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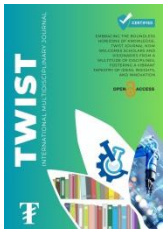

Awareness and Utilization of Zoom Video Conferencing App among Agricultural Development Programme Staff in Imo State, Nigeria

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Abstract
The COVID-19 pandemic caused significant disruption globally, which was further aggravated by its contagious nature. This called for the adoption of novel strategies to guarantee the continuous sharing of knowledge, collaboration and coordination. Thus, the Zoom video conferencing app became an essential tool in this situation, enabling knowledge sharing and remote contact. The aim of this study is to assess the knowledge and use of the Zoom video conferencing app by Staff of Imo State Agricultural Development Programme (ADP). The sample was selected using random sampling, and descriptive statistics were used for analyzing the data. Findings reveal that approximately 73% of ADP Staff are aware of Zoom video conferencing application, with a notable understanding of its functionalities. However, utilization remains relatively low, which is largely attributed to challenges such as limited access due to high cost of data subscription and internet connectivity issues. The study underscores the importance of encouraging Zoom video conferencing application adoption among ADP Staff to streamline communication and reduce travel-related stress. Recommendations include providing organizational WiFi in offices to enhance accessibility and promoting training initiatives to optimize utilization. By embracing Zoom technology, ADP Staff can enhance their effectiveness in disseminating agricultural information, thereby contributing to food security and sustainable development efforts in Imo State.

Keywords
Covid-19, ICT, Zoom video conferencing application, Agricultural Development Programme, Agricultural information

INTRODUCTION

The transformative potential of information and communication technology (ICT) once again garnered the attention of governments and development experts in Africa especially in the wake of the COVID-19 pandemic. Amidst the many challenges and valuable lessons gained from the COVID-19 pandemic, there's a growing appreciation for the pivotal role of Information and Communication Technology (ICT) in promoting innovation and driving sustainable development. This recognition was underscored by the emergence and widespread adoption of technologies such as Zoom video conferencing during and after the pandemic. Researchers like Mofakhami (2021) and Dhaoui (2021) have highlighted how ubiquitously ICT shapes contemporary economies and societies.

The profound impact of COVID-19 has served as a catalyst for reevaluating the importance of ICT in our interconnected world. As people throughout the world grappled with the challenges posed by COVID-19 pandemic, Zoom video conferencing technology took centre stage and emerged as an essential tool of communication and information distribution, thus facilitating effective teamwork, coordination and communication in in an era of social distancing and general restrictions on movement.

Throughout Africa and beyond, organizations, firms, and schools quickly transitioned to remote operations, relying on Zoom and other similar platforms to provide continuity in the face of tremendous disruption.

Thus, Zoom video conferencing is a prime illustration of the value of ICT, which extends well beyond its immediate application in pandemic management. It demonstrates how technology has the ability to democratize access to opportunities and information by overcoming regional restrictions.

One of the remarkable advantages offered by the Zoom application is its accessibility. Not only is it freely available, but it also transcends geographical boundaries, enabling individuals to connect and collaborate from anywhere in the world, at any time, without the need for face-to-face interaction. Unlike traditional video conferencing services, Zoom can be accessed using web browsers, which makes it easy to be accessed by all in need of remote interaction. This versatility empowers users to engage in direct, real-time communication through video conferencing, facilitating seamless interaction and fostering meaningful connections. This was particularly relevant in rural areas with limited internet bandwidth and access to sophisticated technology (Adugna & Elias, 2021; Ganesha, Nandiyanto, and Razon 2021).

Another noteworthy advantage of Zoom lies in its technological capabilities, which effectively bridge spatial and temporal constraints, as articulated by Bawanti and Arifani (2021). This flexibility not only accommodates diverse learning styles and preferences but also facilitates asynchronous learning, allowing individuals to engage with content at their own pace and convenience.

Zoom has been extensively utilized for research purposes, as highlighted by Lobe, Morgan, and Hoffman (2020). They emphasize its support for real-time audio and full-motion video. Participants can easily access Zoom either through a downloadable version or a web-based interface. The host retains control over features such as audio/video recordings and content sharing among participants.

The utilization of e-extension platforms has garnered widespread recognition for the delivery of Extension Advisory Services (EAS) in many regions. This platform leverages contemporary Information and Communication Technologies (ICTs), encompassing a range of tools such as mobile and computer/internet technologies. These tools offer diverse applications including social media, videos, e-mail, and other audiovisual aids (Ifejika et al., 2019;Lubell & McRoberts, 2018).

The Agricultural Development Programme (ADP) in Imo State, Nigeria, uses the Training and Visit extension strategy to provide farmers with important information. Nevertheless, this approach turns out to be expensive and time-consuming. The advent of Zoom technology has revolutionized this process, offering an efficient alternative. Through Zoom, farmers can now be reached without the need for physical visits or demonstrations by ADP staff. This innovative approach leverages electronic devices such as mobile phones and computers, significantly enhancing accessibility and effectiveness in agricultural communication and training

Against this backdrop, the study aimed to address the knowledge gap in this area. The overarching objective of the study was to investigate the awareness and utilization of Zoom technology among Agricultural Development Programme staff in Imo State. The specific objectives included:

i) assessing the awareness of Zoom technology among ADP staff in Imo State;
ii) determining the extent of Zoom technology utilization among ADP staff in Imo State;
iii) evaluating ADP staff's understanding of Zoom technology in Imo State; and
iv) identifying the constraints to awareness and utilization of Zoom technology among ADP staff in Imo State.

RESEARCH METHODOLOGY

The study was conducted in Imo State, Nigeria. The State lies between Latitude 5°45 and 6°35[1] N of the equator and Longitude 6°35[1] and 7°28[1] E of the Greenwich meridian (Chineke *et al*., 2011).Imo State has Agricultural Development Programme outfit that is responsible for extension services.

The population for the study consisted of the entire Agricultural Development Programme staff in Imo State. Multi-stage sampling procedure was adopted. The first stage adopted censored selection of the three (3) agricultural zones in Imo State due to the presence of ADP branch in each of these zones. The second stage centered on the selection of ADP staff from the list of Agricultural Development Programme staff provided by the programme manager. The final stage adopted random selection of 20 Agricultural Development Programme staff from the list of ADP staff provided by the branch programme manager of the three (3) zones making a sample size of 60 ADP staff.

Data for this study were collected from primary sources through the use of structured questionnaire and supplemented with oral interview regarding the objectives of the study. Data collected were analyzed using descriptive statistical tools involving frequency distribution, percentages and mean score to analyse data. Objective i and iv were realized using descriptive statistics such as frequency, percentage and mean.

Objective iii was realized using mean score analysis which was achieved through a 4-point likert type scale of never utilize (1) rarely utilize (2) sometime utilize (3) always utilize (4). The value of the likert type scale rating was summed and then divided by the number of scales to obtain the discriminating index (4+3+2+1 = 10/4 + 2.5), thus, any statement with a mean score of greater than or equal to (≥) 2.5 was regarded as high utilization while mean score less than (<) 2.5 was regarded as low utilization.

Objective ii was realized using knowledge test questions obtained from literature on zoom technology and achieved through Yes and No responses. For each correct question answered was 1(Yes) while otherwise 0(No).It was further realized using frequency and percentage. The decision rule was stated as scores equal to 50% and above was regarded as having good understanding of zoom technology and below as having poor understanding

RESULTS AND DISCUSSION

Awareness of Zoom Technology among ADP Staff

The result of the ADP staffs' distribution based on their Awareness of the zoom technology is shown in figure 1. It reveals that majority of the respondents (73.3%) were aware of the zoom technology in the study area while only about 26.6% were not aware of it. The finding of this study shows that most of the respondents were aware of the zoom technology. This could have been as a result of its availability and their knowledge about them as Zoom is one of the most popular video-chatting apps around today (William, 2020). The finding supports the claim that gaining knowledge from information and making decisions based on that understanding is the most successful method (Armstrong et al., 2011). In fact, Muvezwa (2006) proposed that, after land, money, labor, and management, information is now the fifth element of production.

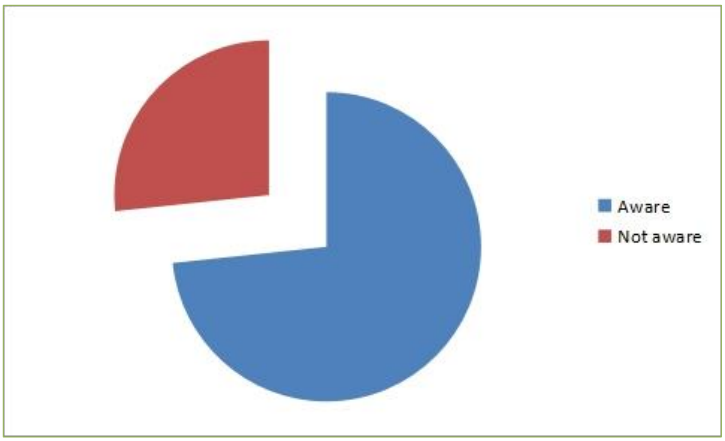

Fig. 1 Awareness of Zoom Technology among ADP Staff (***Source***: Field survey)

Understanding of Zoom Technology

The result of the distribution of the ADP staff according to their understanding of the zoom technology is displayed in Table 1 The Table reveals that the respondents have an understanding that zoom technology entails the following; connecting to the internet for zoom meeting (60%), buying data while online for zoom meeting (50%), launching zoom meeting for virtual presence (50%), raising hands to indicate when one wants to ask questions (60%), sharing zoom meeting when online for others to join (46.7%), creating zoom link for any meeting to be hosted (46.7%), presenting slides/PowerPoint through zoom meeting (53.3%), making use of headphones to speak during zoom meeting to colleagues (50%), making use of camera to show virtual presence during meeting (50%).

The table shows that majority (60%) has the opinion of connecting to the internet for zoom meeting and raising hands to indicate when to ask questions, followed by PowerPoint presentation amongst others. This implies that the respondents have good understanding of the zoom technology which will improve their utilization of it. This is consistent with the findings of Asenso-Okyere and Mekonnen's (2012) research, which emphasizes the critical role that knowledge and information access plays in promoting development and stimulating societal and economic transformation.

Table 1 Distribution of Respondents According to their Understanding of Zoom Technology

Items	Frequency	Percentage (%)	Rank	RM
Connecting to the internet for zoom meeting	36	60	1st	GU
Buying data while online for zoom meeting	30	50	3rd	GU
Launching zoom meeting for virtual presence	30	50	3rd	GU
Raising hands to indicate when I want to ask questions	36	60	1st	GU
Sharing zoom meeting when online for others to join	28	46.7	4th	PU
Creating zoom link for any meeting to host	28	46.7	4th	PU
Presenting slides/PowerPoint through zoom meeting to colleagues	32	53.3	2nd	GU
Making use of headphones to speak during zoom meeting	30	50	3rd	GU
Making use of camera to show virtual presence during meeting	30	50	3rd	GU
Presenting research findings/results using zoom	28	46.7	4th	PU
Listening to and understanding presentation using zoom	24	40	5th	PU

Source: Field survey Data, Multiple Responses Recorded, ≥50%GU<PU (GU: Good understanding; PU: Poor understanding)

Level of Utilization of Zoom Technology

The result of the distribution of the ADP staff by their level of utilization of zoom technology is displayed in the Table 11. The study adopted discriminating index of ≥ 2.5 for acceptance regarded as high utilization and < 2.5 for rejection regarded as low utilization, with a 4-point Likert type scale of never utilized (1) rarely utilized (2) sometime utilized (3) always utilize (4).

The following zoom supported devices had low utilization; laptop ($\bar{x}$ =0.7webcam ($\bar{x}$ =*1.7*), data subscription ($\bar{x}$ =1.7), headphone ($\bar{x}$ =1.7), Zoom technology 100% Virtual login during meetings ($\bar{x}$ =1.3) except for smart phone ($\bar{x}$ =*2.6*), conducive environment (2.6) that had high usage,.The study shows that all under listed items for zoom supported

devices were not fully utilized as they scored below the means score rating of 2.5 $(\bar{x}$ =1.8}. This implies that the staff members showed low level of zoom technology utilization. This hampered effective extension service delivery during this period which thus affected agricultural productivity. Banmeke and Ajayi (2013) support this by stating that improving productivity, especially in the agricultural sector, requires the use of relevant, accurate, and up-to-date information. Moreover, Osiakade et al. (2010) found that sociological research suggests that the integration of Information and Communication Technologies (ICTs) can act as a noteworthy stimulant for the advancement of the rural economy and collective well-being.

Table 2 Distribution of ADP Staff According to their Level of Utilization of Zoom Technology

Zoom Technology and it's supported devices	NU	RU	SU	AU	M	SD	Remark
Laptop	15	45	0	0	0.7	.49	Rejected
Smart Phone	18	42	0	0	2.6	.85	Accepted
Webcam	11	1	48	0	1.7	.75	Rejected
Data Subscription	10	4	46	0	1.7	.75	Rejected
Conducive Environment	41	19	9	0	2.6	.85	Accepted
Headphone	38	22	0	0	1.7	.75	Rejected
Zoom technology 100% Virtual login during meetings	42	18	0	0	1.3	.68	Rejected
Grand mean						**1.8**	

Keys; NU: Not Utilized; RU: Rarely Utilized; SU: Sometimes Utilized; AU: Always Utilized; M: Mean; SD: Standard Deviation; Cut off point 2.5 Accepted; Field Survey Data, 2022

Constraints in Use of Zoom Technology

The result of the ADP staffs' distribution based on constraints to use of zoom technology is displayed in Table 3. The constraints include: indicated Poor access of zoom by extension staff due to data subscription cost (73.3%), the complexity in usage of zoom technology (61.7%), poor internet connectivity (76.7%), unavailability of zoom support device (68.3%), high cost of internet access (68.3%), poor attitude of extension workers to the use of zoom technology (66.7%), long distance to network connectivity from office and in the field (55%), high cost of zoom supported device (58.3%).

The study shows that majority of the respondents (76%) indicated their primary constraint as poor internet connectivity. The finding is in line with the study of Odoemelam and Ajuka (2015) who reported that adoption process is costly. The finding share view with the study by Tanko et al. (2013), who opined that the use of ICT facilities has continued to be hampered by the persistent problem of access, connectivity, literacy and cost.

Table 3 Distribution of Respondents According to their Constraints in Use of Zoom Technology

Constraints	Frequency	Percentage (%)	Rank
Poor access of zoom by extension staff due to data subscription cost	44	73.3	2nd
Complexity in usage of zoom Technology	37	61.7	5th
Poor internet connectivity	46	76.7	1st
Unavailability of zoom supported devices	41	68.3	3rd
High cost of internet access	41	68.3	3rd
Poor attitude of extension workers to the use of Zoom technology	40	66.7	4th
Long distance to network connectivity from office and in the field	33	55	7th
High cost of zoom supported devices	35	58.3	6th

Source: Field survey Data, .Multiple Responses Recorded

CONCLUSION AND RECOMMENDATIONS

The study concluded that the ADP staff were aware of zoom technology but there is low level ($\bar{x}$=1.8) of zoom technology utilization among ADP Staff therefore the study recommended the following to enhance utilization among ADP Staff;

1. Install WiFi in ADP headquarters to improve staff accessibility
2. Conduct regular internal trainings within the Imo State Agricultural Development Programme to promote the effective use of Zoom and other related ICT tools among staff members
3. Offer subsidized Zoom-supported Android phones to staff to alleviate financial barriers to access
4. Provide special stipends to APD staff to offset data and internet subscription expenses.

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DECLARATION OF CONFLICT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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