LEVERAGING TECHNOLOGY TO FOSTER CREATIVITY AND CULTURAL EXCHANGE IN MODERN OFFICES IN DELTA STATE

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Abstract

The main purpose of the study was to determine how modern technologies are utilized to enhance creativity and promote cultural exchange in modern offices in Delta State. Two research questions and two hypotheses were tested in the study. The study adopted the descriptive survey research design. The population of the study comprised 139 lecturers in Office Technology and Management (Business Education) in tertiary institutions in Delta State. The entire population was used without sampling because it was manageable. A structured questionnaire which was developed by the researchers and validated by three experts; two in OTM and one in measurement and evaluation, was used for data collection. The reliability of the instrument was achieved through a trial test and test of reliability using Cronbach Alpha yielded reliability co-efficient values of 0.84 for Cluster A and 0.88 for Cluster B, resulting in an overall reliability coefficient of 0.86 for the LTCCEQ. Mean, standard deviation and one sample t-test were used to analyze data for the study. Findings of the study revealed that the use of technology significantly promotes employee creativity and facilitates cultural exchange in modern offices in Delta State. Findings further showed that technology positively influences creativity and cultural exchange among employees in modern offices in Delta State. Based on the findings, recommendations are made that managers of organizations should invest in cutting-edge digital tools and platforms that stimulate employee creativity and enable cultural exchange among diverse teams.

Keywords: technology, employee, creativity, cultural exchange, modern offices

Introduction

An office is traditionally understood as a designated space where administrative, managerial, and clerical tasks are performed to support organizational operations. Historically, offices have served as centralized locations facilitating communication, coordination, and decision-making processes within a business context. A modern office is a work environment designed to support productivity, collaboration, and employee well-being through the integration of advanced technology, flexible layouts, and a focus on comfort and creativity (Gjerland et al., 2019). Unlike traditional offices with rigid structures and isolated workspaces, modern offices feature open and adaptable spaces that encourage interaction, teamwork, and spontaneous collaboration.

The modern office has evolved into a dynamic environment that integrates contemporary design, advanced technologies, and innovative practices to foster productivity, collaboration, and employee well-being (Tela et al., 2024). Maison Office (n.d.) stated that the features of modern office include open floor plans that encourage interaction, flexible workspaces accommodating various tasks, and the integration of technology to streamline operations. Emphasis on employee

well-being is evident through ergonomic furniture, natural lighting, and wellness amenities, creating a holistic workspace that supports both physical and mental health. This transformation reflects a shift towards adaptable, inclusive, and technologically integrated work environments that prioritize the diverse needs of the modern workforce. The seamless flow of information between different workstations in the modern office facilitates vital operations such as planning, procurement, production, distribution, and returns management across the supply chain (Lee & Hidayat, 2018). As societal demands continue to evolve, organizations must adopt innovative approaches to remain competitive.

In this context, creativity becomes a driving force that fuels motivation, fosters innovation, and supports continuous organizational development (Nonaka & Toyama, 2015). Juliana et al. (2021) defined creativity as the ability to generate ideas that can be harnessed within an innovation process, where such ideas are selected, organized, reshaped, and integrated to produce novel or improved outcomes. In the context of a modern office, which is designed to support collaboration, flexibility, and the integration of digital tools, such an environment becomes a catalyst for creative thinking and structured innovation, allowing organizations to evolve effectively in response to contemporary challenges. Sopianingsih and Lukman (2021) defined crealtivity as a thinking activity that includes generating new ideas, and elaborating, analyzing and evaluating personal ideas to improve and maximize creative endeavours.

Creativity within modern office environments is a vital driver of innovation and business growth (Arhueremu & Udeh, 2023). It encompasses the generation of new ideas, approaches, and solutions, often facilitated by the integration of diverse perspectives and the application of advanced digital competencies. In Delta State, creativity is increasingly associated with the adoption of digital skills such as computer animation, mobile application development, and online content creation. Despite this trend, research indicates that these creative digital competencies are not yet widely incorporated into the curriculum or practice of Office Technology and Management (OTM) educators and students, thereby constraining the creative potential in contemporary workplaces (Arhueremu & Udeh, 2023).

Similarly, cultural exchange in modern offices which is the interaction and integration of ideas, customs, and values among individuals from diverse backgrounds serves as a powerful mechanism for fostering innovation (Agbai & Oko-Jaja, 2024). Leung et al. (2020) noted that such exchanges promote empathy, mutual understanding, and respect, which in turn support creative collaboration. Chukwu et al. (2023) suggested that culturally diverse teams tend to outperform homogenous ones in creative tasks, owing to their broad array of perspectives and problem-solving strategies (Liu et al., 2023). However, challenges such as limited technological infrastructure, inadequate digital skills, and resistance to change can impede the effective integration of creativity and cultural exchange in the workplace. Technology serves as a catalyst in overcoming these challenges by providing platforms for collaboration, knowledge sharing, and cultural preservation

Technology in modern office settings encompasses a broad spectrum of tools and systems designed to enhance productivity, communication, and collaboration. According to Olisaemeka (2022), office information technology involves the use of computer systems, software, and networks for processing and distributing data, thereby facilitating efficient organizational operations. Onu and Amadi (2020) further emphasize that technology enables organizations to manage operations efficiently and create competitive advantages. Digital technologies, including electronic devices, systems, and resources that generate, process, and store data, have become integral in reshaping the roles of office managers and the overall office environment (Johnstone et al., 2024). These technologies range from traditional computing equipment to modern innovations like artificial intelligence (AI), virtual collaboration tools, and the Internet of Things (IoT). Technology serves as a significant enabler of creativity within modern office environments. Wang et al. (2025) found that employees' perceptions of the usefulness of digital work tools positively influence their creative performance. The study highlights that when employees find digital tools beneficial, they are more likely to engage in creative tasks and generate innovative ideas.

Furthermore, the integration of generative AI tools has been shown to enhance creativity by providing new ideas and perspectives. Doshi and Hauser (2023) conducted an experimental study demonstrating that access to generative AI platforms led to the production of more creative and enjoyable content by writers, particularly among those with initially lower creativity levels. However, the study also cautions that over-reliance on AI-generated ideas may reduce the diversity of novel content. The design of the physical office space, influenced by technological advancements, also plays a crucial role in fostering creativity. Lucius (2024) emphasized that modern office designs incorporating collaborative spaces and technological tools can enhance knowledge exchange and spur creative thinking among employees.

Technology significantly contributes to cultural exchange within modern office settings by enabling communication and collaboration among diverse teams. Alsaleh (2024) reported that technology acts as a catalyst for cultural exchange, innovation, and adaptation, enabling unprecedented global communication and the exchange of ideas. In the context of language education, Selfa-Sastre et al (2022) suggested that digital tools can foster intercultural understanding and collaboration, which are essential components of cultural exchange in diverse work environments. Moreover, the use of virtual and augmented reality technologies in the workplace has been identified as a means to reshape work environments and enhance collaboration. Trindade et al. (2023) stated that technology has the potential to facilitate immersive experiences and collaborative interactions among employees from different cultural backgrounds. However, these views have not been empirically proven to be the case in Delta State. It is against this background that the researchers sought to determine how modern technologies are utilized to enhance creativity and promote cultural exchange in modern offices in Delta State.

In the rapidly evolving digital age, technology has become an indispensable component of modern office environments, with the potential to significantly enhance both creativity and cultural exchange. In Delta State, organizations are increasingly adopting digital tools to improve operational efficiency. However, the extent to which these technologies are being leveraged to foster creativity and promote meaningful cultural interactions remains uncertain. Despite the availability of advanced technological gadgets like virtual collaboration platforms, artificial intelligence, and digital content creation software, some offices still operate with limited integration of these technologies into daily workflows, particularly in ways that stimulate innovative thinking and cross-cultural engagement.

Field observation by the researchers suggests that a significant number of Office Technology and Management (OTM) educators and professionals in Delta State have not yet fully embraced or integrated essential digital competencies (e.g. mobile app development, animation, online collaboration) into their practices. This gap not only limits the creative potential of the workforce but also hinders the development of inclusive work environments where diverse cultural perspectives can thrive. As organizations increasingly rely on technology-mediated interactions, there is a critical need to understand how these tools can be strategically used to promote innovation and intercultural collaboration in office settings. It is against this background that the study sought to examine the extent to which technology is being utilized to foster creativity and cultural exchange in modern offices in Delta State. Specifically, the study sought to find out the extent technology has influenced employee creativity and facilitated cultural exchange in modern offices in Delta State. Two Null hypotheses were tested at 0.05 level of significance: **H_{o1} -** There is no significant relationship between the use of technology and employee creativity in modern offices in Delta State; **H_{o2} -** There is no significant relationship between the use of technology and cultural exchange among employees in modern offices in Delta State.

Literature Review

Olisaemeka (2022), in a study titled *Office Information Technologies and Performance of Tertiary Institutions in Southeast Nigeria*, employed a survey design with staff of selected tertiary institutions as the population. Using stratified sampling and a questionnaire as the instrument, data were analysed with regression, and the findings revealed that office technologies enhanced institutional efficiency and outcomes. Similarly, Onu and Amadi (2020) adopted a descriptive survey of administrative staff in tertiary institutions in Southeast Nigeria. They report that information technologies improved efficiency and competitiveness, creating an environment supportive of creativity. Johnstone, et al. (2024) applied a qualitative case study to office managers in some selected tertiary institutions in Lagos State Nigeria, using interviews and thematic analysis. They report that digital devices, artificial intelligence, and the Internet of Things (IoT) have redefined office workflows and enhanced creativity.

Wang, et al. (2025), in a quantitative survey, investigated employees in digital work settings and found a significant correlation between perceived usefulness of digital tools and creativity. In an experimental study by Doshi and Hauser (2023), they demonstrate that generative AI improved

originality among less creative employees but reduced diversity of creative outcomes. In a study that focused on conceptual and case analyses, Lucius (2024) highlights that workplace design integrating technological tools and collaborative spaces promotes creativity and knowledge sharing. Alsaleh (2024), using secondary data analysis, observes that digital technologies foster intercultural communication and adaptation, thereby supporting cultural exchange. Selfa-Sastre et al. (2022) adopted a mixed-methods design among language education students, employing questionnaires and interviews, and reported that digital technologies promote collaborative creativity and intercultural collaboration. Similarly, Trindade et al. (2023), using a qualitative exploratory design with purposively selected employees, found that virtual and augmented reality facilitate shared experiences and cultural exchange in the workplace.

The reviewed studies reported the role of technology in fostering creativity and cultural exchange. However, most prior works either examined technology and creativity or technology and cultural exchange separately. Few studies have integrated both dimensions in the same context. Moreover, while while the reviewed studies have been centred on Southeast Nigeria, Lagos State, and other international settings, the present study focuses on fostering of creativity and cultural exchange in modern offices in Delta State through technology.

Methodology

The study employed the descriptive survey research design. The population for the study comprised 139 lecturers in Office Technology and Management and Business Education departments in tertiary institutions in Delta State. Owing to the relatively small and manageable size of the population, no sampling method was applied; thus, the entire population of 139 lecturers was used as respondents. Data for the study were obtained using a structured questionnaire organized into two clusters with Cluster A consisting of ten items that examined the extent to which the use of technology influences employee creativity in modern offices, while Cluster B contains ten items that assessed how the use of technology facilitates cultural exchange among employees. The instrument followed a four-point Likert scale, with response options ranging from Very High Extent (4), High Extent (3), Low Extent (2) and Very Low Extent (1). This instrument was validated by three experts—two from the School of Secondary Education (Business) and one from the Department of Measurement and Evaluation; all from Federal College of Education (Technical), Asaba. These experts were tasked with reviewing the questionnaire items for clarity, relevance and alignment with the research objectives. Based on their recommendations, necessary revisions were made to arrive at the final version of the instrument.

To establish the reliability of the instrument, the researchers applied the test-retest method. The questionnaire was administered twice to 20 Business Education lecturers at the Federal College of Education (Technical), Umunze, Anambra State; who were not included in the main study. The reliability analysis yielded coefficient values of 0.84 for Cluster A and 0.88 for Cluster B, resulting in an overall reliability coefficient of 0.86 for the LTCCEQ. The researchers personally

distributed the questionnaire copies to the respondents. Of the 139 copies administered, 104 were duly completed and returned in usable condition. Once retrieved, the data were analyzed using mean and standard deviation. A mean benchmark of 2.50 was adopted as the threshold for interpretation. Accordingly, any item with a mean score of 2.50 or above was interpreted as indicating a high extent, whereas any item with a mean score below 2.50 was regarded as reflecting a low extent. The null hypotheses formulated for the study were tested using the one-sample t-test. The one-sample t-test was employed in this study to determine whether the mean responses of the Office Technology and Management (Business Education) lecturers significantly differed from a predetermined benchmark value. The benchmark mean of 2.50 was chosen because it represents the midpoint on the four-point Likert scale used in the questionnaire, which indicates the threshold between low and high extent of agreement. Specifically, the test was used to assess whether the observed mean ratings for each cluster (creativity and cultural exchange) were significantly higher or lower than the neutral benchmark of 2.50. This allowed the researchers to make statistical inferences about whether the respondents, on average, perceived that technology was being used to a high or low extent to foster creativity and cultural exchange in modern offices. The decision to retain or reject each null hypothesis was based on the comparison of the calculated t-value and the critical value at the 0.05 level of significance. If the calculated t-value exceeded the critical value, the null hypothesis was rejected; otherwise, it was retained.

Results

Research Question 1

To what extent does the use of technology influence employee creativity in modern offices in Delta State?

Table 1: Respondents Mean Ratings on the Extent Technology use Influences Creativity in Modern Offices in Delta State (N= 104)

S/N	Item Statements	Mean	SD	Remark
1	Technology tools help employees generate new ideas.	3.40	0.71	High Extent
2	Use of digital platforms enhances idea sharing	3.35	0.76	High Extent
3	Access to online resources supports creative thinking	3.50	0.68	High Extent
4	Technology enables creative content development (e.g., graphics, animations)	3.29	0.82	High Extent
5	Employees use software to test new concepts	3.41	0.74	High Extent
6	Mobile apps encourage flexible work styles	3.21	0.79	High Extent
7	Automation of tasks allows staff to focus on creative problem-solving	3.32	0.77	High Extent
8	The office environment supports innovation through digital infrastructure	3.15	0.84	High Extent
9	Staff are encouraged to use emerging technologies to enhance creative output	3.09	0.86	High Extent

10	Use of technology in training boosts employees' creative capacity	3.34	0.72	High Extent
	Cluster Mean	**3.31**		**High Extent**

Data in Table 1 show that the respondents rated items 1- 10 as the extent technology use influences employee creativity in modern offices in Delta State with mean ratings ranging between 3.09 and 3.50. The standard deviation scores ranging between 0.68 and 0.86 indicate that the respondents' opinions were close. The cluster mean of 3.32 showed that technology use influences employee creativity in modern offices in Delta State to a high extent.

Research Question 2

To what extent does the use of technology facilitate cultural exchange among employees in modern offices in Delta State?

Table 2: Respondents' Mean Ratings on the Extent Technology Use Facilitates Cultural Exchange Among Employees in Modern Offices in Delta State (N = 104)

S/N	Item Statements	Mean	SD	Remark
11	Technology platforms (e.g., video conferencing) enable employees from diverse backgrounds to communicate effectively	3.11	0.67	High Extent
12	Digital communication tools foster better understanding of different cultures	3.39	0.74	High Extent
13	Social media and intranet platforms promote sharing of cultural experiences	3.20	0.79	High Extent
14	Technology allows for real-time translation and language support in the workplace	3.37	0.85	High Extent
15	Virtual team collaboration increases awareness of cultural diversity	3.13	0.73	High Extent
16	Online cultural training modules enhance intercultural competence	3.21	0.81	High Extent
17	Use of technology encourages respect and empathy among culturally diverse staff	3.37	0.69	High Extent
18	Digital forums and chat groups facilitate cultural exchange and dialogue	3.29	0.78	High Extent
19	Technology reduces cultural barriers by connecting employees regardless of location	3.34	0.75	High Extent
20	Access to global content broadens employees' cultural perspectives	3.18	0.80	High Extent
kk	**Cluster Mean**	**3.26**		**High Extent**

Data in Table 2 show that the respondents rated items 11- 20 as the extent the use of technology facilitate cultural exchange among employees in modern offices in Delta State with mean ratings

ranging between 3.11 and 3.37. The standard deviation scores ranging between 0.67 and 0.85 indicate that the respondents' opinions were close. The cluster mean of 3.26 showed that the use of technology facilitates cultural exchange among employees in modern offices in Delta State to a high extent.

H_{01}: There is no significant relationship between the use of technology and employee creativity in modern offices in Delta State.

Table 3: Summary of One-Sample t-Test of Significance on the Extent Technology Use Influences Employee Creativity in Modern Offices in Delta State

Variable	N	Mean	SD	Test Value (μ_0)	T	df	p-value	Decision
Technology Use and Creativity	104	3.31	0.74	2.50	14.78	103	<0.001	Reject H_{01}

Data in Table 3 indicates that the calculated t-value (14.78) is greater than the critical value at the 0.05 significance level, and the p-value is less than 0.001, indicating a statistically significant difference between the observed mean and the benchmark mean of 2.50. Therefore, the null hypothesis that there is no significant relationship between technology use and employee creativity is rejected. This suggests that technology use has a significant positive influence on employee creativity in modern offices in Delta State.

H_{02}: There is no significant relationship between the use of technology and cultural exchange among employees in modern offices in Delta State.

Table 4: Summary of One-Sample t-Test of Significance on the Extent Technology Use influences Cultural Exchange among Employees in Modern Office in Delta State

Variable	N	Mean	SD	Test Value (μ_0)	T	df	p-value	Decision
Technology Use and Cultural Exchange	104	3.26	0.75	2.50	13.62	103	<0.001	Reject H_{02}

Data in Table 4 show that the calculated t-value (13.62) is greater than the critical value at the 0.05 significance level, and the p-value is less than 0.001, the null hypothesis that there is no significant relationship between technology use and cultural exchange among employees is rejected. This indicates that technology use significantly promotes cultural exchange in modern offices in Delta State.

Discussion of Findings

The findings of the study revealed that technology use influences employee creativity in modern offices in Delta State to a high extent. This indicates that employees perceive modern technological tools as important facilitators of creative processes within the workplace. A possible reason for this finding is the growing availability and adoption of advanced digital tools such as computers, software applications, AI platforms, and virtual collaboration systems which provide employees with the resources and flexibility needed to generate new ideas and solve problems innovatively. This finding is in line with Olisaemeka (2022) who noted that office information technology involving computer systems and software enhances organizational operations and supports creative outcomes. Similarly, Onu and Amadi (2020) emphasized that technology enables organizations to improve efficiency and competitiveness, indirectly fostering an environment conducive to creativity. Johnstone et al. (2024) also observed that digital devices and innovations such as AI and IoT have redefined office environments, enabling more dynamic and creative workflows.

The study further revealed that technology use has a significant positive influence on employee creativity in modern offices in Delta State, as confirmed by hypothesis testing. This result supports Wang et al.'s (2025) findings that employees' perceptions of digital tool usefulness positively correlate with their creative performance. In addition, Doshi and Hauser (2023) demonstrated experimentally that access to generative AI platforms increased the originality and enjoyment of creative content, especially among employees with initially lower creativity levels. However, Doshi and Hauser caution that over-reliance on AI might limit diversity in creative outputs. Moreover, the influence of technology on creativity is enhanced by the physical office design, as Lucius (2024) argued that modern office layouts integrating technological tools and collaborative spaces promote knowledge exchange and stimulate creativity among employees. The findings of this study, therefore, agree with existing literature indicating that the strategic use of technology is crucial for fostering creativity in contemporary office settings.

The findings of the study revealed that the use of technology facilitates cultural exchange among employees in modern offices in Delta State to a high extent. This suggests that employees recognize technology as an effective tool for promoting communication and collaboration across diverse cultural backgrounds within the workplace. One possible reason for this finding is that technological tools, such as video conferencing, instant messaging, and collaborative platforms, help bridge geographical and cultural gaps, making it easier for employees to share ideas, customs, and work practices despite physical distances. This finding is consistent with Alsaleh (2024) who reported that technology serves as a catalyst for cultural exchange, innovation, and adaptation by enabling unprecedented global communication and the sharing of ideas. Similarly, Selfa-Sastre et al. (2022) emphasized that digital tools foster intercultural understanding and collaboration, which are essential elements of cultural exchange in diverse work environments. The incorporation of virtual and augmented reality technologies in office settings further

supports this view. Trindade et al. (2023) noted that such immersive technologies facilitate collaborative interactions and create shared experiences that promote cultural exchange among employees from different backgrounds.

The study also revealed that technology use significantly promotes cultural exchange in modern offices in Delta State. This significant relationship confirms that technological adoption is not only widespread but impactful in fostering intercultural dialogue and inclusiveness within the workplace. This finding is in agreement with Alsaleh's (2024) who reported how digital communication tools break down cultural barriers, while Selfa-Sastre et al. (2022) and Trindade et al. (2023) provided evidence of specific technologies enhancing intercultural collaboration. The results emphasize the need for organizations to leverage modern technologies actively to nurture a culturally inclusive and innovative office culture in Delta State.

Conclusion

Based on the findings of this study, the researchers concluded that the use of technology significantly promotes employee creativity and facilitates cultural exchange in modern offices in Delta State. These findings are consistent with the hypotheses tested, which showed that technology positively influences creativity and cultural exchange among employees. The study highlights the essential role of technology in enhancing innovative thinking and intercultural communication within diverse work environments. It demonstrates that effective utilization of technological tools fosters a creative and inclusive workplace culture. The study suggests that organizations and policymakers should prioritize the adoption and integration of technology to harness creativity and cultural exchange in modern office settings.

Recommendations

Based on the findings of this study, the researchers proffer the following recommendations:

1. Managers of organizations should invest in cutting-edge digital tools and platforms that stimulate employee creativity and enable cultural exchange among diverse teams.
2. Head of human resource departments should ensure that training initiatives should be implemented to improve employees' digital literacy and intercultural communication skills to optimize technology's potential in driving creativity and cultural integration.
3. Management should encourage a work culture that supports the innovative use of technology for idea generation and the sharing of cultural perspectives.
4. Administrators of tertiary institutions should incorporate technology-driven learning and collaborative tools in Office Technology and Management programmes to prepare graduates for creative and culturally diverse workplaces.

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