
Effects of Strike Actions on Nigerian Higher Education Goals and Programme

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Abstract: This paper looked at the effects of strike action on the Nigerian higher institutions programme or goals. The paper employed both primary and secondary data. Libraries and online resources were consulted and used in the paper. The paper concludes that strike actions in the Nigerian higher institutions have led to the suspension of the teaching programme, research programme, community service programme and programme accreditation of the various higher institutions. The paper also established that strike actions led to poor rating of higher institutions, reduction in internally generated revenue of the higher institutions, reduction in the quality of higher education, prolonged academic calendar, poor academic performance of students and brain-drain. To address these problems, the paper suggested the following; the government should increase the funding of higher institutions and implementation of all the agreement entered into with different union groups in the various higher institutions.

Keywords: Community services, Effects, Higher education, Teaching, Researching, Programme University.

Introduction

The Nigerian higher education is the largest in Africa. It is the higher education with the largest students and largest teaching and non-teaching staff. The Nigerian higher education that includes Universities and Inter-University Centers such as the Nigeria French Language Village, Nigeria Arabic Language Village, National Institute of Nigerian Languages, institutions such as Innovation Enterprise Institutions (IEIs), and Colleges of Education, Monotechnics, Polytechnics, and other specialized institutions such as Colleges of Agriculture, Schools of Health and Technology and the National Teachers' Institutes (NTI) is faced with many problems.

The academic and non-academic staff of higher institutions in Nigeria established different union groups that are saddled with the responsibilities of protecting their interest and fight for the improvement of their working conditions. Specifically at the colleges of education, the labour union is called Colleges of Education Academic Staff Union (COEASU) for the academic staff and Colleges of Education non-Academic Staff Union (COENASU) for the non-academic staff. In the Polytechnics, the trade union there is called Academic Staff Union of Polytechnics while at the universities, there are four major union groups which include; Academic Staff Union of Universities, ASUU, the Senior Staff Association of Nigerian Universities, SSANU, and Non-Academic Staff Union of Educational and

Associated Institutions, NASU and the National Association of Academic Technologists (NAAT).

These unions groups are known for embarking on strikes always because of government failure to meet their *sincere* demands. The history of strike in tertiary institutions in Nigeria according to Odim, Annastashia & Solomon (2018) is *dated* back to 20thMay, 1980, when a trade *dispute* was declared with the Governing Councils of Universities in Nigeria, which demanded improved funding of the universities, academic freedom, autonomy, as well as the setting up of a special body, to review the conditions of service of the universities' staff. A review of strike from 1999 till 2020 revealed that since 1999, ASUU and other *union* groups in the public universities have embarked on strike for five months. In 2001, it was for three months! In 2002, the union members were at home for two weeks. In 2003, ASUU members downed tools for a whopping six months. The union was on strike for two weeks in 2005, one week in 2006 and three months in 2007. The strikes actions continued in 2008 (one week), 2009 (four months), 2010 (five months) and 2011 (two months)! The intensity of industrial action by ASUU picked up again in 2013. The union embarked on strike for five and a half months. There were other strikes by ASUU between 2013 and 2020 (Akpenvwe, 2022, thenationonline, 2022).

Data analyzed by newspaper in 2018 and updated till 2020 showed that since 1999 Nigerian lecturers had gone on strike 15 times. The entire period they embarked on such strike spanned about 50 months. This represents about one-fifth, or 20 per cent, of the number of years since the dawn of democracy in Nigeria (1999). The report showed that during the Olusegun Obasanjo administration, academic workers downed tools for a cumulative period of about 18 months, approximately 19 per cent of his eight-year reign. The Umaru Yar'Adua administration's three-year span saw about four months and a week of strike. During Goodluck Jonathan's administration, the length of the strike in the universities had reached 13 months, which is 22 per cent of his years in office. So far, under Muhammadu Buhari, Nigerian universities have been shut for a total of 12 months and counting (or 18 per cent of his five-and-a-half-year tenure) (Yusuf, 2020, Premium Times, 2020). It is important to discuss the effects of strike actions on Nigerian higher institutions programme or goals.

Concept of Higher Education

Tertiary education was defined by Federal Republic of Nigeria in her national policy on education (2013) as the education given after Post Basic Education in institutions such as Universities and Inter-University Centres such as the Nigeria French Language Village, Nigeria Arabic Language Village, National Institute of Nigerian Languages, institutions such as Innovation Enterprise Institutions (IEIs), and Colleges of Education, Monotechnics, Polytechnics, and other specialized institutions such as Colleges of Agriculture, Schools of Health and Technology and the National Teachers' Institutes (NTI) (FRN, 2013). Adeyemi (2001) viewed Higher Education as a system which embraces much of the country's research capacity and reproduces majority of the skilled professionals that are required in the labour market. Obanya (1999) defined Higher Education as including all forms of professional institutions drawing from the pool of persons who have completed various forms of secondary school education: Institution of the military, the police, nurses, agriculture, forestry, veterinary workers, catering services, tourism, secretarial services and other combinations of programmes. Tertiary Education goals according to the national policy (2013) shall to include: contribute to national development through high level manpower training; provide accessible and affordable quality learning opportunities in formal and informal education in response to the needs and interests of all Nigerians; provide high quality career counseling and lifelong learning programmes that prepare students with the

knowledge and skills for self-reliance and the world of work; reduce skill shortages through the production of skilled manpower relevant to the needs of the labour market; promote and encourage scholarship, entrepreneurship and community service; forge and cement national unity; and promote national and international understanding and interaction (FRN, 2013).

There are three cardinal programme of the higher institutions and these cardinal programme include teaching programme, research programme and community services. The higher institutions also have some other programme such as accreditation programme etc. The higher institutions programme or goals in Nigeria is faced with problem of strike actions.

Concept of Strike

A strike is commonly, according to Archie (undated), considered the last weapon in the armory of organized labour for settling industrial disputes. When all other options for amicable settlement of an industrial dispute have exhausted and negotiations with the employer have failed, the workmen resort to strike action. The Industrial Disputes Act, 1947, defined a strike as “a cessation of work by a body of persons employed in any industry acting in combination, or a concerted refusal, or a refusal under common understanding of any number of persons who are or have been so employed to continue to work or to accept employment”. Archie (undated) observed that Strike is today regarded as a legitimate weapon for the workmen for the purpose of projecting their demands. If an employer denies or refuses to give his workmen some benefits to which they are entitled, the law gives the concerned employees a weapon to force the employers to accede to their demands. According to Archie (undated) the weapon is stoppage of work, which popularly known as strike.

Strikes are important not only from industrial point of view but also from social and economic points of view as well as they leave an impact on the society as they do on labour and employees. The word strike is an artificial character and does not represent any legal definition or description. It is an agreement between persons who are working for a particular employer, not to continue working for him. It is simultaneous cessation of work by labour or workers temporarily in order to express grievance or to enforce a demand concerning changes in work condition (Archie undated).

Strike action is a work stoppage in an organization, caused by the mass refusal of employees to work. A strike usually takes place in response to employee grievances and unfilled demand. "Strike means concerted action of group of people resulting in a cessation of work, a refusal to work or to continue to work by employees, or a slow-down or other concerted activity of employees that is designed to or does limit production or services, but does not include an act or omission required for the safety or health of employees . The strike is labour's strongest weapon against the employer and is the counter weapon of the LOCK OUT." Strike may be of various types — namely general strike, stay in sit down, tools down strike, pen down strike, hunger strike, sympathetic strike. The essential elements of a strike are as follows according to Archie (undated):

- (i) The strike involves a combined and concerted withdrawal of services by workers.
- (ii) The cessation of work is for a temporary period. The strike does not imply termination of an employer-employees relationship. Strikers know that they will resume work after the strike ends.
- (iii) The strike is resorted to for achieving certain objectives. The main objective is furthering and protecting the workers' rights and interests, particularly for fulfilling specific demands for the benefits of workers.

There are many reasons or factors responsible for why the labour union groups in Nigerian higher institutions are embarking on strike actions always. Some of the reasons according to Ogunode (2020) is poor funding of higher education. Okoli, Ogbondah & Ewor (2016) identified poor implementation of agreement reached with the unions while Ogunode, Jegede & Musa (2021) pointed out to the poor working condition and lack of infrastructural facilities in the various higher institutions.

A study by Christian (2015) that examined the influence of strike action on the academic performance of students in tertiary institutions with particular reference to Alvan Ikoku Federal College of Education Owerri, Imo State and the result showed poor remuneration, negligence by government, unconducive academic environment among others were identified as major causes of strike action. Ogunode (2020) did a study *that* investigated the causes of unstable academic calendar in Nigerian higher institutions. The result collected showed that that Academic Staff Union of Universities/Non Academic Staff of Union of Universities (ASUU/NASU) Strikes, students' election, communal crisis, increase in school fees, cultic conflict, National programme and public holiday are factors responsible for unstable academic calendar of higher education in Nigeria. Also Odim, Annastashia & Solomon (2018) outlined the following as the causes of strike actions in Nigerian higher institutions; poor and inconsistent payment of salaries, poor conditions of service, political interference in Education, Poor funding of the education sector, non-compliance to agreement and unnecessary delay in payments of salaries and other emoluments.

Effects of Strike actions on Nigerian Higher Education Programme

There are many effects of strike actions on the programme of higher institutions in Nigeria. Some of the effects include disrupting teaching programme, research programme, community services and programme accreditation of the higher institutions.

Teaching Programme

Teaching programme is the first cardinal programme of the higher institutions. Teaching *is* of one of the most important programme because of *its relevance* to the realization of education objectives. Teaching programme *constitutes* all activities designed to modify behavior positively. Ehichoya & Ogunode (2020) opined that the objective of teaching programme cannot be realized in an educational institution where academic calendar is not stable. Nigerian higher institutions are known for unstable academic programme due to strike by different unions in the various institutions across the country. Teaching is mostly affected whenever there is strike. It affects the implementation of teaching programme as planned. Okoli, Ogbondah, & Ewor submitted that it has become a known fact that students across various universities in Nigeria are constantly faced with industrial actions embarked upon by the Academic and Non-Academic Staff Unions of various institutions. The disagreement or lack of understanding between government and unions arising from non-implementation of agreement reached, often results in deadlock that usually disrupts academic calendar. As academic activities are suspended for a long period, the students' academics suffer. Even the previous knowledge acquired is even forgotten by some students. This mostly turns some students into *certificate* seekers than knowledge seekers.

Research Programme

Ogunode, Jegede, Adah, Audu, & Ajape, (2021) submitted that research programme is the second cardinal programme of the universities. It is among the criteria used for measuring the performance of the universities. The aim of research programme of the universities is to aid the social, economic and technological advancement of the country. Ogunode, Jegede, Adah, Audu, & Ajape observed that strike action by different union groups in the public universities

in Nigeria is a very enormous challenge facing the administration of research programme in the universities. We know Nigerian public universities for strike actions. The refusal of the federal government to implement the agreement reached with the different union groups in the universities led to the incessant strike actions. Tomori (2022) opined that nothing functions when the universities are on strike. If an international collaborator had an agreement with a scientist doing research in Nigeria, and they fail to deliver results because the university is on strike, it will disrupt the programme or project because research grants have a time limit. So, when our university system goes haywire, researchers can't go to their laboratories or access their funds — and that means they can't buy reagents and work, or attend scientific conferences. Equipment that requires constant servicing and maintenance suffers damages. And in an ongoing study that, for example, requires samples to be collected from a group of people, but the samples can't be collected for six months because of strikes, then that's the end of the experiment. Those are ways that the strikes have been affecting scientists. The students' research work, lecturers' research work and international conferences and domestic conferences are also suspended during strike actions in the Nigerian higher institutions. Ogunode (2020) did a study *that* investigated the causes of unstable academic calendar in Nigerian higher institutions. The result collected showed that strike actions by the union groups in the public universities is hindering and frustrating the development of research programme in the Nigerian universities.

Community Service Programme

Ogunode, Audu & Olatunde-Aiyedun (2022) opined that community service programme is the third cardinal programme of the tertiary institutions. Community service programme is an organized and planned service programme of higher institutions for the benefit and betterment of their host community. Community service programme of higher institutions are community inclined services initiated by the institutions to develop the communities. Community *services* of higher institution are services provided by institutions to *benefit* the community people. Community services programme are done near the area where the institutions are located so that the host community can *enjoy* the benefits of the institutions. Community *services* of higher institution include all kinds of services that *are* meant to improve the wellbeing of the people and the society *in* general. Community *services* are essential *services* designed by institutions to provide socio-economic development to the community (Ojelade, Aiyedun & Aregbesola). Unstable academic calendar of the tertiary institutions in Nigeria is also hindering effective implementation of community service programme of respective institutions. Ogunode, Jegede, Adah, Audu & Ajape, (2021); Lawan and Ogunode (2021) stated that strike actions in the Nigerian higher institutions are affecting the implementation of higher institution programmes

Programme Accreditation

Continuous strike actions in the Nigerian higher institutions *are* affecting the accreditation programme of many higher institutions. Programme accreditation is a special programme of all higher institutions. Regulatory bodies of different higher institutions are saddled with the responsibilities of periodically ensuring new *programmes* are accredited and old *programmes* are also checked for fitness. In Nigeria, National Universities Commission [NUC], National Commission for Colleges of Education [NCCE] and the National Board for Technical Education [NBTE] are the institutions in charge of programme accreditation. The strikes embarked by different unions groups in the higher institutions always lead to the suspension of programme accreditation in the higher institutions. Ogunode & Abubakar (2020) observed that strike actions always disrupt the academic programme of the schools, causing more cost and prolong student programme. Strike actions in the tertiary institutions of learning have

constituted a serious threat to effective learning. All the tertiary institutions witnessed a strike action in 2009. Non-accreditation of some of our tertiary institutions as a result of strike actions.

There are other activities in the higher institutions that the strike actions *are* affecting. The strike actions by the different labour unions in the higher institutions in Nigeria have also affected the rating of the various higher institutions especially the universities. Stable academic programme is among the criteria for rating performance of higher institutions. Musa (2015) submitted that one of the *reasons* Nigerian public universities are not performing well in international ranking is the problem of strike actions that always *occur* in the various higher institutions disrupting *the academic programme, and hence performance*.

Another negative effect of strike actions in the Nigerian higher institutions is *that* it has led to reduction in internally generated revenue of the higher institutions and leads to capital flight. Millions of naira that are supposed to *have* gone into the Nigerian higher institutions are going outside the country. Central Bank of Nigeria (CBN) (2021) stated that thousands of *Nigerians* every year are sending their children out of Nigeria to seek for foreign higher education because of the problem of strike in the Nigerian higher educational system. This *action involves* a lot of financial implications that required the use of international currencies. According to the Central Bank of Nigeria (CBN), foreign education has cost Nigeria a whopping sum of \$28.65 billion between 2010 and 2020 (10 years). According to the apex bank, in the 1980s and 1990s, “You would search hard before you can find parents who sent their children to primary and secondary schools abroad. Today, a sizeable amount of the foreign exchange request Nigerian banks receive for school fees are for primary and secondary school education, some of which are for neighboring African countries,” it lamented. All these, according to the apex bank, add pressure on the Nigerian Naira and cause the Dollar exchange rate to increase. Oyekanmi, (2021) cited Central Bank of Nigeria’s (CBN) who observed that for Nigeria, data shows that whilst Nigeria(ns) have remitted over \$28 billion to foreign academic institutions, there does not appear to be significant reciprocation in form of inflows from foreign sources towards Nigeria’s education sector. This situation of huge NET dollar outflows towards foreign academic institutions without any reciprocity has dual adverse effects of resulting in underinvestment in Nigeria’s domestic educational sector whilst simultaneously creating pressure on the Naira exchange rate. Needless to say, that the high demand for dollars to pay these foreign educational institutions has affected the country’s foreign reserve (which currently stands at \$33.39 billion), and contributed immensely to piling pressure on the exchange rate.

Strike *action* also has the capacity to reduce the quality of higher education because it affects coverage of scheme of work and syllables. Edinyang & Ubi (2013; Ogunode Niyi Jacob, Ogunode & Lawan (2021) submitted the negative effects of strike actions on the higher institutions is that it reduces the quality of education because at the end of the day scheme of work for that semester may not be covered and the students will be *pushed* forward to go and write *examinations*. Adeboye, (2003) in his study noted that the higher the level of crisis, disruptions and hostility, the lower the level of productivity, standard and quality of the products of the system. Ogunode did a study *that* investigated the causes of unstable academic calendar in Nigerian higher institutions. The result collected established that half-*baked* graduates, poor coverage of syllabus and poor research development were the effects of strike actions. Strike actions in the higher institutions can lead to prolonged academic calendar. Odim, Annastashia & Solomon and Oladipo (2012) stated that strike would result in the academic calendar being compressed and parts of the curriculum skipped, some topics would not be treated and the *students* would have to write the *examinations* like that, resulting in poor performance and decline in quality of education. The long term effect of the strike would be profitable to all, when government meets the demands of the academic staff

union of universities. The immediate effect of the strike is obviously adverse. It would be very tough. Programmes would have to be adjusted, lectures, tests, *examinations*, meetings and so on. Afolabi & Ogunode (2021) and Ogunode & Lawan observed that the Nigerian higher institutions are known for various strike *actions* embarked upon by different union groups as a result of failure by the government to implement some *agreements* signed to be implemented by the government. The result of strike action on the educational institutions is disruption in academic programme *and it becomes a natural consequence of each industrial action or strike.*

The performance of students in the higher institutions can be affected by strike actions. A study by Christian (2015) that examined the influence of strike action on the academic performance of students in tertiary institutions with particular reference to Alvan Ikoku Federal College of Education Owerri, Imo State and the result showed that strike *actions* highly influence the academic performance of students in tertiary institution. Omotere (2014) also submitted that strike actions in the universities *affect* the performance of students. Odim, Annastashia & Solomon and Amadi and Urho, (2015), *opined that* most academic activities for school year are distorted. This is one of major *causes* of producing unqualified *graduates* who are deficient in their fields of study. In the same vein, students who are supposed to do a four year course end up spending six years in the school. Such strike periods also have the tendency of leading undergraduates into some social vices like prostitution, oil bunkering etc.

Brain-drain is another *effect* of strike actions in the Nigerian higher institutions. Ogunode & Lawan noted that among the factors responsible for this brain-drain are the continuous strike actions common to the higher institutions in Nigeria. Biodun Ogunyemi, the former President of ASUU, submitted that Ethiopia recruited 200 professors from Nigeria while South Africa, Ghana, Egypt, etc have a sizeable number of Nigerian professors as a result of unconducive working environment. Oni (2000) concluded that many experienced and young lecturers are fleeing Nigeria from the frustration of university life into more rewarding and more challenging sectors of the economy and even to overseas countries. Also, Odim, Annastashia & Solomon and Adesina (2008), noted that the immediate effect of the depressing working conditions in university is mass resignation, departure of hard-working colleagues to North America, Western Europe, the Middle East and even to African Countries with less buoyant *economies* than oil-rich Nigeria. Most lecturers are completely disillusioned with the gross neglect of successive governments of the educational sector and government hard-line posture to their legitimate demands. They cannot plan their schedule such as the period to proceed on sabbatical leaves.

Way Forward

To solve these problems, this paper *suggests* the following:

- a) The government should increase the funding of higher institutions in the country. This will help to meet up with the infrastructural development of the higher institutions.
- b) The government should ensure that all agreement signed and reached with different trade unions in the higher institutions are implemented as agreed. This will help to prevent strikes action in the higher institutions.
- c) The government should be proactive to negotiate with the trade unions in the higher institutions before they embark on any strike. Most protracted strikes can be averted if necessary steps are taken to build a good relationship between both parties.

Conclusion

The Nigerian higher institutions are known for incessant strike actions by different union groups. Strike actions in the Nigerian higher institutions have become a continuous event due to the failure of the government to implement agreements reached with the higher institutions labour unions. The strike actions in the higher institutions in Nigeria *are* affecting the development of the higher institutions goals and programme. The incessant strike actions in the system have led to suspension and disruption of teaching programme, research programme, community service programme and accreditation programme. The strike actions have contributed to the poor ranking of the higher institutions by international organizations. It has also led to reduction in internally generated revenue of the higher institutions, reduction in the quality of higher education, prolonged academic calendar, poor academic performance of students and brain-drain. To solve these problems, some measures were recommended in as follows; the government should increase the funding of higher institutions and implementation of all the agreement entered into with different union groups in the various higher institutions.

References

1. Afolabi I, O, & Ogunode, N., J. (2021) Management of Public Universities in Nigeria: Challenges and the ways forward. *Central Asian Journal of Social Sciences and History* 2(6), 42-52
2. Aiyedun, E.A., Olatunde-Aiyedun, T.G. & Ogunode, N.J. (2021). Factors Hindering the Progress of Nigerian Universities in the Global Ranking of Universities. *International Journal of Development and Public Policy*, 1(6), 183–187. <http://openaccessjournals.eu/index.php/ijdp/article/view/706>
3. Adeboyeje T, (2003) Disruption, violence and productivity.in Nigerian universities. *Nigerian Journal of Educational Administration and Planning* 4(1): 21-25.
4. Adesina, J., 2008. Nigerian striker's salaries stopped / General / Times Higher Education. www.timeshighereducation.co.uk/news.
5. Akpenvwe, .J. (2022) ASUU and its unending strikes <https://thenationonlineng.net/asuu-and-its-unending-strikes/>
6. Archie. P (undated) Meaning of Strike. <https://www.businessmanagementideas.com/human-resources-management/industrial-relations-human-resources-management/strike-meaning/21155>
7. Christian, O. (2015) Influence of strike action on the academic performance of students in alvan ikoku federal college.
8. Edinyang, S. D and Ubi, I. E., (2013). Effect of strike action on human development among social Studies secondary school students in Uyo local government Area of Akwa Ibom State, Nigeria. *Global journal of human resource management*, 1, (2): 1 – 8.
9. Ehichoya E, & Ogunode N., J (2020) Teaching Programme in Nigerian Higher Institutions: Challenges of Implementation and Way Forward. *American Journal Of Social And Humanitarian Research*. 1(5),82-100
10. Federal Government of Nigeria (2013). National Policy on Education. (Revised). Abuja: NERDC Press.

11. Lawan, A.& Ogunode N.J. (2021). Strike actions in Nigerian higher institutions: Meaning, causes, effects, achievement and way forward. *Scholarly Publishing Discourse*1(1),1-30
12. Odim O., O, Annastashia I. A. & Solomon A. A. (2018). Effect of Strikes on Management and planning of educational activities in Nigerian Universities. *GLOBAL JOURNAL OF EDUCATIONAL RESEARCH* (17), 1-8
13. Ogunode, N.J., Jegede, D., Adah, S., Audu, E. I., &Ajape, T. S. (2021) Administration of Research Programme in Nigerian Public Universities: Problems and Way Forward. *Educational Journal of History and Humanities*, 3(2), 21-32
14. Ogunode N.J., Jegede& Musa, A. (2021) Problems Facing Academic Staff of Nigerian Universities and the Way Forward. *International Journal on Integrated Education*. 4 (I), 230-239
15. Okoli, N.J., Ogbondah, L. &Ewor, R.N. (2016). History and development of public Universities in Nigeria since 1914, *International Journal of Education and Evaluation*, 2(1), 322- 323.
16. Oni, B. (2000). *Capacity building effort and brain drain in Nigerian Universities*, Ibadan: NISER.
17. Oladipo, B., (2012). Unplanned breaks affect students' ASUU strike: Daily news October 21, 2012. Nigeria daily post Nigeria newspaper online.
18. Omotere, T., (2014). Effects of asuu strikes on the academic performance of university students. M.Ed. Thesis, Ego Booster Books.
19. Oyekanmi, S (2021). Nigerians spend over \$28 billion on foreign education in 10 year <https://nairametrics.com/2021/08/26/balance-of-payment-review-series-nigeriansspend-over-28-billion-on-foreign-education-in-10-years/>
20. Punch Newspaper (2020) Ending FG/ASUU perennial face-off. <https://punchng.com/ending-fg-asuu-perennial-face-off/>
21. Yusuf, K. (2020) Nigerian universities on strike for one of every five years since 1999, data shows. <https://www.premiumtimesng.com/news/headlines/426119-nigerian-universities-on-strike-for-one-of-every-five-years-since-1999-data-shows.html> November 14, 2020
22. Tribune online (2021).Central Bank of Nigeria (CBN) has disclosed that foreign education has cost Nigeria a whopping sum of \$28.65 billion between 2010 and 2020 (10 years). <https://tribuneonlineng.com/nigeria-spent-28-65bn-on-foreign-education-in-10-years-cbn/>
23. Tomori S. (2022). Huge strike at Nigeria's universities is disrupting research. <https://www.nature.com/news/q&a>