

The Changing Culture of Learning Places and Spaces in Africa: A Review of Post COVID Realities towards Achieving Safe Learning Environments

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ABSTRACT

It is an established fact that there is a relationship between comfort and productivity in previous researches. Safety is the new comfort factor presently, due to the advent of the global pandemic COVID-19. Safety ranks highest as the viral spread has paralyzed all economic systems world over. In the bid to restore normalcy, how will the new scheme of things be, regarding education and children? For schools, especially public municipalities, de-congestion is necessary. This research seeks to review various options available in flattening the curve as the society adapts to the new order; scheduling classes, virtual learning, blended curriculum, the enabling environment. How will the society adjust to these sudden realities? It concludes with recommendations to all stakeholders and government to adopt the requisite systems suited to each locale, which will ensure continuity, safety and smooth running of the educational system. No singular option in this paper is sufficient in itself, but a combination of sorts, in facility management and architectural solutions; this can offer a respite in restoring the economy to the 'new normal', with respect to education.

INTRODUCTION

The emergence of the global pandemic, COVID-19 has transformed all societies, both stable and fragile. It is the numerous crises, overshadowing prevailing climate change concerns and disrupting country and local economies. The pandemic has created a new system for significant components of the modern world: economy, environment,

education, entertainment, healthcare services, food production and much more. How is the world reshaping its economies, environment, and societies in the coming years?

For developing countries in Africa, such as Nigeria, this transformation is evident in various sectors, especially in the educational sector. The much-advocated clamoring for a paperless economy and the smart city agenda were swiftly adopted through online training systems by pupils and students during the isolation period. The educational sector is rapidly evolving to ensure continuity in the training of the populace, and to keep abreast with the pace of other countries in this regard. This apparent blessing also comes with its shortfalls.

Private schools have picked up immediately because of their capacity, funding and structure which enhanced a swift transfer to online schooling whereas, public schools with poor facilities, and poor funding, will be redundant with this emerging trend. The government has encouraged T.V and radio educational programmers, however, the inability of such to adopt the requisite home teaching skills and techniques during this period of school closure will greatly impede on the training of a larger populace in Nigeria. Furthermore, it is important to ascertain whether this trend will have health and psychological impacts on pupils.

Previous studies have shown that pupils prefer outdoor and non-classroom related indoor spaces depending on their variety and sizes. According to Kasalt and Dogart (2010), when there is a variety of indoor non-classroom and outdoor spaces, children are likely to be more physically active and this prevents obesity and social problems. Recess is key in a child's developmental process. Therefore, online schooling may not offer a perfect solution in the long run. An important consideration too, is to discover how learning environments can incorporate safety measures, in terms of special configuration and seating arrangements in this period [1-3].

We are left to embrace the advantages and smoothen out the ills of this process, as a change is imminent. Nothing will ever be the same again, as people grapple with the realities of the after effects of the COVID-19 pandemic as sustaining this trend will increase the gap between the learned and unlearned if appropriate measures are not put in place. The government must arise to empower the educational sector, where public school infrastructure will be upgraded and pupils given access to equipment and software needed to meet up with the current challenges. This can be achieved through PPP (Public and Private Partnership) projects.

According to WHO reports on COVID-19, modes of operation in schools now should include staggering of beginning and ending of school days; cancellation of all assembling, sports or communal activities; adequate spacing of not less than 1 m work spaces for pupils where possible; adoption of personal or remote learning systems; flexible tutelage for staff and absenteeism should not be an offense so as to ensure people stay home when sick. This alongside personal hygiene will be the new post-COVID reality in schools worldwide.

For developing countries such as Nigeria, implications on learning environments will be a total overhaul of the traditional systems of learning and an adoption of a blended curriculum. The curriculum will now largely include virtual classes, in and outside the four walls of classrooms. This will ensue where online syllabuses are handed over to students and where physical meet up will no longer be a compulsion. Classrooms in Nigeria are usually overpopulated, based on UNESCO standards and with the limitations of 1 m for safety measures, schools will need to decongest for this to be feasible; they may need to run on shifts to accommodate this or give options for virtual schooling for those who prefer it. For teachers and pupils, this will require greater skills in the use of communications tools and software. Teachers will now have online reviews and tests after every class making evaluation of pupils more thorough than before. Its impact on pupils will be advantageous, as it is a consummation of the much-needed dominance of a pupil in the teaching process and where the pupil can play an active role in the

learning process rather than passive. Hence, this paper examines the effect of COVID-19 pandemic on educational facilities, in order to inform design guidelines for sustainable classroom provisions.

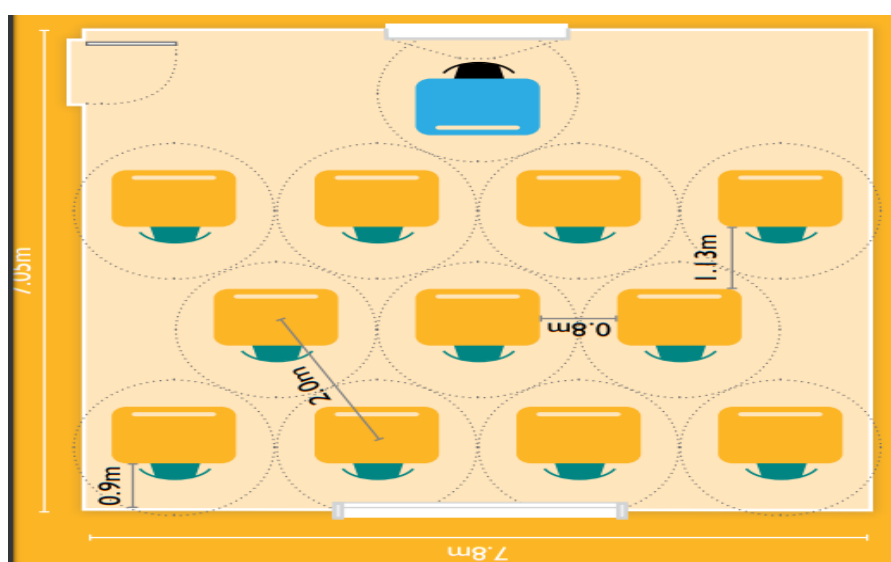
How will these transitions impact on pupils and parents likewise, in order to major on the advantages and find solutions to emerging challenges. An enabling environment can help smoothen the transition. This is what this paper seeks to address.

LITERATURE REVIEW

UK schools and COVID response

Most schools in the UK are established in historic buildings with standards of 55 sqm for a kindergarten class of 30 pupils. With the advent of COVID and 2 m centres spacing as safety requirements, the implication is that 3 classrooms are now required to accommodate pupils of a single classroom. Figure 1A is a typical classroom layout presently.

Figure 1A. Typical classroom layout.



In this layout a typical classroom of 30 pupils will now require 3 teachers and 3 different spaces, in the same arm. Is this achievable in developing countries such as Nigeria (Figure 1B).

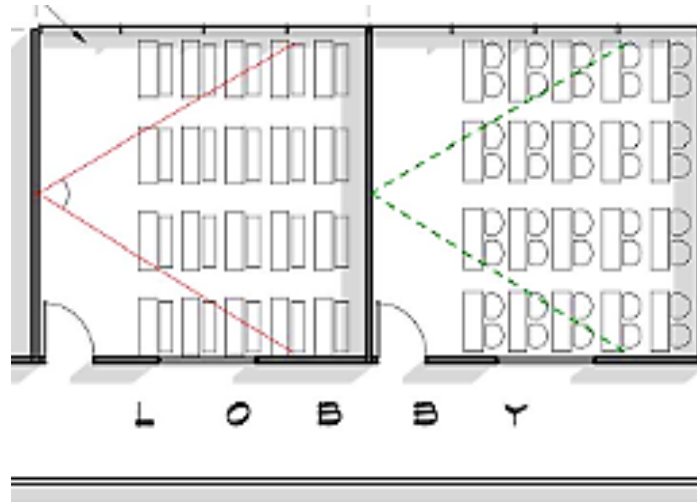
Figure 1B. A typical view of classroom furniture arrangement in Lagos.



Existing classrooms for primary schools

Typically most public school classrooms are tightly packed with the use of 2 or 3 seater benches as in Figure 1C. This is not suitable if physical distancing rules integral to COVID-19 management are to be maintained for post COVID operations. New forms of seating arrangements can be explored. The much clamored 'pupil participatory' learning can be fostered by 'sitting in the round'.

Figure 1C. Congested classrooms of over 40-60 users per class, with 2 or 3 seater benches.



DISCUSSION

Facility management implications

The opening of schools is predicated on the need to enforce physical distancing and to ensure that the most appropriate hygiene facilities are put in place. The first section of this paper has addressed how physical distancing can be maintained through flexible Architecture.

In this section, we examine the facility management implications for schools to re-open. The UK Ministry for Education (2020) notes that there are increased risks related to safety concerns around water hygiene, building and occupancy safety, as well as, building hygiene. The World Health Organization (2020) provides a number of specifications must be considered ^[4].

The need for hygiene facilities: Schools must provide well stocked hand washing stations at prominent points in the school premises so students can easily keep to the hand hygiene aspect of the prevention. Each child would have to bring a fresh napkin so they will not have to share napkins after washing. Schools can also explore hand washing breaks where students are required to wash hands at designated points to enhance hygiene. The implication is that schools must install running water within their premises, and these stations must be cleaned and dry as much as possible. School management may have to increase their cleaning staff and ensure they also wear protective kits when carrying out their activities.

Ventilation: Class room structures must now be well ventilated. Also, where students are to congregate such as Assembly Halls, there is a need to ensure that such rooms are also well ventilated. In its guidance note for school re-opening, the UK government recommended that where mechanical ventilation such as air conditions are in use, the re-circulatory systems should adjusted to full fresh air, or normal. In all occupied rooms, windows are to be left

open. To facilitate the longer term ventilated system, the implication of is that there might be need to facilitate this through re-standardization of minimum window to wall ratios.

Conversion of other rooms to classrooms: In any case, physical distancing restrictions are in place to prevent spread. Schools usually conduct morning assembly and other ceremonies in halls that are often the largest rooms. These rooms can now be temporarily converted into class rooms to enable the activation of the spaced class rooms discussed previously.

Temporary extensions: The crux of concern in the debate about school re-opening is the capacity to institute physical distancing. Schools may consider expanding their class-room structures to ensure that spaces are released to accommodate physical distancing.

Cleaning: All regular cleaning are to continue, added to this is the need for regular fumigation of the entire school, classrooms and common areas. This has to be done with due attention to the health and safety of children. There are various modes of carrying out an adapted system of running schools during the COVID pandemic ^[5,6].

Non-physical learning options

Virtual schooling: This can be a worthy option, as it provides ultimate safety for pupils to be in isolation while home schooling is ongoing. However, is it feasible for a developing country such as Nigeria, where parents have to be at work, some on a paid employment and therefore, need the children to be at school, lessons or after school centres till 6 pm in the evenings? This option will create a lot of problems, majorly for salaried parents.

Phased out schooling; certain days or times of the week for different levels of pupils: Schooling on certain times of the week, say every other day, Monday, Wednesday, Fridays, while other classes with less workloads, junior levels can have Tuesday and Fridays. This is a lot easier for parents, who can make do with a bit of help while just two days of the week are critical.

Optional virtual tutelage for interested parents: Parents who can take up the option of virtual schooling because of the nature of their businesses, or which have the capacity to maintain homeschooling may receive it as a worthy option. Dates for physical examination can be chosen for evaluations to ascertain the viability of the procedure. This will take off pressure on the system while others who cannot afford homeschooling can remain in the traditional classroom setting.

Open plan classroom designs for safety post COVID response

Classrooms should be open plan and flexible for proposed structures, while existing buildings can be spaced out at 1 m left and right of work spaces. Sensor sanitizers at entrances of every space should be installed with washrooms or tables at entrance and exists of schools. School uniforms now should include nose masks, branded for school pupils to allow for standardization, and for pupils to naturally adopt this as the new system.

Probable architectural solutions

Architectural flexibility can be employed here, where the classrooms are open planned, and spaces extend into breakout spaces or lobbies, as in Figure 2. Typically, accordion walls can collapse two classrooms into one such as in Figure 3A, where teaching can take place in the center. That is, 'teaching in the round' as in Figure 3B. Classrooms can then be accessed directly from the courtyard spaces.

Figure 2. Flexible spaces extending into break out areas on either or both sides of classrooms.

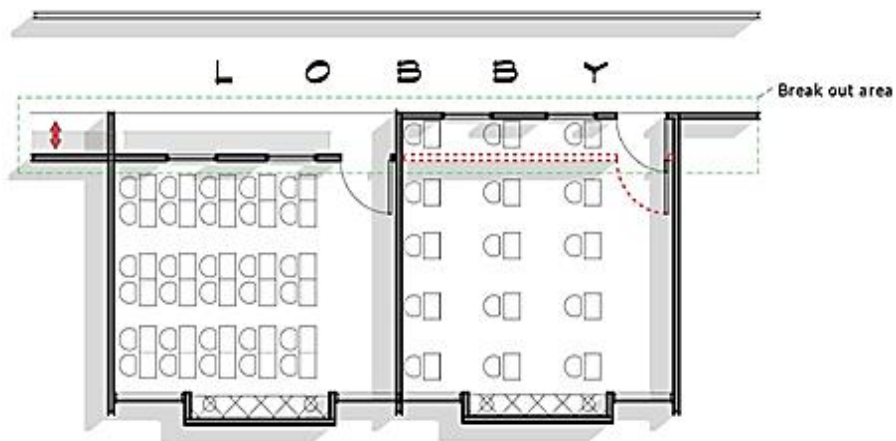


Figure 3A. Flexible spaces collapsing 2 classrooms into 1, with the use of accordion walls.

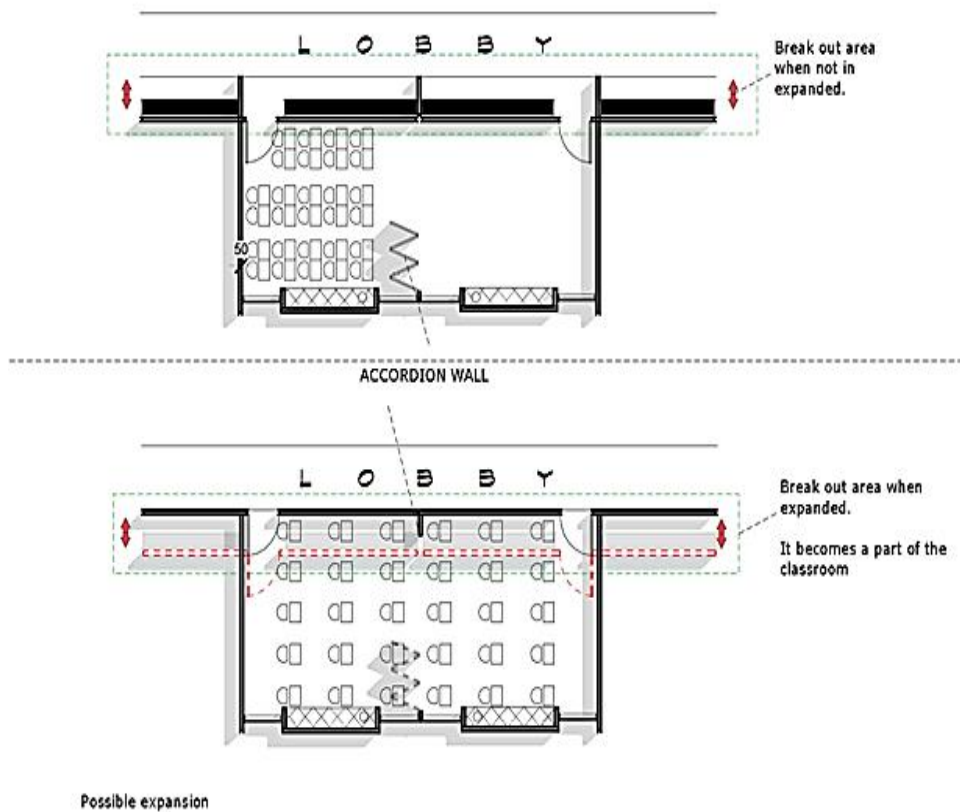
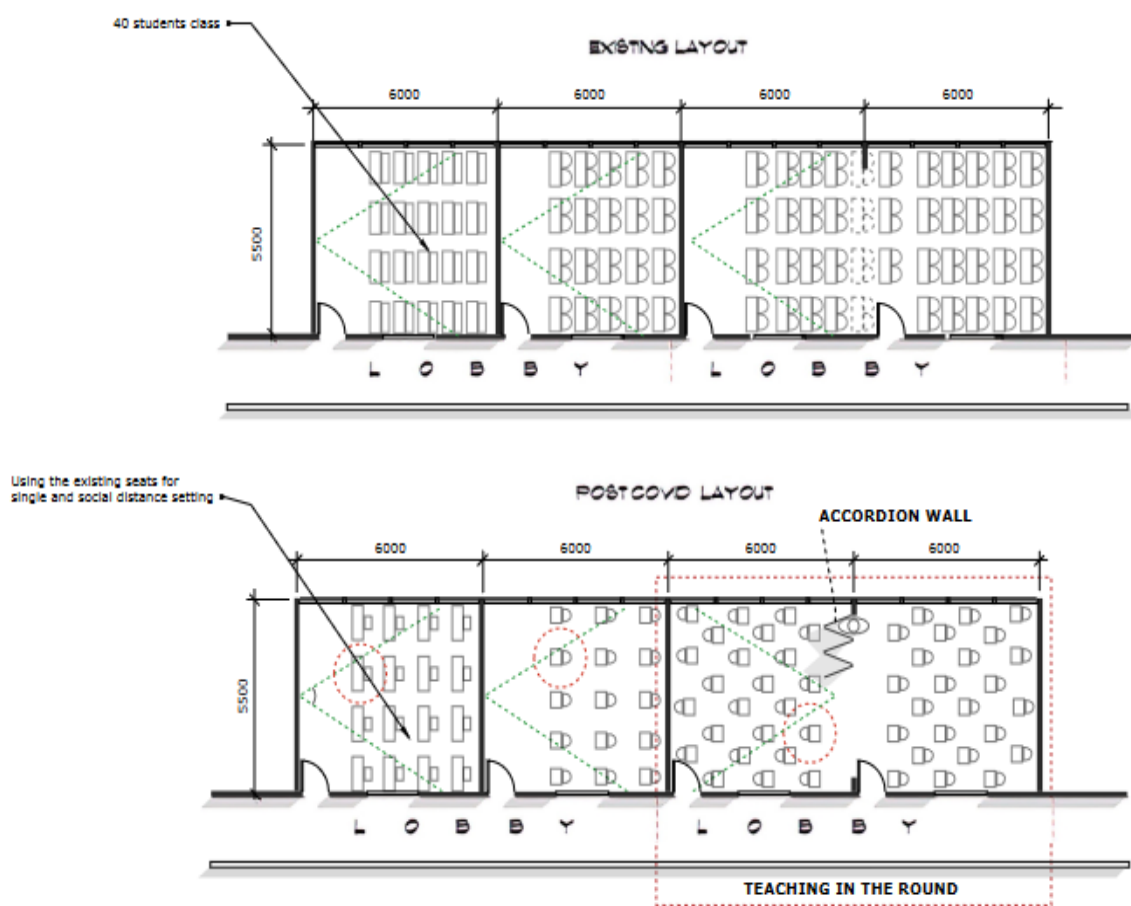


Figure 3B. Residuals of ARIMA (2, 0, 0) (2, 1, 0) (12).



CONCLUSION

Post COVID realities will pose serious challenges in all sectors of the economy. Living with COVID, that is adaptation. Despite the scourge of the virus, which is inevitable is the only solution. No singular option listed in this paper is sufficient in itself, but a combination of sorts, in facility management and architectural solutions, can offer a respite in restoring the economy to the 'new normal' with respect to education.

There are facility management implications for schools re-opening in the nearest future, we have come to label as Post-COVID-19 period. There needs to be improvement in sanitation by ensuring that all schools have well

stocked hand washing stations which are located in strategic locations in each school and handwashing periods to ensure students actually use these. This will enable the hygiene conditions necessary for COVID-19 prevention.

The rearrangement of classrooms and workstations to facilitate physical distancing is also another action that schools have to adjust to. Schools are also going to have to ensure that they now efficiently put to use halls that hitherto were used for crowd activities. This will ease the increase in the number of classrooms that is required if standards of physical distancing are to be met.

Natural ventilation is an important requirement in crowded places, and classrooms are not exempted. School management may have to discontinue the use of Air conditioning system, and professionals must respond to this by re-examining the window to wall ratio standards.

The capacity of school management to put these recommendations in place is a function of their capacity to access both professional and financial support. Private schools that serve the upper income will probably perform better in adjusting to the new normal. The ability of the public schools that serve children from so many low-income families is a direct call to the governments to address the need for access to basic education for teeming children.

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