

Enhancing Clinical Competence: The Impact of Practical Training Programs and Training Intervals on Diagnosis Accuracy in Calabar's Health Institutions

¹Ada, Julius A, ¹Arikpo, Echip J., ¹Otosi, Faithpraise B., ²Enamhe, Dorn C. & ¹Ubi, Ije Ubana

¹Department of Business Management, Faculty of Management Sciences, University of Calabar, Calabar, Nigeria

²Department of Social Work, University of Calabar, Calabar, Nigeria

Abstract

In the context of public healthcare institutions in Nigeria, the relationship between training and organizational performance has received limited research attention. This study addresses this gap by exploring the impact of practical training programs and training intervals on clinical examination accuracy and diagnosis accuracy, using unconventional metrics of organizational performance in selected health institutions in Calabar, Cross River State. A survey design was employed, and a structured questionnaire was administered to employees in two public health institutions. Data analysis was carried out using a simple linear regression technique with SPSS software. The study revealed a significant positive effect of practical training programs on clinical examination accuracy and training intervals on diagnosis accuracy. The results align with prior research, emphasizing the importance of training programs and intervals for enhancing employee productivity and healthcare organizational performance. Public health institutions in Calabar should prioritize effective training programs that include practical training and well-structured intervals. Adequate resource allocation, supportive learning environments, sustained human resource development, recruitment of experienced training consultants, regular formal training programs, and aligned training content are recommended to enhance skills and knowledge, ultimately improving healthcare services and reducing medical errors in public hospitals. These measures can significantly contribute to elevating healthcare services in Calabar, Nigeria.

Keywords: *practical training, training intervals, diagnosis accuracy, Nigeria*

Introduction

In recent years, research into the relationship between training and organizational performance has predominantly centered around private entities, casting a shadow over the realm of public institutions, particularly in the context of public healthcare entities in Nigeria (Salami, Daniel, Ibrahim, Nwoye, & Muritala, 2022; Atif, Ijaz, Abdul, & Nadeem, 2011). This oversight has given rise to a significant gap in the existing body of literature, where the vital intersection of training and public healthcare organizational performance remains underexplored. This manuscript endeavors to shed light on this uncharted territory by contributing new dimensions to our understanding of the training-organizational performance nexus.

The present research aims to introduce fresh variables into the discourse, redefining the traditional paradigms of training's impact on organizational performance. While traditional studies have delved into factors such as training duration and content, this manuscript broadens the horizon by considering training intervals, and practical training as integral facets of the training process (Makoha, Mugwanya, Ojulun & Maloba, 2021; Neelam, Israr, Shahid. & Mohammad, 2014; Ada & Angioha, 2021; Ingwe, Ada, & Adalikwu, 2013; Ibiam, Anam, Ojong-Ejoh, Enamhe, Igwe-Okomiso, & Ejoh, 2021). Moreover, it departs from convention by using unconventional metrics of organizational performance, including the volume of patient recuperation, diagnosis accuracy, clinical examination precision, and quality of service delivery. These novel criteria are envisioned to provide a more comprehensive and nuanced understanding of the intricate dynamics between training and healthcare organizational performance (Adewole,

Bello, & Oginni, 2021; Ada, & Akan, 2019; Ingwe, Ada, & Adalikwu, 2013; Ingwe, Ada, & Angiating, 2014).

However, beneath the surface of the healthcare landscape in Cross River State, Nigeria, lie a host of challenges that obstruct the path to effective employee training and development (Ada, Akan, Angioha, & Enamhe, 2021; Ada & Angioha, 2021). Chief among these impediments is the pervasive issue of poor implementation of training programs, exacerbated by a dearth of interest and managerial support. Furthermore, inadequate training locations and facilities underscore another salient problem that hinders the cultivation of a skilled and competent healthcare workforce. The funding conundrum looms large, as many institutions are unwilling or unable to allocate the necessary resources to comprehensive training endeavors, which, in turn, dampens employee performance (Thomas, Kozikott, Kamateeka, Abdu-Aguye, Agogo, Bello, Brudney, Manzi, Patel, Barrera-Cancedda, Abraham, & Lee, 2022; Enamhe, Erukoha, Angioha, & Kusi, 2021; Ingwe, Ada & Adalikwu, 2015)

Financial constraints are not the sole antagonist in this narrative; organizations grapple with the quandary of securing experienced training consultants and sending employees to formal training programs on a regular basis. This predicament, in particular, poses a substantial barrier to employees' skill development and subsequently affects their overall productivity. The learning environment, too, often fails to foster an atmosphere conducive to skill acquisition and professional growth, thus undermining the capacity of healthcare workers to carry out their responsibilities effectively.

In addition to these persistent issues, the research also seeks to address the need for an expansive training content that aligns with the intricate processes and activities inherent in healthcare institutions. A dynamic approach is essential, necessitating sustained human resource development initiatives and, crucially, improved funding. Poorly structured on-the-job training intervals, suboptimal off-the-job training locations, and ineffective off-the-job training programs further compound the challenges faced by employees in public health institutions in Calabar. In light of these multifaceted challenges, this study endeavors to scrutinize the profound impact of training on organizational performance within selected health institutions in Calabar, Cross River State.

Materials and Methods

Design

This study employs survey design, a prominent form of ex-post facto research, to examine the existing conditions at the time of investigation (Akah & Enamhe, 2021; Akintola, Ada, Angioha, Ibioro, Igwe-Okomiso., Bisong, & Ogunsola, 2022). The survey design utilized, employed a structured questionnaire divided into three sections: Section A covers respondent demographics, while Sections B and C assess the impact of training on organizational performance. The questionnaire utilizes a five-point Likert scale (ranging from strongly agree to strongly disagree) to gauge responses. The research was conducted in Calabar, Cross River State, focusing on two selected public health institutions: the University of Calabar Teaching Hospital in Calabar Municipal Local Government Area and the Federal Neuro-Psychiatric Hospital in Calabar South Local Government Area, both located in Cross River State.

Population and Sampling

The study encompasses the entire workforce of two selected Public Health Institutions in Calabar, namely the University of Calabar Teaching Hospital (with 2,112 employees) and the Federal Neuro-Psychiatric Hospital Calabar (with 911 employees). The sampling approach employed was simple random sampling, a technique ensuring that every member of the population has an equal and independent chance of selection. To facilitate data generalizability, the "hat and draw"

(balloting) method was used for Health Institution selection, resulting in two institutions chosen out of six. The Taro Yamane formula was applied to calculate a sample size of 353 respondents.

A step-wise sampling procedure was then employed, categorizing the workforce into five clusters: management staff, doctors, nurses, junior staff, and senior staff. Each cluster's representation within the institutions was assigned a percentage. To ensure proportional representation in the final sample of 353, respondents were randomly selected from each cluster based on their size within the respective institution. This approach guarantees a comprehensive and representative study sample.

Data analysis procedure

Data collected for this study was meticulously summarized and tabulated, utilizing tables and percentages to facilitate interpretation. The study's hypotheses were rigorously tested and validated using a simple linear regression technique, executed with the aid of the Statistical Package for Social Science (SPSS) software version 20. The decision-making process hinged on the comparison between the calculated F-ratio and the critical F-value. If the calculated F-ratio exceeded the critical value, the null hypothesis was rejected in favor of the alternative hypothesis. Conversely, if the critical value exceeded the calculated F-ratio, the alternative hypothesis was rejected in favor of the null hypothesis. A simple linear regression model was adapted to assess the impact of training, with a focus on training intervals and practical training, on Diagnosis Accuracy.

Results

Presentation of analysis

We adopted simple linear regression to analyze the relationship between Practical training programs and clinical examination, accuracy in the selected Health Institutions in Calabar.

TABLE 2: Simple linear regression coefficient result of the effect of practical training programs on clinical examination accuracy in the selected Health Institutions in Calabar

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	7.772	.839	9.263	.001	

a. Dependent variable: Clinical examination accuracy Source: SPSS output, 2017

TABLE 3: Model summary of simple linear regression result of effect of practical training programs on clinical examination accuracy in the selected Health Institutions in Calabar

Model	R	R Square	Adjusted R	Std. Error of the
Square	Estimate			
1	.645 ^a	.527	.525	2.6976

a. Predictors: (Constant), Practical training programs Source: SPSS output, 2017

TABLE 4: Analysis of variance (ANOVA) table for simple linear regression result of the effect of practical training programs on clinical examination accuracy in the selected Health Institutions in Calabar

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4055.269	1	4055.269	90343	.000 ^a
Residual	15306381	341	44.887		
Total	19361.65	342			

a. Dependent Variable: Clinical examination accuracy

b. Predictors: (Constant), Practical training programs

Significant, @P < 0,05

Calculated F-ratio = 90343

Critical F-value = 3.84 Source: SPSS output 2017.

Data from Tables 2, 3, and 4 were used to analyze the relationship between Practical training programs and clinical examination, accuracy in the selected Health Institutions, employing the

simple linear regression technique with the aid of SPSS software. In Table 2, the impact of practical training programs on clinical examination accuracy in the selected Health Institutions in Calabar is examined, revealing a significant relationship as indicated by a t-value of 7.979 at a significance level of .000. Table 3 illustrates an R-value of .645, an adjusted R-square value of .525, and an R-square value of .527. This implies that 52.7% of the variation in clinical examination accuracy was explained by the model, with 47.3% remaining unexplained.

In Table 4, a calculated F-ratio of 90.343, exceeding the critical F-value of 3.84 at $P < 0.05$, with degrees of freedom 341 and 342, resulted in the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_i). This confirms that practical training programs have a significant positive effect on clinical examination accuracy in the selected Health Institutions in Calabar.

We adopted simple linear regression to analyze the relationship between Training intervals and diagnosis accuracy in the selected Health Institutions in Calabar.

Table 5: Simple linear regression coefficient result of effect of training intervals on diagnose accuracy in the selected health Institutions in Calabar

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.
	B	Std. Error	Beta	
(constant)	9.457	.507		18.652
TI	5.018	.496	.657	10.1116

a. Dependent Variable: Diagnosis Accuracy

b. Source: SPSS output, 2017

Table 6: Model summary of simple linear regression result of effect of training intervals on diagnosis accuracy in the selected health Institutions in Calabar

Model	R	R Square	Adjusted R	Std. Error of the estimate
1	.657	.510	.508	1.43819

a. predictors: (Constant), Training intervals

Source: SPSS output, 2017

Table 7: Analysis of variance (ANOVA) table for simple linear regression result of traini intervals on diagnosis accuracy in the selected Health Institutions in Calabar

Model	Sum of Square	Df	Mean Square	F	Sig
Regression	1115.560	1	1115.560	89.109	.001
1 Residual	4268.897	341	12.519		
Total	538257	342			

Tables 5, 6, and 7 were utilized to examine the relationship between training intervals and diagnosis accuracy in the selected Health Institutions in Calabar. Employing the simple linear regression technique with SPSS software, the analysis presented noteworthy findings. In Table 5, the effect of training intervals on diagnosis accuracy demonstrates a robust relationship as indicated by a significant t-value of 10.16 at a significance level of .001, signifying that the variable "diagnosis accuracy" is well integrated into the model, which boasts high predictive power.

Table 6 provides insight into the model's performance, with an R-value of .657, an adjusted R-square value of .508, and an R-square value of .510. This implies that 51% of the variation in diagnosis accuracy can be accounted for by the model, while 49% remains unexplained. Table 7 discloses a calculated F-ratio value of 89.109, surpassing the critical F-value of 3.84 at $P < 0.05$ significance level, with degrees of freedom 341 and 342. This outcome confirms that

training intervals exert a significant positive effect on diagnosis accuracy in the selected Health Institutions in Calabar.

Discussion of Findings

The first analysis focused on examining the effect of practical training programs on clinical examination accuracy in the selected Health Institutions in Calabar. The results revealed a strong and statistically significant impact, with the calculated F-ratio value of 90.343 surpassing the critical F-value of 3.84 at $P < 0.05$. This led to the rejection of the null hypothesis, supporting the adoption of the alternative hypothesis that practical training programs have a substantial positive effect on clinical examination accuracy in the selected Health Institutions. This finding is congruent with previous research, such as the study conducted by Donaldson (2014), which demonstrated that all indicators of practical training, including housemanship, internship, apprenticeship, and mentoring, significantly contribute to enhancing clinical examination accuracy in selected Teaching Hospitals in India. Further corroborating this result is the work of Aurier and Douglas (2016), which highlighted the combined impact of practical and theoretical training programs in improving the quality-of-service delivery through seminars, lectures, internships, and mentoring programs in healthcare facilities in Kenya.

The second analysis explored the influence of training intervals on diagnosis accuracy in the selected Health Institutions in Calabar. The results indicated a significant positive effect, with a calculated F-ratio value of 89.109 exceeding the critical F-value of 3.84 at $P < 0.05$. This establishes that training intervals play a pivotal role in enhancing diagnosis accuracy in these institutions.

These findings are consistent with the research conducted by Elnaga and Imran (2013), which emphasized the fundamental importance of appropriate training intervals, location, and facilities in ensuring the success of training and development programs, resulting in improved employee productivity and enhanced diagnosis accuracy at Hamada General Hospital in Iran. Additionally, the findings align with the work of Ongori and Nzonzo (2011), revealing that employee training and development initiatives lead to increased organizational effectiveness and enhanced competitiveness. The impact of accurate on-and-off-the-job training intervals on employee productivity further supports these findings, aligning with the earlier research of Ahmad, Iqbal, Mir, Haider, and Hamad (2014), which demonstrated the positive effect of training intervals.

In summary, these findings shed light on the critical role of practical training programs in enhancing clinical examination accuracy and underscore the significance of well-structured training intervals in improving diagnosis accuracy. The research findings have important implications for the healthcare sector in Nigeria, emphasizing the need for effective training and development strategies to address medical errors, reduce patient delays, and improve patient relations in public hospitals.

Conclusion and recommendations

The present study aimed to investigate the impact of practical training programs and training intervals on diagnosis accuracy in selected health institutions in Calabar, Cross River State, Nigeria. The findings of the study revealed that practical training programs and training intervals have a significant positive effect on clinical examination accuracy and diagnosis accuracy, respectively. These findings are consistent with previous studies conducted in other countries, indicating that training programs and intervals are essential for enhancing employee productivity and organizational performance.

In light of these findings, there is a need for Public health institutions in Calabar to prioritize effective training programs, incorporating practical training and well-structured intervals. Adequate resource allocation, particularly funding, is essential to enhance employee performance.

Fostering a supportive learning environment encourages skill development and professional growth. Emphasizing sustained human resource development ensures employees stay updated and adaptable. Recruiting experienced training consultants and regular formal training programs are strategic for enhancing skills and knowledge. Aligning training content with healthcare processes and institution-specific needs is paramount for effective training and development.

References

- Ada, J. A., & Akan, P. A. (2019). Knowledge Integration and Service Delivery of Health Professionals in Public Hospitals in South-South Nigeria. *European Journal of Training and Development Studies*, 6(2), 18-33.
- Ada, J. A., & Angioha, P. U. (2021). Knowledge Creativity and The Sustainability of Public Hospitals In South-South Nigeria: A Regression Analysis. *SAINSMAT: Journal of Applied Sciences, Mathematics, and Its Education*, 10(2), 90-96.
- Ada, J. A., Akan, P. A., Angioha, P. U., & Enamhe, D. C. (2021). Knowledge transferability and workers' productivity in public hospitals in South-South Nigeria. *International Journal of Public Administration and Management Research*, 6(6), 50-65.
- Adewole, D. A., Bello, S., & Oginni, A. S. (2021). Training needs assessment of stakeholders in the health insurance industry in the southwest region of Nigeria: implications for universal health coverage. *Annals of Ibadan postgraduate medicine*, 19(2), 140–146.
- Akah, P. E., & Enamhe, D. C. (2021). A Revisit On The Mediterranean Model Of Welfare System: Implication For Social Welfare And Policy Development In Nigeria. *International Journal of Innovative Research and Advanced Studies (IJIRAS)*, 8(1), 26-29.
- Akintola, A. I., Ada, J. A., Angioha, P. U., Ibioro, F. E., Igwe-Okomiso, J. B., Bisong, K. B., & Ogunsola, O. V. (2022). Illicit Drug Addiction and Efficacy of Employees in the Hospitality Industry. *ARRUS Journal of Social Sciences and Humanities*, 2(1), 1-12.
- Atif, H., Ijaz, L. P., Abdul, K. G. & Nadeem, G. (2011). Employee Retention Relationship to Training and Development from Compensation Perspective. *Journal of personnel management*. 5(2): 24-41.
- Enamhe, D., Enuokoha, C. U., Angioha, P. U., & Kusi, M. (2021). Motivation Behind E-Trust of Electronic banking Channels by Banks. *ARRUS Journal of Engineering and Technology*, 1(2), 67-80.
- Ibiam, A. A., Anam, A. E., Ojong-Ejoh, M. U., Enamhe, D. C., Igwe-Okomiso, J. B., & Ejoh, T. O. (2021). Determinant of Intimate partner violence Family: parametric Statistics of the influence of household decision-making autonomy and Family Income Status. *ARRUS Journal of Social Sciences and Humanities*, 1(2), 87-93.
- Ingwe, R., Ada, J. A., & Adalikwu, R. A. (2013). Industrial relations under various administrations in Nigeria: a political-temporal analysis of trade disputes, work stoppages and human work-day losses (1970–2004). *Annales Universitatis Mariae Curie-Sklodowska, Sectio H Oeconomia*, 2(47), 73-84.
- Ingwe, R., Ada, J. A., & Adalikwu, R. A. (2015). a political-temporal analysis of trade disputes, work stoppages and human work-day losses (1970–2004). *Annales Universitatis Mariae Curie-Sklodowska, sectio H–Oeconomia*, 47(2), 73.
- Ingwe, R., Ada, J. A., & Angiating, I. (2014). Investment-driven industrial localisation in Calabar, free trade zone and environs, south-eastern/southsouth, Nigeria: Evidence on recent sub-national regional economic diversification. *Journal of the Geographical Institute" Jovan Cvijic", SASA*, 64(3), 359-375.
- Ironbar, A. E., Angioha, P. U., Uno, I. A., Ada, J. A., & Ibioro, F. E. (2021). Drivers of the Adoption of E-Government Services in the deliverance of healthcare services in Federal Health Institutions. *ARRUS Journal of Engineering and Technology*, 1(2), 60-66.

- Makoha, N. M., Mugwanya, S. N., Ojulun, J., & Maloba, K. (2021). The impact of In-Service training on employee performance in the Uganda Public Service: A case of Civil Service College Uganda alumni. *International Journal of Innovative Research and Development*, 10(7). <https://doi.org/10.24940/ijird/2021/v10/i7/jul21030>
- Neelam, T., Israr, K. Y. Shahid, J. & Mohammad, H. (2014). The impact of Training and Development on Employee Performance and Effectiveness in Banking Sector of Pakistan. *International Journal of Business and Social Science*, 5(4), 294-303.
- Salami, Y., Daniel, C. O., Ibrahim, U. A., Nwoye, M. I., & Muritala, T. A. (2022). Impact of Training and Development on the Performance of Public Hospitals in Abuja-FCT, Nigeria. *Journal of Human Resource and Sustainability Studies*, 10, 418-432.
- Thomas, M., Kozikott, S., Kamateeka, M., Abdu-Aguye, R., Agogo, E., Bello, B. G., Brudney, K., Manzi, O., Patel, L., Barrera-Cancedda, A. E., Abraham, J., & Lee, C. T. (2022). Development of a simple and effective online training for health workers: results from a pilot in Nigeria. *BMC Public Health*, 22(1). <https://doi.org/10.1186/s12889-022-12943-1>
- Uzoka, F. M., & Onyishi, A. N. (2019). Impact of Training and Development on Employee Performance in Nigerian Public Sector: A Study of Federal Inland Revenue Service (FIRS). *Journal of Human Resource and Sustainability Studies*, 7(1), 1-16.