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nojest@unilag.edu.ng

CRITICAL SUCCESS FACTORS FOR ONLINE LEARNING ENGAGEMENT AMONG UNDERGRADUATES IN NORTH-WESTERN NIGERIAN UNIVERSITIES

ABDULWAHID, Umma,

ABDULLAHI, A. Taura

IBRAHIM, A. Abdul-wahab

OLADEJO, Maruff Akinwale

Faculty of Education, Sule Lamido University, Kafin Hausa, Jigawa State
maoladejo@unilag.edu.ng

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Abdulwahid, U, Abdullahi, A. T, Ibrahim A., A., & Oladejo, M. A.

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Abstract

Students' engagement is an essential prerequisite for successful learning. However, there appears to be very little discussion of engagement in online learning context. This study therefore investigated critical success factors namely active learning strategies (Minute paper, Small group discussions, and Short presentation) and students' psychological attributes (Self-regulations skill, Locus of control, and Technological attitudes) for online learning engagement among undergraduates in North-western Nigerian universities. The study was piloted by two research questions, using the descriptive research design. The study population comprises the entire 192,353 undergraduates from 28 Universities, while the sample size is 2,048 participants selected through proportionate stratified random sampling technique. Multiple regression Analysis was used for data analysis. Findings showed that the three selected active learning strategies jointly and significantly contributed 3.7% to the variance, while their relative contributions as ranked by importance are small group discussions (β=.334), short presentation (β=.045), and minute paper (β=.034). Further, the three selected students' psychological attributes made 8.8% significant joint contribution to the variance, while their relative contributions as ranked by importance are technological attitudes (β=.145), self-regulations skill (β=.056), and locus of control (β=.012). Active learning strategies and students' psychological attributes are critical success factors for online learning engagement among undergraduates. Understanding students' academic behavior relies heavily on their level of engagement in learning. It was therefore recommended among others that all the selected explanatory variables in this study should always be taken into serious consideration in an attemt at promoting effective online learning engagement among the students.

Introduction

At the wake of the COVID-19 pandemic, teaching-learning activities across schools migrated abruptly from onsite to online across the globe. Teachers are being forced to come up with novel strategies for communicating with and engaging their students as the pandemic continues to spread. According to Samuel, Onasanya, and Yusuf (2019), the rapid trend of technological development and innovation has facilitated students in their change from the old to new learning methods through Information and Communication Technology (ICT) tools that encourage initiative, independent learning, and the capacity to make sound decisions. With the trend of remote learning expected to continue for some years to come, it has become crucial for educators to rethink their approach to engage students

online, to create a successful learning experience. Online student engagement has become a topic of major interest over the past few years. This has therefore made it highly imperative for researchers to continuously search for critical success factors that can bring about effective online learning engagement.

In the 1980s, there was interest in the reason why some organizations appeared to be more successful than others, and research was conducted to investigate the components of these success factors. This was when Critical Success Factors (CSFs) first appeared in the literature (Ingram, Biermann, Cannon, Neil & Waddle, 2000; Selim, 2007: 397; Puri, 2011). By Critical Success Factors, Freeman and Urbaczewski (2015) meant elements of a project or activity that are necessary for the projects or activity's success. A critical success factor will make or break the success of the project or activity. According to Cheawjindakarn, Suwannatthachote, and Theeraroungchaisri (2012), critical success factors are required for an organization or project to accomplish its mission. These are distinct from other factors, which are optional but "important" or "nice to have."(Bacsich, Bastiaens, & Bristow, 2009: 90).

Several studies had been conducted in the quest to establish some CSFs that account for effective online learning engagement. For instance, Volery and Lord (2000) identified technology, technology use, and the instructor as potential critical success factors at the course level. On the other hand, Papp (2000) investigated aspects of the course itself, including its suitability to the learning environment, its creation, its content, and its upkeep. In his own study, Selim (2007) found out, as potential categories of critical success factors; instructors, students, information technology, and university support; and Sun et al. (2008), expanded this line of research to include thirteen factors across six dimensions that are crucial success factors for course-level learner satisfaction.

Furthermore, Elkaseh et al.'s (2015) recent review of the literature on e-learning critical success factors, discovered the following factors from the literature: Language, demographics, educational technology, computing experience, attitude, social influence, and curriculum development. Moving class sessions to a virtual space like Zoom video conferencing, on the other hand, opens new opportunities for student engagement and active learning. Therefore, it is essential to incorporate learning strategies that emphasize student activity and creative engagement. This then makes active learning strategies a critical success factor in online learning engagement. By active learning strategies, Bonwell and Eison (2015) meant "instructional activities that require students to act and reflect on their actions.

Active learning is a good way to teach in a traditional classroom as well as an effective way to teach online. Most adult learning models view interaction (active learning) as a crucial component of the learning process (Mantyla, 2019). Intellectual effort, encouraging higher-order thinking (analysis, synthesis, evaluation) are required for active learning, which also provides a means for the learner to assimilate, apply, and retain information (Bonwell & Eison, 2015; Harasim, et al, 2017). Minute Paper, Small group discussions, and short presentation have been identified as active learning strategies capable of influencing online learning engagement (Bonwell & Eison, 2015). These strategies have been included in this study.

Furthermore, students' self-regulatory abilities are also challenged in online learning environments, and students who struggle with self-regulation will find it difficult to engage as learners (Dabbagh & Kitsantas, 2004). The inference that can be drawn from this assertion is that students' self-regulations skill is *'sine qua non'* to effective online learning strategies. Self-regulations skill has therefore been included for investigation in this study.

Self-regulations skill supports students' engagement and enhances learning strategies achieved through instructional interventions and practice in implementing the self-regulated learning process. Due to the distance between students and their teachers and other students, self-regulation is especially important in online settings (Jonassen, Davidson, Collins, Campbell, & Haag, 1995). According to Cho and Shen (2013), who investigated the role those self-regulations skill play, students with high levels of self-regulations are more likely to succeed in online courses because they are more independent in regulating their learning.

Another students' psychological factors in the present study is Locus of control. Locus of control is based on the social learning theory which postulates that people are more likely to adapt to new situations if they think they can control their own environment rather than being controlled by forces outside of their control. Since Rotter popularized the concept in the 1960s, the locus of control has been the subject of numerous studies. For instance, in a comprehensive review of studies on locus of control that utilized a variety of different instruments and populations of all ages, Findley and Cooper (as cited in Lowes & Pin, 2015) reported that they could assert with a high level of confidence that locus of control was related to academic achievement.

One of the research streams in the literature, regarding the formation of behavioural intention has been the role of attitudes. According to Ajzen, Czasch, and Flood (2009), attitude towards a behaviour is the degree to which a person views the behaviour in question positively or negatively. The researchers therefore considered technological attitudes as a significant factor, worthy of investigation in a study of this nature. The characteristics of the population, such as socioeconomic status, prior experiences with technology, and the type of technology itself, may influence attitudes toward technologies (Øyen et al.,2017).

From the review presented in the background, it seems most of the previous studies carried out so far in this area focused on technology, utilization of technology by the instructor, suitability to the learning environment, course creation, content, and maintenance, instructors, students, information technology and university support, educational technology, computing experience, attitude, social influence, curriculum development, language, and demographics as potential critical success factors at the course level.

Little or nothing appears to have been done on active learning strategies and students' factors. Attempt at filling this lacuna motivated the researchers to embark on this study which aims at investigating critical success factors namely active learning strategies (Minute paper, Small group discussions, and Short presentation) and students' psychological factors (Self-regulations skill, Locus of control, and Technological attitudes) for online learning engagement among undergraduates in North-western Nigerian universities.

Statement of the Problem

Student engagement is a prerequisite for learning. It has a significant effect on online education. It is an essential prerequisite for effective learning. However, there has been little discussion of engagement in online learning contexts. Understanding the factors that support students' engagement in online learning environments is therefore very crucial.

Poor online learning engagement among students can affect their overall academic performance, and also dampens the morale of the students, if not address. This study therefore investigated critical success factors namely active learning strategies (Minute paper, Small group discussions, and Short presentation) and students' psychological attributes (Self-regulations skill, Locus of control, and Technological attitudes) for online learning engagement among undergraduates in North-western Nigerian universities.

Purpose of the Study

In broad term, this study investigated some critical success factors namely active learning strategies (Minute paper, Small group discussions, and Short presentation) and students' psychological attributes (Self-regulations skill, Locus of control, and Technological attitudes) for online learning engagement among undergraduates in North-western Nigerian universities. The study's specific objectives however are to:

i. determine the composite and the relative contributions of active learning strategies (Minute paper, Small group discussions, and Short presentation) to the prediction of online learning engagement.

ii. establish the composite and the relative contributions of students' psychological attributes (Self-regulations skill, Locus of control, and Technological attitudes) to the prediction of online learning engagement.

Research Questions

Two research questions were raised and answered to guide the study based on the specific objectives of the study. These research questions are:

i. What are the composite and the relative contributions of active learning strategies (Minute paper, Small group discussions, and Short presentation) to the prediction of online learning engagement?

ii. What are the composite and the relative contributions of students' psychological attributes (Self-regulations skill, Locus of control, and Technological attitudes) to the prediction of online learning engagement?

Methodology

Research Design

The descriptive survey research design was used for the study. This design is appropriate because according to Oladejo (2022), descriptive survey research design is the one in which the researcher use questionnaire to collect data over a large population with a view to describing the existing situation between the study variables. In this study, the researchers used self-designed questionnaires to collect data in order to describe the existing relationship between some critical success factors namely active learning strategies (Minute paper, Small group discussions, and Short presentation) and students' psychological factors (Self-regulations skill, Locus of control, and Technological attitudes) for online learning engagement among undergraduates in North-western Nigerian universities.

Target Population

The target institutional population comprises all Nigerian universities in the North-west. There are 28 universities in the North-western part of the country as of April 2019 according to the Statistical Digest of the National Universities Commission (NUC). This figure is made up of 12 Federal, eight State, and eight Private Universities. This is shown in Table 1.

Table 1:
Nigerian Universities in the North-West

SN	State	Federal Universities	State Universities	Private Universities	Total
1	Jigawa	Federal University, Dutse Federal University of Technology, Babura	Sule Lamido University, Kafin Hausa	Khadija University, Majia	4
2	Kaduna	Ahmadu Bello University, Zaria Nigeria Defence Academy, Kaduna Air Force Institute of Technology, Kaduna	Kaduna State University	Greenfiled University, Kasarami NOK University, Kachia	6
3	Kano	Bayero University, Kano Nigeria Police Academy, Wudil	Kano State University of Science & Technology, Wudil Yusuff Maitama University, Kano	Maryam Abacha America University of Nigeria, Kano Al-Istiqama, Sumaila University, Kano Skyline University, Kano Capital City University, Kano	8
4	Katsina	Federal University, Dutsin-Ma	Umar Musa Yar'Adua University, Katsina	Al-Qalam University, Katsina	3
5	Kebbi	Federal University, Birni-Kebbi Federal University of Agriculture, Zuru	Kebbi State University of Science & Technology, Ailero	Nil	3
6	Sokoto	Usmanu Dan Fodiyo University, Sokoto	Sokoto State University	Nil	2
7	Zamfara	Federal University, Gusau	Zamfara State University	Nil	2
	TOTAL	**12**	**8**	**8**	**28**

Source: National Universities Commission (2019). Nigerian University System Statistical Digest, Condensed Version Final 2

Regarding the unit of analysis, there are 192, 353 undergraduate students in all the Universities in the North-western part of the country. This is shown in Table 2.

Table 2:
Students' Population in Nigerian Universities in the North-West

SN	University	Students' Population
1	Federal University, Dutse	7004
2	Federal University of Technology, Babura	NA
3	Sule Lamido University, Kafin Hausa	3071
4	Khadija University, Majia	NA
5	Ahmadu Bello University, Zaria	41555
6	Nigerian Defence Academy, Kaduna	1650
7	Air Force Institute of Technology, Kaduna	525
8	Kaduna State University, Kaduna	15135
9	Greenfiled University	13
10	NOK University, Kachia	NA
11	Bayero University, Kano	29255
12	Nigerian Police Academy, Wudil	2042
13	Kano State University of Science & Technology, Wudil	16859
14	Yusuff Maitama University, Kano	8923
15	Maryam Abacha America University of Nigeria, Kano	NA
16	Al-Istiqama, Sumaila University, Kano	NA
17	Skyline University, Kano	61
18	Capital City University, Kano	NA
19	Federal University, Dutsin-Ma	9487
20	Umar Musa Yar'Adua University, Katsina	9525
21	Al-Qalam University, Katsina	2523
22	Federal University, Birni-Kebbi	4073
23	Federal University of Agriculture, Zuru	NA
24	Kebbi State University of Science & Technology, Ailero	8163
25	Usmanu Dan Fodiyo University, Sokoto	20887
26	Sokoto State University, Sokoto	6061
27	Federal University, Gusau	5541
28	Zamfara State University, Zamfara	NA
	TOTAL	**192, 353**

Source: National Universities Commission (2019). Nigerian University System Statistical Digest, Condensed Version Final 2

Sample and Sampling Techniques

Seven Universities constituted the sample size for the Institutions to be studied. These universities were selected through stratified random sampling technique. All the Universities in the geo-political zone were stratified into Federal, State, and Private based on ownership. Random sampling technique was then used to select at least, one university from each of the ownership. The participants in the study were selected through proportionate stratified random sampling technique. By this method, 10% was used to select the size from figures with five digits while 1% was used to select the size from figures with four digits below. This results in 2048 sample size for the unit of analysis as shown in Table 3.

Table 3:

Sample Size of Students' Population in Nigerian Universities in the North-West

SN	University	Ownership	Students' Population	% Sampled	Sampled Figure
1	Sule Lamido University, Kafin Hausa	State	3071	10	307
2	Nigerian Defence Academy, Kaduna	Federal	1650	10	165
3	Bayero University, Kano	Federal	29255	1	293
4	Skyline University, Kano	Private	61	10	6
5	Al-Qalam University, Katsina	Private	2523	10	252
6	Kebbi State University of Science & Tech., Ailero	State	8163	10	816
7	Usmanu Dan Fodiyo University, Sokoto	Federal	20887	1	209
	TOTAL		**65610**		**2048**

Instrumentation

Two self-designed and one adopted instrument were used for this study to collect data. The first instrument is Active Learning Strategies Scale (ALSS). The ALSS has three sub-scales for each of the strategies namely Minute Paper, Small group discussions, and Short presentation. It was measured in four-point modified Liker Scale of Strongly Agree, Agree, Disagree, and Strongly Disagree with 4, 3, 2, and 1 weights. Negative items were scored in reverse code.

The second instrument is Students' Psychological Factors Questionnaire (SPFQ) which has three sub-scales that probed into self-regulations skill, Locus of control, and Technological attitudes as perceived by the students. It was measured in four-point modified Liker Scale of Most Like Me, Like Me, Least Like Me, Not Like Me with 4, 3, 2, and 1 weights. Negative items were scored in reverse code. The third instrument is Learning Engagement Scale (Schaufeli et al., 2006) adopted to measure learning engagement. It consists of nine items that evaluate:vigor (three items, = 0.89), absorption (three items, = 0.74), and dedication (three items, = 0.80). A Likert scale is used to rate each item, with a range of one representing a small amount to five representing a very large amount.

Validity of the Instrument

Copies of the draft Instruments were given to some Colleagues in the field of Measurement and Evaluation, Educational Technology, and Educational Psychology for their inputs with respect to contents and face validity of the items in the instrument. Their suggestions, additions, and deletion led to the final instruments used for the study.

Reliability of the Instrument

The validated instruments were pilot tested in a study that comprised 50 participants. These participants did not form part of those that eventually participated in the study. They were students from Ahmadu Bello University, Zaria. Responses from the administered questionnaire were subjected to Cronbach Alpha method of estimating reliability of the instrument. The obtained r-values are 0.87, and 0.85 FALSS and SPFQ respectively, while the adopted LES had 0.92 r value already.

Procedure for Data Collection

Validated Instrument was converted to Google form, which is one of the best ways to collect data digitally from a mass. After the conversion, the link to the form was sent to already identified Colleagues in the studied Institutions who served as Research Assistants. These Colleagues helped us to share the link among their students.

Method of Data Analysis

Inferential statistical tool was used for data analysis. Specifically, Multiple regression analysis was used to answer the two research questions.

Results

Research Question 1: What are the composite and the relative contributions of active learning strategies (Minute paper, Small group discussions, and Short presentation) to the prediction of online learning engagement?

Finding: This is as presented in Table 1

Table 1:

Joint Contribution of the Selected Active Learning Strategies to the Prediction of Online Learning Engagement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.312[a]	.245	.037	2.42353	1.4111

a. Predictors: (Constant), Minute paper, Small group discussions, and Short presentation

b. Dependent Variable: Online Learning Engagement

It was revealed from Table 1 that the three selected active learning strategies namely minute paper, small group discussions, and short presentation have positive multiple correlation with online learning engagement among undergraduate students (R =.312). In addition, the adjusted R square value of .037 indicated that the three selected variables collectively contributed 3.7% to the variance that is, online learning engagement among undergraduate students. The remaining 96.3% is presumably attributable to residuals, or variables that were not examined in the study. However, the Analysis of Variance (ANOVA) was carried out to ascertain whether the adjusted R square value is statistically significant.

Table 2:

Analysis of Variance of the Regression of the Selected Factor

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	26.344	3	5.342	3.101	.002[b]
	Residual	402.131	110	5.042		
	Total	428.475	113			

a. Dependent Variable: Online Learning Engagement

b. Predictors: (Constant), Minute paper, Small group discussions, and Short presentation

From Table 2, the F-value of 3.101 at 4 degrees of freedom 3, 110 was significant at 0.002 ($p<0.05$). Based on this, there was significant joint contribution of the selected factors to the dependent variable. Regarding relative contributions of the selected active learning strategies to the prediction of online learning engagement, result of this is as shown in Table 3

Finding: This is as shown in Table 3.

Table 3:
Relative Contributions of the Selected Critical Success Factors (Active Learning Strategies) to the Prediction of Online Learning Engagement

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta (β)		
(Constant)	15.312	1.567		6.122	.000
Minute paper	.013	.105	.034	.302	.011
Small group discussions	-.123	.143	.334	-.405	.003
Short presentation	.244	.121	.045	1.411	.005

a. Dependent Variable: *Online Learning Engagement*

From Table 3, it is shown that each of the selected active learning strategies namely minute paper, small group discussions, and short presentation contributed differentially to online learning engagement among undergraduate students in North-Western Nigerian Universities. The relative contributions of active learning strategies in order of importance are Small group discussions (β=.334), Short presentation (β=.045), and Minute paper (β=.034).

Research Question 2: What are the composite and the relative contributions of students' psychological attributes (Self-regulations skill, Locus of control, and Technological attitudes) to the prediction of online learning engagement?

Finding: This is as presented in Table 4

Table 4:

Joint Contribution of the Selected Students' Psychological Attributes to the Prediction of Online Learning Engagement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.255[a]	.045	.088	2.5241	1.404

a. Predictors: (Constant), Self-regulations skill, Locus of control, Technological attitudes
b. Dependent Variable: Online Learning Engagement

It was revealed from Table 4 that the three selected students' psychological attributes namely self-regulations skill, locus of control, and technological attitudes have positive multiple correlation with online learning engagement among undergraduate students in North-Western Nigerian Universities (R =.255). Also, the adjusted R square value of .088 indicated that the three selected variables jointly contributed 8.8% to the variance, that is, undergraduate students' online learning engagement. By implication, the remaining 91.2% is due to residuals, that is, those variables not included in the study. However, to determine whether the adjusted R square value obtained above is significant, the Analysis of Variance (ANOVA) was run. This was shown in Table 5.

Table 5:

Analysis of Variance of the Regression

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	20.121	3	5.123	4.121	.003[b]
	Residual	311.105	104	5.052		
	Total	331.226	107			

a. Dependent Variable: Online Learning Engagement

b. Predictors: (Constant), Self-regulations skill, Locus of control, Technological attitudes

From Table 5, the F-value of 4.121 at 4 degrees of freedom 3, 104 was significant at 0.003 ($p<0.05$). Based on this, there was significant joint contribution of the selected factors to the dependent variable. Regarding relative contributions of the selected students' psychological attributes to the prediction of online learning engagement, result of this is as shown in Table 6

Finding: This is as shown in Table 6.

Table 6:

Relative Contributions of the Selected Students' Psychological Attributes to the Prediction of Online Learning Engagement

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta (β)		
(Constant)	13.143	1.333		6.122	.000
Self-regulations skill	.025	.112	.056	.404	.013
Locus of control,	-.223	.155	.012	-.553	.003
Technological attitudes	.345	.134	.145	1.305	.001

b. Dependent Variable: *Online Learning Engagement*

From Table 6, it is shown that each of the selected students' psychological attributes namely self-regulations skill, locus of control, and technological attitudes contributed differentially to online learning engagement among undergraduate students. The relative contributions of students' psychological attributes in order of importance are technological attitudes (β=.145), self-regulations skill (β=.056), and locus of control (β=.012).

Discussions

Result from research question one showed that the three selected active learning strategies namely minute paper, small group discussions, and short presentation have positive multiple correlation with online learning engagement among undergraduate students (R =.312). Also, the adjusted R square value of .037 indicated that the five selected variables jointly contributed 3.7% to the variance, that is, online learning engagement among undergraduate students. The obtained adjusted R value was significant at F-value of 3.101 at 4 degrees of freedom 3, 110; $p<0.05$. It was

further revealed that the relative contributions of active learning strategies in order of importance are Small group discussions (β=.334), Short presentation (β=.045), and Minute paper (β=.034). This result confirms findings from previous studies as well as assertions from Scholars. For instance, according to Covill (2011), active learning methods provide students with meaningful learning experiences through hands-on activities that enable them to process course materials and communicate newly acquired knowledge learned in class, thereby increasing learning engagement. Therefore, active learning, as submitted by another scholars, can improve the overall quality of the teaching and learning experience (Thalluri & Penman, 2020). Furthermore, Riggs and Lander (2016) asserted that students' engagement and active learning in an online, asynchronous environment are possible—it is only a matter of training and experience (professional development opportunity). Result generated from this study might not be unconnected with the possibility that participants in the study found the selected active learning strategies very useful in learning engagement.

Result from research question two showed that the three selected students' psychological attributes namely self-regulations skill, locus of control, and technological attitudes have positive multiple correlation with online learning engagement among undergraduate students in North-Western Nigerian Universities (R =.245). Also, the adjusted R square value of .088 indicated that the three selected variables jointly contributed 8.8% to the variance, that is, undergraduate students' online learning engagement. The obtained R value was significant at F-value of 4.121 at 4 degrees of freedom 3, 104; $p<0.05$. It was revealed that the relative contributions of students' psychological attributes in order of importance are technological attitudes (β=.328), locus of control (β=.086), and self-regulations skill (β=.012). This finding corroborates findings from previous studies. For instance, Eseryel et al. (2014) examined the impact of motivational factors on online game-based learning engagement and the impact of that engagement on complex problem-saving abilities. Engagement was found to be influenced by motivational factors like interest, attitudes, competence, self-regulation, and self-efficacy. It also lends credence to George, Okon, and Akaighe's (2021) investigation of the mediating role of emotional intelligence (EI) on the relationship between public sector workers and the influence of psychological capital (PsyCap), which reported that PsyCap had a significant positive effect on work engagement. In the same vein, a study was also carried out by Arogundade and Ayodeji, (2017) in Nigerian immigration service organization with 225 employees as respondents. The result showed a significant positive relationship between psychological empowerment and work engagement.

However, a similar experiment, computer self-efficacy, metacognitive self-regulation, self-esteem, and learning engagement were all found to be negatively correlated, according to Pellas (2014). Similarly, in their study on online learning engagement, Yang, Lavonen, and Niemi (2018), motivation and other psychological factors are popular topics, but they are not always predictors of engagement, based on results-evidence from literature. It could be deduced from the present study that the participants were able to regulate themselves, had positive attitudes towards online learning, and effective locus of control.

Conclusion

Understanding students' academic behavior requires a thorough understanding of learning engagement. The growing interest in learning engagement research is well-founded. According to Kuh (2009), "higher engagement levels and higher grades go hand in hand" (p. 11), as engaged academic behavior may be a potent performance predictor. This study has further underscored the need for increased awareness regarding how learning engagement in online learning can be predicted by individual characteristics.

Recommendations

Based on the findings generated from the study and the conclusion reached, it is therefore recommended as follows:

1. The selected active learning strategies, especially minute paper which contributed the least to the variance in online learning engagement needs to be encouraged among the students.

2. Members of academic staff are also advised to encourage effective locus of control among the students because it was established to have the least contribution to the variance in online learning engagement.

3. Generally, all the selected explanatory variables in this study should always be taken into serious consideration in an attemt at promoting effective online learning engagement among the students. This will possibly translate into improved academic performance.

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