

**INTERNATIONAL JOURNAL OF  
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## **EDITORIAL**

This 9<sup>th</sup> volume is the second issue since the corona virus pandemic began. We extend a very warm welcome to our authors and readers. The pandemic rages on and researchers round the globe are doing various investigations related to it. We made a call for papers in 2019 and published in June 2020. Right after that, we made another call in August 2020. We are just lucky to maintain our minimum target of one publication per year (12-month intervals). We are grateful that God is helping us to hang in there.

Our call for papers for the current issue (Volume 9) had the theme, *the Global impact of The Corona Virus Disease on Education*.

Once again, our first article of Volume 9 is written by Inaku Egere, who responded specifically to our call for papers on the corona virus. Egere investigated mobile-learning (M-Learning) of undergraduate students in private universities in Nigeria during the COVID-19 pandemic lockdown. According to him, COVID-19 protocols caused a paradigm shift of pedagogy. To evaluate students' performance based on the shift of the learning pedagogy from face to face (F2F) to m-learning, a non-experimental quantitative design was used. A questionnaire was used to gather data from undergraduate students of the Faculty of Education, Veritas University Abuja and the Faculty of Arts and Social Sciences, Catholic Institute of West Africa Port Harcourt, Nigeria. The sample of 233 was derived from a total population of 560 students. Data analysis revealed that, m-learning improved students' performance. To get even better results the study recommended the embellishment of ICT hubs with e-learning facilities throughout Nigeria.

The second article of Volume 9 was authored by Abdulai and Diedong, who examined service quality and customer satisfaction of Mobile Telecom services in Tamale Metropolis in Northern Ghana. The study employed a mixed method research design. The sample size for the study was 401 respondents. Data was sourced from key informant interviews, questionnaires and focus group discussions. The results showed that customers perceived service quality and satisfaction differently. While most Vodafone customers were satisfied with their service, customers of MTN were dissatisfied. The study concluded that some aspects of the operations of both MTN and Vodafone networks require improvement. Service providers need to improve service quality.

The third and final article of the ICT section was conducted by George.

George, Rahman and Ofori believe that since the development of digital media technology, students have embraced the use of Information and Communication Technology (ICT) creativity. However, most of the students have challenges in the use of ICT and this has a negative impact on the pedagogy of creativity in education. To address this issue George sets out to investigate the challenges of using ICT in the creative process. This qualitative approach, a purposive sampling method used a sample of 150 students from the Communication Design Programme. The Statistical Package for Social Sciences (SPSS) was used to analyze the data. The results indicated that most of students lacked competence in using ICT on creativity. It is recommended that students are taught how to develop new concepts and ideas for creativity.

In the Pedagogy subsection, Nabie investigated the interactions of Circuit Supervisors (CSs) with basic school teachers in Ghana. The objective of these interactions was to facilitate the effective teaching of mathematics. The participants of the study were 55 basic school teachers (43

males 21 females). A 20-item anonymous questionnaire was used to gather data regarding CSs activities in the schools of participants. The data were descriptively analysed. The results showed that the feedback provided by CSs, which was intended to support instructional delivery was “at variance with mathematics teacher needs for effective practice and contrary to curriculum recommendations.” The researcher suggested a qualitative study involving the CSs to generate further data to analyse with a view to address the challenge of effective mathematics instruction at basic schools in Ghana.

Adiyiah, Dieudonne and Ameyaw investigated the effect of teachers’ self-efficacy on students’ performance. They asserted that lately, data on Senior High students’ Biology performance had been on serious decline nationwide. They therefore set out to examine the effect of teachers’ self-efficacy on students’ motivation and performance in biology. Six teachers and one hundred and twenty students from two Senior High schools in the Ashanti Mampong municipality of Ghana were the participants. The data collection involved the use of three instruments namely teacher self-efficacy questionnaire, students’ motivation questionnaire and photosynthesis achievement test items. The results were analysed using Pearson product-moment correlation and one-way ANOVA. The findings revealed that teacher’s self-efficacy motivated students and resulted in better academic performance in biology.

These authors conducted a quasi-experimental study using concept mapping and its closeness indices assessment scheme as an alternative learning and assessment strategy. This was necessitated by prevailing inefficient rote learning technique, which could not help students to understand concepts and perform well in biology. A sample of students in the Ashanti Region of Ghana participated in the study. Data collection involved the use of an interactive 5-Es constructivist instructional model delivery, regularly using closeness indices scores and students’

performance test scores in photosynthesis. Analysis was done via one-way Anova statistical tool of SPSS version 21 software. The findings indicated that regular use of closeness indices assessment strategy positively influenced students learning outcomes. Specifically, it promoted their critical thinking and enhanced their conceptual understanding, which resulted in improved academic performance in photosynthesis among participating students of different abilities.

African Studies is the final section of IJOPPIE Vol 9. Dseagu's article on folktales starts the section. Dseagu's paper takes exception to Bascom's (1965) definition of African folktales as fiction that is not taken seriously in traditional societies in contrast to legends and myths. The paper adduces evidence to support the assertion that Bascom's (1965) view of African folktales is "unsustainable". It further asserts that Bascom's definition of folktales had been "discredited long ago". The paper therefore calls on African educators to discard Bascom's (1965) "fallacious" views on African folktales.

Next, under African Studies is Zuure's article on legal systems.

The study examined similarities and differences between the traditional court in Kongo and the modern state-court operating in the area. Additionally, the study explored the prospects of the traditional court in conflict resolution. This qualitative study used the case study design. Sixteen participants were purposively and conveniently sampled and interviewed for data. The findings revealed that the Kongo traditional court and the modern state court had similarities and differences in their approach to conflict resolution. It was also revealed that the Kongo indigenous mechanism to conflict resolution had great prospects. It was therefore, recommended that the two court systems in the area should collaborate for more effective conflict resolution, leading to a more peaceful and harmonious life.

In the third article under African Studies, Zuuri examined the influence of Livelihood Empowerment Against Poverty (LEAP) on household food consumption, access to health services, and children's school attendance of persons with disabilities in the Effutu Municipality in the Central Region of Ghana. The study adopted the qualitative research approach. A sample of thirty-four persons was purposively and conveniently selected to participate in the study. A semi-structured interview guide was used to gather data. The findings revealed that the LEAP programme had a positive influence on household food consumption, access to healthcare, and children's school attendance among PWD beneficiaries in the Effutu Municipality. Zuuri recommended that the programme be regularly reviewed to ensure that it achieves its goals.

**Editor – in – Chief**

**September, 2021**

**M-LEARNING: SURVEY ON ACADEMIC PERFORMANCE OF UNDERGRADUATE  
STUDENTS DURING THE COVID-19 PANDEMIC LOCKDOWN IN PRIVATE  
UNIVERSITIES IN NIGERIA**

By

**Inaku K. Egere**

Department of Communication Studies

Catholic Institute of West Africa, Port Harcourt, Nigeria

**ABSTRACT**

*The paper investigated mobile-learning and academic performance of undergraduate students in private universities in Nigeria during the COVID-19 pandemic lockdown. Tertiary education in Nigeria is largely dependent on the traditional face-to-face (F2F) classroom learning but with COVID-19 protocols, there was a significant paradigm shift of learning method. To evaluate students' performance based on the shift of the learning pedagogy from F2F to m-learning, a social survey was employed and a descriptive research design was adopted which was basically a non-experimental quantitative design in which questionnaire as an instrument for data collection was used on simple random sampling technique to describe their opinions, experiences and attitude. The participants were made up of undergraduate students of the Faculty of Education, Veritas University Abuja and the Faculty of Arts and Social Sciences, Catholic Institute of West Africa Port Harcourt, Nigeria. The total population of study was 560 students while a sample of 233 was derived from the total population using Slovin's statistical formula. A structured and self-administered questionnaire was employed as instrument for data collection. The questionnaire was based on a 4-point Likert type, ranked on the following scale: strongly agree =4; agree=3;*

*strongly disagree=2 and disagree=1 respectively. The instrument's reliability had a Cronbach alpha value of 0.70 which is acceptable. Two theories were used and three research questions were employed as a guide. Data analysed using frequencies and percentages, mean and Standard Deviations revealed that, the usage of m-learning did not have any significant relationship with the performance of the students but the impact was significantly correlated with the academic performance of students. Therefore, m-learning improved students' performance. However, this can further be enhanced if stakeholders encourage maximum use of m-learning pedagogy; establishment of ICT hubs with e-learning facilities across the country and development of Nigerian prototype m-learning architecture.*

**Keywords:** Academic, communication, COVID-19, mobile-learning, performance, information, technology.

### **Background to the study**

Social interaction as specific element of human beings takes place at various levels; on diverse platforms with varied designations. However, with the emergence of industrial revolution and information and communication technologies (ICTs), human socio-cultural interactions go beyond the boundaries of any geographical locations to realms like the cyberspace. The internet, through the use of computational devices like personal computers, palms, mobile devices such as iPads, iPhones, smartphones, tablets and Personal Digital Assistants (PDAs) is swiftly changing and reforming the world in which we live and interact with our social environment. The world has now entered a milieu where information technological advancement seems to overwhelm almost every sphere of human social interaction. With the rapid increase in the development and usage of

wireless technology, learners across board are bared to a new learning environment and educational experience.

Mobile Learning otherwise called m-learning which is a concept that refers to almost anything related to learning in combination with information and communication technology initially referred to electronic learning that takes place through mobile computational devices. However, as technology evolves, the concept now has a wider understanding with essential qualities such as mobility, ubiquity, situativity, access, convenience, immediacy and contextuality. Although, within the context of our inquiry, m-Learning goes beyond the confines of mobile devices (technology with software such as Learning Management System LMS or Course Management System CMS) to the mobility of learners and mobility of learning because with m-Learning system, learning can take place anywhere and at any time. Ontologically, it is learning with a specific computational device, at any time and in anywhere.

In the last quarter of the year 2019, when COVID-19 pandemic spread from Wuhan in China to other parts of the world, nations including Nigeria ushered in a plethora of government sanctioned and structure-shifting disease-control protocols across board. These were safety and proactive measures to curtail the spread of the coronavirus pandemic. There was slowdown/shutdown of economic activities, international airport closures and also nationwide closure of all schools without exception for a couple of weeks in Nigeria. Like other aspects of social life being disrupted, the “nationwide school closures have disrupted learning and access to vital school-provided services for a record number of students in Nigeria. According to UNESCO, almost 40 million learners have been affected by the nationwide school closures in Nigeria...” (Obiakor & Adeniran, 2020: p.1). Nigeria with apparent challenges of insecurity, banditry, poor



infrastructures, failed economy, etc. is sluggishly running a fragile education system even before the outbreak of the COVID-19 pandemic.

The outbreak disrupted life and posed unprecedented challenges on proprietors of public and private schools, parents, lecturers and students especially as the pandemic highlighted and amplified the apparent cracks in the Nigerian educational system. Nevertheless, in the midst of this conundrum, many countries, public and private sectors reacted differently while attempting to cope with the new normal. Though, in the educational sector, learning during the COVID-19 pandemic is greatly dependent on variables such as access to technology, adequate infrastructure, good government policies and alternative learning programmes. In Nigeria for instance, during the COVID-19 lockdown, the federal government in public schools such as the universities announced what looked like exceptional holidays as a way of curbing the spread of coronavirus through the social contact of face-to-face traditional learning, practiced in the country.

M-Learning which was the only viable option to keep the education system stable was not employed despite its global exponential growth and patronage. None implementation of m-Learning model is arguably based on poor government policies on education and paltry funding, lack of infrastructure, access to electricity, etc. These structures and infrastructures if available would enable university lecturers and students with smartphones, iPhone, iPad, etc. to explore anywhere and anytime learning and collaborative projects for educational purposes.

In Nigeria, public schools especially universities are not adequately funded and this has negatively affected in many ways the quality of education in the country. This poor standard of university education has directly or indirectly led to the establishment of many private universities with many more still in the process of gaining licence and accreditation from the Nigerian

Universities Commission, NUC, which is a regulatory body for all universities in the country. In May 2021, Nigeria has a total of 44 federal universities, 52 State universities and 99 private universities excluding affiliate institutions with degree programmes accredited by NUC (<https://www.nuc.edu.ng>). Within the nationwide COVID-19 lockdown in 2020, some private universities in Nigeria after careful assessment of how some developed countries were responding to the negative impact of COVID-19 on education skid into virtual learning as a temporary measure. Ghada Refaat El Said further affirms, “COVID-19 has dramatically reshaped the way global education is delivered. Millions of learners were affected by educational institution closures due to the pandemic, which resulted in the largest online movement in the history of education. With this sudden shift away from classrooms in many parts of the globe, universities had to shift to virtual and digital strategies” (El Said, 2021: p.1). Though, before the outbreak of the pandemic few private universities with interactive boards and ICTs compliant classrooms have engaged in one form of e-learning or another, none has significantly accessed e-learning environment prior to the pandemic. More so, very few empirical studies have been conducted about this novelty among the private universities in Nigeria. Available literature on the subject matter is nonetheless still evolving.

This study therefore, sets to investigate how the sudden shift from the traditional face-to-face to m-learning has affected the academic performance of undergraduate students in private universities during the COVID-19 lockdown in Nigeria. The study assessed variations in students’ academic performance from 2018/2019 to 2019/2020 academic sessions respectively. Findings will contribute to the extant literature on the subject under investigation and also provide clearer insights on the use of either traditional face-to-face and/or m-learning in educational system.

## **Statement of the problem**

The outbreak of the COVID-19 pandemic in the world has resulted into closure of many social activities globally. Schools and institutions in Nigeria were at various intervals of shutdown and as such were grossly affected by the closure consequent on the pandemic. Evidently, learning especially through the traditional face-to-face lectures in physical classrooms as a result of the COVID-19 protocols was prohibited. As an innovative pedagogy, m-learning during the COVID-19 which involved “the mobility of learners, the mobility of technology and mobility of learning” (Jinot, 2019: p.39) was a great paradigm shift by private universities in Nigeria which sets to fill in the gap in educational system and provide more online resources for studies. Laudable as it may be, it is also true that, its emergence came too quickly. Stakeholders had little time to prepare for such a novelty.

With hindsight on the poor infrastructures that bewildered the country such as lack of electricity, poor/no Internet access, social protection and social safety nets, computers, and other devices that perhaps were not adequately addressed within the limited time frame, makes it difficult to draw conclusions as to whether the innovative pedagogy enhanced the academic performance of students. The new learning environment has multiple online recourses, with self-regulated and ubiquitous systems. These systems however are context-bound with scaffolding which could be seen as strength as well as weakness because of the educational inequality due to the technological landscape and income driven digital divide in Nigeria. Therefore, the research seeks to examine the effects of m-learning as an innovative pedagogy during the COVID-19 lockdown on the academic performance of undergraduate students.

## **Aim and objectives**

The aim of this research is to investigate m-learning and its impact on academic performance of undergraduate students during the COVID-19 pandemic lockdown in private universities in Nigeria. The specific objectives of the study are:

1. Determine the extent to which m-learning pedagogy was used during the COVID-19 pandemic lockdown in the private universities among the undergraduate students.
2. Investigate the extent to which m-learning impact learning of undergraduate students in private universities during the COVID-19 lockdown.
3. Determine the extent to which m-learning influence the academic performance of undergraduate students in private universities during the COVID-19 lockdown in Nigeria.

## **Research questions**

The research was guided by the following questions:

1. To what extent was m-learning used during the COVID-19 lockdown by undergraduate students in private universities in Nigeria?
2. What is the impact of m-learning on undergraduate students in private universities in Nigeria during the COVID-19 lockdown?
3. To what extent does m-learning influence the academic performance of undergraduate students in private universities in Nigeria during the COVID-19 lockdown?

### **Significance of the study**

M-learning has taking off the unmediated face-to-face communication/teaching model of learning in a designated physical classroom and in a specific time to the level where learning occurs ubiquitously. Despite its seeming novelty, m-Learning has revolutionized the world by remodelling education process, human interaction, relationships, skill acquisition, competencies, learning and sharing of knowledge. It has also created flexibility and accessibility in acquiring and sharing knowledge. The findings of this research therefore, could be beneficial to the government, proprietors of universities, school administrators, content developers, lecturers, students and other researchers on the need for the use of m-learning as an alternative learning pedagogy. The study could as well identify new features that would enhance students' academic performance especially in moments where F2F classroom learning is strictly prohibited. It will also serve as a guide to further research.

### **Methodology**

A social survey and a descriptive research design were employed for this study. Data to investigate participants' opinions, experiences and attitude were collected using online google forms and off-line questionnaire with closed-ended questions. The participants were made up of undergraduate students of the Faculty of Education (Educational Management, Educational Foundation, Economics Education, Social Science Education, Guidance and Counselling Education and Science Education departments) Veritas University Abuja, Nigeria and the Faculty of Arts and Social Sciences (Religious studies, Communication Studies and Philosophy departments) of the Catholic Institute of West Africa, Port Harcourt, Nigeria. The total population of study comprised 560 students from where a sample of 233 was derived using Slovin's statistical

formula. Structured questionnaire, self-administered partly online and partly offline was employed as an instrument for data collection which were analysed using frequencies and percentages, mean and Standard Deviations. The questions were based on a 4-point Likert type, ranked in the order: strongly agree=4; agree=3; strongly disagree=2 and disagree=1 respectively. The instrument reliability showed a Cronbach alpha value of 0.70 demonstrating that it measured reliably what it was designed to measure with consistency.

### **Population of study**

Population of study refers to a set of people, events, elements, services, group of households to be investigated while carrying out a scientific research. However, when the entire population cannot be studied but finite, a smaller sample size can be adopted using a random sampling technique. Slovin's statistical formula was used to calculate the sample size (Stephanie, 2003).

### Sample size calculation

$$n = \frac{N}{1+N(e^2)}$$

Where  $n$  = number of sample size required

$N$  = total known population of the study

1 = unit (a constant)

$e$  = acceptable margin of error = (0.05)

Applying Slovin's statistical formula to this study, where  $N = 560$  the following result will be given as follows:

$$n = \frac{560}{1+560(0.05^2)} = \frac{560}{1+1.4} = \frac{560}{2.4} = 233$$

A total number of 233 copies of questionnaire were administered and all were correctly filled and returned by the respondents. The collected copies represent 100% of the total copies administered and the following results were obtained:

## Results

Discussions on the results were stratified under two broad sections: Section A focused on the demographic characteristics of the respondents while section B is on the research questions which guided the research.

### Section A:

The demographic characteristics of the respondents focused on the gender and the age ranges of the respondents.

		<b>Frequency</b>	<b>Percent</b>
Gender	Male	123	53
	Female	110	47
	Total	233	100
Age Range	No response	2	1
	16-20 years	43	18
	21-25 years	47	20
	26-30 years	51	22
	31-35 years	28	12
	36-40 years	31	13
	Above 40	31	13
	Total	233	100

Table 1: Demographic characteristics

Source: Fieldwork (2021).

From table 1, they were a total of 233(100%) students who responded to the questions out of which 123 (53%) were male while 110 (47%) of them were female. Also, a greater percentage of the respondents 98 (42%) were within the age bracket of 21-30, the lowest percentage of the respondents 28(12%) were within the ranges of 31-35. Therefore, in the study carried out, male undergraduate students were in majority and that majority of the undergraduate students fall within the ranges of 31-35.

**Section B: Impact of M-learning on undergraduate academic performance**

**Table 2**

**RQ1: Use of M-learning during the COVID-19 by undergraduate students in private universities in Nigeria**

Statement	SA	A	D	SD	Total
5. I used m-learning (ie Mobile learning that occurs at any time and in any place) for lectures during the COVID-19 pandemic in Nigeria	50 (21%)	34 (15%)	93 (40%)	56 (24%)	233 (100%)
6. I found m-learning exciting and useful	37 (16%)	69 (29%)	91 (39%)	36 (16%)	233 (100%)
7. I received all my lectures during the COVID-19 through Zoom cloud or Google class	47 (20%)	56 (24%)	88 (38%)	42 (18%)	233 (100%)
8. I could join the class everywhere and anywhere	47 (20%)	96 (41%)	46 (20%)	44 (19%)	233 (100%)
9. I found the use of m-learning difficult and expensive	41 (18%)	52 (22%)	39 (17%)	101 (43%)	233 (100%)
	31	74	96	32	233



	(14%)	(32%)	(41%)	(14%)	(100%)
10. I enjoyed the interaction with the teachers via the screen					
Multiple response set	253	381	453	312	1399
	18%	27%	32%	22%	100%

**Source: Fieldwork (2021)**

In table 2 above, the data revealed that, out of 233 respondents, 103 (44%) affirmed that, m-learning was used for lectures during the COVID-19 pandemic via Zoom and or Google class, while 130 (56%) respondents indicated not receiving lectures through Zoom cloud and or Google class during the COVID-19 pandemic in Nigeria. Still on the same table 2, 143 (61%) respondents said they could join the class everywhere and anywhere, while 100 (39%) respondents disagree not been able to join the lectures. In terms of difficulties and high cost of using the m-learning, 93 (40%) of the respondents were in affirmative while, 140 (60%) did not find m-learning difficult and expensive. From the findings above, the study shows that, a significant number of respondents used m-learning pedagogy during the COVID-19 pandemic.

**Table 3**

*Correlation between m-learning usage and performance*

Variable	Mean	Standard deviation	R	Significance
Usage	17.79	5.023	-0.005	0.934
Performance	21.89	4.16		

As seen on the table 3 above, after converting the responses into scores, the mean response for m-learning usage was 17.72 with a standard deviation of 5.023 whereas the mean for student performance was 21.89 with a standard deviation of 4.16. the correlation was not significant at the

0.05 level of significance indicating the usage of m-learning did not have any significant relationship with the performance of the students.

**Table 4**

*Impact of M-learning pedagogy on the academic performance of students during COVID-19 lockdown*

Statement	SA	A	D	SD	Total
11. I discovered that access to the online platform was user friendly	27 (12%)	101 (43%)	85 (36%)	20 (9%)	233 (100%)
12. I preferred taking lectures in the virtual classroom	36 (15%)	81 (35%)	74 (32%)	42 (18%)	233 (100%)
13. I understood better learning via face-to-face traditional classroom	42 (18%)	29 (12%)	39 (17%)	123 (53%)	233 (100%)
14. I had sufficient time to complete the exercises	34 (15%)	103 (44%)	74 (32%)	22 (9%)	233 (100%)
15. I discovered that level of involvement in lectures was high	84 (36%)	56 (24%)	54 (23%)	39 (17%)	233 (100%)
16. I found learning more interesting around my classmates	47 (20%)	44 (19%)	49 (21%)	93 (40%)	233 (100%)
17. I had lower grades studying via m-learning facilities.	61 (26%)	69 (30%)	78 (33%)	25 (11%)	233 (100%)
18. I had good grades studying via m-learning facilities	74 (32%)	96 (41%)	44 (19%)	19 (8%)	233 (100%)
19. I had more access to online materials.	44 (19%)	89 (38%)	88 (38%)	12 (5%)	233 (100%)
Multiple response set	540 (26%)	692 (33%)	562 (27%)	303 (14%)	2097 (100%)

**Source: Fieldwork (2021).**

In table 4, 128 (55%) of the respondents indicated that access to the online platform was user friendly, while 105 (35%) respondents did not affirm that the platform was user friendly. However, 71 (30%) stated that, they understood better learning via face-to-face traditional classroom, will 162 (70%) respondents both disagree that F2F learning is better in terms of understating the content. For scoring lower grades via m-learning pedagogy, 130 (56%) respondents stated that, they had lower grades studying via m-learning facilities while 103 (44%) respondents disagree having lower grades when studying through m-learning facilities. Nevertheless, 170 (73%) respondents affirmed they had good grades studying via m-learning and 63 (27%) responded indicated not having good grades. On access to online materials, 133 (57%) respondents agree on having more online materials, while 100 (43%) respondents disagree on not having more access to online materials while using the m-learning during the COVID-19 lockdown. The findings therefore, indicate that, there was a significant impact on the use of m-learning on the academic performance of students

**Table 5**

*Influence of M-learning on the academic performance of undergraduate students in private universities during the COVID-19 lockdown in Nigeria*

Statement	SA	A	D	SD	Total
20. I found the closure of schools having psychological, emotional and intellectual effects on students' performance.	52 (22%)	52 (22%)	70 (29%)	61 (26%)	233 (100%)
	41	42	54	96	233

21. I believed that a combination of m-learning and traditional face-to-face learning will improve academic performance.	(18%)	(18%)	(23%)	(41%)	(100%)
22. I felt M-learning stimulates and encourage students' academic performance	29 (13%)	91 (39%)	88 (38%)	25 (11%)	233 (100%)
23. I believed that COVID-19 pandemic has created new learning environment in the tertiary institutions in Nigeria	39 (17%)	37 (16%)	71 (31%)	86 (37%)	233 (100%)
24. I disliked doing practical courses in the virtual classroom.	47 (20%)	59 (25%)	61 (26%)	66 (28%)	233 (100%)
25. I found it hard to finish texts or exams within the time allowed due to poor network.	44 (19%)	32 (14%)	47 (20%)	110 (47%)	233 (100%)
26. I didn't have a permanent private study timetable/place.	27 (12%)	81 (35%)	96 (41%)	29 (13%)	233 (100%)
27. I was nervous and confused when taking exams and/or quiz on virtual classroom	12 (5%)	89 (38%)	83 (36%)	49 (21%)	233 (100%)
28. I found myself too tired, bored and sleepy when I site to study before a screen.	17 (7%)	96 (41%)	81 (35%)	39 (17%)	233 (100%)
29. I couldn't ask questions as I would usually do in a face-to-face classroom.	47 (20%)	29 (13%)	56 (24%)	101 (43%)	233 (100%)
Multiple response set	557 24%	645 29%	667 27%	461 20%	2330 100%

**Source: Fieldwork (2021).**

In table 5 above, the results show that, 104 (44%) of the respondents found the closure of schools having psychological, emotional and intellectual effects on their academic performance, while 129 (56%) of the respondents disagree. Also, 120 (52%) of the respondents felt m-learning stimulates and encourage students' academic performance, while 113 (48%) of the respondents disagree. From the results still on table 5, 106(45%) of the respondents disliked doing practical courses in the virtual classroom, while 127 (55%) of the respondents indicated that they like it. With m-learning, 108 (47%) of the respondents indicated not having permanent private study timetable/place, while 125 (53%) of the respondents had. Under exams condition, 101 (43%) of the respondents were nervous and confused when taking exams and/or quiz on virtual classroom and 132 (57%) of the respondents were not. Furthermore, 104 (44%) of the respondents found themselves too tired, bored and sleepy before the screen while studying while, 129 (56%) of the respondents disagree. As regards interaction during lectures, 76 (33%) of the respondents indicated not been able to ask questions as they would in a F2F classroom while 157 (67%) stated they could ask questions as in a F2F classroom. From the findings as stated above, it is imperative that, m-learning has positive impact on the academic performance of the undergraduate students.

**Table 6**

Correlation between impact and performance

Variable	Mean	Standard deviation	R	Significance
Impact	25.40	4.92	0.514	0.000
Performance	21.89	4.16		

**Source: Fieldwork (2021).**

As indicated in table 6 above, the impact of m-learning was significantly correlated with the performance of students. The correlation was a moderate one ( $r = 0.514$ ,  $p$ -value 0.000) indicating that the more m-learning was used, the more the students could participate. This is

supported by the fact that 53% of the responses were in agreement to the impact of m-learning and 59% of the responses were in agreement that m-learning improved students' performance.

### **Theoretical framework**

As a guide to this research process, the study therefore is anchored on two theories: Social constructivism theory and Transactional distance theory.

#### **Social constructivism theory**

Social constructivism is a theory developed by post-revolutionary Soviet psychologist Lev Vygotsky. Learning according to him takes place when “a learner reaches *zone of proximal development* through collaboration and sharing of the knowledge acquired with other listeners” (Vygotsky, 1978: p.57). Consequently, learning is an activity process (Bruner, 1966). For Vygotsky, “Every function in the child’s cultural development appears twice: first, on the social level and, later on, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.” This theory elucidates the elements of social participation engraved in learning process. Evidently, mobile learning according to Jinot, “provides the opportunities for learners to actively participate or interact in knowledge co-construction. Simulation, interactive podcasting and multimedia museums are examples of how M-learning is based on socio-constructivism” (Jinot, 2019: p.41).

## **Transactional distance theory**

This theory was developed by Michael Moore in the early 1970s. Moore's theory focused on three factors: learner autonomy, teacher-created instructional programs, and communication systems. His goal was to create a theoretical framework that embraced the growing field of distance education. Moore (1973) believed that transactional distance is not only the geographic distance between the instructor and student in a learning environment, but more importantly it is the distance caused by communication factors that must be overcome for learning to occur. With m-learning, learners acquire and create knowledge with the use of information and communications technology. Therefore, transactional distance theory has a lucid theoretical basis and was developed in relation to information and communication technologies where m-learning is moored.

## **Literature review**

### **Concept of m-learning pedagogy**

M-learning is a hybrid of technological advancement, initially it was described as any electronic learning via the use of mobile computational devices. Though, recently, the concept is understood in terms of the use of e-learning plus mobility. However, the evolutionary trend in knowledge delivery, began with face-to-face learning which gradually evolved into distance learning (d-learning), followed by electronic learning (e-learning) and thereafter mobile learning (m-learning). Nonetheless, lately there is a new model of learning called ubiquitous learning (u-learning) still in its infancy with very modest contribution to making teaching and learning easy and attractive.

M-learning with its dynamic nature, standards and models has generated multiple definitions and descriptions among experts who are greatly influenced by the geometrical increase

in the development of wireless technology across geographical boundaries. It is a flexible learning mechanism using mobile devices. It is a learning with a specific mobile device, at any time and in any place. M-learning is also defined as “a new learning technique using mobile network and tools, expanding digital learning channel, gaining educational services, educational information and educational resources anywhere at any time” (Alalwan, Alzahrani & Serrab, 2013: p.643). Within the context of tertiary education, it involves “mobility of learners, mobility of technology and also mobility of learning” (Jinot, 2019; 39; Al-Adwan, Al-Madadha & Zvizdinate, 2018) which apparently takes place anywhere and anytime (Traxler, 2007; Wang, Wu & Wang, 2009; Shih et al., 2011). M-learning is often linked with e-learning as both are supported by information and communications technologies (Laghos, 2010: p.24). Nevertheless, despite its ontological component of hyper mobility in terms of learners, technology and learning, the application and procedures of m-learning involve web-based learning and computer-based learning. It is a hybrid learning technology that is electronically mediated for construction and confirming knowledge.

### **Benefits of m-learning**

M-learning as innovative technology has in many ways contributed in the process of advancement and sharing knowledge especially among people who are geographically dispersed. Learning is carried out at one’s convenience through mobile devices with Internet access. Both teaching and learning are made more attractive and easier for all users of the technology. M-learning enhances “two-way interaction where it supports direct communication between students and their teachers, in such way to encourage shy or hesitant students to communicate more easily than in classrooms. As well as, teacher of large groups can use the direct interaction as a way of giving special instruction to all students” (Alalwan, et al., 2013: p.644). M-learning is democratic in many ways as learners have their voice and choice. It is also a great promoter of self-regulated



learning where learners are at the focus of the learning process with the possibility of deciding on their learning through its evaluation stage (Biden & Ziden, 2013). More so, “m-learning gives room for self-motivated, self-disciplined that supports studying with on time waste, studying anywhere and at any time” (Alalwan, et al., 2013: p.644). It gives room for self-organization especially with the aid of “collaborative learning, exploratory (enquiry-oriented) learning outside the classroom and game-based learning, as they may develop communication, creativity, problem-solving and higher order skills” (Jinot, 2019: p40).

Furthermore, with m-learning, “learners are able to enrich their experience by co-creating their knowledge, through notes taking and pictures, observation, comparing knowledge in situation with online knowledge, sharing information, formulating responses to questions that emerge as leaning takes place, giving and receiving immediate feedback from other learners and the teachers, and greater social interactions” (Jinot, 2019: p.40 citing Alrusheedi, Capretz & Raza, 2015; Foti & Mendez, 2014). M-learning “enables educator, learner and tender to extend beyond the traditional schoolrooms (classroom, tutorial room, laboratories and Lecture Theatre); the schoolrooms, portable computing and communication devices provide instruction opportunities” (Alalwan, et al., 2013: p.644). m-learning as an extension of e-learning manages different learning platforms and consequently, supports “performance with easy access to information, which can immediately impact students’ performance in a learning environment, facilitating their education” (Alalwan, et al., p.644). With it, knowledge and learning are made available anytime and anywhere without the restriction of place and time associated with the traditional face-to-face learning.

Though, Griffith (2019) in a comparative study of student’s performance, before the pandemic, in an online study, noted that there is “no significant differences in academic performances of the two cohorts” (Soesmanto & Bonner, 2019: p.95). Similar results were found

in a study conducted for a different type of course by Lorenzo-Alvarez et al. in Australia (Lorenzo-Alvarez, Rudolphi-Solero, Ruiz-Gomez, & Sandra-Portero, 2019). In another similar research done in Ohio University using a sizable number of 5,000 courses by over hundred faculty members over a period of ten academic terms, the results further confirmed that there is no significant difference in the grade-based student performance between the F2F and m-learning (Cavanaugh & Jacquemin, 2019).

However, after online classes, m-learning gives students ample opportunities to extent their online learning experience. The out-of-the-class online quizzing where students can learn and even test their own learning too is a great opportunity. Quiz apps as observed by Roediger & Karpicke, (2006) has the facility to allow students have instant access to specialized information and to be encouraged with online learning materials to soothe test anxiety and to increase their academic experience. The use of clickers in m-learning that gives learners the latitude to answer questions anonymously and synchronously through live polling system also makes learning experience more interactive (Foti & Mendez, 2014). More so, “Digitalization of teaching and learning materials ensures availability of vast number of information, easy manipulation of contents, offers possibility of real-time update and exchange etc.” (Pozgaj & Knezevic, 2007: p.382).

### **Basic challenges of m-learning**

M-learning is a motorized learning system very much supported with information and communications technologies for its functionality. In an average m-learning system, like any social system not all members or participants have the frenzy for technology. Within a given class there are some that are tech rich and others tech poor, the tech poor learners for instance may have to

spend more time searching for information occasioned by novelty of the technology. This is succinctly articulated thus “learners spend more time searching for information than they need for reading because of the small screen size of mobile devices; mobile devices cannot support many files or diverse formats; they have limited memory capacity and there is risk of obsolescence which may be an obstacle for continued use of effective M-learning (a cognitive and ergonomic issue as well) by tutors as well as the learners who would need months to learn to use the new apps” (Jinot, 2019: p.43).

Another challenge is the fact that, team work is hardly achievable because learners would need some time to acclimatize with team members, tasks and processes for effective collaboration. Technical assistance in cases of technical challenges are not easily available (Mehdipou & Zerehkafi, 2013; Brown & Mbatia, 2015; Sung et al., 2016). Digital content susceptible to be used and re-used in different locations create room for the issue of privacy and data security or protection. Therefore, the concern for identity theft, stalking and cyber bullying are prevalent even when advisory is made (Bedin & Ziden, 2013).

People with technophobia with poor learning habits may find learning very difficult and this may lead to isolation bereft of social interaction (Salawudeen, 2010). In developing countries like Nigeria, unstable power supply from the national grid amidst the slow and unreliable Internet connections can affect learning (Jinot, 2019).

## **DISCUSSION**

COVID-19 pandemic affected the traditional face-to-face method of learning in Nigeria as a result of the COVID-19 protocols such as social distancing, lockdown of intra and interstate travels, not excluding the bans on land/sea borders, and air space. Consequently, all schools in

Nigeria were shutdown to curb further spread of the deadly coronavirus in the country. Nevertheless, some private schools especially tertiary institutions in the country employed m-learning pedagogy as an alternative and or complement to the traditional face-to-face lecture base. This is evident in the result shown in Table 2 (see page 7) that during the COVID-19 pandemic in Nigeria, undergraduates in private universities made use of m-learning via Zoom cloud or Google class as alternative to physical classroom knowledge experience.

Notably, a significant number of undergraduate students who used the m-learning found it exciting and useful. More so, as m-learning gave them opportunity to interact with lecturers at different levels. Nevertheless, the result shows that there is no significant correlation between m-learning usage and academic performance during the COVID-19 lockdown. The mean responses from the survey shows that m-learning usage was 17.72 with a standard deviation of 5.023 whereas the mean for student performance was 21.89 with a standard deviation of 4.16. Therefore, the correlation was not significant at the 0.05 level of significance indicating the usage of m-learning did not have any significant relation with the academic performance of students. This result affirms previous studies carried out in 2019 before the lockdown of schools, that suggest “no significant differences in academic performances of the two cohorts” (Soesmanto & Bonner, 2019: p.95) within the dual mode system. Also, similar results were found in affirmative in a study conducted by Lorenzo-Alvarez et al. in Australia (Lorenzo-Alvarez, Rudolphi-Solero, Ruiz-Gomez, & Sandra-Portero, 2019). Furthermore, in a research conducted in Ohio University using a large dataset of 5,000 courses by over 100 faculty members over a period of 10 academic terms, results further confirmed that there was no significant difference in the grade-based student performance. This could be due to the fact that the many students were not prepared for introduction of m-learning that was introduced abruptly to make up for the absence of F2F learning due to the COVID

19 pandemic. This could be the reasons why many students did not use it considering the poor internet penetration in the country.

On the correlation between impact and performance as noted in tables 4 & 5 respectively (see pages 8-9), the impact of m-learning among those who used it was significantly correlated with the performance of undergraduate students. Evidently, the correlation was moderate as statistically shown ( $r=0.514$ ,  $p$ -value 0.000), thus indicating that the more m-learning was used, the more the students could participate. This is evident by the fact that 53% of the responses were in agreement to the impact of m-learning and 59% of the responses were in agreement that m-learning improved student's performance. This result therefore confirms Alalwan, et al study that m-learning supports "performance with easy access to information, which can immediately impact students' performance in a learning environment, facilitating their education" (Alalwan, et al., 2018: p.644).

The identifying factor influencing students' academic performance also was easy access to the online platforms that were user friendly. As observed in table 2 above, 54% of the respondents affirmed that the use of online platform for lectures was not difficult because they could access it anytime and anywhere for their studies. This result however, further affirms the evolution in the delivery of knowledge through digital learning where characteristics such as "mobility, access, immediacy, suitability, ubiquity, convergence and contextuality" (Jinot, 2019: p.39) are apparent. Access and usage of the m-learning parameters gave greater possibility for interaction and collaboration among students and between students and lecturers. Students with flexibility of location, time and (mobile) devices could connect, communicate, collaborate and generate new learning experience that impact academic performance.

Similarly, m-learning creates better learning environment were students could get better grades. This is because the study revealed that 73% of the students who used m-learning during the COVID-19 lockdown had good grades when compared with the traditional F2F mode. Factors influencing the increase in grades as noted above is because “learners are able to enrich their experience by co-creating their knowledge, through notes taking and pictures, observation, comparing knowledge in situation with online knowledge, sharing information, formulating responses to questions that emerge as leaning takes place, giving and receiving immediate feedback from other learners and the teachers, and greater social interactions” (Jinot, 2019: p.40).

## **CONCLUSION**

M-learning is a natural extension of e-learning and it provides a connection between technology and education especially in situations where traditional face-to-face learning is impossible. Digitalization of learning ensures possibilities such as mobility, easy access, immediacy, suitability, ubiquity, convergence and contextuality which are all indices to academic performance. During the COVID-19 pandemic in Nigeria, m-learning was employed by private universities as an alternative learning pedagogy when social distancing and closure of schools were enforced. M-learning mechanism supports performance with its easy access to information that can impact students’ academic performance in any learning environment despite technological, economic and other challenges.

Although, the impact of m-learning was significantly correlated with the academic performance of undergraduate students but its correlation in the study does not in any way suggest if they could be a lasting impact on the trajectory of learning innovation and knowledge experience. Likewise, while acknowledging the correlation between impact and performance, it is also worthy

to point out that, the use of course grades which are more evidentiary were not incorporated as a primary comparative factor for investigation. The study therefore may be limited in scope and depth; therefore, giving room for future studies on the subject matter in order to provide specific short- and long-term impact on student's academic performance based on the dual mode.

## **RECOMMENDATIONS**

Based on the findings, discussion of results and conclusions of this research, the following recommendations were made.

- 1) M-learning as an innovative pedagogy has proved to be successful in developed nations of the world and also in Nigeria during the COVID-19 pandemic where the landscape of learning was limited by nationwide school closure and social distancing protocols. Therefore, the government and proprietors of private schools especially tertiary institutions in Nigeria should encourage the maximum use of Information and Communication Technologies ICT as a complement to the traditional face-to-face classroom pedagogy. Nevertheless, the education authorities while enforcing implementation the use of m-learning in the Nigerian universities should as well take into consideration potential issues like the lack of electricity, high cost of data, poor network coverage, etc. that may hinder its effective usage.
- 2) Stakeholders in the educational sector should invest on ICT infrastructures and also in the training and retraining of university lecturers on m-learning parameters that has created a new educational architecture in the country. ICT hubs with various Electronic Management Systems, LMS and Course Management Systems, CMS should be established by the government and NGOs at strategic locations in remote parts of the country. In deed such

e-communications centres will bridge the gap of educational inequality advertently or inadvertently caused by the technological landscape and income driven digital divide which are imperatives to academic performance.

- 3) Institutions and software developers should design m-learning facilities with easy access, open source and cheap or free augmented reality software and applications with greater use of simulations and augmented actuality. Also, hardware with high power storage capacity and ultra-high internet wireless sensitivity should be developed. Prototype of m-learning architecture that reflects the Nigerian socio-economic realities with learner-generated contents like BridgeIT in Tanzania and MoMath in South Africa should be developed to create new enriching learning experiences and performances.

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## CALL FOR PAPERS

The journal is calling for papers on the theme:

# The Global Impact of COVID-19 on Education

In view of the new world order brought about by COVID-19, the Journal invites articles that address research, theory or practice in pedagogy, Language Policy and ICT in education, with specific reference to the impact of COVID-19 on education. The Call is open from 30<sup>th</sup> September to 31<sup>st</sup> December 2021. Accepted articles are expected to be published in the first quarter of 2022. Depending on response the publication could be earlier.

### Submission “Protocols”

*Preliminary requirements:* All articles should have the following subheadings in the body as the organizing principle: *topic, abstract, the problem, objectives/purpose, research questions or hypotheses, significance of the study, methodology, the results/findings, discussion of findings, conclusion and recommendations* (may include suggestions for further research) and *references*. **NB:** Articles that disregard these preliminary requirements would be deleted, with no further action taken.

1. A cover letter should accompany each article. **It should include all authors’ names and institutional affiliation.** The cover letter should have the **email of the corresponding author**, to whom all correspondence regarding the article would be directed. The mailing address, to which copies of the journal, after publication, would be shipped should also be provided.
2. **Every effort should be made to see that the manuscript itself contains no clues to the authors.** The cover page should contain the title of the manuscript, names and addresses of the authors.
3. Manuscripts should not exceed 18 pages including the references. The abstract should not exceed one hundred and fifty (150) words. Typescripts should be Times New Roman on A4 paper, double-spaced and typed on one side only, if printed. Pages should be numbered. About five keywords that best describe the article should be provided.
4. Letters to the Editor are encouraged to promote interactivity and healthy debate on current research issues regarding COVID-19. Such letters should not be more than 1000 words. **They should include all authors’ names, degrees, institutional affiliation and contact address.** Again, letters should use references to strengthen arguments being made.
5. Articles must be original, coherent, logical and devoid of typographical errors.

6. Referencing should follow the American Psychological Association (APA 7<sup>th</sup> Edition, 2020) manual of publication. Authors must painstakingly match in-text citations with end references to ensure **that authorities cited are referenced and that all references on the end reference list are cited in the body of the manuscript. Manuscripts that fail to comply may be rejected and deleted.**
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## APPEL À CONTRIBUTIONS



Le journal lance un appel à des articles sur le thème :



### **L'impact mondial du COVID-19 sur l'éducation**

Compte tenu du nouvel ordre mondial instauré par COVID-19, le Journal invite à des articles qui traitent de la recherche, de la théorie ou de la pratique en pédagogie, de la politique linguistique et des TIC dans l'éducation, en faisant spécifiquement référence à l'impact de COVID-19 sur l'éducation. L'appel est ouvert du 30 septembre au 31 décembre 2021. Les articles acceptés devraient être publiés au premier trimestre de 2022. Selon la réponse à cet appel, la publication pourrait être plus tôt.

#### **« Protocoles » de soumission**

Exigences préliminaires : Tous les articles devraient avoir les sous-titres suivantes dans l'organisme comme principe d'organisation : sujet, résumé, problème, objectifs/but, questions ou hypothèses de recherche, importance de l'étude, méthodologie, résultats/résultats, discussion des résultats, conclusion et recommandations (peuvent inclure des suggestions pour des recherches postérieures poussées) et des références.

NB : Les articles qui ne tiennent pas compte de ces exigences préliminaires seraient supprimés, sans que d'autres mesures ne soient prises.

1. Une lettre doit accompagner chaque article. Il devrait inclure tous les noms des auteurs et leurs l'affiliation institutionnelle. La lettre d'accompagnement devrait avoir l'adresse courriel de l'auteur correspondant, à qui toute correspondance concernant l'article serait dirigée. L'adresse postale, à laquelle des copies du journal, après publication, seraient expédiées devrait également être fournie.
2. Tout effort doit être fait pour que le manuscrit lui-même ne contienne aucun indice des auteurs. La page de couverture doit contenir le titre du manuscrit, les noms et les adresses des auteurs.
3. Les manuscrits ne doivent pas dépasser 18 pages, y compris les références. Le résumé ne doit pas dépasser cent-cinquante (150) mots. Les scripts de type doivent être Times New Roman sur papier A4, à interligne double et tapé sur un seul côté, s'ils sont imprimés. Les pages doivent être numérotées. Environ cinq mots clés qui décrivent le mieux l'article doivent être fournis.
4. Les lettres adressées au Rédacteur en chef sont de bienvenues pour promouvoir l'interactivité et un débat sain sur les questions de recherche actuelles concernant le COVID-19. Ces lettres ne devraient pas dépasser 1000 mots. Ils doivent inclure le nom, les diplômes, l'affiliation institutionnelle et l'adresse de contact de tous les auteurs. Encore une fois, les lettres devraient utiliser des références pour renforcer les arguments avancés.

5. Les articles doivent être originaux, cohérents, logiques et dépourvus d'erreurs typographiques.
6. Le style de référenciations doit suivre l' « American Psychological Association » (édition 7, 2020). Les auteurs doivent soigneusement faire correspondre les citations en texte avec les références de fin pour s'assurer que les autorités citées sont référencées et que toutes les références sur la liste de référence finale sont citées dans le corps du manuscrit. Les manuscrits qui ne se conforment pas peuvent être rejetés et supprimés.
7. Après présentation initiale, s'il est déterminé que l'article mérite d'être examiné, l'auteur sera invité à payer des frais de révision non remboursables de 150,00 GH pour les Ghanéens et de 50,00 \$US pour tous les étrangers. Ces frais couvriraient également l'Internet en vigueur ainsi que le coût de l'impression et de la photocopie.
8. Nous suivons un processus de double revue anonymes au frais payable pour chaque article revu. En principe, nous payons deux examinateurs par article.
9. Si un article est accepté pour publication, l'auteur(s) sera invité à répondre aux commentaires de nos examinateurs et à envoyer une version électronique de l'article révisé au format du fichier « Word Document », avec des frais de publication non remboursables, au Rédacteur en chef. Les frais de publication, mentionnés ci-dessus, ne seront communiqués qu'aux auteurs dont les articles sont acceptés pour publication.
10. Les auteurs doivent être patients après le paiement des frais de publication, puisque nous n'imprimons qu'après avoir atteint nos objectifs de publication et nos normes. Il est dans l'intérêt des auteurs d'être patients parce que lorsque nous maintenons des normes de publication élevées, ils seraient les bénéficiaires conjoints de notre excellent produit final. Veuillez garder à l'esprit qu'un article ne sera pas accepté comme journal par la plupart des institutions pour évaluer le personnel. La qualité de la revue est également à évaluée.
11. Les articles ne peuvent pas être soumis ou publiés simultanément ailleurs. Cela aurait des répercussions sur le droit d'auteur. Les manuscrits doivent être accompagnés d'une lettre indiquant que le manuscrit n'a pas été publié ou soumis ailleurs.
12. La décision des examinateurs de la revue de publier ou non un manuscrit est normalement communiquée sans délai. Au fil des ans, notre taux d'acceptation moyen est de 90 %. Néanmoins, dans le passé, certains articles rejetés qui ont été substantiellement révisés selon les suggestions des examinateurs et soumis à nouveau ont finalement été publiés.
13. Après publication, une copie du journal est envoyée à l'auteur principal/correspondant de chaque article. Des exemplaires supplémentaires sont vendus à un prix subventionné aux co-auteurs du numéro actuel.
14. Sur demande, nous envoyons des versions électroniques d'articles extraits avec les détails de publication, par courriel, aux auteurs qui auront besoin d'avoir des plus tôt en raison de les présentes pour évaluation / promotion. Ces auteurs ne sont pas exemptés de payer les frais de publication réguliers mentionnés au numéro 9 ci-dessus

Êtes-vous prêt à soumettre? Veuillez vérifier avec les exigences préliminaires et tous les 14 points ci-dessus avant de soumettre. Cela permettrait d'accélérer les choses et d'améliorer vos chances.

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