



The Impact of Economic Recession on Teaching and Learning Sciences in Higher Institutions in Bauchi State North Eastern Part of Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

What many nations like Nigeria need now is a functional and qualitative science education that will assist in national development. Science education has been identified to be one of the major bedrocks for the transformation of our national economy, hence must be adequately attended. This work was carried out to determine the impact of economic recession on teaching and learning sciences in higher institutions. A survey research design was adopted for the study. While a sampling random was used, using cluster as a sampling technique to select a sample of two hundred and twelve (212) respondents from Aminu Saleh College of Education, Azare, Bauchi state, Nigeria. The instrument used for the study was questionnaire, the data collected was sorted out and analyzed using frequency distribution table and simple percentage. The problems associated with educational development through teachers, students and management staff were investigated and result pointed out that, all these contributed greatly to the aforementioned negative impact economic recession has on educational

development. The government, teachers, students and management staff are therefore faced with challenges of maximizing whatever allocated to them to reduce the effect of current recession on education.

Keywords: Higher institutions; education; economic recession and learning.

1. INTRODUCTION

The word “higher education” be it a university, college of education, polytechnic, has a several definitions across ages, but its contemporary perspective concerns seeing it as an institution of higher teaching, learning and research which grants degrees, certificates, national diploma and higher national diploma in various disciplines; a corporation that provides both undergraduates and postgraduate education. Higher institutions are epitome of scholarship, the pinnacle of research and the cornerstone of development. It is a place where civilization are shaped, the young are prepared and the future of country is determined. Higher institutions provide the high-level skills necessary for driving any economic activity. It is also provide the necessary training essentially for all professionals including teachers, engineers, doctors, scientists, administrators, nurses, social scientists and a lot of other myriad personnel. It is these trained individuals who develop the capacity and analytic skills that drive local economics, support civil society, lead effective governments and make important decisions which affect the entire country.

The administrators of higher institutions, particularly in developing countries like ours, comes with enormous challenges. One of the crucial challenges presently facing Nigerian education is the economic recession. In view of the above statement, researchers embarked on the topic which is the impact of economic recession on teaching and learning science in higher institutions.

Education is the process of facilitating learning or acquisition of knowledge, skills, values, beliefs and habits. Educational methods including story telling, discussion, teaching and direct research, [1] The dictionary of education [2] defines education as the aggregate of all processes by which a person develops abilities, attitudes and other forms of behavior of practical values in the society in which he/she lives. Education can be described as the wise, hopeful and restful cultivation of learning undertaken in the belief that all should have the chance to share in life [3]. From my view point, Education can be

defined as the process of improving one's knowledge, skills and right attitude that will bring a positive change in behavior. It helps individual to gain knowledge and skills as a guide to the best way through the darkest ignorance. Without education, an individual is like an empty box.

The national bureau of economic research [4] defined a “recession” as a significant decline in economic activity spread across the economy, lasting more than a few months normally visible in a gross domestic product (GDP), real income, employment, industrial production and whole - retail sales. It refers to the period of temporary economic downturn/decline during which trade and industrial activities are reduced. From my understanding, economic recession is a period characterized by a drop in stock market, unemployment, high currency exchange rate, uninvestment and general decline in economic activity.

According to [5], Teaching involves setting out with the intention of someone learning something by considering people's feelings, experiences and needs. [5] weaved this point into another definition of teaching as; the process of attending to people's needs, experiences, feelings and making specific interventions to help them learn particular things. Interventions commonly take the form of questioning, listening, gaining information, explaining some phenomenon, demonstrating a skill or process, testing understanding and facilitating learning activities (such as note taking, discussion, assignment writing, simulations and practices).

Learning is the act of acquiring new or modifying and reinforcing existing knowledge, behavior, skills, values or preferences which may lead to a potential in synthesizing information, depth of the knowledge, attitude or behavior related to the type and range of experience. [6] multimedia learning [7] (condition of learning), sees learning as a change of human or disposition or capacity that persists over a period of time and is not simply referable to process of growth. Learning is a social activity involving people, the things they use, the words they speak, the cultural context they are in, and the actions they take [8]; [9], and that knowledge is built by members through

activities [10]. From my point of view, learning is the ability of an individual to acquire skills, knowledge and the right attitude through a long term experience. Nigeria.

2. CONCEPT OF SCIENCE

Science is a systematic Enterprise that build and organizes knowledge in the form of testable explanations and predictions about the universe [10]. Contemporary science is typically subdivided into the natural sciences, which study the material universe; the social science, which are the study people and societies; and the formal sciences which are study of logic and mathematics. The formal sciences are often excluded as they do not depend on empirical observations. Discipline which use science, like engineering and medicine, may also be considered to be applied sciences.

3. THE NIGERIAN UNIVERSITY AND CURRENT ECONOMIC RECESSION

[11] delivered that a phenomenal expansion of the Nigerian university system began with the oil boom of the 1970's. Following a downturn in the nation's economy and the introduction of structural adjustment programs, governments' subventions to Nigerian universities have dropped appreciably, and in real terms, the universities have suffered considerable decline in income. Institutional structures for monitoring efficiency have played an important role in efforts to maintain academic standards, but in the face of continued uncontrolled expansion and in the absence of basic facilities for teaching, learning and research, the university system cannot sustain a healthy growth. Greater attention is being given to improve fiscal management, income generalization by the university system and the rationalization of academic programs. To say that institutional structures of education in Nigeria as they relate to teaching, learning research and community service are literally buckling under the excruciating weight of the current recession which has thrown a spanner on wheel of educational growth and development of the nation is certainly stating the obvious.

[11] Concluded that as a result of economic recession, access to and availability of funds for university operational management and administration and for supporting teaching, learning, research activities and community development will reduce. Consequently, the

delivery of service in the university and the quality of products (graduates) will be compromised, this has far reaching implications for the nation in terms of human resources development and sustenance. Poor quality graduates will be sent into the labour market with an adverse effect on the employers and the total productivity. Research and its output, which should address societal challenges, to meet national needs and promote national development will suffer as a result of the economic recession with its attendant squeeze on the purchasing power of universities due to inflation. When funding is adequate for application to research, national development will be impeded and the impact of universities on the society will not be significant, except for churning out poor quality graduates who may not have hands - on practical skills.

4. THE EFFECT OF GREAT RECESSION ON ECONOMIC CONDITION OF FAMILIES

In The face of recession, families have suffered lost income, great debt and more financial insecurity, factors that might negatively impact college outcomes. Firstly family income have fallen or remained stagnant, partly due to increasing unemployment nationally, the unemployment rate grew from 4.7 percent in September 2007 to 10.1 percent in October 2009. For people under the age of 25, unemployment increased from 11.5 percent during the first quarter of 2008 to 18.3 during the fourth quarters of 2010, Bell and Blanchflower 2011.

5. METHOD OF DATA ANALYSIS

The four selected institutions were revisited for the retrieval of the completed questionnaires from both staff and students. The responses from these respondents were sorted out and then analyzed accordingly where their interest, perception and attitude towards the questions were determined. Frequency distribution table and simple percentage method of data analysis were considered.

6. DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

This focused on the presentation and analysis of the data collection during the study. The results are presented in form of Tables 1-10.

Table 1. is there any relationship between qualitative education and the national industrialisation?

S/S	Items	Opinion	Frequency	Percentage (%)
1	Do you have a science laboratory in your school? If yes how well is equipped?	i. Well equipped	12	48
		ii. Partially equipped	8	32
		iii. Non equipped at all	5	20
			25	100
2	How many times do you run practical lessons in a week?	i. Once per week	20	80
		ii. Twice per week	5	20
		iii. Non per week	0	0
			25	100
3	How many science lectures do you have in your school?	i. PhD holders	3(10)	40
		ii. Msc Holders	5(10)	40
		iii. Bsc holders	6(5)	20
		iv. HND holder	0(0)	0
			25	100

Table 2. What is the impact of gross domestic product on the quality and functionality of education?

S/N	Items	Opinion	Frequency	Percentage (%)
4	How many (theory) lessons do you have in a week?	i. Once per week	11	44
		ii. Twice per week	2	8
		iii. Three times per week	12	48
			25	100
5	How many time do you have test/assignment per semester	i. Once per semester	4	20
		ii. Twice per semester	20	80
		iii. Three times per semester	1	4
			25	100
6	Do you have a library in your school? If yes how was it equipped?	i. Well equipped	10	40
		ii. Partially equipped	13	52
		iii. Non equipped at all	2	8
			25	100
7	Do you have current scientific books and journals in your library? If yes, are they enough in number?	i. A reasonable number is available	7	28
		ii. A good number is available.	7	28
		iii. Only few of them are available.	11	44
			25	100
8	Do you have chemistry instructional material like models and chart in your school? If yes how often are these been used in order to make lesson simpler and understandable?	i. Regularly	10	40
		ii. Irregularly	10	40
		iii. Not at all	5	20
			25	100

Table 3. What are the actual factors affecting teaching and learning sciences under economic recession

S/N	Items	Opinion	Frequency	Percentage (%)
9	Does your school conduct science expeditions? If yes how often?	i. Once per year	11	44
		ii. Once after every 2 years	8	32
		iii. Not at all	6	4
			25	100
10	Does your school/department organize internal seminars? If yes, how many times per semester?	i. Once per semester	15	60
		ii. Twice per semester	6	24
		iii. Not at all	4	16
			25	100
11	Are the students' attendance/participation in the above compulsory or optional?	i. Yes, it is compulsory.	16	64
		ii. No, It is optional	9	36
			25	100

Table 4. Are the actual factors have any positive impact on teaching and learning sciences at tertiary level?

S/N	Items	Opinion	Frequency	Percentage %
12	Does your school/department under take excursion? If yes, how often?	i. Once per year	4	16
		ii. Once after every 2 years	14	56
		iii. Not at all	7	28
			25	100
13	Does your school provide buses for students' mobility? If yes, how many of them in number?	i. Four buses daily	3	12
		ii. two buses daily	13	52
		iii. Three buses daily	9	36
		iv. Not at all	0	0
			25	100

Table 5. Does a qualitative and functional education have a positive impact or otherwise on employment and socio economic development of individual citizens and the nation at large?

S/N	Items	Opinion	Frequency	Percentage %
14	How can you rate the understanding of science subjects in your school generally?	i. Easy	15	60
		ii. Difficult	5	20
		iii. Very difficult	5	20
			25	100
15	Does your school environment provide a conducive atmosphere for teaching and learning sciences like chemistry?	i. Yes	20	80
		ii. No	5	20
			25	100
16	How can your chemistry teachers/lecturers according to skill and competence?	i. Competent	10	40
		ii. Average in competent	10	40
		iii. Incompetent		
			25	100

Table 6. What is the role of education in the peace and political stability of the nation?

S/N	Items	Opinion	Frequency	Percentage %
17	How does lack of supply materials, equipment and teachers effects learning (students' performance)	i. Negatively	10	40
		ii. Highly negative	10	40
		iii. No impact at all	5	40
			25	100
18	How often does the management supervise the teaching of sciences in school	i. Regularly	5	20
		ii. Irregularly	10	40
		iii. Not at all	10	40
			25	100

Table 7. What is the relationship between pragmatic education with the socialization and social mobility of the citizenry in a nation?

S/N	Item	Opinion	Frequency	Percentage %
19	How often do you conduct experimental method to sciences such as saponification, preparation of Aspirin	i. Regularly	5	20
		ii. Irregularly	10	40
		iii. Not at all	10	40
			25	100

Table 8. Lectures of Aminu Saleh COE Azare questionnaires

S/N	Item	Opinion	Frequency	Percentage %
1	How many science Teachers do you have in your department?	i. Ph.D holders	1 (15)	60
		ii. Bs.C holders	7 (5)	60
		iii. Ms.C holders	9(5)	20
		iv. HND holders		
			25	100
2	What in your opinion is the student/teacher ratio in your school?	i. 1-40	3	12
		ii. 1-100	5	20
		iii. 1-150	15	8
		iv. 1-200	2	
			25	100
3	Do you chemistry laboratory in school? If yes, how well is it equipped?	i. Well equipped	5	20
		ii. Partially equipped	16	64
		iii. Not equipped at all	4	16
			25	100
4	How many practical lesson do you conduct per week?	i. Once per week	20	80
		ii. Twice per week	5	64
		iii. Not at all	0	0
			25	100
5	Do you have library in your school? If yes, how was it equipped with scientific Textbooks and journals?	i. Well equipped	4	16
		ii. Partially equipped	20	80
		iii. Not equipped at all	1	4
			25	100
6	How many current chemistry journals do you have in your school? State the number according to your perception.	i. 1-5	20	80
		ii. 1-10	5	20
		iii. 1-20 and above	0	0
			25	100

7	Do you attend seminar/workshop organized by training institutions like ITF, CMD, and ASCON? If yes, how often?	i. Regularly	3	12
		ii. Irregularly	17	68
		iii. Not at all	5	20
			25	100
8	How often were you promoted because of your performance?	i. After every 4 years	10	40
		ii. After every 3years	13	52
		iii. Not at all	2	8
			25	100
9	Do you enjoy privileges like car loan, housing loan, medical and utility allowances?	i. Yes	0	0
		ii. Not	25	100
			25	100
10	Do you enjoy staff development in your school? If yes, how often?	i. After every 3 Years	11	44
		ii. After every 4Years	7	28
		iii. Not at all	7	28
			25	100
11	Are you accommodated school staff quarters?	i. Yes	4	16
		ii. No	21	84
			25	100
12	Do you organize internal seminar in you school/department in order to improve yourself and your students? If yes how often?	i. Once quarterly	10	40
		iii. Once per semester	10	40
		iii. Not at all	5	20
			25	100
13	Do you have modern scientific models, charts and other instructional materials in your school/department? If yes, how often do you appropriately use them in Teaching your students?	i. Regularly	5	20
		ii. Irregularly	15	60
		iii. Not at all	5	20
			25	100
14	Do you receive allowances for teaching sciences/mathematics as well as hazard allowance?	i. Monthly basis	3	12
		ii. Quarterly basis	2	8
		iii. Once in year	5	20
		iv. It is not paid at all	15	60
			25	100

Table 9. Management of Aminu Saleh COE Azare questionnaires

S/N	Item	Opinion	Frequency	Percentage %
1	Do you receive overhead cost from the government? If yes how often.	i. Once quarterly	1	33.33
		ii. Once after every six month	0	0
		iii. Once in a year	0	0
		iv. Not at all	2	66.66
		3	100	
2	Is the above subvention enough to meet your institutions demand?	i. Yes	0	0
		ii. No	3	100
		3	100	

3	Kindly indicate the number of the following structures built in your school for the last three years	i. Number of lecture hall (9)	0	0
		ii. Number of clinics (1)	2	66.6
		iii. Staff office (53)	1	33.33
		iv. Students hostel (3)	0	0
			3	100
4	Kindly indicate the quantity of equipments, reagents and furniture purchased by the school for the last three years.	i. Equipments /machines (0)	0	0
		ii. Reagents/ Chemicals (0)	0	0
		iii. Furniture (0)	0	0
		iv. Lab cupboards (0)		
			3	100
5	Kindly indicate the amount allocate for the purchase of stationeries for the last three years?	i. 2015 (N6.6M)	1	33.3
		ii. 2016 (N6M)	1	33.3
		iii. 2017 (N4M)	1	33.3
			3	100
6	Kindly indicate the number of vehicle purchased for students mobility and staff (management staff) welfare for the last three years.	i. Buses (7)	1	33.3
		ii. Saloon cars (12)	1	33.3
		iii. Water tankers (2)	1	33.3
		iv) Motorcycles (5)	1	0
			33.3	33.3

7. SUMMARY OF THE MAJOR FINDINGS

The findings from the data collected in all four schools shows that, the allocation from government to the schools has dropped drastically and as a result, it has affected the purchase of equipment, stationeries and employment of personnel needed for effective curriculum delivery. These allocations include; grant, overhead cost and subventions which are no longer enjoyed fully by the schools because of economic recession.

The petro - dollar coming to Nigeria had massively reduced, which is responsible the low allocation to education sector in the nations' budgets. This negative development is fairly responsible for under qualified teachers, as well as low standard graduates at all level of education. The nation therefore, will fall into the hands of incompetent, unskillful teachers, while the students were not opportune to acquire qualitative and functional education.

8. CONCLUSION

In summary, the current economic recession has resulted to a drop in government allocation to education sector, which therefore negatively affected teaching and learning of sciences. However, even economic recession does have advantages. In our own case, it affords

government to critically look into its` priorities and reorder them in such a way that areas needing attention would be accorded more funding, which must be accompanied by proper monitoring, with a view to ensure judicious application of funds. I hold strong view that education will remain a top priority in Nigeria; hence government should take advantage of the current economic recession and revisit the dismal state of our tertiary institutions.

9. RECOMMENDATIONS

Based on the findings obtained from the research, the following recommendations were made;

1. There is need of diversification of Nigeria revenue sources through improvement in solid minerals, agriculture and tourism sector to boast the economy.
2. Concerted efforts and good attempts should be made by education stake holders to maximize their allocated resources by government.
3. Application of TETFUND resources should be deliberately directed towards making our tertiary institutions better. Not merely thinly spreading resources in manifesting

corrupt way ending up in marginally achieving political points.

4. Tertiary institutions should be encouraged under relevant laws and policies to improve their internally generated revenue (IGR), by way of giving them incentives to attract corresponding matching grant tied to achieve specific target
5. Government should provide necessary funds to reduce effect of the recession on educational development.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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