

Science Teaching: Issues of Classroom Management in Nigerian Secondary Schools and Lessons from Novel COVID-19 Pandemic

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Abstract

This paper, Science Teaching: Issues of Classroom Management in Nigerian Secondary Schools and Lessons from the Novel COVID-19 pandemic was an attempt to address the major issue (class size) of Classroom Management in Science teaching as an effort to enhance effective teaching and improved performance during and after the ravaging novel COVID-19 in Science in Nigerian Secondary Schools. It explains classroom management issues in Nigerian Secondary Schools; it also shed light on novel COVID-19 nature and nurture as well as lessons from novel COVID-19 pandemic on Nigerian Secondary Schools. The paper then concluded that class size should be reduced in Nigerian secondary schools in order to allow social distancing to prevent COVID-19 and other contagious diseases and also for effective science teaching. And therefore, suggested that Government should invest in education sector to make it more befitting for Small class sizes in Secondary Schools for efficient classroom management and effective Science teaching and Science teachers should be advocates of Social distancing policy between and within seat rows.

Keywords

Science Teaching, Classroom, Management, Lessons, Novel, COVID-19, pandemic.

INTRODUCTION

The effectiveness in Science teaching is the key to the quality Science Education achievement in Secondary Schools. Science Education or knowledge is accumulated through testability and verifiability of the physical or unspiritual nature of the world (Nnachi, 2007). Quality Science Education of a Nation is a prerequisite to human capital productivity that determines its Science and Technological development. As it is a common adage that no Nation can develop or rise above the quality of its Education, particularly

Science Education. In view of that, Nigeria as a Nation, quality science education is the cornerstone to the wealth and job creation, home-grown technology, youths self reliance, National security, as well as achievement of Sustainable Development Goals (SDGs) as recommended by the United Nation (UN). As such, the importance of effective teaching cannot be overemphasized.

However, the achievability of effective Science teaching in Secondary Schools depends largely on the manageability level of the classroom (Saricoban, & Sakizli, 2006). Because, science subjects such as Biology, Chemistry and Physics are ought to be taught by doing (practical) Faruk and Gusau (2018) and therefore, needs manageable classrooms. Effective teaching according to Good, Wiley, and Florez (2009) imply a successful application of any teaching method by a Teacher that had improved the students' academic achievement in cognitive, psychomotor and affective domains. All things being equal, one of the variables that are responsible for the desired manageability of the classroom is the class size. Ayeni, and Olowe, (2016) viewed Class size as the number of Students in a given classroom being taught by a teacher in a specific academic session.

On that note, classroom management simply means successful controlling of the class and room concurrently by the teacher for effective teaching. Classroom management, to Ifeoma, (2011) involves planning, supervising, controlling and coordinating the physical (room) and social (class) learning environment for the realization of instructional objectives. Physical learning environment encompasses all physical components such as the buildings, rolls or passages between and within the seats, stationeries, lighting and ventilation fixtures, public address system, roofing, floor facilities etc. While the Students and Teachers composes social learning environment of the classroom. In view of that, Nigerian Secondary Schools are considered as social settings where socialization, interactions and communications between and among learners and teachers are inevitable (Saricoban, & Sakizli, 2006). Especially, science teaching which involves manipulation of real objects (specimens), physical demonstrations, writing on the chalk or marker board, or projection using power point device concurrently with face to face communication between the teacher and the students as well as within the students (Duru, 2011) and (Faruk & Gusau 2018).

Furthermore, now those Science Educators are advocating for paradigm shift from Teachers-Centered to Students-Centered instructional methods. For any Students-Centered instructional methods of science teaching for the realization of real objects manipulation in form of observation and physical demonstration to be realizable, learning environment must be physically and socially organized. As buttressed by Owoeye, and Yara, (2011) and Ayeni, and Olowe, (2016) that a well organized and small sized classes are easy to manage and Teachers spent less time to give individual student the needed attention during instruction. As also supported by Takpi, (2017) that no matter how prepared and mastery of subject a teacher has in an oversized class, sequential presentation of lesson and contents delivery between the teacher and students would be distorted. In that regards, social component (students and teacher) of the classroom forms the most sensitive learning environment because their mutual interactions and hitch-free communications during content delivery is the only vital pathway for effective teaching that all Education stakeholders are aspiring for. More so, on social component, National Policy on Education (NPE) 6th edition (Federal Republic of Nigeria FGN, 2013) stated that "for effective teaching

and learning at junior secondary school level, the teacher-students ratio should be 1:35 p.9". Nevertheless, due to the surged enrolment of students in Nigerian public Secondary Schools from 1990s to date, Schools tends to be overpopulated beyond carrying capacity which has eventually affected the class sizes across the nation. Because in Nigeria, most Secondary School classes have up to seventy (70), hundred (100) and even more students per class without regulation. Nigerians are good in imitating western culture especially US but failed to imitate them in terms of class size. Because that trend is not in conformity with class size observable in the international communities. As reported by Ayeni, and Olowe, (2016) that the class size at the Secondary Schools level in US is 30, Japan 30, Korea 19 and the United Kingdom 15 or less.

Generally, with that review, it is evidenced that oversized classes have been an issue to the classroom management in Nigerian secondary schools even before COVID-19 pandemic period (Ayeni, & Olowe 2016). Since COVID-19 virus is transmissible from person to person in close contact through droplets from the mouth by coughing and nose discharges by sneezing from the infected persons (Mouzaki, 2020). In Nigerian, science teaching is majorly done in physical classrooms with observable oversized classes. Obviously, oversized classes, apart from being a bane to the classroom management, it is also capable of aggravating the spread of the prevailing novel COVID-19 viruses and other unpredictable contagious diseases among Nigerian Secondary School teachers and students that forms the social learning environment. Because, those type of classes are unfavorable for physical distancing protocol, which is the major policy part way to contain the further COVID-19 spread as recommended by World Health Organization (WHO) and Nigeria Center for Disease Control (NCDC) (Mouzaki 2020). Physical distancing by implication to Schools as social settings, means there supposed to be at least two meters (6feet) in between two adjacent seats in the classroom sitting arrangement, which is virtually impossible in Nigerian Secondary Schools. As a result, students of such classes are more vulnerable to Novel COVID-19. Therefore, as science teaching is carried out in physical classroom situations where contiguous interactions and face-to-face communications are common, the likely COVID-19 pandemic among students and its accompanied afflictions as lessons, oversized classes has become a compelling issue of concern for Science Teachers and Researchers in Nigeria. Therefore, the main thrust of this study is to address major issue of Classroom management in Science teaching as an attempt to enhance effective teaching during and after the ravaging COVID-19 pandemic for effective teaching and improved performance in science.

Classroom management issues in Nigerian Secondary Schools

Classroom is the social interacting point for both Teachers and Students where Curricular and instructional activities are conventionally performed through interpersonal relationships and exchange of information (Youki, T. 2019).Traditionally, successful classroom management is essential for effective science teaching. However teacher is the key player in achieving that success. Thus, EVERY Professional science Teacher is not only expected to be equipped with classroom management skills, but also capable of applying several classroom management dexterities. Because classroom management is a progressive manipulation of learners attention by the Teacher for hitch-free communication. To Ifeoma, (2011) Classroom management implies controlling of both class (students) and room (building) by the Teacher

for effective science teaching with time consciousness at heart. The importance of Classroom management in science teaching secondary schools cannot be overemphasized. For the fact that, learners at that level needs individual attention throughout the instruction period. Hence, it is the responsibility of the teacher to be versatile in classroom management skills particularly to capture the attention of students throughout the lesson period. Because, no effective learning will take place in the distractive and rowdy environment. Nevertheless, the major impediment to the successful Classroom management is oversized classes at the Nigerian secondary schools. As found by Owoeye, and Yara, (2011) that oversized classes are obvious issues to classroom management in Nigerian secondary schools. With the advent of the prevailing novel COVID-19 pandemic, classroom management problem has metamorphose from an issue to a threat to Nigerian secondary school students. Since, apart from posing negative impact on good classroom management, it is also favorable to spread of COVID-19 and unfavorable to social or physical distancing as recommended by the WHO and Nigeria Center for Disease Control (NCDC) Ayeni, and Olowe, (2016). Hence, to ensure COVID-19 threat-free classrooms in Nigerian secondary schools, a policy that will ensure new seating arrangement in line with the COVID-19 social distancing policy must be promulgated. The students and teachers that forms social learning environment must respect those policies. Seating arrangement in social distanced classrooms has gaps or distances at least one meter (6feet) between and within two (2) adjacent desks (Ayeni, and Olowe, 2016). In that regard, since proper seating arrangement is central part of classroom management. Small classes that will guarantee social distancing among students and teachers' must be restored for effective teaching and improved performance. In addition, since, no vaccine or specific drug had been discovered for COVID-19 treatment, social distancing is the most reliable approved preventive and control measure for now (Hussin, & Siddappa, 2020).

Novel Covid-19 Nature and Nurture

Corona virus Disease which emerged in 2019 (COVID-19) is a deadly disease caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) from bat. COVID-19 viruses are deadly pathogens that belong to the Corona viridae family in the Nidovirales order (Shereem, Khan, Kazmi, Bashir, & Siddique, 2020). It broke out from Wuhan district of Hubei Province, Republic of China in the last quarter of 2019 and was announced on 29th December 2019. It is a zoonotic disease from Rhinolophus bat by eating. But transmission from Person-to-person is by close contact of person-to-person through droplets from mouth by coughing and sneezing discharge from the nose of an infected person in China. More so, international movements and other globalization activities by man was found responsible for the across border spread to other countries of the world. Hence, within short time of discovery in China, the index case of the novel COVID-19 Scourge was recorded in Lagos on 27th February 2020, which makes it an epicenter of Nigeria. In addition, due to the nonchalant attitudes and violation of COVID-19 preventive measures by people resulted to further spread from family to family and subsequently from community to community worldwide. As a result, COVID-19 was declared a public health emergency (pandemic) by the World Health Organization (WHO) arm of the United Nations (UN) on 11th march 2020. Mouzaki, (2020) asserted that "Corona represents crown-like spikes on the outer surface of the virus; thus, it was named as a corona virus.

Biologically COVID-19 pathogens (viruses) are minute in size (65–125 nm in diameter) and contain a single-stranded Ribonucleic acid (RNA)". Its common symptoms at the beginning after a minimum of 5-14

days incubation in the hosts are fever, cough, and fatigue, while other symptoms include sputum production, headache, haemoptysis, diarrhoea, dyspnoea, and lymphopenia (Hussin, and Siddappa, 2020). Therefore, it is important to note that there are some similarities between the symptoms of COVID-19 and malaria fever. Contrarily, when fever pathogens cannot move from person-to-person unless through vectors (female anopheles mosquitoes), COVID-19 virus can move from person-to-person in close contact between an infected and healthy person. Though some infected persons were asymptomatic, does not means they are not carriers of COVID-19 virus. According to Mouzaki, (2020) currently, no vaccine or specific antiviral treatments are available for COVID-19. Hence, preventive measures are the major pathway to contain the further spread of the viruses.

In that regard, the first prescribed preventive measure was eventual imposition of Global Confinement Order (GCO) of people by the WHO. GCO signifies the restriction of people's movement of any mission within and between the borders, prohibition of social, political, economic, religious, cultural, education, gathering etc. Other preventive measures recommended by W.H.O. where gathering had become inevitable includes social or physical distancing, nose mask and face shield wearing, frequent hands washing with detergents, application of Sanitizers etc. Meanwhile, the official isolation centers were situated in strategic places and allocated for the suspected persons for diligent observation and preliminary test of samples and treatment.

Similarly, accredited quarantine centers were also designated for full complementary laboratory tests and treatments of the confirmed cases. In terms of preventive measures enforcement, Presidential Task Forces (PTF) on COVID-19 at various countries of the world were setup to perform that responsibility. Shereem, Khan, Kazmi, Bashir, and Siddique, (2020). In view of the above, all state governments in collaboration with the PTF also enforce restriction order which manifested inform of curfew or stay-at home order in various states to implement the prohibition of social gathering that involves up to 50 people as well as inter-community movements all as precautionary measures to prevent further spread of COVID-19 (Hussin, & Siddappa, 2020).

Enforcement bodies became compulsory when citizens started displaying some unethical practices by defying the governments' policy part ways. Some of those unethical attitudes were dearth observation of social distancing and stay at home order. In the same way, Nigerians exhibited naughtiness towards Personal Protective Equipment (PPE) such as nose mask and eyes shieldas well as regular hand washing under running water and application of sanitizer to contain the COVID-19. All those were due to people's disbelief that COVID-19 was a hoax in Nigeria. Consequently, Governments declared schools unsaved and students were perceived vulnerable to COVID-19 and the authorities had no choice than to close the Schools (Hussin, &Siddappa, 2020).

Lessons from Novel Covid-19 Pandemic on Nigerian Secondary Schools

The Period of the Dreaded COVID-19 pandemic is a period of adversity full of harsh experiences which serves as lessons for Nigerian present and future generations. In fact, its outbreak has negatively affected almost all social units of human life ranging from family to international community level. Its harmful effects were apparent interms of health, social, economic and consequential effects on education. Secondary Schools as social units are not left out. In terms of health life, it comes with health hazards such as illnesses and deaths. And by priority, health comes first before any other societal value such as education. It is when students are alive and healthy we can think of their education. Hence, to maintain societal health and prevent further spread of the novel COVID-19, Global Confinement Order (GCO) was imposed. GCO was enforced in some countries such as Nigeria in form of lockdown or curfew. SinceGCO

encompasses total lockdown of human movements, economic activities were also not left out, all international business outfits were banned which immediately degenerated into crash of petroleum prices that forms 90% of Nigeria national income at the international markets. And consequently, led to the huge loss of national revenue by the Federal government. As a result, monthly fiscal allocation to the other tiers of governments dwindled, thereby causing financial crisis between the government and governance. Other economic afflictions caused by GCO amid COVID-19 includes loss of jobs and means of livelihood by daily earners such as Artisans and Micro, Medium and Small Enterprises (MMSEs) such as petty traders, entrepreneurs and all other self-employed. That was as a result of local daily trade centers such as markets, shops and workshops that were closed down by the authorities. But, due to naughty nature of man despite the GCO (lockdown) as a measure to contain further spread of COVID-19, people became skeptical and started defying the lockdown and other COVID-19 prevention and safety protocols. With that, spread of COVID-19 became faster and the number of casualties and dead toll across social units were rising worldwide by day. Schools were thus also seen as high risked social units and eventually necessitated the closure across the countries of the world.

Vehemently, considering those health and economic hardships which serves as lessons to citizens, when the sickness and deaths brought by COVID-19 subsides, when eventually ventilators and face masks returned to the warehouses, when health workers are no more entertaining fear for their work and finally the Schools reopened, how ready are we to correct existing problem of oversized classes in Nigerian public secondary Schools to prevent further resurgent of COVID-19 and other type of unpredictable communicable diseases? Are we still going to leave our Schools overpopulated and the Classes oversized? No, government and other education stakeholders must put concerted efforts to regulate schools population so that small class sizes that can guaranteed social-distancing in Nigerian public secondary schools can be maintained. Because prevention of second wave of COVID-19 will be better and cheaper than cure, let alone that no formal cure so far for it presently.

Conclusion

By the lessons from COVID-19 worldwide, sitting in classrooms in contiguous model during and after COVID-19 in Nigerian is disastrous. Because children health must be prioritized above other human needs. Therefore, maintaining social distancing approach in the classroom during and post COVID-19 period is paramount not only to prevent all forms of contagious diseases but it also ensure face to face communication between the teacher and the students which guaranteed effective learning of science in Nigerian secondary schools.

Suggestions

The following suggestions were presented for consideration;

1. Government should invest in education sector to make it more befitting for Small class sizes in secondary schools for efficient classroom management and effective Science teaching.
2. Science teachers should be advocates of Social distancing policy between and within seat rows
3. Again government should promulgate a law that make small class size one of the Accreditation requirement.

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