumdar and Varadarajan (2013) who in their findings showed that male and female respondents were equally strong in terms of their propensity to become future entrepreneurs. Their estimation showed that the propensity of future entrepreneurship does not depend on gender, but that it depended on factors, such as creativity, motivation, and awareness.

Many other studies have found that there were gender differences in attitudes toward entrepreneurship. For instance, findings of Bassey and Inyang (2001) showed that skills development efforts of male and female students in business studies differ. The findings further showed that boys tend to have a higher level of skills development and performance than girls in technical education-related subjects. Njelita (1997)

in Nwagbo (2002) also found that females tend to achieve better than males in science activities. Swinney et al. (2006) assured that lower performance in women owned firms can be explained by women's greater preference for avoiding risk; though according to them experiential findings on this issue differ.

Prior research on American entrepreneurs conducted by Sonfield et al. (2001) reached the conclusion that females were more prone to risk than men. Females were less willing to risk personal assets and were more conservative in selecting growth strategies (Coleman, 2007). Some researchers have noted that women entrepreneurs have less confidence in their own capabilities (Verheul et al., 2006).

Based on differences in educational background, Verheul (2005) indicated that men are more likely to have earlier entrepreneurial experience, financial management, and application of modern technologies, while women get experience in administration, sales, and personal services. Females according to Coleman (2002) are less likely to have business degrees, special training, and employment experience in business. The research of Swinney et al. (2006) indicated that business performance in male-led companies was higher than in that of their female-led counterparts with the same level of education until female owners receive a college degree. For a start, many businesses are begun from the home. As such, additional training could provide a necessary support and give additional confidence.

In relation to entrepreneurial activity, as it relates to females and observed peculiarities in them, training on starting a new business is a valuable asset. The need to motivate acquisition of entrepreneurial skills for attitude change is therefore inevitable.

## CONCLUSION

From the findings of the study, it was concluded that teaching gardening had the capacity to improve students' attitudes toward entrepreneurial skills acquisition. These findings have far-reaching implications for different stakeholders in education. They call for the incorporation of gardening into the policy of government and educational institutions. Entrepreneurship education should be incorporated fully into the secondary school curricula, as a core course and not just as crosscutting concepts to boost the need for entrepreneurial engagements in Nigeria. At the tertiary level of education, entrepreneurship education should be made more functional. These efforts, with time, would go a long way in transforming the youths into entrepreneurs, job creators, and people who are self-reliant. There should be training and retraining of science teachers in Entrepreneurship Education through short and long term courses, seminars, and workshops.

Teaching for entrepreneurial skills acquisition should be designed in such a way that it will place the teacher at the supervisory or guidance level. In an attempt to trigger these skills the teacher goes round the class to ask if they need help

(guided inquiry method) encourages them to get to know each other, listen and participate well, respect each other's opinion and by this bonding practices of team spirit, building trust are encouraged toward achieving productivity in businesses. Science teachers need to understand, appreciate, and teach students in such a way that they see and understand the social relevance of science and applications of science in day-to-day activities and living. Hence, the need to engage students in entrepreneurial activities and acquisition of favorable attitudes toward them to equip students with requisite skills for self-reliance and job creation.

Science associations both at the national and international levels should mount conferences for teachers, teacher educators, policymakers, and other relevant stakeholders on entrepreneurship in Science teaching and learning. Researchers in other science fields should investigate ways of improving students' attitudes and achievement in those fields through entrepreneurship education.

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