

## TELECONFERENCING AND PERFORMANCE OF ACADEMIC STAFF OF UNIVERSITIES IN SOUTH-SOUTH NIGERIA

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### Abstract

*This study examined the relationship between teleconferencing and performance of academic staff of universities in South-South region of Nigeria. The multi-stage sampling technique was employed in selecting the samples. The universities were the primary units with a population size of eighteen (18) universities, while the academic staff of the universities consist the secondary units ( $M_i$ ) which vary from institution to institution, with a population of 12,158. The Cochran's sample size determination method was used to select a sample size  $m = 384$ . The 384 academic staff was then proportionally allocated to the 18 universities using Bourley proportion allocation technique. The data for the study was collected via the quantitative method, using the questionnaire. The questionnaire was designed using google forms and distributed online (social media). The Median and the spearman's correlation technique as nonparametric methods were used since the data generated failed to meet the assumption of normality. Results showed that there is a moderate positive relationship between teleconferencing and the innovative research output of academic staff of universities in South-South Nigeria, and it was recommended that improved innovative research output of university authorities should provide subsidized internet data bundle for staff and make policies that will favour the implementation of teleconferencing.*

**Key Words:** Academic Staff; Teleconferencing; Universities.

### Introduction

A teleconference is a live audio or audiovisual meeting with two or more persons participating in a workshop, training etc. Teleconference enables remote teams in an organisation to collaborate and communicate at different locations at the same time, using a more sophisticated technology. Technology could be seen as the systematic study of techniques for making and doing things. It can also be viewed as the application of the arts, science, processes, ideas, tools and machines to solve human problems. In essence, it refers to ways people use inventions and discoveries to satisfy needs and desires. It includes the use of both sophisticated (highly advanced) and non-sophisticated (simple) tools and methods to work effectively. Although, in the past, service delivery in educational settings have been done through numerous means; from

verbal communication to prints and use of instructional materials like pictures and charts. As technology is creating changes in all aspects of our societal life, it is also changing our expectations of what students learn, how they learn it and where they will learn it to function in the new world order (Laleye, 2015; Schatzberg, 2018).

The collectivizes of the newly discovered inventions referred to as emerging technologies, and the major technologies that can be used for effective service delivery cum teaching are teleconferencing, the computer, artificial intelligence (AI), computer-assisted instruction, computer disc-read only memory (CD-ROM), dial access, educational television, educational satellite (EDUSAT), electronic mail (E-mail), tele-lecture, tele-tutorial, teleseminar, video, interactive video, video-tex, video-conferencing, digital resources, virtual university, the internet; and (20) interactive television (Hasan, 2021; Johnson, 2022; O'Brien, 2023; Ustun, 2019). Moreso, Adenegan and Abiodun (2018) put forward many web apps/mobile apps that enhance virtual meetings. They include, among others, Zoom, Google Hangout, Skype, Google Meet, GoTo Meeting, Bitrix24, Cisco WebEx, Blue Jeans, Blue Button, Slack, and Appear in, webinars, etc. Other popular chat apps include WhatsApp, telegram, ToGo, Facebook, Instagram, Twitter, etc. While the former has more advantages in virtual meetings, the latter has some limitations on virtual meetings when finitely large numbers are involved. On the Google play store, the relevant apps for IOS, MAC, and Androids are domiciled, where they can be readily downloaded.

Nevertheless, this study focuses on all main-stream teleconferencing services applications available, which include: zoom as a collaborative cloud-based videoconferencing service that offers various features including online meetings, and group messaging services; Microsoft Teams is a chat and collaboration platform for Microsoft Office 365 customers; Skype is an application suitable for video conferencing for small teams of up to 50 people including the host; FaceTime is a video-calling application designed by Apple for use on the iPhone, iPad, and Mac; Google Hangout supports chatting with up to 150 people, but video calls with only up to 10 participants; Google Duo is a video chat mobile application available on the Android and iOS operating systems. It is also available to use via Google's Chrome web browser; Houseparty is a social networking service that enables group video chatting through mobile and desktop applications and; others such as WhatsApp, Signal, FreeConference, Cisco Webex Meetings, GoToMeeting, CyberLink U Meeting, BlueJeans and Lifesize (Woubie, Zarazaga & Bäckström, 2020). In addition, the technological aspect of teleconference, according to Panagiotakopoulos, Tsiatsos, Lionarakis and Tzanakos (2013), posits that there are many solutions to support distance learning with the teleconference. And there are many criteria to categorize these solutions. Examples of such criteria are the following: the number of learners; the cost of equipment; the type of client and or the access point (e.g. mobile device; teleconference room; web page; personal computer, etc.); the type of hosting of the teleconference room (for example, leasing of a teleconference room in an external provider; installation of a teleconferencing platform in the premises of the educational organization, et cetera). It is as a result of the above observations in the literature that gave credence to need to carry out this study.

The main objective of this study is to determine the relationship that exists between teleconferencing and the performance of the academic staff of universities in South-South Nigeria. The study specifically seeks to examine the extent of the relationship that exists between teleconferencing and innovative research output of academic staff of universities in South-South Nigeria.

The hypothesis to be tested in this study:

H<sub>0</sub>: No positive relationship exists between teleconferencing and the innovative research output of academic staff of universities in South-South Nigeria.

## **Literature Review**

### **Teleconferencing**

Teleconferencing, which could also be referred to as videoconferencing or interactive television or computer conferencing is an emerging telecommunication system which permits group of people to communicate with one another through technology (Sprey, 2015). The influence of teleconference and telecommuting on communication efficiency lies in the fact that it makes communication more efficient and faster. Video and telephone communication can improve team collaboration efficiency and virtual reality teleconference (Madathil & Greenstein, 2017). Bojović, Bojović, Vujošević & Šuh, 2020), puts forward that rapid changes in technology have resulted in new approaches to education. These changes manifest in all facets of human endeavour. They have brought about new ways of doing old things in both the educational and economic life of society. Nigeria, one of the developing countries in the African continent is striving to measure up with her counterparts in the area of technology.

In every educational training, teaching-learning is inevitably involved in information passage from the teacher or trainer who serves as the sender to the learner or trainee who serves as the receiver. The quest for development now in Nigeria makes it imperative for trainers to shift from the existing method of teaching in schools to accommodate the use of technology. As put forward by (Correia, Liu & Xu, 2020; Panagiotakopoulos et al., 2013), there is also a focus on the specific decisions that an educational organization should undertake to reason about the required technological support of teleconferencing. These decisions are Teleconference scenario, Teleconference place, Offered functionality and compatibility with standards

### **Academic Staff (Employee) Performance**

Performance is the art to complete a task within the defined boundaries, and employees' performance is affected by numerous factors at the workplace. It is defined as the way to perform job tasks according to the prescribed job description (Saeed, Mussawar, Lodhi, Iqbal, Nayab & Yaseen, 2013). Abiante (2018), citing Motowidlo (2003), argued that employee performance is the behaviour that the organization expects of the employees when they are doing the job. Employees' performance is how the employees understand the task, their ability to do it and how much they exert effort to complete it (De-Clercq, Haq, & Azeem, 2019).

Farid and Taher (2021) defined employee performance as the attained outcome of actions with the skills of employees who perform in some situation. Employee performance is the actions or the completion of errands that were done by individuals within a specific period (Swasto 1996 cited in Khan, Rehman and Akram 2012). Mutua (2017) views employee performance as the work-related task that is expected of employees and how well the task was done. The performance can be measured monthly, quarterly, semi-annually or annually to be able to provide improvement of identified segments in the business. Employee performance evaluation is a comprehensive analysis of a worker's performance, by observing their work during a certain period and examining all the objective manuscripts or documents relevant to how they have performed, to establish the extent to which these workers achieve the stipulated goals (USAID, 2009). An increase in the commitment level of employees in an organization ultimately increases the performance of their employees (Odo, Nnamani & Okechuku, 2023).

Furthermore, an employee is a person who is hired for a wage, salary, fee or payment to perform work for an employer (Thorpe, Viney, Hensing & Lönnroth, 2020). Both private and public-sector organizations are established to achieve corporate goals using resources such as men, machines, materials and money. All these resources are important, but the most important among them are the employees. The role of employees on the job is vital for the growth of any organization. The performance of employees on different jobs through mutual effort is needed for the success of any unit/department. The nature of relationships that employees have with their supervisors or co-workers in the organization affects their commitment towards work and organizational performance either positively or negatively. Employees' commitment towards work and organizational performance affects negatively management policy in deciding work assignments and opportunities in the workplace without fairness among employees (Dajani, 2015). When some employees perceive that their boss uses favouritism to please one party against the other in the workplace, their morale towards work will be relatively low. The top manager is the most important enabler of the employee's commitment to their jobs and the organization (Biswas & Suar, 2016).

### **Innovative (Knowledge) Research Output**

The globe was not expecting this pandemic COVID-19 and it had impacted the social, economic, and health issues and many more that the world has never thought of. Now for the employees, working from home has become necessary and this necessity is causing several issues because of bringing the work from conventional office to home (Irawanto, 2020). This hard time has impacted the livelihood and economy of the world at its worst. Due to this pandemic, the digital transformation concept has been brought into focus. Digital transformation means doing things in different ways like mapping a new and creative business model which requires computer technologies and modern information. COVID-19 has affected the workforce at a variety of levels. They have found a drastic change in the work nature, its value, variety, velocity and volume. It is greater than implementing new and innovative technology. But a digitalized mindset of workforce adoption is required for it. Hence, new skills and techniques will be learned by the workforce (Savić, 2020).

Lastly, innovation has become essential for firms and businesses as they are being forced to change and innovate themselves due to this outbreak of COVID-19. There is no need for conventional offices but the virtual office is now requisite for people around the globe. And this is now a question of survival physically as well as financially. For the prevention of the virus and protection of the workers, all employers are instructed to discontinue their office activities and make the employees enable to work remotely by all the governments around the globe (Savić, 2020). In the beginning state, the government encouraged social distancing and advised organizations to let their employees telecommute voluntarily (Zelinsky, 2020).

### **Theoretical Framework**

The study is anchored on adaptive structural theory (AST) which proposes that structures and technology will differ from one organization to another. That is, technology's resources and rules differ on how individuals use them (Calloway, 1994). There is an interaction between the intended use of technology and the approach that individuals use technology. Teleworking provides a social structure that allows and constrains interactions. AST suggests that once technologies are used over time, the rules and resources for social interactions can change (Uchenna, Uruakpa & Uche, 2018).

As cited by Sumensil and Quiambao (2022), Torraco (2005) opined that teleworking might alter ancient work practices like a change from primarily face-to-face communication to electronic communication. AST is a viable approach for finding out the role of advancing information technologies in driving organizational change towards enhancing the telework process within higher learning institutions. The first strength of this theory is that it helps teams to be ready to facilitate differences, which will be live. It permits every group to accurately communicate the advantages in real-time and possible compromise or understanding will be reached. The AST theory additionally accounts for the structural potential that technology will offer. At constant times, it permits every level to know the impacts of technology, leading to precise communication (Calloway, 1994). It is also a theory that enables groups to ascertain how they organize themselves, providing the foundation for a particular outcome or an organizational change. AST allows the researcher to find out the role of advancing information technology in private higher learning institutions to enhance teleworking employee acceptance.

### **Empirical Review**

Panagiotakopoulos, Tsiatsos, Lionarakis, and Tzanakos (2013) carried out a study and recorded the views of educators that use teleconference as an educational medium to support distance learning. Data were collected using the semi-structured interview and the results showed that teleconferencing could be a strong complementary tool to support flexible learning as well as distance education, by enhancing the interaction among learners. All the interviewees considered teleconference as a "helpful assistant" in the educational process and suggested that the educators should be well prepared before the tele-lecture, as well as prepare and guide the learners to conduct a smooth teleconferencing session. From the interviews, several advantages and disadvantages



of the teleconference's use as an educational tool emerged. The main advantages consisted of the independence of space and time while conducting learning sessions, the easy access to and sharing of educational content, the interaction between educator and learners as well as among the learners and the reduced transportation, along with time-saving. On the other hand, some important disadvantages referred to the participants of being unfamiliar with technology, lack of technological support, limited network resources causing disconnections and adding stress to participants, the uncertainty of the participants regarding the effectiveness of teleconference in education and the lack of face-to-face communication.

Goebel, Manion, Millei, Read and Silova (2020) studied academic conferencing in the age of COVID-19 and climate crisis: The case of the Comparative and International Education Society (CIES). The study investigated the moving of the planned on-site conference to a virtual space, as necessitated by the COVID-19 pandemic. It found that the new virtual options should not be only a welcomed opportunity, but a necessary change. In a time of instability, insecurity and uncertainty, there is a need for viable alternatives to large in-person conferences held in expensive urban centres in large corporate hotel chains. Therefore, in a time of instability, insecurity and uncertainty, there is to create alternatives to large on-site conferences which require excessive and extensive academic mobility.

Aris, Rajah, Abdullah and Hamid (2019) in their research, attempted to investigate the effect of training and development on innovative work behaviour among public organization Managers: The mediating effect of intrapreneurial competencies in Malaysia. The study also investigated the position of training and development on employees' innovative work behaviour with intrapreneurial competencies mediating function Primary and secondary data sources were used: Direct surveys, posts and e-mail. Partial Least Squares (PLS) Regression was used. The study assisted intrapreneurial competencies position in fostering training and development (TD) and innovative work behaviour (IWB) jobs.

Lastly, Leovaridis and Popescu (2015) studied organizational innovation – A means to enhance the quality of life for employees in the knowledge economy in (Romania) Europe and worldwide. The objective was on the relationship between knowledge management and network innovation, with Face to face interviews and focus groups as methodology, and it was found that a knowledge-based economy imposes organizational innovations based on management style focused on the expert employees as an essential resource of the organization, as well as the use of quantitative analysis of the subject.

### **Methodology**

The descriptive research survey design was employed in this study in order to determine the relationship between the variables. The total population of the study comprises academic staff of eighteen (18) selected public and private universities in the South-South region of Nigeria with a total number of 12,158.

Table 1: Population of Academic Staff in Selected Public and Private Universities in South-South, Nigeria

S/N	Institutions	Year	State	Type	No. of Academic Staff	% to the Total
1.	University of Uyo	1991	Akwa-Ibom	Federal	1202	9.89
2.	University of Calabar	1975	Cross River	Federal	2293	18.86
3.	University of Benin	1970	Edo	Federal	1840	15.13
4.	University of Port Harcourt	1977	Rivers	Federal	1238	10.18
5.	Federal University, Otuoke	2011	Bayelsa	Federal	428	3.52
6.	Federal University of Petroleum Resources, Effurun	2007	Delta	Federal	189	1.55
7.	Niger University, Wilberforce Island, Amassoma	Delta 2000	Bayelsa	State	954	7.85
8.	Delta State University, Abraka	1992	Delta	State	645	5.31
9.	Akwa Ibom State University, Ikot Akpanden	2010	Akwa Ibom	State	488	4.01
10.	Cross River State University of Technology, Calabar	2004	Cross River	State	444	3.65
11.	Ambrose Alli University, Ekpoma	1980	Edo	State	534	4.39
12.	Rivers State University of Science and Technology, Port Harcourt	1977	Rivers	State	717	5.90
13.	Obong University, Obong Ntak	2007	Akwa-Ibom	Private	109	0.90
14.	Novene University, Ogume Kwale	2005	Delta	Private	179	1.47

15.	Igbinedion University, Okada, Benin City	1999	Edo	Private	451	3.71
16.	Benson Idahosa University, Benin City	2002	Edo	Private	193	1.59
17.	Rhema University Obeama Asa	2009	Rivers	Private	76	0.63
18.	Arthur Jarvis University, Akpoyubo	2016	Cross River	Private	178	1.46
<b>Total</b>					<b>12,158</b>	<b>100.00</b>

Source: *Nigerian University System Statistical Digest 2019*. Retrieved in November 2023

The sample size was statistically sampled from the population size of 12,158 academic staff selected for the Universities using Cochran (1963:75) developed the equation to yield a representative sample for the proportions. And this is the second stage sampling. The sample size of the study is determined thus:

$$n_0 = \frac{Z^2 pq}{(e)^2} \quad (1)$$

Where

- $n_0$  = Desired Sample size  
 $Z^2$  = the abscissa of the normal curve that cuts off an area  
 $e$  = desired level of precision  
 $p$  = the estimated proportion of an attribute that is present in the population.

This can be assumed as  $p=0.5$

$$q = 1 - p$$

the value of Z from the normal distribution table is 1.96, we assume p to be 0.5 and  $q = 1-0.5=0.5$ , and  $e = 0.05$

$$n_0 = \frac{1.96^2 (0.5)(0.5)}{(0.05)^2} = 384.16$$

$$n_0 = 384$$

Table 2: Sample Size of Academic Staff in Selected Public and Private Universities in South-South, Nigeria

S/N	Institutions	Year	State	Type	Sample Size	% to the Total
1.	University of Uyo	1991	Akwa-Ibom	Federal	38	9.90
2.	University of Calabar	1975	Cross River	Federal	72	18.75
3.	University of Benin	1970	Edo	Federal	58	15.10
4.	University of Port Harcourt	1977	Rivers	Federal	39	10.16
5.	Federal University, Otuoke	2011	Bayelsa	Federal	14	3.65



6.	Federal University of Petroleum Resources, Effurun	2007	Delta	Federal	6	1.56
7.	Niger University, Wilberforce Island, Amassoma	2000	Bayelsa	State	30	7.81
8.	Delta State University, Abraka	1992	Delta	State	21	5.47
9.	AkwaiBom University, IkotAkpenden	2010	AkwaiBom	State	15	3.91
10.	Cross River State University of Technology, Calabar	2004	Cross River	State	14	3.65
11.	Ambrose Alli University, Ekpoma	1980	Edo	State	17	4.43
12.	Rivers State University of Science and Technology, Port Harcourt	1977	Rivers	State	23	5.99
13.	Obong University, Obong Ntak	2007	Akwa-Ibom	Private	3	0.78
14.	Novene University, Ogume Kwale	2005	Delta	Private	6	1.56
15.	Igbinedion University, Okada, Benin City	1999	Edo	Private	14	3.65
16.	Benson Idahosa University, Benin City	2002	Edo	Private	6	1.56
17.	Rhema University Obeama Asa	2009	Rivers	Private	2	0.52
18.	Arthur Javis University, Akpoyubo	2016	Cross River	Private	6	1.56
<b>Total</b>					<b>384</b>	

Source: Field Survey (2023)

The method of data collection that the researcher employed in this research is the primary method which entails the use of questionnaire designed with google form and distributed online to respondents (academic staff) in their respective tertiary institutions. Respondents were restricted to choose from only predetermined answers. The questionnaire section was divided into two parts. Part A is based on the bio-data information of the respondents. Part B comprises questions relating to the dependent and independent variables and a response set of five-point Likert scales ranging from Strongly Agree (1), Agree (2), Disagree (3), Strongly Disagree (4) and Undecided (5). This kind of format is also known as the forced-response category as the respondents are forced to answer according to the structured pattern (Uzoagulu, 2008). One useful

advantage of this type is that of generating frequencies of response, thereby enhancing statistical analysis (Hair & Samuel, 2007).

A total of 384 copies of the questionnaire were distributed to selected academic staff in the selected universities in the sample. After the distribution, the completed copies of the questionnaire were collected to ensure that every item in the questionnaire is duly responded to. Owing to the ubiquitous use of ICT tools, the questionnaire was typed in Google form and distributed to respondents online.

The results of the analysis of data generated from the field exercise were presented for all purposes and understanding in tables, text and the discussions of the results. The results from the descriptive analysis of the biodata of the respondents were presented and the responses were analyzed based on the median response to each Likert item. The use of median is adequate since the data generating process is Likert and distribution-free or nonparametric

## Result and Discussion

Table 3: Results and Decisions from the Descriptive analysis of the Likert Items

S/No	Variables	N	Median	SD	Decision
<b>A.</b>	<b>Use of Teleconferencing</b>				
<b>1</b>	My work can be broken down and can be shared among different team members	<b>384</b>	<b>2</b>	<b>0.841</b>	<b>Agree</b>
<b>2</b>	The university allows academic staff to share part of the whole job including workloads and assigned duties	<b>384</b>	<b>2</b>	<b>0.778</b>	<b>Agree</b>
<b>3</b>	I can share part of my task and duties effectively	<b>384</b>	<b>2</b>	<b>0.885</b>	<b>Agree</b>
<b>4</b>	The use of teleconferencing tools has improved my academic achievement in teaching	<b>384</b>	<b>2</b>	<b>1.147</b>	<b>Agree</b>
<b>5</b>	The use of teleconferencing tools has improved my academic achievement in research and publication	<b>384</b>	<b>2</b>	<b>0.905</b>	<b>Agree</b>
<b>6</b>	Teleconferencing usage has increased my interaction with my student's research work.	<b>384</b>	<b>2</b>	<b>0.956</b>	<b>Agree</b>
<b>7</b>	Communication with colleagues and students has been without barriers due to teleconferencing	<b>384</b>	<b>2</b>	<b>1.145</b>	<b>Agree</b>
<b>8</b>	Academic meetings, seminars and conferences are held now without time and space bound	<b>384</b>	<b>2</b>	<b>0.976</b>	<b>Agree</b>
<b>9</b>	It has greatly reduced travelling risks	<b>384</b>	<b>1</b>	<b>1.071</b>	<b>Strongly Agree</b>

10	On-time delivery/mailing of academic papers which has led to increased output.	384	2	1.070	Agree
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	ACADEMIC STAFF PERFORMANCE				
<b>B.</b>	<b>Innovative Research Output</b>				
11	I have access to online teaching and research materials	384	2	0.999	Agree
12	Quality and timely production and publication of research papers	384	2	1.008	Agree
13	Fast and reliable data analytics tools	384	2	1.265	Agree
14	Accurate and efficient experimentation and data collection	384	2	0.922	Agree
15	Ability to design surveys and research paths	384	2	0.964	Agree

The Median as a nonparametric descriptive measure was used to compute the average response of the responses elicited for each Likert item used to evaluate each of the construct.

The results showed that the average response for each of the construct is AGREE. The implication here is that there is a positive relationship between the dependent variables and the corresponding independent variables used in this study. However, the positive relationships are not perfect or very high and this is due to the level of agreement obtained in the results in the study.

### Test of Hypotheses

H<sub>0</sub>: There is no positive relationship existing between teleconferencing and the innovative research output of academic staff of universities in South-South Nigeria.

Table 4: Correlations

			Use_of_Teleconferencing	Innovative_Research_Output
Spearman's rho	Use_of_Teleconferencing	Correlation Coefficient	1	
		Sig. (2-tailed)	.	
		N	384	
	Innovative_Research_Output	Correlation Coefficient	.500**	1
		Sig. (2-tailed)	<.001	.
		N	384	384

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS 29 Output, 2023

The results in the table above showed a correlation value of 0.500 and this implies that there is a moderate positive relationship between teleconferencing and the innovative research output of academic staff of universities in South-South Nigeria. From the above, since the computed p-value (0.001) is less than the critical p-value (0.05), hence there is enough to reject the null hypothesis in favour of the alternative hypothesis.

The findings that emerged from this paper is that there is a moderate positive relationship between teleconferencing and the innovative research output of academic staff of universities in South-South Nigeria.

Online lectures are delivered at convenience, virtual conference and workshops are attended, conferences and journal papers are presented and sent at convenience, students' academic works are reviewed and assessed and graded with ease, mails are sent and received and the tasks are carried out, and communication flow is enhanced.

### **Conclusion and Recommendations**

The objective of this paper was to determine the degree of relationship that exists between teleconferencing and the performance of the academic staff of universities in South-South Nigeria. With the data generation process for the quantitative data, satisfying the conditions for use of the statistical techniques employed, and the statistical technique applied, the objective of this study was therefore achieved. The result of this paper has added to the body of existing knowledge on teleconferencing, though the existing knowledge were not from tertiary institutions and it brings out the novelty of this study being the first to be applied in studying the relationship between teleconferencing and the performance of academic staff in the universities in the south-south, Nigeria. Lastly, the paper also shows that there is a moderate positive relationship between teleconferencing and the innovative research output of academic staff of universities in South-South Nigeria.

Based on the findings of this paper, it is recommended that an improvement in the provision of network facilities in tertiary institutions and subsidizing of network facilities for lecturers (staff) and students should be advocated. Also, for improved innovative research out, university authorities should provide subsidized internet data bundle for staff and make policies that will favour the implementation of teleconferencing and telework in general.

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