

## Article

# Exploring Sustainable E-Learning Platforms for Improved Universities' Faculty Engagement in the New World of Work

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**Abstract:** The familiar places where faculty and students engage, collaborate, debate, interact and exchange viewpoints appear to have been improved by introducing digital technology. This study investigates the influence of e-learning opportunities on faculty engagement in Nigerian universities. Five hundred faculty members were surveyed across eight private universities in Nigeria using purposive and convenient sampling techniques. Only 431 copies of the questionnaire, representing 86.2% response rate, were analysed with Smart PLS 3.0. The results show that virtual learning platforms, digital databases, online short courses and webinar learning platforms significantly influenced teaching, research, administrative and community engagements. The study concludes that the faculty of various universities should leverage e-learning platforms to be more engaged. The study recommends the machinery needed by the faculty members of Nigerian universities during the COVID-19 lockdown that challenged the conventional practice. The study empirically contributes to strengthening the current teaching, research, partnership and collaboration trends for improved faculty engagement in the new-normal world of work.

**Keywords:** e-learning; digital databases; sustainability; administration; teaching and research engagements



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## 1. Introduction

The outbreak of COVID-19 in December 2019, which the World Health Organization (WHO) described as a global pandemic, has forced many governments and other organisations to put in place several measures to curtail the spread of the virus [1,2]. Some of the measures put in place to stop the spread of the virus include social distancing and discouragement of social and religious gatherings, among others, necessitating the closure of many organisations before the vaccination exercise. The education sector is not left out of this as schools, including universities, were shut down, forcing students and faculty to stay safe at home [3,4]. However, many universities around the world had been working remotely using different e-learning platforms before the outbreak of the COVID-19 pandemic. The case in Nigeria is different. Only national open universities in Nigeria used e-learning platforms for their full operations before the COVID-19 pandemic. Some of the critical job responsibilities of universities' faculty include but are not limited to teaching engagement, research engagement, administrative engagement and collaborative/partnership engagement. Universities in the developed world have been using technology to engage with their core job responsibilities. However, the lockdown compelled many universities' lecturers in Nigeria to work remotely, and the attention was shifted to remote learning during the lockdown. Most universities' lecturers in Nigeria now explore e-learning platforms for teaching, research, community service and other administrative roles.

Existing studies have acknowledged the influence of e-learning on students' performance. In [5], the authors examined how digital literacy enhanced students' performance, while [6] also emphasised the role of digital media in student academic engagement. Studies have also shown how the e-learning environment influences students' learning culture [7]. Moreover, in [8], the authors investigated how the e-learning engagement framework promotes the reading culture among students at all levels. In [9], the authors also studied the relationships between e-learning, reading culture and education, while [10] assessed the impact of digital technology and how it influenced university education. In a related development, some scholars have also studied the job engagement of academic staff in the university system. In [11], the authors examined the effect of job engagement strategies in Nigerian universities. In [12], the authors analysed how employee engagement helps fortify the service–profit chains. Other researchers studied the relationship between employee engagement and job satisfaction [13–19]. Some scholars looked at job engagement in multigenerational workplaces [20,21], while [22–24] investigated the relationship between engagement, learning culture, work performance and organisational survival. In [25], the authors examined the implications of faculty stress for the performance of public universities' lecturers, while [26] worked on "The Performative University: 'Targets', 'Terror', and 'Taking Back Freedom'" by the faculty members. As a sequel to the above, most existing studies look at the relationship between e-learning and students' performance in universities. Besides, the existing studies also emphasise engagement strategies and faculty performance. None of these studies examine the influence of e-learning platforms on teaching, research, administrative responsibilities and partnership/collaboration engagements of faculty in Nigerian universities; this implies that there is a research gap.

Since 2015, the United Nations has introduced 17 Sustainable Development Goals (SDGs) for the purpose of environmental and social sustainability; attention has been given to clean and affordable energy, economic growth, sustainable cities, climate change and public–private partnerships, i.e., SDGs 7, 8, 11, 13 and 17, in that order. However, quality education (Goal-4) is one of the SDGs that have received little attention in the literature when teaching, research and innovation have significant roles in achieving the Sustainable Development Goals (SDGs). Both faculty and students will have the knowledge and skills needed to promote long-term development because scholarly e-resources are excellent academic tools that can be used to facilitate teaching, research and innovation. No doubt e-learning has helped in enhancing social and environmental sustainability. This is noticeable in the reduction of harmful emissions from transportation and travel. Students can connect to virtual classes from anywhere in the country without having to travel to a campus. Therefore, transportation-related pollution and the use of fossil fuels will be drastically reduced. As a result, the negative impact of pollution on the environment could be reduced.

Furthermore, universities would use less energy for power, electricity, heating and cooling systems, benefiting the environment. In virtual classes, facilitators/faculty and students use e-materials, which may help to reduce paper waste and tree consumption. All of these will enhance the environmental sustainability drives of universities.

To this end, the current study examines the influence of e-learning platform opportunities (virtual learning platforms, digital databases, online short courses and webinar learning platforms) on faculty engagement with core job responsibilities (administrative engagement, collaborative partnership, teaching and research engagements) in Nigerian private universities. Thus, this study will provide insight into how e-learning platforms can influence faculty engagements in Nigerian universities. Consequent to the foregoing, this study seeks to investigate the influence of e-learning opportunities on faculty engagement in Nigerian private universities. The significance of the study stems from the specific objectives of this study, which include examining the effect of virtual learning platforms on faculty engagements, investigating the influences of access to digital databases on faculty engagements, analysing the impact of online short courses on faculty engagement and examining the effect of the webinar learning platform on faculty engagement.

The study is structured into five sections: introduction; insight from existing literature on the subject matter, materials and methods; discussion of the findings; and conclusion, recommendations, limitations and suggestions for further studies.

## 2. Materials and Methods

### 2.1. Research Design

The study designed a cross-sectional survey approach to collect data on e-learning platforms and faculty engagement in selected private universities in Nigeria. The choice of the selected private universities was based on their adoption of technology facilities for e-learning activities. In addition, it must be noted that many universities in Nigeria are not licensed by the National Universities Commission (a government agency saddled with the responsibility of regulating Nigerian universities) to operate on the e-learning platform. However, the private universities selected were given accreditation to run distance learning in some specific cases in addition to the internal blended learning arrangement (i.e., e-learning and traditional learning). E-learning opportunities were measured with carefully selected constructs from the literature, including virtual learning platforms, online short courses, digital databases and webinar learning platforms. Faculty engagement was also measured with four constructs: administrative engagement, collaborative partnership engagement, teaching and research engagement.

The study population comprised all private universities in Southwest Nigeria, which accounted for 34 private universities out of 79 approved private universities in Nigeria. Meanwhile, out of the 34 private universities in Southwest Nigeria, only 8, representing 24.5%, were purposively selected. The choice of the selected private universities was based on appreciable technology adoption, scientific innovations and quality service delivery. The selected universities have about 3300 faculty members across all levels, excluding graduate assistants. The sample size was determined using a table chart [27] depicted in Table A2, which accounted for 499 and approximated to 500 at a margin error of 0.05. The Proportional Affixation Criterion (PAC) was used to determine the copies of the questionnaire administered to each university. This indicates that the university sample in each stratum is proportional to the relative weight of the study population, as depicted in Tables 1 and A1.

**Table 1.** Breakdown of selected universities.

| Name of the Universities | The Population of the Categorized Faculty | Sample Size | The Return Rate of the Administered Questionnaire |
|--------------------------|---|-------------|---|
| University A             | 371                                       | 57          | 51  |
| University B             | 484                                       | 74          | 65  |
| University C             | 344                                       | 53          | 49  |
| University D             | 369                                       | 57          | 46  |
| University E             | 502                                       | 76          | 62  |
| University F             | 332                                       | 51          | 45  |
| University G             | 383                                       | 59          | 47  |
| University H             | 473                                       | 73          | 66  |
| <b>TOTAL</b>             | <b>3258</b>                               | <b>500</b>  | <b>431</b>  |

### 2.2. Sample Size and Sampling Technique

Purposive, stratified and convenient techniques were used in this study. Purposive sampling was used because only faculty members of the selected private universities, excluding graduate assistants, participated in the survey. Similarly, stratified sampling was also adopted because the population comprises different strata of faculty members across departments, colleges and different cadres. Therefore, all faculty members in each stratum were given an equal chance of being selected based on their availability and readiness to participate in the study. The respondents' data were collected by adapting the

structured questionnaire to a 5-point Likert scale format. Copies of the questionnaire were administered with the help of two research assistants. It is equally important to note that the following categories of faculty members were excluded: graduate assistants, visiting lecturers and adjunct lectures from other universities. The graduate assistants are yet to be involved in teaching, and because of that, they were excluded from the study. Visiting and adjunct lecturers visit the universities occasionally, and they might not fully understand how e-learning works in the selected universities.

### 2.3. Reliability and Validity

A pilot study was carried out to determine the validity and reliability of the research instrument. In [28], the authors recommended a sample size of at least 10% of the study population for the pilot study. Since the sample population of this study is 500, 10% accounted for 50. Therefore, 50 copies of the questionnaire were administered to a public university in Ogun State.

Table 2 shows that the data were normally distributed and the scale reliabilities (factor loadings, composite reliability, average variance extracted (AVE) estimate and Cronbach's alpha) were higher than the recommended thresholds by [28,29], indicating internal consistency. The composite reliability for all the variables is above the 0.60 benchmarks. The composite reliability values and Cronbach's alpha coefficients are well above the 0.70 thresholds, implying internal consistency [29]. The study compared AVE with the squared correlation for each of the constructs to determine the discriminant validity. The AVE of the latent variable is greater than the squared correlations between the latent variable and the other model constructs. In addition, the heterotrait–monotrait (HTMT) ratio of correlations method was used to validate the discriminant validity. This is to ensure that the latent constructs used for measuring the causal relationships under study are truly distinct from each other. It was discovered that the average heterotrait–heteromethod correlation is relative to the average monotrait–heteromethod correlation. All the values are less than the critical value of HTMT0.85, as recommended by [29]. Based on the foregoing, discriminant validity was established.

Statistical Package for Social Sciences (SPSS) software version 26 was used to code the data. In contrast, Smart Partial Least Square (Smart PLS 3.0) was used to analyse the influence of e-learning opportunities on faculty engagement in selected universities. The algorithm and bootstrapping models are displayed by Smart PLS. The algorithm model is a structure of regressions expressed in weight vectors that aid the determination of the path coefficient, r-square values and significant values. In a related development, bootstrapping facilitates the determination of significant coefficient and *t*-value testing. It must be noted that the default bootstrapping in Smart PLS is 500 subsamples, which help to boost significant results. To enhance the significant results, the bootstrapping value was increased to 5000, as suggested by [30].

**Common Method Bias:** The variance inflation factor (VIF) was used to check for common method bias. As noted by [31], all factor-level VIFs from a complete collinearity test must be equal to or less than 3.3. The findings revealed that all the VIF values for each item and the variables' measurement are less than 3.3. This indicates that the study was free of common method bias (see Table 2).

**Compliance with Ethical Standards:** Research ethical issues were considered where all respondents were offered the option to stay anonymous. In the same way, the respondents were also assured that all the information provided would be treated with topmost confidentiality. Meanwhile, oral consent was obtained from the respondents because this type of study does not require participants' formal consent; instead, implied consent is acceptable and considered sufficient. At the same time, all the respondents were invulnerable adults who agreed to fill the copies of the questionnaire administered to them without any form of coercion or compulsion.

**Table 2.** Properties of the final measurement model.

|  | Loading | VIF   | Compose Reliability | AVE   | Cronbach's Alpha |
|--|---------|-------|---------------------|-------|------------------|
| Variables & Constructs                     | ≥0.5    | <3.3  | ≥0.8                | ≥0.5  | >0.7             |
| Virtual Learning Platform (VLP)            |         |       | 0.873               | 0.794 | 0.766            |
| VLP1                                       | 0.907   | 1.135 |                     |       |                  |
| VLP2                                       | 0.760   | 1.578 |                     |       |                  |
| VLP3                                       | 0.785   | 1.616 |                     |       |                  |
| VLP4                                       | 0.724   | 2.524 |                     |       |                  |
| Digital Data Bases (DDB)                   |         |       | 0.814               | 0.721 | 0.728            |
| DDB1                                       | 0.702   | 2.493 |                     |       |                  |
| DDB2                                       | 0.848   | 1.719 |                     |       |                  |
| DDB3                                       | 0.636   | 3.104 |                     |       |                  |
| DDB4                                       | 0.699   | 2.489 |                     |       |                  |
| Online Short Courses (OSC)                 |         |       | 0.806               | 0.702 | 0.761            |
| OSC1                                       | 0.623   | 3.118 |                     |       |                  |
| OSC2                                       | 0.678   | 3.060 |                     |       |                  |
| OSC3                                       | 0.731   | 2.534 |                     |       |                  |
| OSC4                                       | 0.775   | 2.601 |                     |       |                  |
| Webinar Learning Platform                  |         |       | 0.816               | 0.725 | 0.761            |
| WLP1                                       | 0.673   | 3.113 |                     |       |                  |
| WLP2                                       | 0.772   | 2.596 |                     |       |                  |
| WLP3                                       | 0.745   | 2.555 |                     |       |                  |
| WLP4                                       | 0.711   | 2.506 |                     |       |                  |
| Administrative Engagement (AAE)            |         |       | 0.710               | 0.671 | 0.710            |
| AAE1                                       | 0.679   | 3.241 |                     |       |                  |
| AAE2                                       | 0.683   | 3.236 |                     |       |                  |
| AE33                                       | 0.651   | 3.224 |                     |       |                  |
| Collaborative Partnership Engagement (CPE) |         |       | 0.800               | 0.757 | 0.891            |
| CPE1                                       | 0.730   | 1.533 |                     |       |                  |
| CPE2                                       | 0.837   | 1.701 |                     |       |                  |
| CPE3                                       | 0.698   | 2.987 |                     |       |                  |
| Teaching Engagement (TE)                   |         |       | 0.804               | 0.760 | 0.763            |
| TE1  | 0.761   | 1.579 |                     |       |                  |
| TE2  | 0.751   | 1.564 |                     |       |                  |
| TE3  | 0.768   | 1.590 |                     |       |                  |
| Research Engagement (RE)                   |         |       | 0.710               | 0.671 | 0.887            |
| RE1  | 0.688   | 2.473 |                     |       |                  |
| RE2  | 0.600   | 2.360 |                     |       |                  |
| RE3  | 0.721   | 1.520 |                     |       |                  |

Table 3 depicts the model fit. The outcome showed that all the model fit indices are within the acceptable level. SRMR is an indicator of standardised residual average between the observed matrix and the hypothesised covariance matrices. The SRMR measures the model fit estimation. The SRMR is reliable when its value is less than 0.08, as Hu and Bentler (1998) recommended. It also shows that the SRMR for this study model was 0.067, which revealed a good fit for this study. The NFI estimate for this study is 0.911, which is above the benchmark of 0.90 with the chi-square value of 101.72.

Table 3. Model fit.

|            | Estimated |
|------------|-----------|
| SRMR       | 0.066     |
| Cmin/df    | 2.281     |
| d_G        | 0.2576    |
| Chi-Square | 201.64    |
| NFI        | 0.921     |

### 3. Results

E-learning opportunities were measured with four constructs, virtual learning platforms, digital databases, online short courses and webinar learning platforms, while faculty engagement was measured with research, teaching, administrative responsibilities and collaborative/partnership engagements. The outcome of the analysis is depicted in Figure 1.

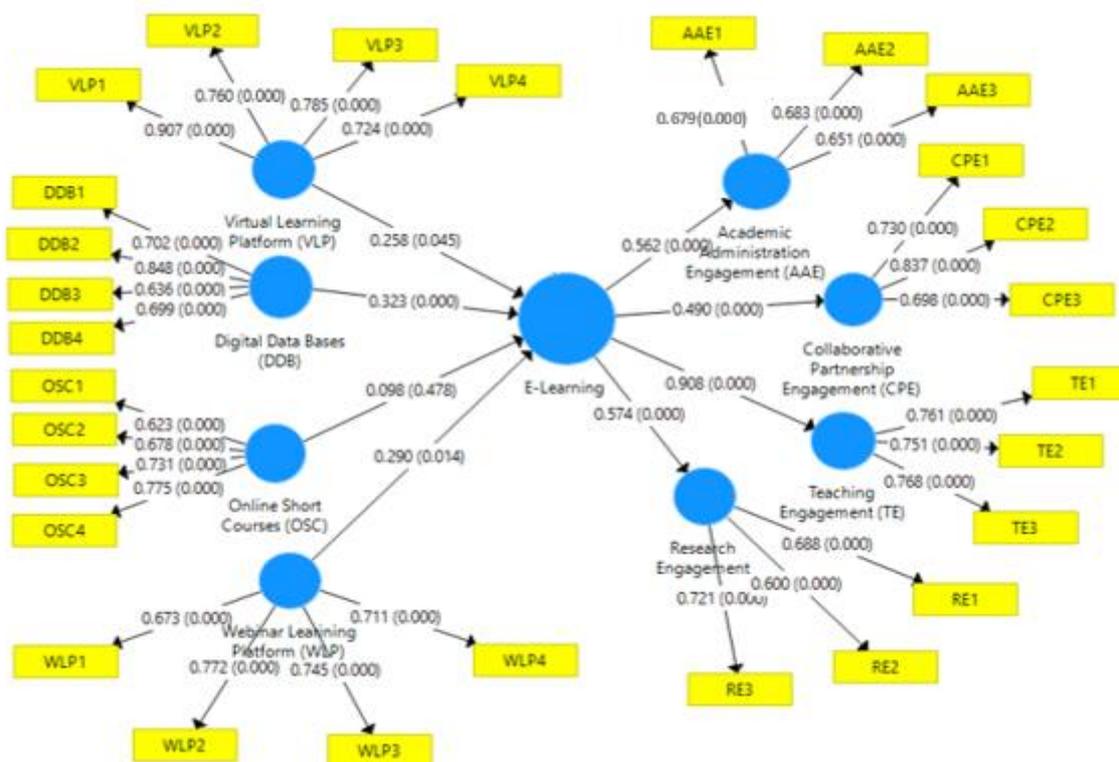


Figure 1. PLS bootstrapping model with  $\beta$  and  $p$ -values of e-learning opportunities and faculty engagement.

Figure 1 depicts the PLS bootstrapping model of e-learning opportunities that can be leveraged for enhanced job engagement. The path depicts the relationship between the independent variable (e-learning opportunities) and the dependent variable (faculty engagement). The researchers resampled the bootstrapping setting to 5000, as recommended by [31,32] confirmatory reasons. Bootstrapping helps calculate path coefficients, outer loading, outer weights, indirect effect and total effect, as shown in Figure 1. All the  $t$ -values in Table 3 are greater than 1.96, while the  $p$ -values in Figure 1 are significant at 0.05. This suggests that e-learning opportunities have a significant influence on faculty teaching, research, partnership and administrative engagements.

To test the significant effect of formulated hypotheses, the  $\beta$ -value, which indicates the expected variance in faculty engagement for a unit variation in the e-learning opportunities, was used. This implies that the greater the  $\beta$ -value, the more substantial the effect on e-learning opportunities. The significant impact of e-learning on faculty engagement was also

verified through the T-statistical test. The inner model results (path coefficient, standard deviation, T-statistics and *p*-values) are presented in Table 4.

**Table 4.** Inner model results.

| Variables   | Path Coefficient | R Square | Standard Deviation | T-Statistics | <i>p</i> -Values |
|---|------------------|----------|--------------------|--------------|------------------|
| E-learning → Administrative Engagement            | 0.562            | 0.316    | 0.075              | 7.510        | 0.000            |
| E-learning → Collaborative/Partnership Engagement | 0.490            | 0.204    | 0.097              | 5.029        | 0.000            |
| E-learning → Teaching Engagement                  | 0.908            | 0.824    | 0.017              | 52.588       | 0.000            |
| E-learning → Research Engagement                  | 0.574            | 0.329    | 0.061              | 9.345        | 0.000            |

Further to the empirical findings presented in Table 3, it was found that the path coefficient of the measures of e-learning dimensions has a significant effect on the administrative engagement of the academic staff of universities at 0.05. The findings revealed that e-learning opportunities have a significant influence on the administrative engagement of the academic staff of universities ( $\beta = 0.562$ , T-statistic = 7.510 > 1.96, *p*-value = 0.000 < 0.05). The path coefficient of 562 suggests a considerable degree of relationship between e-learning opportunities and the administrative engagement of the academic staff of universities, which is significant at 0.000. The r-squared value of 316 suggests that a 31.6% variance in the administrative engagement of academic staff can be explained by e-learning opportunities.

The findings also revealed that e-learning dimensions significantly influence collaboration/partnership engagement endeavours of the academic staff of universities at 0.05. The findings showed that e-learning opportunities have a significant influence on collaboration/partnership engagement endeavours of the academic staff of universities ( $\beta = 0.490$ ,  $R^2 = 0.204$ , T-statistic = 5.029 > 1.96, *p*-value = 0.000 < 0.05). The path coefficient of 0.490 implies a reasonable degree of relationship of e-learning opportunities and collaboration/partnership engagement endeavours of the academic staff of universities, which is significant at 0.000. The r-squared value of 0.204 suggests that the 20.4% variance in collaboration/partnership engagement endeavours of the academic staff of universities can be explained by e-learning opportunities.

The results also revealed that e-learning dimensions significantly influence teaching engagement of the academic staff of universities at 0.05. The findings indicated that e-learning opportunities have a significant influence on the teaching engagement of the academic staff of universities ( $\beta = 0.908$ ,  $R^2 = 0.820$ , T-statistic = 52.588 > 1.96, *p*-value = 0.000 < 0.05). The path coefficient of 0.908 implies a huge degree of relationship between e-learning opportunities and teaching engagement of the academic staff of universities, which is significant at 0.000. The r-squared value of 0.824 suggests that the 82.4% variance in the teaching engagement of the academic staff of universities can be explained by e-learning opportunities.

Lastly, the study also discovered that e-learning dimensions significantly influence the research engagement of universities' academic staff, at 0.05. The findings indicated that e-learning opportunities have a significant influence on the research engagement of the academic staff of universities ( $\beta = 0.574$ ,  $R^2 = 0.329$ , T-statistic = 9.345 > 1.96, *p*-value = 0.000 < 0.05). The path coefficient of 0.574 implies a moderate degree of relationship of e-learning opportunities and the research engagement of the academic staff of universities, which is significant at 0.000. The r-squared value of 0.329 suggests that a 32.9% variance in the research engagement of the academic staff of universities can be explained by e-learning opportunities.

#### 4. Discussions

It was discovered from the findings that e-learning opportunities have a significant influence on the way academic staff discharge their administrative engagement. This suggests that e-learning opportunities, such as virtual learning platforms, digital databases, online short courses and webinar learning platforms, have a significant influence on the administrative engagement of academic staff. Administrative engagement in this context refers to the running of the non-teaching activities required of academic staff. These administrative activities include advising, committee membership, deanship, HoDship and directorship. For example, universities in Nigeria have been using the Zoom platform for meetings, conferences and online teaching. This finding corroborates the findings of [33], who posited that technology influences discussion quality, particularly when it becomes practically impossible to have a face-to-face meeting. The findings of the study also align with the similar submission of [34]. They noted that technology facilitates meeting patterns of administrative engagement. This was also validated by [35,36]. They posited that e-learning opportunities influence the quality of interaction with people. This implies that the quality of information via e-learning platforms enhances the quality of information dissemination to faculty members and students at the university communities.

In a related development, the  $R^2$  for collaborative partnership engagement is 0.240, with a path coefficient of 0.490 and a  $p$ -value of 0.000. This indicates that collaborative partnership engagement explains 24.0% of the variance in e-learning opportunities. The findings also suggest that e-learning platforms, to some extent, increase the quality of collaboration and partnership. One of the core responsibilities of faculty members of any university is to collaborate and partner with others for more quality research in providing solutions to socio-economic issues. The finding also suggests that up-to-date e-learning platforms can be leveraged for quality collaborations and partnerships with industries. This finding supports the submission of [37–40]. They believed that e-learning enhances collaborative partnerships. In [41–43], the authors made similar findings.

Similarly, the study also revealed that e-learning opportunities significantly influence the teaching engagement of faculty members. This implies that the information accessed on various e-learning platforms can be leveraged to enrich the lecture content given to the students. Since teaching is one of the core responsibilities of the faculty of universities, e-learning platforms such as virtual learning, digital databases and webinars can be leveraged for improved pedagogical practices and teaching engagement [44–48]. Meanwhile, e-learning platforms can also be used to disseminate and share helpful information that will broaden the students' horizons on a subject matter. This finding validates similar empirical findings of [49–52]. They found that e-learning platforms facilitate comprehensive teaching strategies that reshape the future of teaching practices in institutions of higher learning. The finding also validates the similar submission of [53–56], who noted that e-learning platforms help to rethink university teaching engagement.

Meanwhile, the study also discovered that e-learning opportunities have a significant effect on the research engagement of faculty members. The implication is that research productivity and the research published in high-index journals remain sine-qua-non for faculty promotion and universities ranking. The influence of e-learning platforms on research engagement cannot be overemphasised. Digital databases, webinar training and virtual conferences are useful platforms to access information that will improve the research engagement of faculty members. This finding validates the findings of [57–62], who noted that the research effectiveness of the faculty of universities is a function of institutional support. Institutional support in this context is the access to various subscribed digital databases and the virtual conference supports, among others.

#### 5. Limitations and Suggestions for Further Studies

Only 8 out of 34 private universities in Southwest Nigeria participated in the survey. This implies that the study achieved the set objective but is limited in scope considering the number of other private and public universities in Nigeria. To this end, future studies may

broaden the scope of the study to include private universities in the other five geopolitical zones in Nigeria. The focus of this study is quantitative. However, future studies can also use a mixed method. The qualitative aspect will provide more information that may shed deeper insight into the influence of e-learning on faculty engagement.

## 6. Conclusions

E-learning opportunities at a time like this, when COVID-19 threatens the conventional practice of universities in Nigerian universities, is indeed a relief that has prevented a total shutdown of universities. Therefore, it will be a good step for management to invest in technology that will drive teaching, research and collaborative partnership and other core areas of the university system. Efforts must be intensified by the management of universities to provide adequate training that will help the faculty maximise the e-learning opportunities to enrich their job engagements. E-learning has dramatically helped in improving environmental performance. This is evident in the reduction of emissions from transportation/travelling, which are detrimental to the environment. Since students can connect to virtual classes anywhere without necessarily travelling to the campus within and outside the country, the pollution generated by the vehicles and aircraft and fossil fuel used will be reduced. This could lessen the detrimental effect of pollution on the environment. In addition, universities would use less energy for power, electricity, heating and cooling systems, which is better for the environment. In virtual classes, facilitators/faculty and students use e-materials; this could also help reduce paper waste and tree consumption, which is better for the environment. However, e-learning has its challenges. Some of the challenges are attributed to unstable Internet facilities, particularly in developing countries, such as Nigeria; thus, accessing e-classes, smooth downloading of study materials and virtual interaction between the facilitators and students are usually disrupted. Therefore, the role of university management, particularly in ensuring a sustainable e-learning environment, increasingly engaging with stakeholders in the educational sector for a sustainable e-learning curriculum and the development of high-tech platforms that allow students and faculty/facilitators to stay abreast of the best e-learning practices, is strongly recommended. Finally, the insight from this study will serve as a platform for researchers and HR educators to explore the applicability of sustainable e-learning platforms for improved faculty engagement in the new normal across higher-education institutions' culture in both the developing and the developed world.

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**Institutional Review Board Statement:** The study was approved by Business Management Research Ethics Committee (Approval No. BMREC: 01/02/078).

**Informed Consent Statement:** This type of research is categorised as exempt research that involves a survey with no or minimal risk. Therefore, implied consent was obtained.

**Data Availability Statement:** All data generated or analysed during this study are included in this published article.

**Conflicts of Interest:** The authors declare no conflict of interest.

### Appendix A

**Table A1.** List of the Selected Universities.

|              |                                 |                    |
|--------------|---------------------------------|--------------------|
| University A | Afe Babalola University         | Southwest, Nigeria |
| University B | Babcock University              | Southwest, Nigeria |
| University C | Bells University                | Southwest, Nigeria |
| University D | Crescent University             | Southwest, Nigeria |
| University E | Covenant University             | Southwest, Nigeria |
| University F | Bowen University                | Southwest, Nigeria |
| University G | Joseph Ayo Babalola University. | Southwest, Nigeria |
| University H | Redeemer’s University           | Southwest, Nigeria |

**Table A2.** Sample Size Determination Table.

| Population Size | Sample Size                              |     |     |   |     |            |
|-----------------|--|-----|-----|---|-----|------------|
|                 | Continuous Data (Margin of Error = 0.03) |     |     | Categorical Data (Margin of Error = 0.05) |     |            |
| 100             | 46                                       | 55  | 68  | 74  | 80  | 87         |
| 200             | 59                                       | 75  | 102 | 116                                       | 132 | 154        |
| 300             | 65                                       | 85  | 123 | 143                                       | 169 | 207        |
| 400             | 69                                       | 92  | 137 | 162                                       | 196 | 250        |
| 500             | 72                                       | 96  | 147 | 176                                       | 218 | 236        |
| 600             | 73                                       | 100 | 155 | 187                                       | 235 | 316        |
| 700             | 75                                       | 102 | 161 | 196                                       | 249 | 341        |
| 800             | 76                                       | 104 | 166 | 203                                       | 260 | 363        |
| 900             | 76                                       | 105 | 170 | 209                                       | 270 | 382        |
| 1000            | 77                                       | 106 | 173 | 213                                       | 278 | 399        |
| 1500            | 79                                       | 110 | 183 | 230                                       | 306 | 461        |
| <b>2000</b>     | 83                                       | 112 | 189 | 239                                       | 323 | <b>499</b> |
| 4000            | 83                                       | 119 | 198 | 254                                       | 351 | 570        |
| 6000            | 83                                       | 119 | 209 | 259                                       | 362 | 598        |
| 8000            | 83                                       | 119 | 209 | 262                                       | 367 | 613        |
| 10,000          | 83                                       | 119 | 209 | 264                                       | 370 | 623        |

Source: Bartlett, J.E., Kotrlik, J.W., Higgins, C.C. (2001).

**Table A3.** Questionnaire.

|   | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|---|----------------|-------|-----------|----------|-------------------|
| <b>Virtual Learning</b>   |                |       |           |          |                   |
| Virtual conferences attended had impacted positively on my research endeavours. |                |       |           |          |                   |
| My university environment is conducive to virtual learning.                     |                |       |           |          |                   |

Table A3. Cont.

|  | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|--|----------------|-------|-----------|----------|-------------------|
| I am satisfied with my experience with virtual learning platforms.                             |                |       |           |          |                   |
| My university provides online training for all Faculty to cope with the new-normal era.        |                |       |           |          |                   |
| <b>Digital Data Bases</b>  |                |       |           |          |                   |
| My university subscribed to many scientific databases for the use of all faculty and students. |                |       |           |          |                   |
| I have access to enough scientific databases for my quality research and teaching endeavours.  |                |       |           |          |                   |
| I use digital file management tools confidently.   |                |       |           |          |                   |
| I have the competency to prepare study materials.  |                |       |           |          |                   |
| <b>Online Short Courses</b>  |                |       |           |          |                   |
| My university encourages me to do short courses online.  |                |       |           |          |                   |
| The online courses I did have impacted positively on my teaching career.                       |                |       |           |          |                   |
| I have at least two online certifications in my field.   |                |       |           |          |                   |
| Online short courses have equipped me with the skills to thrive in my field.                   |                |       |           |          |                   |
| <b>Webinar Learning Platform</b>   |                |       |           |          |                   |
| I have attended a series of webinars organised by my university in the last two years.         |                |       |           |          |                   |
| The webinar allows for better interaction between the students and the faculty.                |                |       |           |          |                   |
| Webinar training has broadened my skills in my field of interest.                              |                |       |           |          |                   |
| The webinar allows me to grow my networks.   |                |       |           |          |                   |
| <b>Administrative Engagement</b>   |                |       |           |          |                   |
| I am bursting with energy in my academic-administrative-related responsibilities.              |                |       |           |          |                   |
| I am inspired to do my academic advising well.   |                |       |           |          |                   |
| I feel happy working in different committees.  |                |       |           |          |                   |
| <b>Collaborative/Partnership Engagement</b>  |                |       |           |          |                   |
| I have collaborated with my colleagues in the last two years.                                  |                |       |           |          |                   |
| I have published articles from the collaborated work in the last two years.                    |                |       |           |          |                   |
| I have facilitated industry partnerships with my university in the last two years.             |                |       |           |          |                   |

Table A3. Cont.

|  | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|--|----------------|-------|-----------|----------|-------------------|
| <b>Teaching Engagement</b>   |                |       |           |          |                   |
| I enjoy teaching because of the availability of virtual teaching facilities provided by my university. |                |       |           |          |                   |
| My virtual teaching engagement with my students have been quite engaging and interactive.              |                |       |           |          |                   |
| The virtual teaching platforms are effective for quality teaching delivery.                            |                |       |           |          |                   |
| <b>Research Engagement</b>   |                |       |           |          |                   |
| I have published articles in high-indexed journals in this new-normal period.                          |                |       |           |          |                   |
| I have attended virtual conferences with a paper presentation in this new-normal era.                  |                |       |           |          |                   |
| My research profile has greatly increased in the last two years.                                       |                |       |           |          |                   |

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