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Perceived Usefulness of Digital Training on Employee Performance: A Study of Academic Staff in Some Selected Universities in North West, Nigeria

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Abstract

This study assesses the quantum of how perceived usefulness of digital training impact on employee performance in Usmanu Danfodiyo University, Sokoto, Federal University Gusau and Sokoto State University in North-West Nigeria. The study adopts a survey research design with mixed methods approach. Using questionnaire instrument, data was obtained from a sample of 320 academic staff drawn from of UDUS, FUGUS and SSU's staff complement which was analysed using descriptive statistics and Partial Least Squares Structural Equation Modeling (PLS-SEM). The qualitative analysis of interviews had eighteen ICT Trainers, Coordinators, and Support staff from UDUS, FUGUS and SSU. The quantitative results revealed that perceived usefulness of digital training has a significant positive impact on employee performance in UDUS, FUGUS and SSU whereas the qualitative data reveals that, digital training programmes positively impacted on the academic staff performance through adaptive pedagogical strategies, multi-modal measurement approaches, and feedback driven design improvements, despite pervasive digital skills gaps, infrastructural deficits, and sustainability challenges that significantly constrain programmes effectiveness. The study concludes that when academic staff perceived training as directly applicable to their teaching, research, and administrative realities, their performance improves significantly. The study, therefore, recommends that the human resource unit of UDUS, FUGUS and SSU, should design all digital training programmes that could solve immediate, real world problems that academic staff currently face, such as repetitive tasks, marking, and grant writing, to significantly boost the impetus of perceived usefulness of digital training to exert higher levels of employee performance.

Keywords: Perceived usefulness, Digital training, Employee performance, Academic staff

1.1 Introduction

The Nigerian public higher education sector is a critical engine for national development, tasked with the triple mandate of teaching, research, and community service. The impactful nature of universities in fulfilling this mandate among other things, hinges directly on the performance of their academic staff, who are the primary facilitators of knowledge creation and dissemination. As succinctly described by Ado, Sanusi, Idris and Abdullahi (2026), employee development is the acquisition of new skill sets and knowledge through diverse training programmes adopted by the employer. At the Usmanu Danfodiyo University Sokoto (UDUS), Federal University Gusau (FUGUS) and Sokoto State University (SSU) academic staff operate within a dynamic yet challenging environment, facing increasing pressures to enhance pedagogical quality, boost research output, and integrate digital tools into the academic enterprise. In this context, their performance is a multifaceted construct encompassing teaching impact on research productivity, and community service, all of which are essentials for the institution's ranking, accreditation, academic quality standards and overall impact on national growth and development.

The perceived usefulness of the digital training is rooted in the Technology Acceptance Model (Davis, 1989), this subjective measure is a powerful predictor of behavioral change. This perception directly impacts on the translation of training into tangible performance improvements in their teaching, research, and community service. For the academic staff of UDUS, FUGUS and SSU, these factors collectively determine the efficacy of institutional investments in human capital development. The university's ability to achieve its strategic objectives is inextricably linked to empowering its faculty with contemporary digital competencies which requires perceived value and the impacts of the digital training programmes that most significantly drive performance is crucial for designing targeted and impactful development

programmes.

The central concern of this study is despite the fact that training on digital tools is expected to leverage and provide academics with modern skillsets, enhancing their teaching impacts on research productivity, community service and ultimately, institutional performance, the reality is however that, resistance to change among some senior academics 'in the Faculty', alongside inadequate funding for sustained training, constitute significant barriers to impactively harnessing the full potentials of digital training programmes for optimal performance outcomes (National Universities Commission, 2023); a structurally deficient personalized training scheme often leads to mismatched skills and job requirements (Adeyemi & Ogunyemi, 2019); limited technical support constraining the application of learned skills (Oluwajodu et al., 2015); and low pre-training digital literacy among some staff impede on learning absorption (Tshabalala et al., 2014). Thus, without implementing robust, continuous, and well-supported digital training interventions that are tailored to specific academic roles and challenges, the academic staff at UDUS, FUGUS and SSU, may continue to experience performance gaps, stagnant research output, and difficulties in adapting to the evolving demands of 21st Century higher education. In addition to these operational challenges, significant gaps exist in the existing literature. Several studies have failed to provide comprehensive frameworks for measuring the perceive usefulness of digital training specific to academic staff performance in public universities (Asogwa & Ogbole, 2018; Opiyo, 2020). Notably, researchers have predominantly examined the impact of training and development in private corporate organizations. Therefore, it is against this backdrop that this study attempts to assess the quantum of how perceive usefulness of digital training impact on employee performance in the North West, Nigeria with particular reference to UDUS, FUGUS and SSU.

2.1 Conceptual Review

2.2.1 Concept of Performance

The word performance is difficult to quantify or qualify and is stated in relation to task and service provided; it is an approach involving consistency in behaviour and quality, economy, impactiveness and efficiency in the provision of goods and services. Employee performance is measured in operation within an organization, using multiple methods based on management expectations, employee expectations and performance management programmes. The performance management system determines the assessment parameters for employees i.e. the parameters by which employees' performance levels can be quantified and assessed. Zena (2019) posited that, performance is the output of a particular task measured against pre-determined quality, completeness, and speed and cost standards. Furthermore, he added that performance is considered an achievement of the employee obligation in an employment contract which releases the performer from all obligations stipulated in the contract. Efficiency and impactful performance are key elements that can be emphasized through training and development to improve performance. Efficiency is the ability to achieve desirable results by using the least resources available while impactfulness is the potential for workers to achieve desired goals or targets (Serdyukov, 2017). Outcomes are bases upon which employee performance is usually assessed, however, employee behavior can also be used to measure performance (Mone & London, 2018). The performance of the employee is measured according to the organization's performance standards. A variety of steps are taken to assess performance using, for example, efficiency, impactfulness, consistency and profitability (Kallio et al., 2017). Organizational performance on the other hand, can also be characterized as the capacity of the organization to achieve its goals by impactively and efficiently utilizing human resources. The success or failure of businesses therefore depends on the output of employees. Rodriguez and Walters (2017), Mangkunegara (2015) express that performance could also be in the form of work results both quality and quantity achieved by an employee in carrying out tasks based on the responsibilities that have been given to them.

2.2 Perceived Usefulness of Digital Training and Employee Performance

The perceived usefulness of training refers to the degree to which academic staff believe that participating in digital training programmes will enhance their job performance and productivity. Davis (1989), in the Technology Acceptance Model, perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance." In the context of digital training, this extends to how staff perceive the training's relevance and practical value for their teaching, research, and community service. Another perspective defines perceived usefulness as the trainee's assessment of whether the knowledge and skills gained from training will be applicable and beneficial in their specific work context (Venkatesh et al., 2020). This proxy is operationalized through measures of staff beliefs about how digital training will improve their teaching impactiveness, research output, and community service.

The conceptual understanding of perceived usefulness is primarily grounded in the Technology Acceptance Model (TAM), which posits that technology adoption is determined by two key factors: perceived usefulness and perceived ease of use (Davis, 1989). When applied to digital training, this suggests that staff are more likely to engage with and apply training content they perceive as useful for their job performance. Complementarily, Social Cognitive Theory emphasizes that individuals are more likely to engage in behaviors they believe will produce positive outcomes (Bandura, 2021). In digital training contexts, staff who perceive training as useful develop stronger self-efficacy and outcome expectations, which motivates active participation and skill application. For UDUS, FUGUS and SSU, it enhancing perceived usefulness requires strategic communication of training benefits, demonstration of practical applications, and creation of supportive organizational environments. By prioritizing perceived usefulness in training design and implementation, the university can maximize returns on digital training investments and achieve sustainable performance improvements.

2.3 Empirical Review

Adeyemi and Okafor (2022) examine the influence of perceived usefulness of digital training on the job performance of academic staff in selected public universities in South-West Nigeria. The study adopts a cross-sectional survey design, collecting data from 312 academic staff using a structured questionnaire based on the Technology Acceptance Model (TAM). Perceived usefulness was measured using a five-item scale adapted from Davis (1989), while employee performance was assessed across teaching effectiveness, research productivity, and community service. Data were analysed using descriptive statistics and multiple regression analysis with SPSS. The findings revealed that perceived usefulness of digital training had a positive and significant effect on employee performance ($\beta = 0.412$, $p < 0.01$), explaining approximately 28% of the variance in performance outcomes. Specifically, academic staff who perceived digital training as highly useful reported significantly higher levels of LMS utilisation, digital research tool proficiency, and administrative efficiency. The study concluded that perception of usefulness is a critical psychological antecedent that determines whether digital training translates into actual performance gains. This study fills this gap by focusing specifically on UDUS, FUGUS and SSU. in North-West Nigeria, where infrastructural challenges are more acute, and by employing a mixed-methods approach to explore how perceived usefulness mediates the relationship between digital training and performance under resource-constrained conditions.

Bello and Musa (2021) conducted a quantitative study on the impact of perceived usefulness of e-learning platforms on the research productivity of academic staff in three federal universities in North-Central Nigeria. The study employed a stratified random sampling technique to select 267 respondents. The results showed a moderate positive correlation between perceived usefulness and research productivity ($r = 0.385$, $p < 0.01$). However, the study also found that perceived usefulness alone accounted for only 15% of the variance in research output, suggesting that other factors such as prior digital literacy and access to technical support play significant roles. The study concluded that while perceived usefulness is an important driver, it is insufficient to guarantee performance improvement without accompanying infrastructural and support mechanisms. The study recommends that future research should adopt a multidimensional performance framework and include qualitative methods to capture the nuanced perceptions of academics.

Suleiman and Ibrahim (2020) investigated the relationship between perceived usefulness of digital training and employee performance among non-teaching staff in public universities in North-East Nigeria. The study used a descriptive survey design with a sample of 185 administrative staff drawn from two universities. Perceived usefulness was measured using a modified TAM scale, and employee performance was assessed through self-reported efficiency, accuracy, and timeliness in completing administrative tasks using digital systems (e.g., student records, payroll processing, and procurement

platforms). Data were analysed using Spearman's rank correlation and simple linear regression. The findings indicate a statistically significant positive relationship between perceived usefulness and administrative performance ($\rho = 0.512$, $p < 0.01$). However, the study also revealed that despite high perceived usefulness, actual utilisation of digital systems remained low due to frequent power outages, poor internet connectivity, and lack of post-training support. This paradox high perceived usefulness but low performance impact was termed the usefulness-utilisation gap. The study concluded that perceived usefulness is a necessary but insufficient condition for performance improvement; enabling infrastructure and sustained support are equally critical. The study was limited by its exclusive focus on non-teaching staff and its reliance on self-reported performance measures without objective verification. It also did not explore the role of training frequency or duration in shaping perceived usefulness. The study recommends that future research should examine the interplay between perceived usefulness and enabling factors such as infrastructure, management support, and peer influence. The current study fills this gap by focusing on academic staff at UDUS, FUGUS and SSU, incorporating objective performance indicators where available, and using a mixed-methods design to explore how perceived usefulness interacts with infrastructural realities to influence performance outcomes across teaching, research, and community service domains.

2.4 Theoretical Framework

The theoretical foundation of this study is the Technology Acceptance Model (TAM) by Fred Davis (1989) which posits that the perceived usefulness and perceived ease of use of a technology are fundamental to its adoption and impactive use, which in turn influences performance outcomes. It can be deducted that Human Capital Theory largely go in line with TAM by providing the economic rationale for the training investment. While Social Cognitive Theory is more focused on the individual's psychological processes of learning and self-efficacy which influence how training is internalized. However, all go hand in hand with the core premise of TAM.

The Technology Acceptance Model emphasizes on user perceptions and behavioral intention. The theory believes that for digital training to be impactive in improving employee performance, it must first be seen as a useful tool that can make the employee's job easier or more productive. It equally assumes that the digital training platform itself must be easy to navigate and interact with, reducing frustration and allowing the employee to focus on learning rather than struggling with the interface. It is also believed that, when employees perceive the digital training as both useful and easy to use, they form a stronger intention to engage with it consistently and completely. Perhaps, this heightened engagement leads to better knowledge retention and skill acquisition. It further assumed that leaders and organizers of the training can influence these perceptions by clearly demonstrating the benefits (usefulness) and providing adequate technical support and user-friendly design (ease of use).

The Technology Acceptance Model also maintained that without positive perceptions on usefulness and ease of use, even the most well-designed training program may fail to be adopted and utilized by employees, resulting in no significant improvement in performance. More so, it reveals how in a public sector context like UDUS, FUGUS and SSU, where resource constraints and change resistance may be present, ensuring a high degree of perceived usefulness and ease of use is critical for the success of digital training initiatives. The above assertions have largely captured the true reflection of the impact of digital training and employee performance at UDUS, FUGUS and SSU.

3.1 Methodology

Survey research design employing mixed methods research approach was used to conduct the study. The study population comprises 1,971 academic staff of UDUS, FUGUS and SSU, who are directly involved in teaching, research, and community services and eighteen selected ICT stakeholders who are in charge of digital training. The sample size was determined using Krejcie and Morgan's (1970) Table for determining sample size, which ensures a 95% confidence level with a 5% margin of error for adequate representation, the Table recommended a sample size of 320 respondents, while the selection of the eighteen participants was guided by criterion sampling strategy. For the quantitative phase the study utilized stratified sampling to divide the population into homogeneous strata according to ranks while for the qualitative the participants were selected using purposive sampling technique. The design integrates quantitative data (collected via structured questionnaires) while qualitative data (collected through interview guide).

This study employed both descriptive and inferential statistical tools to analyze the quantitative data collected. The analysis began with descriptive statistics (including mean, median, standard deviation, minimum, maximum, and frequency distributions) to examine the general properties of the data and

profile of the respondents' characteristics to assess the impact between the variables. While the qualitative analysis was conducted through thematic analysis using NVivo 15 qualitative analysis software.

4.1 Result and Discussion

This section presents the results of the data analysis and provides a discussion of the findings in relation to the major issue raised in the study and in the extant literature.

4.2 Response Rate

The response rate determines the total number of responses received from the target respondents. Table 4.1 provides detailed information regarding the response rate.

Table 4.1: Response Rate

Categorization	Frequency	Percent
Invalid response	32	10.00
Valid response received	288	90.00
Total	320	100.00%

Source: Field Survey, 2026

Table 4.1 displays the response rate for the questionnaire administered to the respondents via self and research assistants. It is indicated from the table that 32 responses (10.00%) could not be received while 288 representing 90.00% were duly filled and returned and considered for the analysis. However, it could be said that the larger part of the target audience responded to the survey.

Table 4.2: Coefficient of Determination (R2) for Direct Relationship between IVs and DV

	R-square	R-square adjusted
ASP	0.378	0.352

Source: Smart-PLS 4 Output, 2026

Table 4.2 displays the coefficient of determination score (R^2) which is commonly used to assess the model's predictive impact. This value (R^2) is found to be 0.378 which suggested that all the PU variables 37.8% variation in Employees Performance. It also shows that the model is satisfactory as the predictive impact falls within the established threshold of 0.25-0.75 (Hair et al., 2019) and is greater than the threshold of 0.10 (Pirouz, 2006). Also, the result shows that the model has not failed in its capacity to measure the predictive power of the data.

Table 4.3: Descriptive statistics and Test of Normality

	N valid	N missing	Mean	Median	Mode	Std. Dev	Skewness	Kurtosis	Min	Max
PU	288	0	4.44	4.40	5.00	0.42	0.24	-1.23	3.40	5.00

The data in Table 4.3 is a mean distribution of the Perceived Usefulness (PU) on Employee Performance as measured with Academic Staff Performance. Normality of the data as earlier stated is usually being tested using three method involving graphical, descriptive and scientific method, but method covered in the table 4.3 is the descriptive statistics where normality is explained through the use central of tendency and measures of dispersal. It is the assumption of this method that a distribution is absolutely normal if the value of mean, median and mode are equal. It is skewed to the left if the mean is less than median, and median is less than mode, while it is skewed to the right if the mean is greater than median and the median is greater than the mode. More so, it is absolutely normal if the skewness value is 0 and Kurtosis value is ±3 (Kim, 2013). The case of Perceived Usefulness (PU) is not much different as the mean value of 4.44 greater than median (4.40), though not upto mode value of 5.00, suggesting the mean is drawing the distribution to the right with skewness value of 0.24 which is closer to 0 and kurtosis value of -1.23 being not greater than ±3. This suggests that the distribution is approximately normally distributed.

Table 4.4: Discriminant Validity – Heterotrait-Monotrait (HTMT) Ratio

	ASP	DST	DT	DTF	PU
ASP	1				
DST	0.391	1			
DT	0.468	0.187	1		
DTF	0.491	0.189	0.268	1	
PU	0.443	0.338	0.367	0.229	1

Source: Smart-PLS 4 Output, 2026

Table 4.6 presents discriminant validity using the Heterotrait-Monotrait (HTMT) ratio criterion, which is preferred for its reliability over the Fornell-Larcker criterion and cross-loadings (Henseler et al., 2015). The condition for valid discriminant validity is that the upper bound of the 95% confidence interval of HTMT is lower than 0.9. All constructs in the table satisfied this condition.

Table 4.5: Assessment of the Impact Size f2 for Direct Relationships between IVs and DV

Construct	f-square	Impact Size
PU -> ASP	0.052	Small

Source: Smart-PLS 4 Output, 2026

As earlier mentioned, the impact size, often denoted by f^2 is depicted in the Table 4.5. With impact size, the magnitude of the relationship or impact of the independent variables on a dependent variable are measured in statistical analysis. In this paper, all variables have small impact, because their impact sizes within 0.02 to 0.15 impact size (Cohen, 1988). This eventually suggested that the perceive usefulness on Employees Performance in UDUS, FUGUS and SSU is small.

Table 4.6: Results of Hypotheses Testing-Direct Relationships between IVs and DV

Ho1	PU -> ASP	0.197	2.209	0.027	Rejected

Source: Smart-PLS 4 Output, 2026

The bootstrap path coefficient analysis conducted to test the null hypotheses earlier stated in the paper. The main purpose of bootstrapping in SEM is to test all the null hypotheses as contained. A null hypothesis would be accepted if the *t*-value is less than ±1.96 and *p*-value is greater than 0.05. It would otherwise be rejected if the t-value is greater than ±1.96 and p-value is less than 0.05 (Wong, 2019).

H_0: Perceived usefulness of digital training has no significant impact on employee performance in UDUS, FUGUS and SSU.

The hypothesis was tested to determine whether perceived usefulness of digital training is associated with employee performance in UDUS, FUGUS and SSU. The bootstrap analysis produced a standardised path coefficient of $\beta = 0.197$. This value indicates that a one standard deviation increase in perceived usefulness is associated with a 0.197 standard deviation increase in academic staff performance, holding the model specification constant. The coefficient is therefore a standardised measure of association on a common scale; it is not a percentage improvement, and no minimum coefficient size is required for a path to be meaningful. Statistical significance was assessed through bootstrap inference rather than through the magnitude of the coefficient. With 5,000 subsamples, the t-statistic was 2.209, which exceeds the two-tailed critical value of ±1.96, and the p-value was 0.027, which is below the 5% significance level (Wong, 2019). The null hypothesis is therefore rejected. The effect size was $f^2 = 0.052$, which falls in Cohen's (1988) small-effect band of 0.02 to 0.15. The finding is accordingly interpreted as a statistically significant but small association between perceived usefulness and employee performance. Because the design is cross-sectional, the result establishes an association and not a causal effect. The practical implication is that academic staff who perceive digital training as applicable to their teaching and research report higher performance, although perceived usefulness accounts for only a modest share of the variation in performance.

4.3 Discussion of Finding

Based on the result obtained in this study, it is evident that perceived usefulness of digital training has a positive and significant impact on employee performance in UDUS, FUGUS and SSU. This finding is strongly consistent with the Technology Acceptance Model (TAM), as demonstrated by Lazar et al. (2020), who examined pre-service teachers' adoption of digital training tools using TAM. The study affirmed that perceived usefulness significantly predicted the intention to use digital tools, and this intention increased the possibility that behavioural factors contribute to acceptance. Similarly, Mei et al. (2019) investigate teachers' use of digital learning tools in higher education, found that teachers are concerned with how technology can support educational processes and are committed to using digital tools to motivate and engage students driven by their perception of usefulness. In the context of UDUS, FUGUS and SSU, this finding implies that digital training programmes must be clearly aligned with the day-to-day realities of academic work such as online grading, digital research databases, virtual classroom management, and e-administration to enhance perceived usefulness and, consequently, employee performance.

4.4 Qualitative Finding

The qualitative analysis of interviews with eighteen (18) ICT Trainers, Coordinators, and Support staff from UDUS, FUGUS and SSU reveals that digital training programmes positively impact on academic staff performance through adaptive pedagogical strategies, multi-modal measurement approaches, and feedback driven design improvements, despite pervasive digital skills gaps, infrastructural deficits, and sustainability challenges that significantly constrain programmes effectiveness. Noteworthy is the fact that, motivation is driven by immediate relevance, peer influence, and career progression, while discouragement stems from infrastructure frustration, fear of embarrassment, and time poverty; resources are rated "functional but fragile" with internet bandwidth as the most critical constraint, yet facilitators demonstrate high adaptive capacity through offline-first design and contingency planning. Six critical future gaps were identified institutional policy and incentive frameworks, infrastructure modernisation, professional development for trainers, a dedicated Centre for Teaching and Learning with Technology, funding predictability, and content development with Training Management Systems indicating that while digital training is perceived as making a meaningful difference to teaching, research, and community service, its impacts is significantly constrained by institutional, infrastructural, and policy gaps that must be addressed for sustainable digital capacity building in Nigerian universities.

5.1 Conclusion and Recommendations

The study concludes based on the two diametrically reinforced findings which proved that, when academic staff perceived training as directly applicable to their teaching, research, and administrative realities, their performance improves significantly. On this note, perceived usefulness resonate as the gateway to influencing motivation. Similarly**,** sustained application of digital training should not only be perceived as a necessity but enviably relevant which no organization should risk to ignore regardless of its philosophy and technical quality requirements. Moreover, the qualitative analysis further reveals that digital training programmes have positive impacts on academic staff performance through adaptive pedagogical strategies and multi-modal measurement approaches, despite pervasive digital skills gaps and infrastructural deficits that significantly undermine programmes effectiveness.

This study therefore, recommends that the HR unit of UDUS, FUGUS and SSU should design all digital training programmes that could solve immediate, real-world problems that academic staff currently face, such as repetitive tasks, marking, and grant writing, to significantly boost the impetus of perceived usefulness of digital training to exert higher levels of employee performance.

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