



# **A REVIEW PAPER ON POWER OF SCAFFOLDING: OPENING THE DOOR TO LOCKED-OUT LEARNERS AMID POST COVID-19 PANDEMIC**

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## **Abstract**

The Covid-19 pandemic and the social distancing that followed have affected all walks of society, also education. To keep education running, educational institutions have had to quickly adapt to the situation. This has resulted in an unprecedented push to online learning. Many, including commercial digital learning platform providers, have rushed to provide their support and solutions, sometimes for free. This paper employs a critical lens to provide an insight on the importance of scaffolding for a possible problem of students locked-out amid COVID-19 pandemic quarantine arising from government order for all schools to be closed. Moreover, already before Covid-19, there has been increasing demand on how best is to teach the students of 21<sup>st</sup> century. Therefore, this is a critical moment to reflect mind and hands on scaffolding approach to activate the brain drain of student course by long COVID-19 pandemic. This paper urges educational leaders to think carefully about the decisions they are currently making and if they indeed need to pave the way to a desirable future of education. Providing a crystal new approach for teaching and learning science for student is imperative. It required immediate attention of all stake holders in education, including teachers, and lecturers at secondary/primary school and universities, colleges of education and polytechnics to worry of the need to adapt all-out support approach. This will insure and maintain educational continuity in a functional and safe learning environment notwithstanding the challenges caused by COVID-19 pandemic. This study deeper insight and strength of scaffolding in opening the door to locked-out learners amid COVID-19 Pandemic.

**Keywords:** Scaffolding, Locked-Out Learners Covid-19, pandemic, Chemistry

## **1. INTRODUCTION**

Countries are forced to shut down schools by the new coronavirus, schools have been forced to suspend the course to halt the spread of the COVID-19 virus, a big obstacle for 370 million regular schools worldwide(UNESCO., 2020, November, 30).Over 1.2 billion children are out of classroom worldwide (UNESCO, 2020).Nigeria as part of the countries affected by the virus hasfollowed the que and short down its schools.First cases were initially detected in Wuhan, (<https://www.ecdc.europa.eu/en/covid-19/latest-evidenceECDC>).In March 2020, WHO made the assessment that COVID-19 can be characterized as a

pandemic. In terms of strict measures implemented to prevent the transmission of the virus, China and in particular Hubei province was the first to be quarantined. Soon after, the European countries were put in a similar situation to China (Mechili et al., 2020). On the 27<sup>th</sup> of February 2020, the federal government of Nigeria announces the first case of Corona virus disease in Lagos state. The Nigerian government was also among the first, which implemented stringent measures to prevent the spread of COVID-19 when it immediately activates its National Emergency operations Center<sup>4</sup>. First, in March 2020, schools and Universities were closed and a total lockdown was put into force two days after. Only supermarkets, bakeries and pharmacies remained open. At the same time, people could leave their houses only for basic needs per day by keeping physical distance and respecting all the prevention measures.

Over the course of a few days in March 2020, an unprecedented change swept across Nigerians' public and private schools. As the COVID-19 pandemic spread, teachers were told by Federal Government of Nigeria with no advance notice, to close all schools. This move was made regardless of teacher preparedness or student readiness. As a result, all schools remain closed for months. The significance of parental involvement (or lack thereof) was exposed since student no more attends school classes. In short, the sudden changes in schooling resurrected fundamental questions about what exactly "school" means.

Given that COVID-19 pandemic is one of its kind, a review of the related literature has found no currently available relevant study that describes how to unlock the locked-out students during the post COVID-19 pandemic teaching and learning. Thus, our study sought to explore the importance of adopting scaffolding in teaching and learning of students amid post COVID-19 pandemic. This study attempts the relationship between the student's science learning and teachers' scaffold, based on Vygotsky learning theory, this is with a view to explore COVID-19's effect on the students lock out in science learning and untight the bottle neck.

The last four months have made crystal clear the many things' educators, parents, and society at large take for granted about schooling. Parents have realized the fortitude it takes to be with 25+ pre-adolescents for six hours a day. Teachers have realized (or realized more deeply) paramount importance of the interpersonal nature of teaching and learning. The COVID-19 virus has also forced us all to confront the fact that even in the 21st Century, there are still fundamental questions about the nature and purpose of school to answer. Unlike other countries who switch to online learning (Kinder & Harvey, 2020). The Nigerian education system was completely shut down and students are forced to stay at home. The most unfortunate thing is the lack of availability of resources to switch to online instruction and without planning, and many teachers felt lost for the change. This situation left students with no other choice than to resort to independent learning. Finally, and perhaps most disturbingly, significant numbers of students simply did not avail themselves of what was expected of them during lockdown. When face-to-face school ended, everything just disappeared.

Since Universities curfew in Nigeria and couple with the lingering Academic Staff Union of Universities (ASUU), students and their families were obligated to stay at home and respect the government rules for stopping the pandemic spread. This invariably will affect their mental strength on their learning process. Students who went through this experience of being idle for good seven months will find it difficult to easily connect to their previous information. Teachers should be conscious of these shortcomings and insure total supports. This view is rightly stated by World Health Organization (WHO) for a potential psychological impact of COVID-19 outbreak on the population and published key messages for different target groups (WHO, 2020a).

## 2. SCAFFOLDING AND LOCKED-OUT LEARNERS

According to Ferrel and Ryan (2020) Changes that may seem relatively minor in comparison to the global pandemic may have the potential to be drastic turning points in the career progression of many. There is a strong belief that students who lack proper Schemas (Piaget, 1976) to integrate the new information with their prior knowledge find it very complex to learn (Kirschner, Sweller, & Clark, 2006). This suggests that there is a need for an instructional approach that takes into cognizance the individual mental readiness to learn and therefore teachers should provide full feedback. In this situation independent learning approach should not be given much emphasis in other words minimal support is not enough as opposed by Kirschner et al. (2006).

There is a plethora of labels used to describe a variety of learning theories. Thus, the typology of learning theories can be classified into three main domains: behaviorism, cognitivism, and constructivism. As a dominant approach to teaching, behaviorism provided the primary theoretical bases of curriculum development and implementation in schools for decades. The behaviorist approach was basically preoccupied with objectively observable and measurable teacher and student behaviors through a stimulus-response framework. Even though behaviorism did explain how behaviors got changed, it failed to account for how conceptual change occurred. Because it does not explore mental processes or what is going on in human minds, cognitivism, and its varieties that view learning as an active process of knowledge construction, came to compete with the behaviorist orientation.

Scaffolding is a process of providing a temporary structure built to facilitate movement of materials while allowing workers, primarily technicians, to perform their duties during the construction or repair of buildings and other structures. Scaffolding has been widely reported to be effective medium of instruction (Akani, 2015; Bature & Jibrin, 2015; Ibritam, Udofia, & Onweh, 2015; MOHAMMED, 2021; Uduafemhe, 2015). The present study will go further to explore the role of scaffolding in teaching the lock-out learners after long time quarantined. This study explains how teachers should facilitate the learning of their learners. The supportive learning environment that scaffolded instruction offers is one of its main advantages. Students can freely ask questions, give feedback, and assist their peers in learning new material in a scaffolded learning environment. When you use scaffolding in the classroom, you stop being the prevailing subject matter expert and start acting more as a mentor and knowledge facilitator. Students are encouraged to participate more actively in their own learning through this method of instruction.

Knowledge of mindset changes the way students see themselves (Dweck 2006). Helping students understand that intelligence is malleable will support them in developing a growth mindset. This support can include reminders that mistakes make people smarter, connecting neurons in their brains (Boaler 2016). If students risk making a mistake, then when they get the answer correct the next time, they will experience greater satisfaction (Willis 2010). There are many times that students will respond to this. Remind them when no one raises their hand to answer a question. Remind them when they make a mistake on the board, and they are embarrassed. Remind them when you make a mistake on the board and are embarrassed. Remind them on homework assignments and tests.

These reminders will decrease students' hesitancy to fail. In addition to these repeated reminders, send the right messages to your students. Teachers are a model for students. Teachers want to indicate to students that even though we make mistakes, we should work to get better. For example, teachers can say to the students if you are having trouble drawing something on the board, say "I am doing my best and am still learning" versus

"I cannot draw." If there is a word you do not know how to spell, say "let me look up how to spell that word" versus "I am a bad speller." Teachers do not want their students to give excuses for not trying. Teachers can support students in developing grit and a growth mindset by helping them think deeply, encouraging them to believe in their abilities, and creating positive environments through feedback, choice, and goal setting. Teachers also want to make sure they possess a growth mindset about their students. They want to offer all students high level content (Jaffe, 2020). Work with students to help them become comfortable starting again after long time on quarantine because of the global pandemic.

Frequent and expeditious feedback supports long-term memory and reasoning development (Van de Bergh, Ros, and Beijaard 2014; Willis 2010). Feedback can improve the quality of students' work, help students make connections between ideas and help students identify the necessity for and develop new strategies for problem solving (Collard and Looney 2014). This feedback can be provided on given classroom assignments or through group interaction with peers in and outside class. If there is no time to collect and grade homework, spend a few minutes at the beginning of class allowing students to discuss homework and give each other notes while you go around to each student and look at one aspect of the assignment. Homework is far more valuable if it is shared not graded (Kohn 2007). If they did not do it, they are seeing your disappointment personally. You are also able to assess them, and they know immediately if they mastered the material from the previous lesson. They know if they need to ask additional questions, and you can adjust the lesson to address students' misconceptions.

Teachers/lecturers should have a new strategy in place to ensure that students communicate well and explore different ways of acquiring knowledge, instead of covering the subject and only heading on to revisit key ideas during the school year. Research indicates that students perform better academically when they have several chances to revisit the learned content(Hirsch; Koppich& Knapp, 2001).Students who stop having classes for a long period of time due to covid-19 pandemic required teachers to easily integrate a brief overview of what had been discussed several months/weeks ago into re-exposing students to previous concepts (Carpenter, Cepeda, Rohrer, Kang, & Pashler, 2012; Kang, 2016). Teachers can also employ the use of combining text with images to support students learning.According to Youki (2017), it is often easier to remember information that is been presented in different ways, especially if visual aids can help organize information. This view was supported by Bui and McDaniel (2015),they opined that, it is easier to remember what is been read and seen, instead of either one alone.

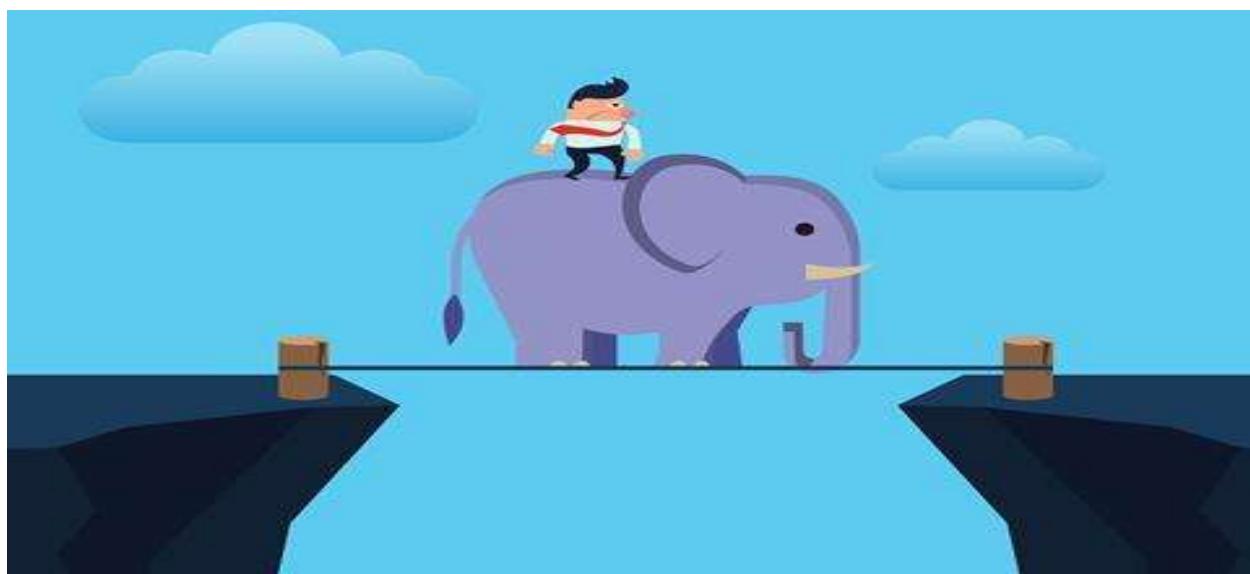
Scaffolding is a temporary teacher service that fulfills two interlinked goals to support only when required and moves from a common obligation to one that is held by the student. It has related the metaphor of the scaffolding metaphor to the concept of Vygotsky "zone of proximal growth" as an interpersonal environment, which a lecturer can help and provide feedbackfor appropriate gradual transition of responsibility for students. It is this balance between teacher support and student autonomy (Meyer & Turner, 2007)

### **3. HOW TO OPEN DOOR TO LOCKED-OUT LEARNERS**

For several years, there are several studies advocating different approaches on how to help student learning success. Studies had already reported students having difficulties in learning,these difficulties weaken students' effort to avoid failure. It is not difficult to conclude that these struggling learners would now face greater problem after long lockdown and total shutdown of schools due to COVID-19 pandemic.

During post covid-19 teaching, the number of locked-out learners are bound to have increased due to long home quarantine. Students were not engaged in their schoolwork for a multitude of reasons for long time. Some students will have returned to school knowing they did not do as much work as their peers and feeling apprehensive about the consequences. To help understand what is happening to locked-out learners, teachers need to understand the psychological mindset of the child. The social psychologist analogy of human behavior believe that human behavior is controlled by two parts of the mind, the elephant, which is emotional and instinctive and also the rider, which is rational (Haidt, 2012). To a locked-out learner, the elephant (here refers to student) is the part that gets scared they might fail, triggering negative emotions about the work. The rider (teacher) is the part that provides a reason to justify their behavior, such as excuse finding or finger pointing. Findings from previous studies have proved that scaffolding is a strong approach that solves and augments students learning (Kao, Chiang, & Sun, 2017; Yoon, Elinich, Wang, Steinmeier, & Tucker, 2012).

Teachers should try these four strategies to reactivate disengaged students.



Source: Adam Robbins (2020).

*Four steps to help you avoid putting your elephant (here refers to student) in your classrooms to being nervous.*

#### i.What Instructor can do for Locked-out Learners?

Teachers should not rush into given assignment or writing test. It is tempting to up the pace to make up for time lost during lockdown and remote teaching. This will not help learners. They will feel lost and give up. The pandemic is already the perfect excuse to quit so we need to avoid spooking the elephant. Teachers should provide opportunities for students to explore and build their new knowledge with the support of their previous experience and scaffolding. The teacher should allow students interact with peers. These and many reduce the pressure and loss of interest in students.

**ii. Four approaches instructor(s) can take with locked-out learners:**

1. *Provide a scaffold to help reduce gaps in knowledge.* The scaffold could be a textbook, revision guide, knowledge organizer or curriculum booklet. This gets the students familiar with resources they might rely on in the event of a school closure.
2. *Start slow and assume no prior knowledge.* When planning your explanations start at the most basic concept and build up. It will ensure all students are with you and those that already know it get some free revision. Although you might usually assess for prior knowledge, it is risky with locked-out learners. It can demotivate them and cause them to put up barriers.
3. *Use regular retrieval practice.* If the stakes are kept low and the teacher's attitude is supportive, retrieval practice can reinforce the gradual improvement students show over the first few weeks.
4. *Motivate through improvement, not engagement.* Motivation breeds success better than engagement. The best chance for locked-out learners to improve their motivation is to support them to learn as much as possible by choosing tasks that aide learning; such problem-solving, game-based.

**iii. How to apply these ideas to teaching.**

Before the lockdown, students must have studies for example the chemical changes unit from the science curriculum. So, they should have learned all about acids, bases, and electrolysis. When they returned after lockdown, the teacher should give them a recap of the previous knowledge and a provide booklets for the unit. This gives students all the support and activities they need as the teacher reteach the topic. If they are sent home again, they will have these resources and will already know how to use them to learn. Teachers should focus on first lessons on recapping the basics of atomic structure, ions, and ionic bonding. This ensured students have the prior knowledge required to understand electrolysis, and crucially reminds students of their ideas in chemistry.

In those first few lessons, retrieval practice gives students the opportunity to revisit the basic ideas frequently. It also demonstrates to students their progression, which will help their motivation and attitude. Teachers should always remind student that they are improving, that they have not unlearned chemistry over lockdown, they simply need to refresh their memories. Words like these bust students moral and encourages them to do more, and never give up. While our students are in school, the best way to get them back to learning is a large dose of carefully curated normality.

**4. CONCLUSION**

We have reviewed and integrated research on the effects of scaffolding and this study therefore proposed Vygotsky's theory on scaffolding as a framework to understand the fragmented nature of the students learning and how lock-out learners' can be supported.

**5. IMPLICATION FOR INSTRUCTION**

In the light of aforesaid, this study draws on the implications of scaffolding that can aid teachers and students in the process of solving ill-structured problems, and eventually suggests a path towards enhancing the ability to solve problems in chemistry education.

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