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**BUILDING RESILIENT ASSESSMENT ADMINISTRATION WITH PROCTORING  
ONLINE EXAMINATION SYSTEM: THE NATIONAL OPEN UNIVERSITY OF  
NIGERIA STUDENTS' READINESS**

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**Abstract**

*The mode of assessment administration is fast changing for students of higher institutions all over the world. The current occurrences of COVID-19 pandemic which forbids clustering of people in one place and also put up the protocol of social distancing negates the traditional administration of examination in hall where all students are seated to take the examination. There is therefore the need to build formidable strategies through which assessments are conducted to students in technology-driven era using online proctoring system. However, learners need to be ready to take the advantage of proctoring systems to maximize the flexibilities it affords resilient assessment administration. A cross-sectional survey was carried out on five hundred and twenty six (526) National Open University of Nigeria (NOUN) students from six geopolitical zones in Nigeria and across four faculties and one academic Centre of Excellence. Five research questions were answered. An online survey questionnaire which was validated by experts and with a reliability coefficient of 0.86 using Cronbach Alpha was used to collect data for the study. Descriptive, t-test and analysis of variance were used to analyse data. Scheffe post hoc was used to ascertain the direction of significance between paired variable categories. It was discovered that NOUN students agreed that proctoring online examination system was a means of building resilient assessment administration in institutions of higher learning. Male NOUN students considered using proctoring online examination system as a means of building resilient assessment administration better than the female students. Also, students that are highly ready for proctoring online examination system had the highest opinion that*

*the system could help to build resilience in assessment administration. National Open University of Nigeria should boost the implementation of proctoring online examination system in order to enable effective resilient assessment administration.*

**Keywords:** Resilience, Assessment administration, Proctoring online examination system, Readiness, Gender, National Open University of Nigeria Students

## **Introduction**

The National Open University of Nigeria (NOUN), was established in July, 1983, by an Act of the National Assembly as the first distance learning tertiary institution in Nigeria when it became crystal clear to the then Federal Government that the ever growing demand for education by her people cannot be met by the traditional means of face-to-face classroom instructional delivery. The institution was closed down few weeks after its establishment and the Act that established the University was suspended in 1984 by the then Federal Military Government that overthrew the civilian government. Many years after the closure, the compelling reasons that informed the earlier establishment of the university as well as the need to fill the gap created by the Federal Government clamped down on mushroom outreach study centres of many conventional universities all over the country and the need to take advantage of emerging developments in the field of Information and Communication Technologies (ICTs) which have revolutionised the techniques and methods of instructional deliveries in the distance learning mode necessitated the reactivation of the suspended NOUN Act of 1983 in 2002 (Ajadi, Salawu & Adeoye, 2008). Two things are now happening within the educational space because of COVID-19. First, the formal face-to-face teaching and learning is changing and giving way to Open and Distance eLearning (ODEL) as the mainstream teaching and learning vehicle. Second, the way is being paved for the eventual merger of the face-to-face and ODEL instructions. The invasion of COVID-19 coupled with global changes inform climate has forced educational delivery in higher learning institutions to embrace e-learning approaches to deliver course contents to learners (Jegade, 2020). The use of technology in every aspect of teaching and learning is the only way to cushion the effects of social distancing protocols which must be observed by everyone.

Resilience is the process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress—such as family and relationship problems, serious health problems, or workplace and financial stressors. Four different kinds of resilience are

prominent which humans need to cope with. They are mental, emotional, social and physical resiliencies(Masson, 2016). In the wake of large-scale traumas such as the terrorist attacks, natural disasters, and the COVID-19 pandemic, many individuals demonstrated the behaviors that typify resilience—and they experienced fewer symptoms of depression as a result. Learners seemed to see the assessments as challenges especially when its administration is intimidating, unfriendly and unplanned. Instead of these learners falling into despair or hiding from issues such as these with unhealthy coping strategies, resilience helps people face life's difficulties head-on. Resilient open and distance learners often have a number of different traits that help them survive educational challenges. Some of the indications of resilience they could develop are survivors mentality which affords them to know that even when examination are tough, they can keep going until they make it through; effective emotional regulation which an ability to manage emotions in the face of assessment; feeling in control. Self-compassion also makes them treat themselves with kindness, show love with other learners and ready to help others to overcome examination challenges. Also, resilient students recognise the essence of support and know when such is needed during assessment administration or any situation like COVID-19.

COVID-19 had posed a lot of threats to the ways assessments are conducted and administered in most institutions of higher learning. Various assessments take place in the educational institutions such as formative assessment, summative, authentic assessment, and performance assessment in order to ascertain the ability levels of the learners (Opataye, 2021). In open and distance learning institutions, it becomes imperatives to administer learners' assessment using appropriate synchronous or a synchronous means in order to engage the students wherever they are. It is essential that suitable and uniform assessment conditions are ensured so as to maintain the integrity of the results of the assessment. In order to achieve this, there is a need to choose a suitable testing location, prepare the room and test materials ahead of the time for administering the assessment. Other favourable conditions for administration assessment are test taker readiness or suitable for the test and uniform administration. Suskie (2009) asserted that assessment administration is taking different shapes in view of technological advancement and global challenges that educational systems are facing. Evolution and shift into authentic and performance assessment rather than just rote learning of information-based response of learners to questions are currently been discouraged. The hands-on with ability of learners to make use of hearts, hands and intellect has projected a move to use technology to examine them.

The online proctor can watch students during online exams by accessing their webcams, screens, and microphones (Drew, 2020) to ensure that students are complying with the rules. Usually, the online proctor is associated with an artificial intelligence system

that analyzes students' movements and their environment to decide whether to mark up the potential cheating behavior. Students schedule their exams and then connect with their proctor through these online services (Hollister & Berenson 2009; Hylton et al. 2016). Proctoring examination is the remotely administration of questions to students online without human invigilation and supervisions in a designated place. A proctored examination is a test that is supervised by someone, called a proctor, who verifies the identity of the test taker, watch the environment of the examinees in order to ensure academic integrity. Proctored tests are currently administered using technological devices and often minimize any examination malpractice (Faucher, & Caves, 2009). Karim, Kaminsky and Behrend (2014) reported that the utilisation use of remote proctoring was connected with more negative test-taker reactions and decreased examination malpractice. Remote proctoring did not directly influence test performance or interact with individual differences to predict test performance or test-taker reactions. Implications: Technological advances in selection should be accompanied by empirical evidence. Although remote proctoring may be effective at decreasing cheating, it may also have unintended effects on testees' reactions.

Readiness for Proctoring online examination system is very essential for quality and effective administration of the assessment. It is now been employed by institutions of higher learning, particularly since the Covid-19 pandemic caused many courses to shift instruction from F2F to online modes of instruction (Faten, Kharbat1 & Ajayeb, 2021). Whilst some online proctoring software works by restricting the number of access a computer can run during the examination period, other proctoring software utilizes Artificial Intelligence and machine learning algorithms to identify inappropriate behaviours when examining recordings of online examinations. Hubler (2020) observed that although universities find such benefits to online proctoring highly attractive, students have sometimes complained about an uncomfortable sense of being watched and having their privacy debased. It is also important to note that as online proctoring software improves, students are finding new ways to circumvent the watchful eye of such platforms (Binstein, 2015). The students as part of readiness need to possess electronic gadgets such as ipad, android phones, laptops. Smooth running internet connectivity has to be available so as for students not to face embarrassment that would increase their anxieties during the administration of examination.

Disposition to resilience of assessment administration could also be influenced by students' personal traits such as gender, degrees of focus, academic disciplines (faculties) and the geopolitical zones they belong. Xiao, Xiao, Yao, Chen, Saligan, Reynolds and Wang (2020) discovered that mediation effect of resilience tended to be stronger for the male participants than for the female participants as the moderation effect of gender remained until we included perceived risk of acquiring COVID-19 in the model. The report

of study carried out by Masson (2016) on four regions of Africa showed that, women's lack of control over productive assets, including land, restricts their capacities to cultivate different crops, manage their access to natural resources or diversify their livelihoods. This study therefore investigated the use of proctoring online examination system (POES) for building resilient assessment administration: the National Open University of Nigeria students' readiness. It also examined how students' gender, academic discipline, geopolitical zones, academic degrees of focus influenced their opinions on the use of proctoring online examination system to build resilience in assessment administration

### **Research Questions**

1. Is there significant difference between male and female NOUN students' consideration of proctoring online examination system for building of resilient assessment administration?
2. Is there any significant difference in the views of NOUN students on using proctoring online examination system in building resilient assessment administration based on their academic disciplines?
3. Is there any significant difference in the opinion of NOUN student for engaging proctoring online examination system for building resilient assessment administration from various geopolitical zones in Nigeria?
4. How do level of readiness for proctoring online examination system among NOUN students influence the building of resilient assessment administration?
5. What is the pattern of resilience in assessment administration based on the levels of effective use of computers among NOUN students?

### **Methodology**

This study used cross-sectional survey research design over the population that consisted of National Open University of Nigeria undergraduate and postgraduate students from five Faculties and one Centre of Excellence (ACETEL) in all the six geopolitical zones in Nigeria. After the online administration of the questionnaire, five hundred and twenty six (526) students that fully completed the instrument formed the sample for study. Among the sample were undergraduate, masters and doctoral students. The researcher used one instrument for this study to collect data. The instrument named was NOUN Students' Perceived Use of Proctoring Online Examination System for Resilient Assessment Administration Questionnaire (NOUN-SPUPOESRAAQ) was divided into four sections. Section A sought for information on students' bio data such as name of study gender, geopolitical zone, faculty and degrees sought. Section B contained 14 items to elicit the

## *The Intuition*

awareness of NOUN students' awareness on proctoring examination with strongly agree, agree, disagree and strongly disagree responses. Section C was the Proctoring resilience scale that requested for the opinion of the students on how proctoring online examination system could build the assessment administration with 14 items. Strongly agree, agree, disagree and strongly disagree responses were also used for this scale. Section D was on readiness and effective use of ICT facilities scale which with eight(8) items and used dichotomous scale of yes or no. Cronbach Alpha analysis gave 0.79 reliability index for the instrument. Researcher administered the questionnaire online on google form to NOUN students across the six geopolitical zones in Nigeria through their email addresses collected from the Directorate of Management Information System of the University. The time allowed for the completion of the questionnaire online was three weeks. At the end of the period the administration was closed. The data supplied on the questionnaire were harvested and processed. Six hundred and seven filled the instrument out which only the five hundred and twenty six that fully completed the responses to all the items of the questionnaire were taken and used as sample for the study. The completed questionnaires were scored using strongly agree, 4; agree, 3; disagree, 2 and strongly disagree, 1 for readiness and assessment administration resilience building scales. The scores were reversed for negatively worded item. The maximum readiness score obtainable was 56 as against 14 that was the minimum score obtainable for both readiness for proctoring examination and assessment administration resilience building scales. The students were categorized to high readiness if score from 12 to 16 and low readiness if attained a score 0 to 11. The statistical tool used to analyse the data were descriptive, t-test and analysis of variance (ANOVA).

## **Results**

**Research question one: Is there significant difference between male and female NOUN students' consideration of proctoring online examination system for building of resilient assessment administration?**

**Table 1: t-test of building resilient assessment administration by students' gender**

Gender	N	Mean	Std. Deviation	Std. Error	T	df	P
Male	256	39.06	5.205	.325	2.359	524	.019*
Female	270	37.91	5.907	.359			

\* = Significant at  $P < 0.05$

Table 1 shows that the mean score of male NOUN students' responses to the consideration of using proctoring online examination system for building resilient assessment administration was 39.06 while that of their female counterparts was 37.91. This depicts that

male NOUN students considered using online examination system as a means of building resilient assessment administration better than the female students. Also, there was a significant difference in male and female consideration of proctoring online examination system for building resilient assessment administration ( $t(524) = 2.359, P < 0.05$ ).

**Research question two: Is there any significant difference in the views of NOUN students on using proctoring online examination system in building resilient assessment administration based on their academic disciplines?**

**Table 2: Descriptive and ANOVA of building resilient assessment administration by students' academic discipline**

Faculty/Centre	N	Mean	Std Deviation	Std Error	
Arts	49	38.49	5.594	.799	
ACETEL	16	37.47	7.898	1.975	
Education	158	37.49	6.058	.482	
Health Sciences	151	38.69	5.159	.420	
Management	10	40.40	6.818	2.156	
Sciences	142	39.28	5.021	.421	
ANOVA					
	Sum of squares	df	Mean Square	F	P
Between Groups	302.040	5	60.408	1.943	.086 ns
Within Groups	16164.973	520	31.086		
Total	16467.013	525			

**Ns = No Significant difference at  $P > 0.05$**

It is discovered from Table 2 that students of management sciences had highest mean (40.40) positive views for using proctoring online examination system to build resilient assessment administration followed by those from Sciences ( $\bar{X} = 39.28$ ), Health sciences ( $\bar{X} = 38.69$ ), Arts ( $\bar{X} = 38.49$ ), Education ( $\bar{X} = 37.39$ ) and ACETEL ( $\bar{X} = 37.47$ ) in that order. There was no significant difference in proctoring online examination system for building resilient assessment administration based on the students' Faculties  $F(5, 520) = 1.943, P > 0.05$ .

**Research question three: Is there any significant difference in the opinion of NOUN student of engaging proctoring online examination system for building resilient assessment administration from various geopolitical zones in Nigeria?**

**Table 3: Descriptive and ANOVA of building resilient assessment administration by students' geopolitical zones**

Geopolitical Zone	N	Mean	Std Deviation	Std Error	
South West	122	38.13	5.549	.502	
South East	77	36.61	6.614	.754	
South South	77	38.74	5.473	.624	
North Central	147	39.03	5.088	.420	
North West	60	39.25	5.213	.673	
North East	43	39.28	5.692	.868	
ANOVA					
	Sum of squares	Df	Mean Square	F	P
Between Groups	396.202	5	79.240	2.564	.026**
Within Groups	16070.811	520	30.905		
Total	16467.013	525			

\*\* = Significant at  $P < 0.05$

From Table 3, the mean opinion of NOUN students for engaging proctoring online examination system for building resilient assessment administration from North East was 39.28, those from the North central was 39.25, from North central was 39.03, South south was 38.74, from South East was 36.61 and South west was 38.13. This implies that students from North Eastern part of Nigeria considered engaging proctoring online examination system for building resilient assessment administration mostly, follow by those from North west, North central, South south, South west and South east subsequently. The ANOVA results also shows that significant difference existed among the opinions of NOUN students for engaging proctoring online examination system to build resilient assessment administration  $F(5, 520) = 2.564, P < 0.05$ .

**Research question four: How do level of readiness for proctoring online examination system among NOUN students influence the building of resilient assessment administration?**



**Table 4: Descriptive and ANOVA of building resilient assessment administration by students' level readiness for online proctoring examination**

Level of Readiness	N	Mean	Std Deviation	Std Error	
Low	98	31.36	4.330	.437	
Moderate	314	38.32	3.320	.187	
High	96	44.40	3.291	.336	
ANOVA					
	Sum of squares	Df	Mean Square	F	P
Between Groups	8275.966	2	4137.983	331.802	.000**
Within Groups	6297.971	505	12.471		
Total	14573.937	507			

\*\* = Significant at  $P < 0.05$

From Table 4, the students that are highly ready for proctoring online examination system had the highest opinion that the system could help in building resilient in assessment administration ( $\bar{X} = 44.40$ ) than those that are moderately disposed ( $\bar{X} = 38.32$ ). The students that had low readiness ( $\bar{X} = 31.36$ ) considered the least proctoring online examination system to build resilient assessment administration in schools. The ANOVA aspect of the table reveals that the  $F(2, 505) = 331.802$  with a P value of .000 was significant. Therefore, the difference in the views of the students based on their level of readiness for online proctoring examination for building resilient was significant.

**Research question five: What is the pattern of resilience in assessment administration with the levels of effective use of computers among NOUN students?**

**Table 5: Descriptive and ANOVA of building resilient assessment administration by students' level of effective use of computers for proctoring examination**

Levels of Effective Use of Computer	N	Mean	Std. Deviation	Std. Error	T	Df	P
Low	164	35.39	5.855	.457	9.129	524	.000**
High	362	39.86	4.887	.257			

\*\* = Significant at  $P < 0.05$

Students of National Open University of Nigeria with high level of effective use of computers also had higher mean response of 39.86 on using proctoring examination for building resilient assessment administration (Table 5) than those with low level of effective use of computers ( $\bar{X} = 35.39$ ). There was also significant difference in the pattern of resilient assessment administration between the students with high and low level of effective use of computers for proctoring examination.

### **Discussion of Findings**

It was discovered that male NOUN students considered using online proctoring examination system as a means of building resilient assessment administration better than the female students. This findings corroborated the other findings that male had more confidence for sitting for online examination generally than the female students. The tendency for female students to consider engaging in the proctoring examination might be low than their male counterparts. No wonder that it was the male students that considered that proctoring online examination system could be used to build resilient assessment administration. The significant difference observed in male and female consideration of proctoring online examination system for building resilient assessment administration was for the fact that female opinions on sustained strategies for administering assessment on the students of higher learning is always differ from their male counterparts.

Though, the views of students of management sciences, Sciences and Health sciences for using proctoring online examination system to build resilient assessment administration were more favourable than those from Arts and Education, yet the difference in their views were not significant. The reasons for this might be adduced to the fact that building resilience in assessment administration is an acceptable means to combat the challenges brought about by situations like COVID-19 pandemic. In whichever areas of academic discipline a student belongs there is a need to be examined and assessed using any means that would not delay their assessment processes. This means that proctoring online examination system is the right step in the right direction to foster sustainable assessment whatever be the challenges.

Students from North Eastern part of Nigeria considered engaging proctoring online examination system for building resilient assessment administration mostly, follow by those from North west, North central, South South, South west and South east zones subsequently. Learners at all level of education in the North eastern part of Nigeria were exposed to a lot of dangers in their educational endeavours generally and the taking of examinations specifically. This region faced the challenges of Bokoharam, bandits kidnapping and also COVID-19 global impacts than students in the other part of the country. Therefore, this

necessitated North Eastern students to consider proctoring online examination system to take various assessments and its administration. There was also the tendency that students that faced critical challenges would embrace any process and system that enable them to take examinations without endangering their lives, wastes time and write assessment under fear. No wonder the significant difference in vies that engaging proctoring online examination system to build resilient assessment administration is better option.

Students that are highly ready for proctoring online examination system had the highest opinion that the system could help in building resilient in assessment administration. This is supported by the findings of Stowell & Bennett (2010) who identified that most students had technical readiness to use examination proctoring system. Proctoring examination requires facilities like computers, serene environment and uninterrupted internet to be able do well in such an examination. Students that were ready ensure that these facilities are available before engaging in proctoring-driven assessment (Lee & Farguy, 2022). Such an engage helps to build resilience into the assessment administration in the universities. Students that are not ready to engage in POES could consider it as not able to build resilient assessment administration. The study also showed that NOUN students with highly effective use of computers opined that POES could be used to foster resilient assessment administration. Any students that are not effective in computer operations and are often have phobia for any process that is computer-driven and of course might not be able to see how proctoring online examination system could help in building resilient assessment administration.

## **Conclusion**

The world is facing a lot of challenges in view of wars, pandemic, bandits operations and other troubles that are plaguing smooth movement of world system. It affects even the educational sector and assessment of learners' academic achievement and progress in particular. This study focused on NOUN students' views and opinions on using proctoring online examination system to build resilience into assessment administration in the university. It was a general consensus among students taking cognizance of their gender, academic inclinations, geo-political zones, levels of readiness and levels of effective use of computers that proctoring online examination could be used to build resilient assessment administration in the university system.

## **Recommendations**

In view of the findings of this study, the following are recommended:

1. National Open University of Nigeria should boost the implementation of proctoring online examination system in order to enable effective resilient assessment administration
2. Female NOUN students should be involved in regular training in order to build confidence of using proctoring online examination system in order to ensure sustainable assessment operations the universities
3. Institutions located at the most vulnerable geo-political zones in Nigeria should use POES to assess the students for resilient administration of examinations
4. Resilient assessment administration could be developed if the NOUN students are computer ready, therefore provisions of tablets, laptops and internet connectivity should be made available by institutional authorities to help build confidence during proctoring examination period.
5. Training and workshops should also be organized for all students on the use of computers to undertake POES for resilient assessment administration in the university

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