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ONLINE PUBLICATIONS

Full Length Research

The Impacts of Social Media Use on Health Service Delivery among Patients and Health Care Providers amidst COVID-19 in Military Hospital, Port Harcourt, Rivers State, Nigeria

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Abstract

Health care providers working in most hospitals in the world and, particularly in Nigeria often communicate with patients through direct physical contact. This medium of healthcare providers' patient interaction seems to be challenging for quality healthcare management actualization even in the evolving COVID-19 pandemic era. Hence, the study examined the impacts of social media use on health service delivery among patients, and healthcare providers in Military Hospital Port Harcourt, Rivers State, Nigeria. A survey research design was adopted. The population of the study consists of 120 health providers and 137 outpatients. The sample size of 84 healthcare providers and 95 patients was determined using Krejcie and Morgan (1990) sample size determination table. The questionnaire items were structured into Likert four rating scale. The data collected were analyzed using descriptive statistics tools like frequency and percentage tables. The Findings revealed that health care providers perceived that social media use enables their participation in networking and content showing- strongly agreed 18(60%); reduces rowdiness of patients in Military Hospital- agreed 12(40%); improves specialty cares- agreed 21(70%), and enhances patients-healthcare providers' relationships- strongly agreed 12(40%) and agreed 10(33%). In conclusively, the delivery of quality health services cannot be carried out effectively and efficiently without the use of social media by patients and providers in any hospital. Therefore, The Military Hospital Port Harcourt and Rivers State Government should adopt and implement electronic health information management in healthcare facilities for easy patients' medical information dissemination/transmission for follow-up or referral care management during and after the COVID-19 era.

Keywords: Health Service Delivery, Impacts, Military Hospital, Patients, Providers, Social Media Use.

INTRODUCTION

Health service delivery in any nation is a conglomerate of health practitioners, agencies, and organizations that operate more or less independently in the mission sharing of health care delivery (Cockreham & Hinote 2008). Health service delivery involves integrated primary health care services providing a continuum of care through functional referral systems. Health care delivery has been dominated traditionally by hierarchical organizations such as hospitals and health care systems. However, as competitive pressures and the demands of managing care under limited resources have increased over the past decade, a wide variety of new organizational forms have emerged. These range from managed care organizations, and physician practice management companies, to diagnose specific control with specialized providers, such as home health care.

Social media used by patients can also be an aid to health care professionals by providing a means to strengthen the organization's market position and stimulating conversation for brand building and improved service delivery. In fact, social media may have effects on both patients and the wider health care system. In particular, it allows patients to receive support and to complement offline information which may lead to enhancing the empowerment of patients. Nielson (2017) postulated that internet users continue to spend more time on social media sites than any other types of site from content contributors. The benefits of participating in social media have gone beyond simply social sharing to building a reputation and bringing in career opportunities and monitoring income.

Oyegoke (2013) posited that patients are always on queue and wait longer than expected during health service delivery due to the problem of fewer health care providers to larger patients' population rate. But, with a good system that imbibes in social media use in place, the health care providers can work effectively and efficiently to ease patients' longer time wait for care to the barest minimum. Ventola (2014) stated that social media can provide considerable benefits in patient care, education, and health programs. More so, social media can contribute to improving the quality of care and emergency management, taking into account some risks such as privacy and accuracy of information. However, despite the benefit of social media use, some hospitals in most countries of the world including Nigeria have not really explored it in health care delivery. It is from the above presumption that this study seeks to investigate the impacts of social media use on health service delivery in the Military Hospital Port Harcourt, Rivers State, Nigeria**.**

Social media are websites and application that enables users to create and share content or to participate in social networking. Social media could as well be seen as computer-based technology that facilitates the sharing of ideas, thoughts, and information through the building of virtual networks and communities. Similarly, social media are web-based services that allow individuals, communities, and organizations to collaborate, connect, interact, and build a community which enables them to create, co-create, modify, share, engage with user-generated content that is accessible (McCay-Peet & Quan-Haase, 2016). Kaplan and Haenlein (2010) opined social media as a group of internet-based applications that build on the ideological and technological foundations of web 2.0 and allow the creation and exchange of user-generated content. Burgess and Poell (2017) posited social media technologies as those digital platforms, services, and apps built around the convergence of content sharing, public communication, and interpersonal connection. Social media allows individuals to keep in touch with friends and extended family.

Some people use various social media applications to network and find career opportunities, connect with people across the globe with like-minded interests, and share their own thoughts, feelings, and insight online. According to Abelman (2007), the use of information and communication technology in health care is not merely about technology but a means to solve the critical communication challenges in health care organizations, especially in developing countries. Ruxwano (2010) stated that since the development of the computer, the evolution of the internet information technology (IT) has had a positive impact of transformation on health care delivery systems worldwide, particularly in the area of disease control, diagnoses, accurate data capture, patient management, teaching and retraining of health care providers, storage and retrieval of medical information.

Social media has changed the way that people interact with each other online. It gives people the ability to discover what is happening in the world in real-time, to connect with each other, and stay in touch with long-distance friends. It also enables someone to get access to endless amounts of information at one fingertip. In many senses social media has helped many individuals from the common ground with others online, making the world seem more approachable. In the health sector, social media provides health care providers with the tools to share information among themselves, patients, and other stakeholders in planning and decision-making towards improving the quality of health service delivery within hospital settings and the larger society. Social media brings a new dimension to health care for patients, providers, and their support networks. Increasing evidence demonstrates that patients who are more actively involved in their healthcare experience have better health outcomes and incur lower costs (Bornkessel, Furberg & Lefebvre, 2014).

Health care providers do often used social media to potentially improve performers and efficiency in health issue solving. Among the various ways in which Social media use improves the quality of health service delivery in the health

sector includes:

1. Patient Education: Social media has improved patients' access to health and allied health care information and other educational resources through virtual communication methods, asynchronous and synchronic message dissemination mediums.
2. Public Health Programs: According to George, Rovniak, and Kraschnewski, (2013), social media is a potent tool for public education and advocacy concerning public health issues. Social media use creates immense worldwide networks that speedily spread information which enable mobilization of a large number of people in making possible greater advancement toward public health objectives.
3. Organization Promotion: Social media are being used as a medium of communication for many purposes by different organizations of health including hospitals, professional societies, patient advocacy groups, and pharmacy and other subsidiaries of the health system.
4. Patient Care: Some health care providers find it difficult to use social media for direct patient care in some hospitals. More so, in the health settings too, the real impact of social networks is beyond what is written in some most recent literature. Hence, the use of these virtual platforms allows sharing procedures in real-time, scientific dissemination, and virtual communication of a scientific nature, in which experiences are shared that may have significant impacts on a diverse population of healthcare seekers (Espino-Gaucin, Rodríguez, Ávila, Soto, Ruge & Wagner, 2020).

Statement of the Problem

   Though many health care providers have been working assiduously to effectively utilize social media to engage patients, clients, and other stakeholders through effective communication and promoting approaches the impacts of social media use in the delivery of health services seem not to be widely known. In developed countries, some health organizations have been able to move away from traditional advertising techniques to the use of the internet to connect with clients, patients, and caregivers in the health care field. In the same vein, a number of patients also have the propensity to seek information via social media in order to select doctors, specialists, and hospitals to make informed decisions on the best practices to get health care needs.
   Similarly, in developed countries, some patients do rely on information found online and use the internet to gather health care information and connect with other patients to garner support and learn about related conditions to improve on their personal health care management, yet receiving accurate and prompt information for quality health service delivery still remains a challenge. Health care service provisions have always been characterized by the trust in the competence and independence of information obtained by the patient from various sources, primarily from physicians and other health care professionals (IMS Institute for Health Care Informative, 2004). Therefore, it is indispensable for health care providers to be active in using social media to provide accurate information, connect with readers and implement proactive techniques that will harness health services in tandem with patients' perceptions and satisfactions (Smailhodzic, Hooijsma, Boonstra & Langley, 2016).
   Fox and Duggan (2013) posit that the health care information that patients look for on social media and on the internet differs, thus, the majority of those seeking health care information on the internet are trying to fulfill their desires, be it for information or emotional supports. Hence, the evolving nature of social media use due to the increasing access rate to the internet, the existence of affordable mobile devices, and the ease of communication at all times in proffering solutions to problems of mankind have not gotten sufficient documentation on its impacts on quality health service delivery (Eckler, Worsowicz & Rayburn, 2010). It is based on the observations and personal experiences of the researchers that this study investigated the impacts of social media use on health service delivery in Military Hospital Port Harcourt, Rivers State, Nigeria.

Objective of the Study

The main objective of this study is to investigate the impact of social media use on health service delivery amidst COVID-19 in Military Hospital Port Harcourt, Rivers State, Nigeria. Its specific objectives include:

1. To identify the challenges of social media use in the delivery of health service amidst COVID-19 in Military Hospital Port Harcourt, Rivers State, Nigeria.
2. To find out how social media use can improve the quality of health care use amidst COVID-19 in Military Hospital Port Harcourt, Rivers State, Nigeria.

Research Question

1. What are the challenges faced in the use of social media on health service delivery amidst COVID-19 in Military Hospital Port Harcourt, Rivers State, Nigeria?
2. In what ways can social media use improve health service delivery amidst COVID-19 in military hospital Port Harcourt Rivers State, Nigeria?

METHODOLOGY

   A survey research design was adopted for this study. The population of this study comprises of one hundred and thirty-three (120) health workers and one hundred and fifty (137) outpatients receiving health services in the hospital. A multistage sampling technique was used for the study. To determine the sample size, the researchers adopted Krejcie and Morgan (1990) sample size determination table to select a sample size of ninety-seven (84) health care providers and a sample size of one hundred and eight (95) patients from the population of 137 and 120 patients and health care providers respectively for the study. The convenience sampling technique was used by the researchers to administer the research instrument to respondents at the Military Hospitals Port Harcourt, Rivers State, Nigeria. A self-structured and scrutinized questionnaire titled the impacts of social media use and health service delivery in Military Hospital Port Harcourt, Rivers State, Nigeria.

Data Presentation and Analysis

RESEARCH QUESTION 1: **What are the Challenges Faced by Patients in the use of social media on health service delivery in Military Hospital Port Harcourt, River State, Nigeria.**

Table 1. Patients' Responses based on Challenges faced by Patients in the Use of Social Media on Health Service Delivery in Military Hospital Port Harcourt, River State, Nigeria.

S/N	Challenges of SOCIAL media	SA 4	%	A 3	%	D 2	%	SD 1	%
1.	Lack of privacy and confidentiality contributes to inadequate use of social media for health service delivery in Military Hospital Port Harcourt, Rivers State, Nigeria.	29	53	14	25	10	18	2	4
2.	Lack of good knowledge on how to use social media app always hinders timely Health service delivery in Military Hospital Port Harcourt, Rivers State, Nigeria.	17	31	31	56	7	13	-	-
3.	Poor network causes delays in delivery of quality health services in Military Hospital Port Harcourt, Rivers State, Nigeria.	30	55	8	15	10	18	7	12
4.	The inability to use the different types of social media effectively by patients impedes their proper care management by healthcare providers in Military Hospital Port Harcourt, Rivers State, Nigeria.	15	27	20	36	12	22	8	15

Table 1 shows that 29(53%) of patients strongly agreed and 14(25%) agreed that lack of privacy and confidentiality contributes to inadequate use of social media in Military Hospital Port Harcourt, while 10(18%) disagreed and 2(4%) strongly disagreed; 17(31%) of patients strongly agreed and 31(56%) agreed that lack of good knowledge on how to use social media apps always hinders timely health service delivery in Military Hospital Port Harcourt, Rivers State, Nigeria., while 7(13%) disagreed. Similarly, 30(55%) of patients strongly agreed and 8(15%) agreed that poor network causes delays in delivery of quality health service in the hospital, but 10(18%) disagreed, and 7(12%) strongly disagreed. In

conclusion, 15(27%) of patients strongly agreed and 20(36%) agreed that the inability to use the different types of social media effectively is one of the major challenges faced in Military Hospital Port Harcourt, Rivers State, while 12(22%) disagreed and 8(15%) strongly disagreed to it.

RESEARCH QUESTION 2: In what ways can social media use improve health service delivery in military hospital Port Harcourt, River State, Nigeria?

Table 2. Patients' Responses based on ways Social Media Use can improve Health Service Delivery in Military Hospital Port Harcourt, River State, Nigeria.

S/N	Ways Social Media Can Improve Health Services Render To Patients	SA 4	%	A 3	%	D 2	%	SD 1	%
1.	Social media use enables patients to take responsibility for their personal health management through the acquisition of reliable health tips in Military Hospital Port Harcourt, Rivers State, Nigeria.	30	55	10	18	8	15	7	12
2.	Social media use enables the patient to receive synchronic and asynchronous information that always gives them the opportunity to involve in decision-making in improving their health status in Military Hospital Port Harcourt, Rivers State, Nigeria.	20	36	12	22	8	15	15	27
3.	Social media use enhances patient health care providers' relationships in Military Hospital Port Harcourt, Rivers State, Nigeria.	31	56	17	31	7	13	-	-
4.	Social media use reduces the frequent physical presence of the patient in Military Hospital Port Harcourt, Rivers State, Nigeria.	30	55	10	18	7	12	8	15

Table 2. shows that 30(55%) of patients strongly agreed and 10(18%) agreed that social media used to enable them to take responsibility for their personal health management through the acquisition of reliable health tips in Military Hospital, while 8(15%) disagreed and 7(12%) strongly disagreed correspondingly. More so, 20(36%) of patients strongly agreed and 12(22%) agreed that social media use enables them to receive synchronic and asynchronous information, but 8(15%) disagreed and 15(27) strongly disagreed with the statement. In addition, 31(56%) of patients strongly agreed and 17(31%) agreed that social media use enables patients-health care providers' relationship in Military Hospital, while 7(13%) disagreed. Lastly, 30(55%) strongly agreed and 10(18%) of patients agreed that social media use reduces their frequent physical present in the hospital, while 7(12%) disagreed and 8(15%) strongly disagreed with the statement.

Discussion of Findings

Findings from Table 1 shows that strongly agreed 30(55%), 20(36%), 31(56%), and 30(55%); and agreed 10(18%), 12(22%), 17(31%), and 10(18%) respectively. This implies that social media use enables patients to take responsibility for their personal health management through the acquisition of reliable health tips; enable patients to receive valuable health information through synchronic and asynchronous methods; enhances patients-providers' relationship; and reduces frequent physical present of the patient thereby eliminating covid-19 contact at military hospital Port Harcourt, Rivers State, Nigeria. Similarly, Table 3.4 reveals strongly agreed 12(40%), 18(60%), 3(10%), and 12(40%); and 10(33%), 9(30%), 21(70%), and 12(40%) agreed of health care providers correspondingly indicated that social media use creates an effective communication link between them and patients/caregivers; provides healthcare providers with tools to share information to patients; enable in the delivery of timely health services and enhances prompt responses of healthcare providers to patients' plights. The findings corroborate Arhete (2016) study that posited that good medium of communication raises health workforce productivity through higher workload and lower absenteeism and its encourages health care providers to be more responsive which positively impacts the quality of care perceived by patient.   The

findings also align with Househ, Borycki and Kushniuk (2014) study which stated that there are various benefits and challenges for patient when using social media for health. In addition, the findings support Alshakhs and Alanzi (2018) study which revealed that the use of this technology in the provision of health services often improve healthcare providers' professional knowledge, and therefore, it is a suitable tool for patient education and public health awareness

Findings from table 2. shows patients strongly agreed 29(53%) and 14(25%) agreed that lack of privacy and confidentiality contributes to inadequate use of social media in Military Hospital Port Harcourt. The findings further revealed strongly agreed 17(31%), 10(33%), and 12(40%); and agreed 31(56%), 12(40%), and 9(30%) meaning that poor network causes delaying in delivery of quality health service, and 15(27%) strongly agreed and 20(36%) affirming the inability of patients to use the different types of social media effectively as a challenge in Military Hospital Port Harcourt. In addition, results in Table 3.4 strongly agreed 21(70%), 10(33%), and 12(40%); and agreed 12(40%), 9(30%) reveals that the inability of health care providers to always update the social media Apps hinders prompt delivery of health service to patients; poor network often contributes to untimely and inaccurate use of social media; confidentiality and security threats hinder proper use of social media for health service delivery. On the contrary, findings further revealed that 12(40%) of healthcare providers disagreed that their certain individual interest (attitude) often disrupt frequent use of social media for health service delivery in Military Hospital Port Harcourt, Rivers State, Nigeria. The findings are affirmed Barret-Maitland and Lynch, (2020); and Ventola (2014) studies that emphasized breaches of patient privacy, security and confidentiality, and unethical use of social media by both patients and healthcare providers.

CONCLUSION

The delivery of quality health services cannot be carried out effectively and efficiently without the use of some social media like Facebook, Twitter, WhatsApp by both healthcare service beneficiaries and providers in any hospital. Though, certain challenges like poor network, inability to update the apps to the current standard, and unethical practices are always encountered when using social media. Its benefits are enormous in health service delivery, therefore adequate measures for cooperation are key in using social media as tool to share information with patients and to enable healthcare providers to give prompt responses to patients' requests in military hospital Port Harcourt.

RECOMMENDATIONS

Based on the findings from the study, the following recommendations were made:

1. The management of Military Hospital Port Harcourt collaboration with Rivers State Government should be consistently improved on network coverage, patients-healthcare providers' relationships, and collaboration with other stakeholders to streamline ways of curtailing any lingering challenges in the use of social media that could affect the quality of health services in the state.
2. The Military Hospital Port Harcourt and Rivers State Government should adopt and implement electronic health information management in healthcare facilities for easy patients' medical information dissemination/transmission for follow-up or referral care management during and after the COVID-19 era. In addition, ethical practices should always be carried out by every healthcare provider in the delivery of health services to patients to promote real-time and asynchronous information dissemination in Military Hospital Port Harcourt and beyond.

REFERENCES

Abelema, R. (2007). Fighting the war on independency: Mediating tv, internet, and videogame usage among achieving and underachieving gifted children, *Roeper Review, 29*, 100 -112.

Alanzi, T. & Al-Habib, D. K. (2020). The use of social media by healthcare quality personnel in Saudi Arabia. https://doi.org/10.1155/2020/11117478.

Al-Dmour, H., Masadeh, R., Salman, A., Abuhashesh, M., & Al-Dmour, R. (2020). Influence of social media platforms on public health protection against the COVID-19 pandemic via the mediating effects of public health awareness and behavioral changes: Integrated model. *Journal of medical internet research, 22*(8), e19996. http://www.jmir.org

Alexdander, J. A. & Comfort M. E. (2001). International Encyclopedia of the social & Behavioral Science

Alshakhs, F. & Alanzi, T. M. (2018). The evolving role of social media in health care delivery: Measuring the perception

of health care professionals in Easter Saudi Arabia. *Journal of Multi-Disciplinary Healthcare, 11*, 473 – 479.

Arhete, L. E. & Erasmus, L. (2016). Healthcare service delivery: A literature review. The 25th International Conference for Management of Technology, Orlando, Florida, USA May 15-19, 2016, 487-505. https://researchspace.csir.co.za/dspace/handle/10204/9205.

Barret-Maitland, N. & Lynch, J. (2020). Social media, ethics and the privacy paradox, Security and Privacy from a legal, ethical, and technical perspective, Christos Kalloniatis and Carlos Travieso-Gonzalez, *IntechOpen*. Doi:10.5772/intechopen.90906

Bornkessel, A., Furberg, R. & Lefebvre, R. C. (2014). Social Media: Opportunities for Quality Improvement and Lessons for Providers a Networked Model for Patient-Centered Care Through Digital Engagement.*Curr Cardiol Rep,16*(504), 1-9. DOI 10.1007/s11886-014-0504-5

Burgress, J. & T. Poell (2017). The Sage Handbook of Social Media London. Sage Publications Limited.

Cockerham, W. C. & Hinote, B. P. (2008). United State health care delivery system. *International Encyclopedia of Public Health,* 434-440. https://doi.org/10.1016/B978-012373960-5.00322-1

Cordoş, A-A., Bolboacă, S. D. & Drugan, C. (2017). Social media usage for patients and healthcare consumers: A literature review. *MDPI*Publications,*5*(2), 9. https://doi.org/10.3390/publications5020009

Eckler, P., Worsowicz, G., & Rayburn, J. W. (2010). Social media and health care: An overview. *P M & R: The Journal of Injury, Function and Rehabilitation, 2*(11), 1046-1050.

Espino-Gaucin, I., Rodríguez, C., Ávila, J., Soto, J., Ruge, C. & Wagner, R. (2020). Social networks and their role in current medicine: An indispensable tool for doctors. *Journal of Biosciences and Medicines*, 8(8), 15-25. doi: 10.4236/jbm.2020.88002.

Fox, S, & Duggan, M. (2013). Health online 2013: One in three American adults have gone online to figure out a medical condition. Pew Research Center's Internet and American Life Project. https://www.pewresearch.org/internet/2013/01/15/health-online-2013/

George, D. R., Rovniak, L. S. & Kraschnewski, J. L. (2013). Dangers and opportunities for social media in medicine. Clinical Obstetrics and Gynecology, 56(3), 1-10. doi:10.1097/GRF.0b013e318297dc38.

Househ, M., Borycki, E., & Kushniruk, A. (2014). Empowering patients through social media: The benefits and challenges. *Health Informatics Journal, 20*(1), 50-58. doi: 10.1177/1460458213476969

Kailer, D., Mandl, P. & Schill, A. (2913). An empirical study on the usage of social media in German B2C-Online stores. *International Journal of Advanced Information Technology, 3*(5), 1-14. http://www.airccse.org/journal/IJAIT/papers/3513ijait01.pdf

Kaplan, A. M. & Haenlein, M. (2010). Users of the world unite: The challenges and opportunities of social media. *Business Horizons, 53*(1), 59-68.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30, 607-610. https://home.kku.ac.th/sompong/guest_speaker/KrejcieandMorgan_article.pdf

Lannes, L. (2015). An analysis of health service delivery performance in Rwanda. A Thesis submitted to the Department of Social Policy of the London School of Economics and Political Science for the Degree of Doctor of Philosophy, London. http://etheses.lse.ac.uk/3093/1/Lannes_An_analysis_of_health_service_delivery.pdf

McCay-Peet, L. & Quan-Haase, A. (2016). What is social media and what questions can social media research help us answer? https://www.semanticscholar.org/paper/What-is-Social-Media-and-What-Questions-Can-Social-McCay-Peet-Quan-Haase/fa830c33b50de12b0274918708b7f3d209976ff5?sort=r

Modahl, M., Tompsett, L. & Moorhead, T. L. (2011). Doctors, patients and social media. Quantia M. D. and Care Continuum Alliance. https://pdf4pro.com/amp/view/september-2011-doctors-patients-amp-social-media-42fa7.html.

Mohapatra, S., Kumar A. and Mohapatra, S. (2018). From a literature review to a conceptual framework for affordable quality healthcare service using internet of things (IOT) network. *International Journal of Enterprise Network Management,* 9(1), 11–21. https://www.researchgate.net/publication/325171110_From_a_literature_review_to_a_conceptual_framework_for_affordable_quality_healthcare_service_using_internet_of_things_IOT_network. Accessed Dec 26 2021.

Oyegoke, L. (2013). Adoption and utilization of ICT in Nigeria Hospital (Government owned). Bachelor's Thesis Degree programme in Business Information Technology, HAAGA-HELIA University of Applied Sciences. https://www.theseus.fi/bitstream/handle/10024/66898/oyegoke_thesis.pdf?sequence=1

Perrin, A. (2015). Social Networking Usage: 2005-2015. Pew Research Center. http://www.pewinternet.org/2015/10/08/2015/Social-Networking-Usage-2005-2015/

Ruxwano, N. L. (2010). The repertoire niches of inter-personal media competition and co-existence at the level of the individual. *New Media and Society 11*(6), 965-984.

Smailhodzic, E., Hooijsma, W., Boonstra, A. & Langley, D. J. (2016). Social media use in healthcare: A systematic

review of effects on patients and on their relationship with healthcare professionals. *BMC Health Services Research,* *16*(442), 1-14.https://doi.org/10.1186/s12913-016-1691-0

Thielst, C. B. (2011). Social media: Ubiquitous community and patients' engagement. *Front Health Service Management, 28*(2), 3-14

Ventola, C. L. (2014). Social Media and Health Care Professionals: Benefits, Risks, and Best Practices. *Pharmacy and Therapeutics, 39*(7), 491-520. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4103576/

Full Length Research

Groundwater Recharge Assessment using WetSpass and MODFLOW Coupling: The Case of Hormat-Golina sub-basin, Northern Ethiopia

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Abstract

Water scarcities in northern Ethiopia, as well as its socio-economic relevance in terms of water demand for agriculture and domestic use, are at the root of the search for new groundwater resources and the development of groundwater models that can be used to control and manage the resource. WetSpass-MODFLOW coupling was used to estimate groundwater recharge in the Hormat-Golina sub basin. The goal of this study was to assess the amount of groundwater recharge in the Hormat-Golina sub basin. Following that, the MODFLOW groundwater flow simulation model is utilized to simulate the hydraulic head distribution. The Steady state groundwater flow calibration was determined by comparing measured and simulated hydraulic heads. The mean annual evapotranspiration, surface runoff, and groundwater recharge, according to WetSpass result, were 516.6, 204.9, and 35.6 mm, respectively. Groundwater recharge accounted for 4.7% of precipitation, while actual evapotranspiration and surface runoff accounted for 27%t and 68% of precipitation, respectively. In such seasonal variations, the groundwater head distribution is 11.24 to 31.73 m in winter (dry season), 9.53 to 29.89 m in summer (wet season), and 10.26 to 31.02 m in Annual stress periods (recharges). For all stress periods, the estimated hydraulic heads in steady state fit well with the measured ones, with a correlation coefficient of 0.86 (summer, winter and annual recharge). The balance between groundwater recharge and expected abstraction rates for agriculture and domestic water supply must be considered in future groundwater resource development plans in the valley to ensure the resource long-term sustainability.

Key words: Ethiopia, Groundwater recharge, Hormat-Golina, MODFLOW, WetSpass

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INTRODUCTION

"Water has always been a valuable resource for humans." Not only humans utilize it virtually every day, but it will be required to measure every physical thing. Despite the fact that water is a natural resource, the world supply of clean water is constantly decreasing. Increased global demand for potable water has resulted in a persistent water scarcity problem in many places around the world [1]. Water use has increased at a pace roughly double that of growth over the last century[2]. Water scarcity affects a number of countries, despite the fact that it should not be evident. In both urban and rural regions, groundwater sources are helpful for a variety of uses [3]

In hydrogeologic research for sustainable groundwater development, determining groundwater recharge has evolved from a basic problem to an urgent and fundamental issue [4]. It is important to note that the majority of groundwater recharge technologies are applied across a small region (point or small basin scale) and for short periods of time [5].

Recharge and evapotranspiration rates are the most complex and uncertain components to estimate in the groundwater budget. This is because they are constantly changing in space and time, especially in dry and semi-arid regions [6].

Physically-based hydrologic modeling has been more essential in contemporary hydrology as a cost-effective means of monitoring the water balance at a spatial scale with the introduction of Geographic Information Systems (GIS). The spatial variance in recharge caused by scattered land use and land cover, soil texture, topography, and meteorological conditions are all essential factors to consider when estimating recharge [7][8].

Groundwater recharge is one of the most significant parameters to consider when assessing a resource. Scientific research in the Hormat-Golina Sub-basin was not undertaken in accordance with the quantification and mapping of groundwater recharge area in the sub basin. The components of the water balance were not properly defined and also hydraulic head distribution in relation to stress was not modeled.Lack of good understanding of groundwater recharge was a serious concern for sound and suitable groundwater management in the sub-basin, given the high pace of population growth and increased reliance on groundwater. As a result, estimating groundwater recharge in the area is critical for resource sustainability as well as protection against pollution and depletion. As a result, this research might be started to quantify groundwater recharge, runoff, evapotranspiration, and groundwater head /hydraulic head/ in the study area.The main objective of this paper is to quantify the groundwater recharge of the Hormat-Golina sub basin by Wetspass and MODFLOW coupling with several spatial and hydrological information. MODFLOW was used to simulate the hydraulic head distribution using the groundwater recharge distributions acquired by WetSpass.

MATERIALS AND METHODS

Description of the Study Area

The research was conducted in northern Ethiopia. It is located latitudes of 11^0 55'35" to $12^0 13'10"$ north and longitudes of 39^0 24'45" to 39^0 47'44" east (figure 1). It is known as the Hormat – Golina sub basin and encompasses a total area of 689.25 km2. It is bordered on the west by the Lasta Mountains, on the east by the Zobel Mountains, on the north by the Raya Valley, and on the south by volcanic ridges. It is regarded to be a part of the Ethiopian rift system interconnecting valleys.

The Hormat-Golina sub basin features an open surface water drainage system that opens into the Afar region at the Golina outlet. It is located within the Denakil dry basin. The basin is drained by three major streams that originate in the western highlands. These are the steams Golina, Hormat, and Kelkelit(figure 1).
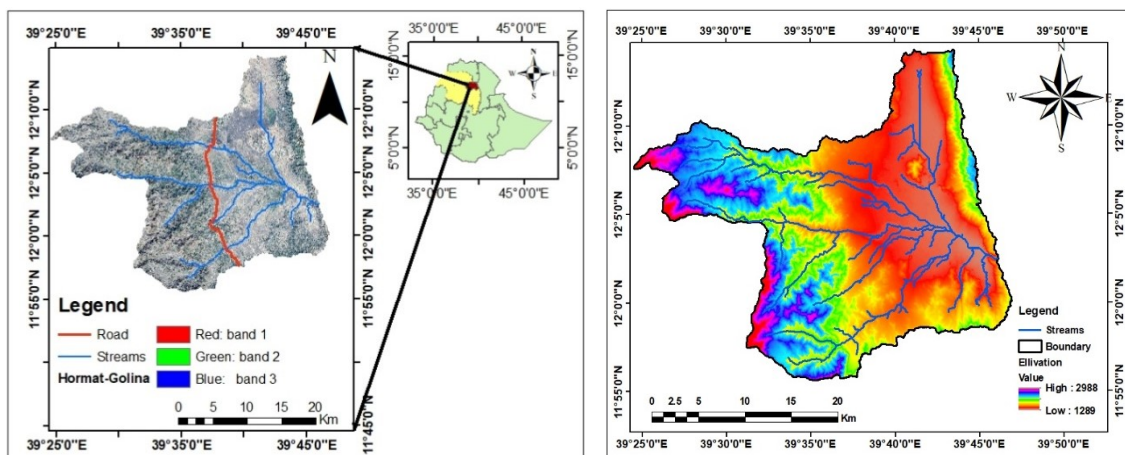
Figure 1: Location map and Drainage of the study area.

During the rainy season, all streams and ravines convey significant volumes of sediments from the mountains and dump them on the valley plain.The climate of the HormatGolina bub-basin is semi-arid in the valley plain and sub-humid in the hills. In the valley plain, the average yearly temperature ranges from 17.5°C to 26°C with average annual temperature of 21.6°c. The sub basin average annual rainfall is estimated to be around 756.85 mm and potential evapotranspiration of 1669.6 mm during the study period between 2000and 2019.

Recharge Modeling Approach

The coupled WetSpass and MODFLOW was applied to assess the groundwater recharge of the Hormat-Golina sub basin. The data interchange between MODFLOW and WetSpass is guaranteed until the recharge rates and hydraulic heads have stabilized. The first simulation was started with WetSpass model using different input data. The calculated groundwater recharge was then used as input for MODFLOW for groundwater head simulation.
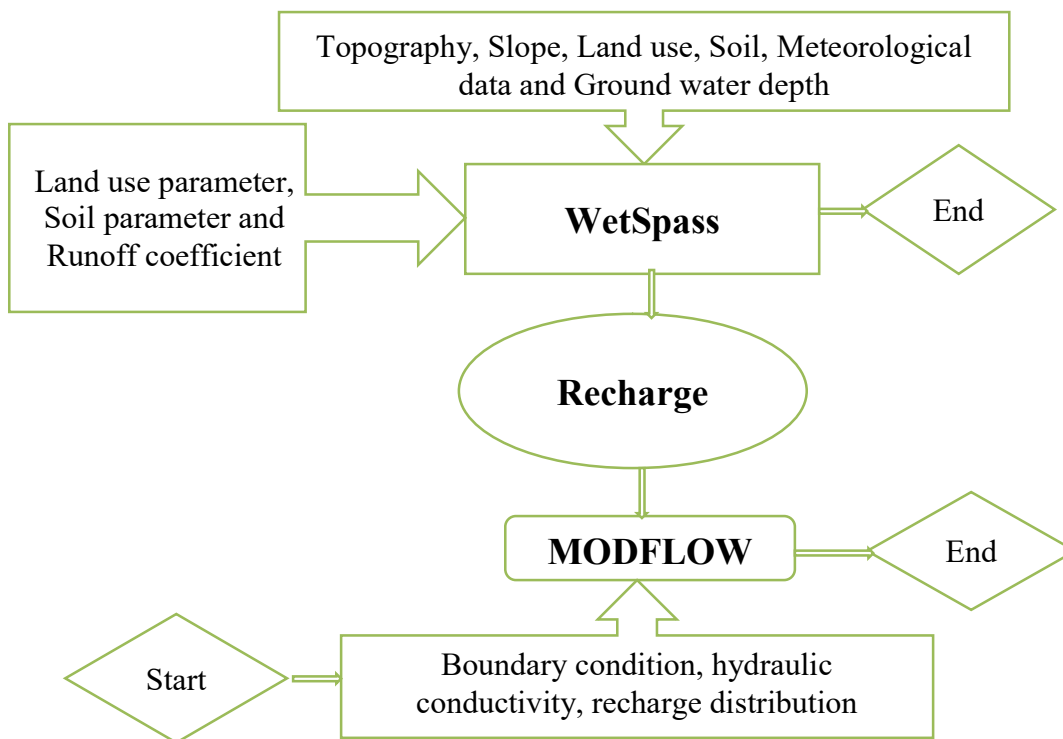
Figure 2: Recharge assessment approach.

WetSpass allows the calculation of surface runoff, actual evapotranspiration and groundwater recharge for seasonal periods by solving the water balance equation cell by cell for successively, the vegetated area, bare soil, open water, and impervious surfaces [9]. For a vegetated area, the water balance is calculated according to the following equation [10];

$$P = I + Sv + Tv + Rv \quad \text{Eq 5}$$

where P is average seasonal precipitation, I interception fraction, Sv surface runoff, Tv actual transpiration and Rv groundwater recharge, all with the unit $[LT^{-1}]$.

The interception (I) is firstly calculated. It represents a constant percentage of the annual precipitation value. It depends, mainly on the type of the vegetation. Second, the relationship between precipitation amount, precipitation intensity, interception, and soil infiltration capacity ware used to determine surface runoff (S). There are two stages to estimate surface runoff. firstly, calculate the potential surface runoff (Sv-pot) as follows:

$$S_{v-pot} = C_{sv}(P - I)$$
<div align="right">Eq6</div>

whereCsv is a surface runoff coefficient for vegetated areas; it depends on vegetation, soil type, slope and groundwater saturated areas, P is the average seasonal precipitation $[LT^{-1}]$ and I is the interception fraction $[LT^{-1}]$. Secondly, S is calculated by considering the differences in seasonal precipitation intensities in relation to soil infiltration capacities [10].

$$S = C_{HOR}S_{v-pot}$$
<div align="right">Eq7</div>

where CHOR is a coefficient parameterizing seasonal precipitation which contributes to the Hortonian overland flow[11](Batelaan & De Smedt, 2007). It considers the effective precipitation contributing to runoff.
The evapotranspiration is calculated from open-water evaporation and the vegetation coefficient which is the ratio of reference vegetation transpiration to the potential open-water evaporation [10]. First, the reference transpiration is calculated using a fraction of the open-water evaporation:

$$T_{rv} = cE_0$$
<div align="right">Eq8</div>

where Trv is the reference transpiration of a vegetated surface $[LT^{-1}]$, E0 is the potential evaporation of open water $[LT^{-1}]$ and c is the vegetation coefficient which can be calculated as the ratio of reference vegetation transpiration to the potential open-water evaporation [10].
WetSpass computes evapotranspiration in vegetated area by considering the root depth and the tension saturated height when the groundwater is above the root depth otherwise the evapotranspiration is computed as a function of water content. Finally, the groundwater recharge for the vegetated area is calculated by considering the result of the water balance:

$$Rv = P - Sv - ETv - Es - I$$
<div align="right">Eq9</div>

where R is the groundwater recharge, P is precipitation, Sv is surface runoff, ETv is actual evapotranspiration and I is interception fraction, all with the unit $[LT^{-1}]$.
On the other hand, there is no interception and transpiration term in the calculation of the water balance for bare soil, open water and the impervious surfaces, due to the fact that there is no vegetation so the ETv becomes Es. The water balance components of each area are then used to calculate the total water balance using the following equations [10]:

$$ETa = avETv + asEs + aoE0 + aiEi$$
<div align="right">Eq 10</div>

$$Sa = vSv + asSs + aoRo + aiRi$$ Eq 11

$$Ra = vRv + asRs + aoRo + aiRi$$
<div align="right">Eq12</div>

Where ET, S, and R are the whole evapotranspiration, surface runoff, and groundwater recharge of a raster cell respectively, each having vegetated, bare-soil, open water and impervious area component denoted by av, as, ao, and ai, respectively.

WetSpass input data

   Grids of topography, slope, soil texture, and seasonal grids of groundwater level, land use, and meteorological data (precipitation, wind-speed, temperature and potential evapotranspiration) are among the input data. The land use and soil are connected to the model by their attribute tables[12]. The different inputs of the model are prepared using Geographic Information Systems (ArcGIS 10.7 and ArcView GIS 3.3). The cell size is 30 m × 30 m with columns and rows of 1356 and 1149.

The input and output grids are then configured to have the same coordinate projections and lateral extents using the resample tool in ArcGIS because the determined recharge by WetSpass is utilized for the groundwater flow model MODFLOW. For the processing of meteorological data (Precipitation, evapotranspiration, temperature and wind speed), the period 2000–2019 is chosen with an average value for each seasonal time step, i.e., the winter /dry/ and summer /wet/ seasons corresponding to the periods October to May and June to September, respectively. This period corresponds to the groundwater flow model calibration during the steady state. The input files for land use, soil texture, and runoff coefficient, which were generated as parameter tables, were also prepared in a database file format (dbf).

Table 1.WetSpass input parameters

	Input variables	Sources
1	Topography	DEM (12.5*12.5m) resolution
2	Slope	DEM (12.5*12.5m) resolution
3	Land use land cover	Landsat 8 and own processing
4	Temperature (summer & winter)	National meteorological agency
5	Precipitation (summer & winter)	National meteorological agency
6	PET (summer & winter)	Estimated by using R-programming
7	Wind speed (summer & winter)	National meteorological agency
8	Depth to groundwater	Direct measurement from existing boreholes
9	Soil parameter,runoff coefficient and Land use parameters	WetSpass user guide

The average seasonal precipitations were computed for seven metrological stations. It was calculated from a daily precipitation data measured for the period 2000 to 2019 for 20 years. The inverse distance weighting (IDW) approach is used to produce the spatial precipitation. It is the most commonly used method because it is easy and gives generally good results [13].

It's especially useful when the rainfall network is dispersed unevenly. The precipitation values range from 236.7mm to 334.6 mm for the winter with mean of 297.03mm (Figure. 3a) and from 350.6 mm to 586.8 mm for the summer with mean of 459.9mm (Figure. 3b). High values are located mainly in the western parts of the Hormat-Golina sub basin. The mean annual precipitation of HormatGolina sub basin was 756.85mm.
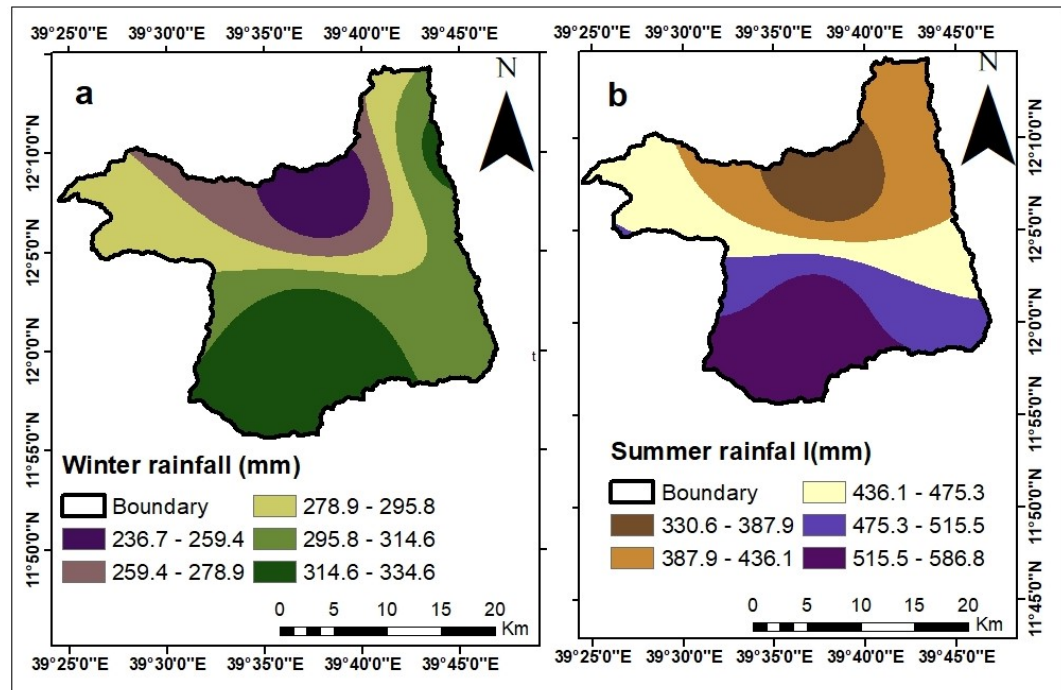
Figure 3.Rainfall distribution map of Hormat-Golina sub basin

The PET was computed using the Hargreaves equation due to a lack of data (Hargreaves and Samani, 1982), which is justified in semiarid area when only the temperature is available as climatic data. If there is inadequate meteorological data for the Penman-Monteith approach, the FAO recommends the Hargreaves method (Allen et al., 1998), as an alternate method for predicting PET. The average monthly PET was calculated during the period 2000-2019 for seven (7) station using monthly average temperature values. The highest value (1076.7 mm) is recorded during the dry season /winter/ season (October to May). The minimum and maximum values of 1020.7mm and 1076.7mm with a mean value of 1048.8mm for winter /dry/ season (*figure* 4a) while the minimum and maximum values of 590.4mm and 620.6mm with a mean value of 620.6mm for the summer /wet/ season (*figure* 4b).winter /dry/ season (*figure*4a) while the minimum and maximum values of 590.4mm and 620.6mm with a mean value of 620.6mm for the summer /wet/ season (*figure* 4b).
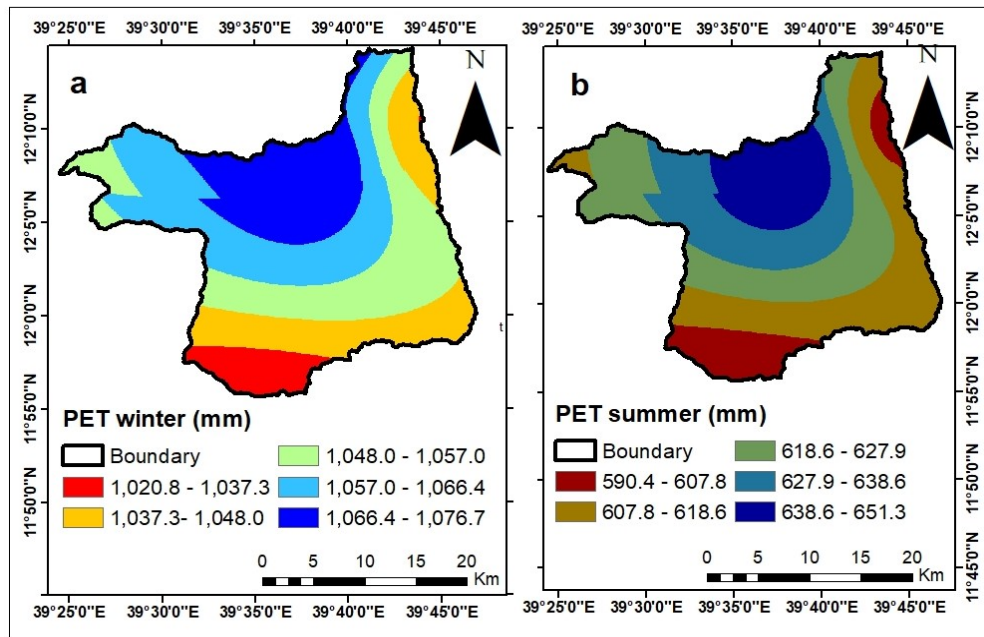
Figure 4: Potential evapotranspiration of HormatGolina sub basin

The average temperature and wind speed were also computed for the same weather station using monthly measured values during the period 2000–2019. The minimum and maximum temperature for the dry season /winter/ was 18.6°C to 21.6°C (*figure*5a) with a mean value of 20.4°C whereas the minimum and maximum temperature of the summer /wet/ season ranges from 20.1°C to 24°C (*figure*5b) with a mean value of 22.5°C.
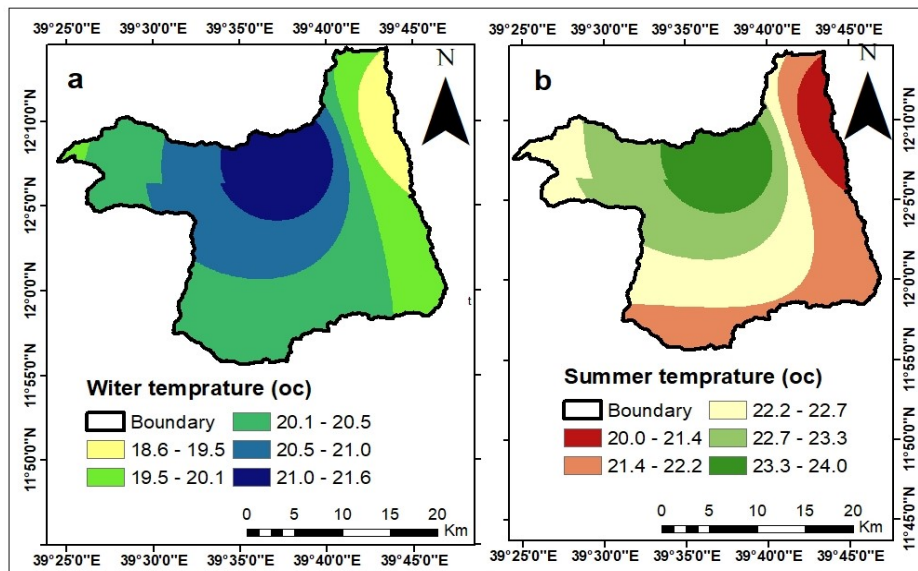
Figure 5: Average temperature of HormatGolina sub basin

In the HormatGolina sub-basin, the average summer wind speed is 1.99 m/s with the minimum and maximum values ranged from 1.67m/s to 2.1m/s (*figure*6b) while the average winter wind speed is approximately 1.66 m/s with minimum and maximum values ranged from 1.58m/s and 1.89m/s (*figure*6a).
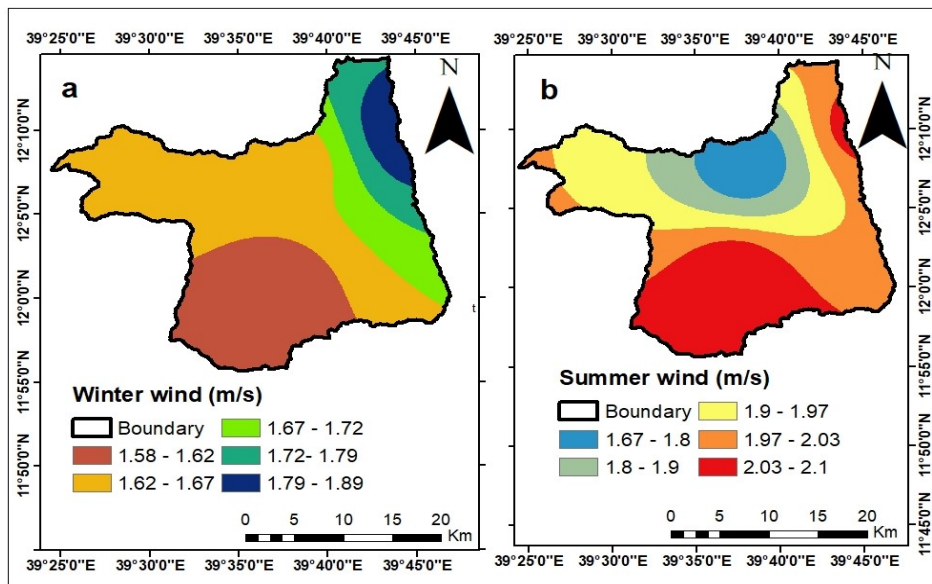
Figure 6: Average wind speed of HormatGolina sub basin

The Alaska satellite facility (ASF) data set was used to create elevation and Slope map of the study area. The ASF provides Digital Elevation Model with a resolution of 12.5*12.5m (DEM). The sub basin highest point, at 2988 meters, is found upstream on the Western escarpment, while the lowest point, at 1289 meters, is found in the eastern/downstream section. Slope is an important component for determining the watershed hydrological features. It is categorized according to the degree of steepness, which ranges from 0 to 43^0. The value 0^0 represents gentle/lowland, while the value 43^0 represents steep/escarpment.
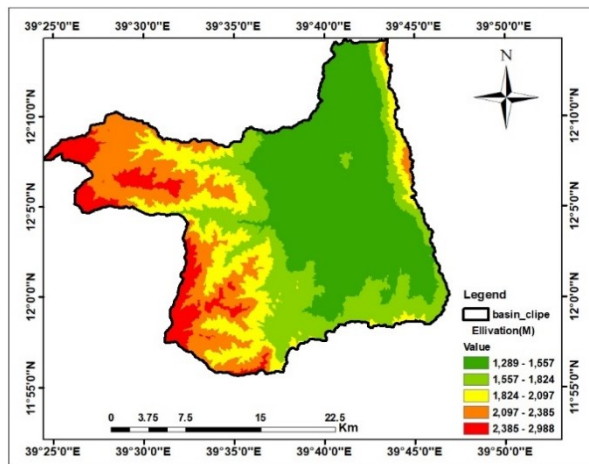
Figure 7: Elevation of the area   **Figure 8**: Slope of the area
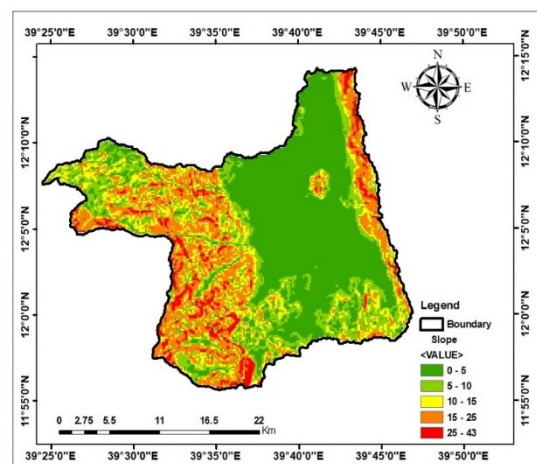
The land use grid was prepared from Landsat 8 products by supervised land use classification by using bands from 1 up to 7. As indicated by the figure (figure 9) the dominant land use of the sub basin was agriculture which accounts 49.7% of the total area, followed by shrubs 37.3%, bare land 9.3%, riverain vegetation 1.6%, trees/forest 1.4 and settlement accounted for 0.7%.
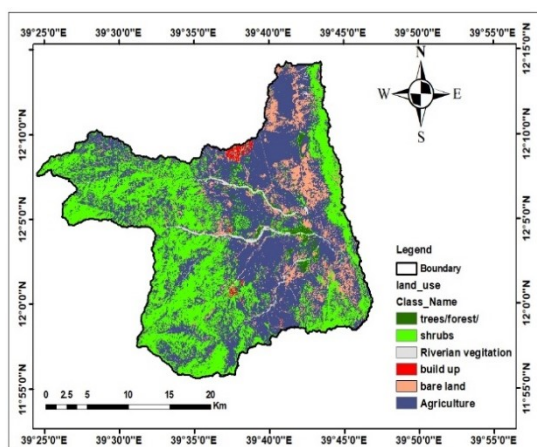
Figure 9: land use of the area   **Figure 10**: Soil map of the area
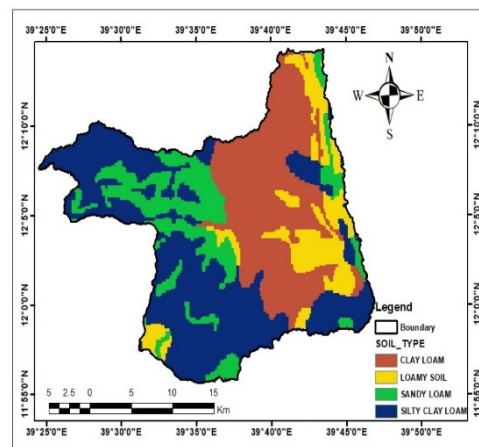
The Hormat-Golinasub basin soil texture map was downloaded from the Food and Agriculture Organization (FAO) website (http://www.fao.org). Using the United States Department of Agriculture (USDA) textural categorization standards, the soil texture of the research region was divided into four classes: sandy loam, silty clay loam, loam, and clay loam (*Figure 10*). Silty clay loam covers the majority of the land.

The groundwater depth for WetSpass model was collected by direct measurement from Kobo Girana Valley Development project and interpolated by IDW interpolation and it was ranges from 11.8m to 27 m with an average value of 21.3m (figure 11).

Development of groundwater flow model Visual MODFLOW 2005 software was used to create the groundwater flow model. The model's construction consists of a set of possible assumptions that reduce the real situation and result in a conceptual model that is appropriate for the modeling goal. The following assumptions were made about the modelled area: (i) the system was assumed to be in a steady state throughout the year, and (ii) the geological formations of concern were assumed to be horizontal in extent.

MODFLOW requires three input packages to build a model: (i) wells, (ii) model properties, and (iii) model boundary conditions. Data from boreholes was gathered from the Kobo Girana Valley Development Project. Two types of well data were prepared during this process: (i) pumping wells and (ii) observation wells. Water levels were generated during aquifer pumping using data from pumping wells. For the model data were collected from 34 boreholes, which were then imported into MODFLOW using the import tool. For the aim of model calibration, observation wells were added to the model. This work required the usage of 34 observation wells. The import tool was used to import observation wells into MODFLOW.

MODFLOW divides the model's hydrogeological characteristics into inputs such as flow properties, hydraulic conductivity (Kx, Ky, and Kz), and storage (Ss, Sy). Aquifer parameters and initial heads are among the model property inputs. Log test data was used to determine aquifer properties (transmissivity, hydraulic conductivity, and storage coefficient). Only horizontal hydraulic conductivities were significant since the groundwater flow model was single layered.

Initial heads were measured directly from existing boreholes and interpolated within the model to produce initial heads for the whole model. The inverse distance weighting (IDW) technique was used to interpolate the observation heads. Recharge was used as a boundary condition in this study.The model was discretized into 1149 columns and 1356 rows resulting in 1558044 active cells (figure 12). The grid cell size was 30 m in both the x and y directions and the modelled domain covered an area of 698.25 km^2.

A groundwater flow model requires hydraulic conductivity, storage and initial heads values for each grid cell in order to run a flow simulation. The values of each property used for model input are shown in table 2.

Table 2: Property value for model inputs

Parameters	Value
Hydraulic conductivity (m/d)	2.04-48.19
Specific yield	0.2
Initial heads (m)	8-45.75
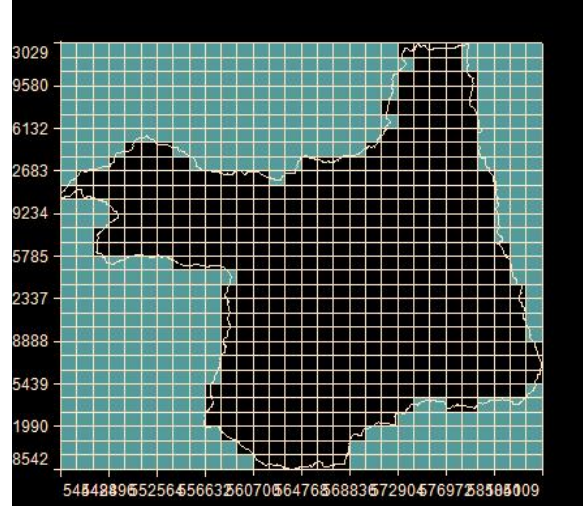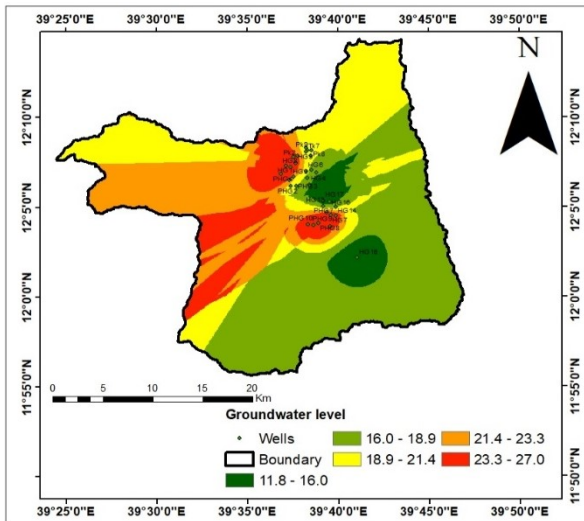
Figure 11: Groundwater level **Figure 12:** Discretization of the area

RESULTS AND DISCUSSION

WetSpass model simulation

After running the WetSpass model, spatial average grid maps for winter, summer, and annual periods were simulated for the sub-basin. The model produces different grid maps during simulation. The water balance components such as surface runoff, actual evapotranspiration and recharge were produced for the sub-basin. The model simulated results of the HormatGolina sub basin was presented in table 3.

Table 3: Long-term annual and seasonal averages of Wetspass simulated water balance parameters

Hydrological parameters	Seasonal average		Annual average(mm/yr)
	Dry/winter/(mm)	wet/summer/(mm)	
Precipitation	297.03	459.95	756.85
Runoff	100.6	104.3	204.9
AET	183.7	334.9	516.6
Groundwater recharge	12.8	22.8	35.6
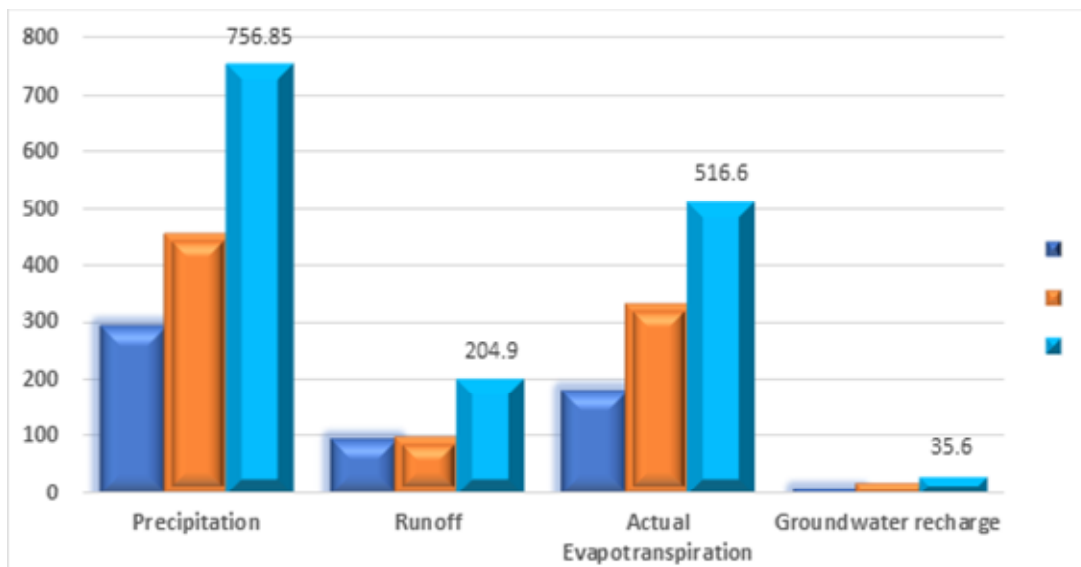
Figure 13: Comparison of precipitation with model simulated runoff, actual evapotranspiration, and recharge for winter (October-May), summer (June-September), and annual averages.

Groundwater recharge

The result shows an average recharge of 12.8, 22.8, and 35.6 mm was simulated for winter, summer and yearly basis respectively. The minimum and maximum values are 6.4 and 18.0mm for dry /winter/, -0.65 and 126.72 mm for wet /summer/ and 6.6 and 140.70mm yearly. Hence, 35.6 mm of annual recharge water are added annually to the available groundwater. The average annual long-term groundwater recharge for the watershed is about 4.7% of the average annual precipitation (756.85 mm) (*Figure*13). Considering the area of the sub basin (698.25 km2), the average annual recharge (35.6 mm) is equivalent to $2.5*10^7 m^3 year^{-1}$.

About 64% of the annual groundwater recharge occurs during the wet season (summer), with the remaining 36% in the dry season (winter) season. the South and south eastern part of the of the sub-basin, which receives more rainfall during the summer season, has a relatively higher rate of annual groundwater recharge that ranges from 64.5 to 140.7mmyr-1(figure 14).
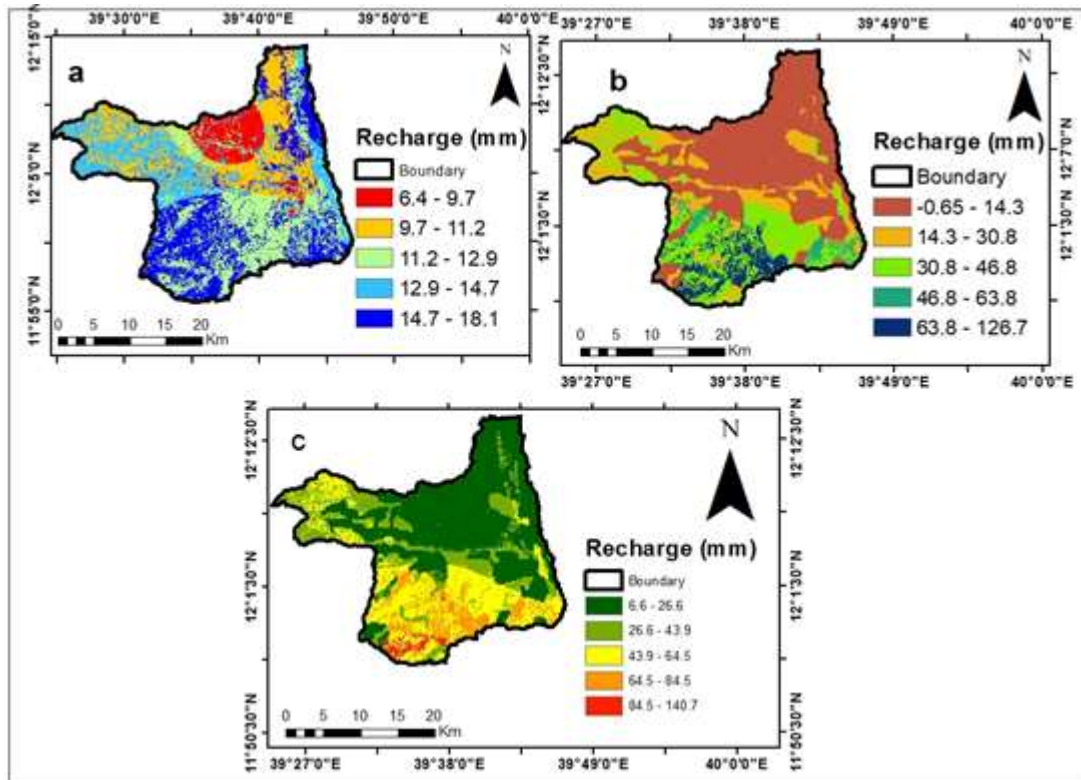
Figure 14: Ground water recharge map of HormatGolina sub basin

Water balance components

The simulated results from WetSpass model showed that about 68% of precipitation is lost through evapotranspiration especially in water courses and shrub areas characterized by sandy loam and silty loam soils. The obtained evapotranspiration values ranged from 342.1 to 758.9 mm/year (*Figure*. 15c) with a mean value of 461 mm/year and the seasonal average evapotranspiration was estimated to be 183.7, 334.9 mm for the winter /dry/ and summer /wet/ season respectively.

The minimum and maximum values of dry season evapotranspiration was 111.6mm and 284.6mm (*figure* 15a) and also for the wet season minimum and maximum value ranges from 210.8mm to 489.4mm (*figure* 15b).Considering the area of the sub basin(698.25 km2), the average annual evapotranspiration (461 mm) is equivalent to $3.22*10^8 m^3 year^{-1}$. Due to active solar radiation, greater surface temperatures, and dry winds in the watershed, evapotranspiration plays a crucial role in water losses.
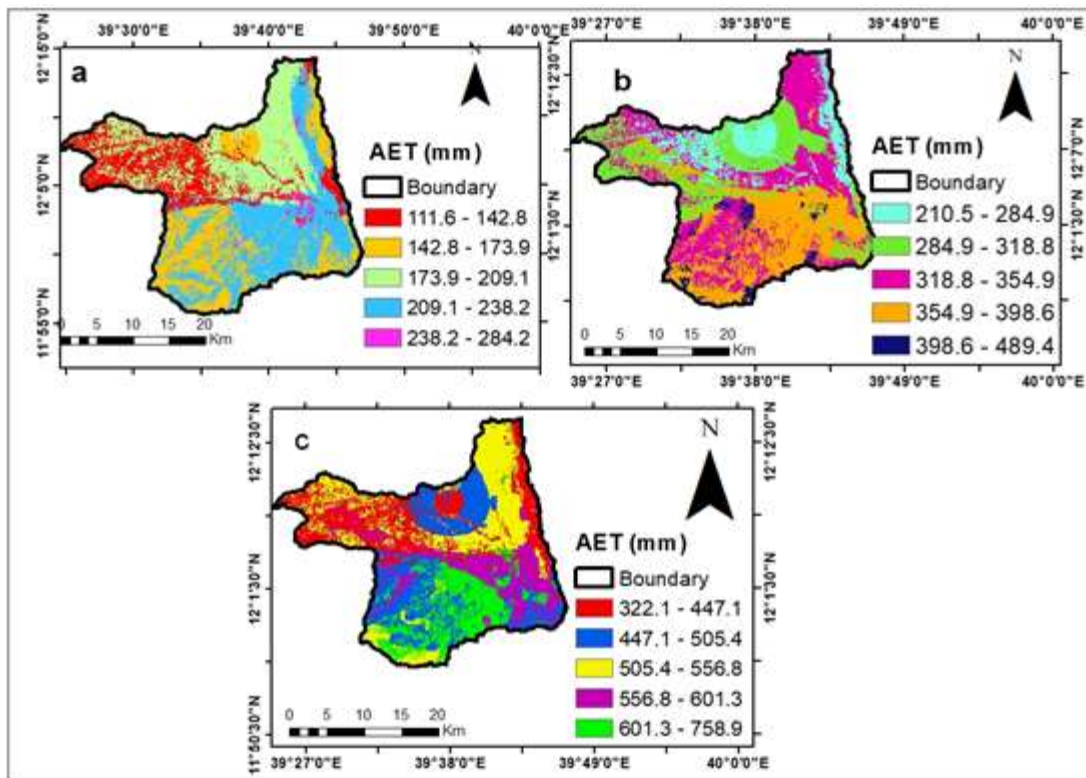
Figure 15: Actual evapotranspiration from HormatGolina sub basin

Spatially explicit annual and seasonal values of surface runoff simulated by the model are presented in *Figure*16(a–c) and compared with annual precipitation in *Figure*13. Seasonal and annual average values of surface runoff are also shown in Table 3.The surface runoff during the main rainy season from June to September ranges from 33.7 to 164.0 mm with a mean value of 104.3 mm (*Figure*16b), while the surface runoff during long dry season was found 28.8 to 160.7mm with mean of value of 100.6 mm respectively (*Figure*16a), and the annual surface runoff ranges from 62.5 to 343.1 mm year-1with mean value of 204.9 mm year-1 which accounts 27% of the total long-term mean annual precipitation 756.85 mm on the entire watershed as shown in (*Figure*16C). Because biophysical and hydro-meteorological parameters vary by season and are strongly related to rainfall amount, surface runoff is higher in thesummer than in the winter. Considering the area of the watershed (698.25 km2), the average annual surface runoff (204.9 mm) is equivalent to $1.43*10^8$ m^3year^{-1}.
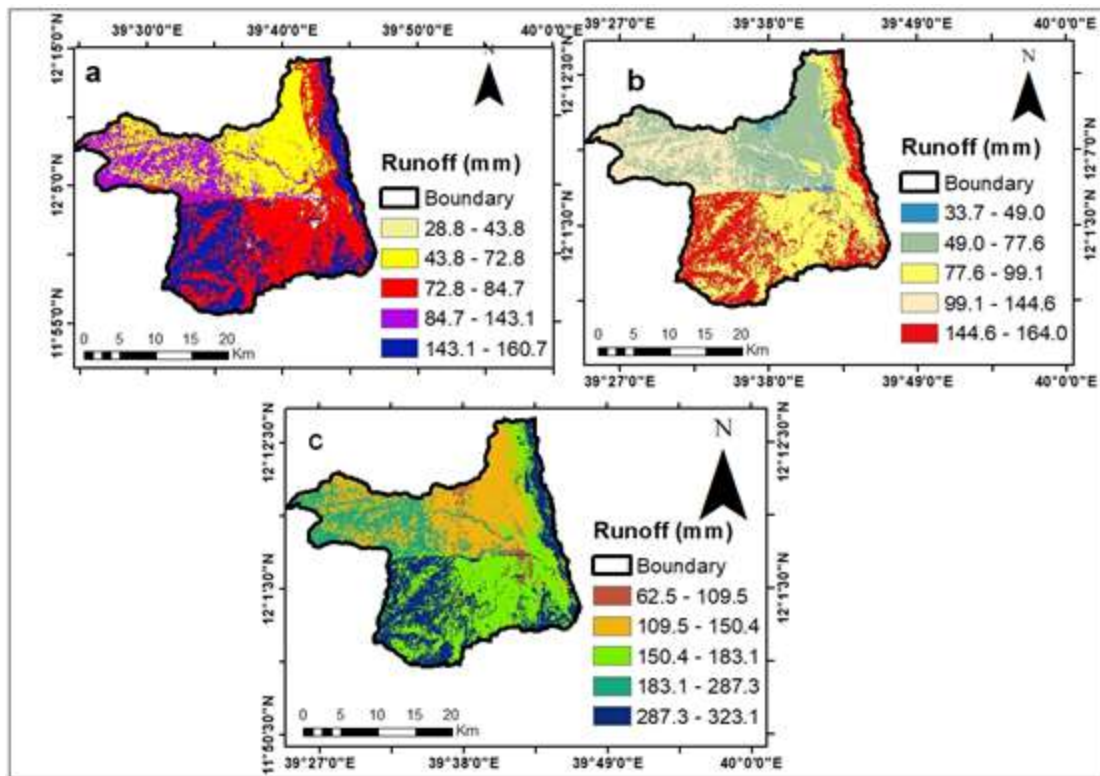
Figure 16: Surface runoff from HormatGolina sub basin

Groundwater Head (hydraulic head) distribution with respect to stress

The groundwater head in Hormat-Golina Sub-basin had analyzed by different stress periods (Dry season, wet season and annually). After calibration, the model had completed in different stress periods. the model result (*Figure* 17a), shows the groundwater head due to dry/winter stress period (recharge) was varied from 11.24 m in the Eastern parts to 31.73m in the Northwestern parts of the Sub-basin. While in the wet season /summer/ stress period (recharge) (*figure* 17b) the groundwater head was varied from 9.53m in the Eastern and 29.89m in the north western parts of the sub basin and also from the *figure* (*figure* 17c), shows the groundwater head due to the annual stress period /recharge/ was varied from 10.26 m in the eastern and 31.02 m in the north western parts of the sub basin. From the simulation result there is change in the groundwater head by 1.71m in the eastern and 1.84 m in the northwestern parts of the catchment in dry and wet stress periods whereas there is groundwater head change between annual and seasonal stress periods /recharges/. The groundwater head between dry stress period and annual stress period varied from 0.98 m in the eastern and 0.71m in the northwest parts of the sub basin and the groundwater head between wet and annual stress period was varied from 0.73m in the eastern and 1.13.m in the northwestern parts of the sub basin.
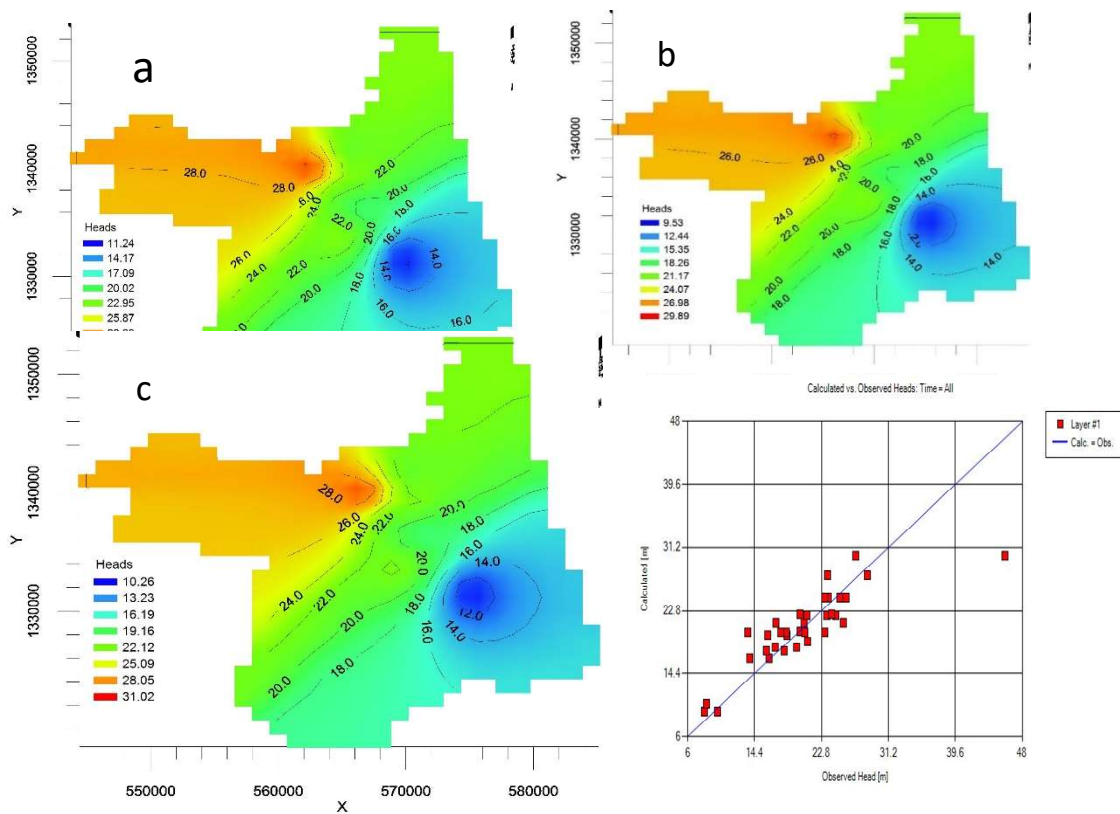
Figure 17:- Groundwater head with respect to stress (recharge) a) winter /dry season/ b) summer /wet season c) annually

The validation result indicated a reasonably match between simulated and observed heads with RMS error of 3.54m, 3.59m and 3.59m for the winter, summer and annual stress periods with a correlation coefficient of 0.86 in all stress periods (table 4)

Table 4: Model evaluation criteria

Type of error	Value		
	Winter	Summer	Annual
ME (m)	0.6	0.62	0.62
RMSE (m)	3.54	3.59	3.59
NRMSE (%)	9.38	9.53	9.53
MAE (m)	2.35	2.38	2.38
Correlation coefficient	0.86	0.86	0.86
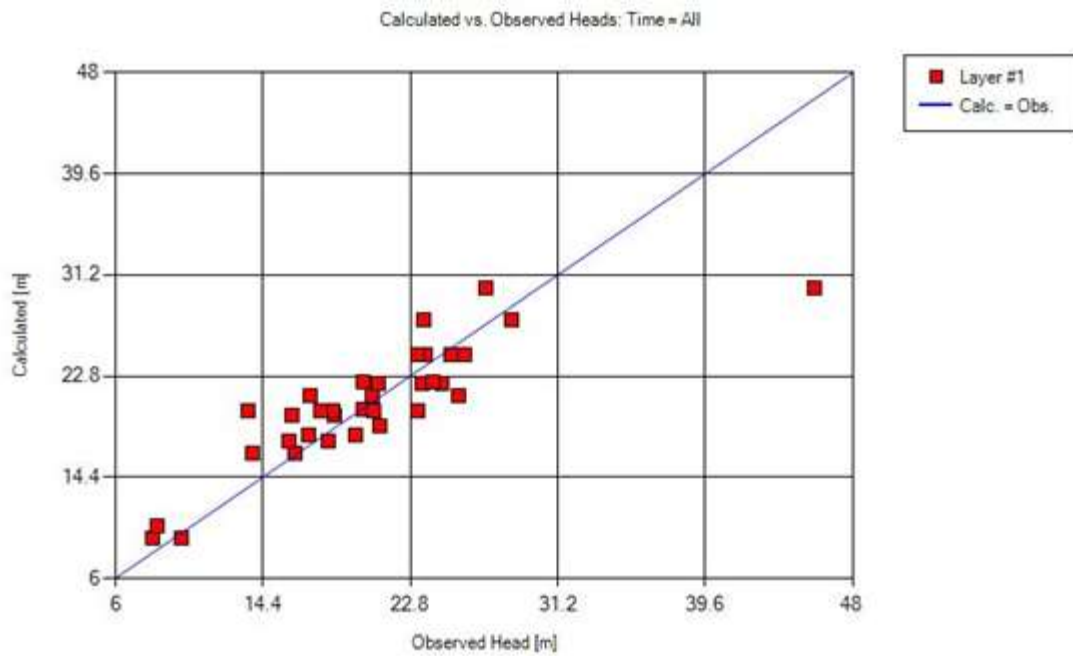
Figure 18: The scatter plots of simulated versus observed

To compare the variation in head distributions, the model generated hydraulic heads under different scenarios were plotted together.
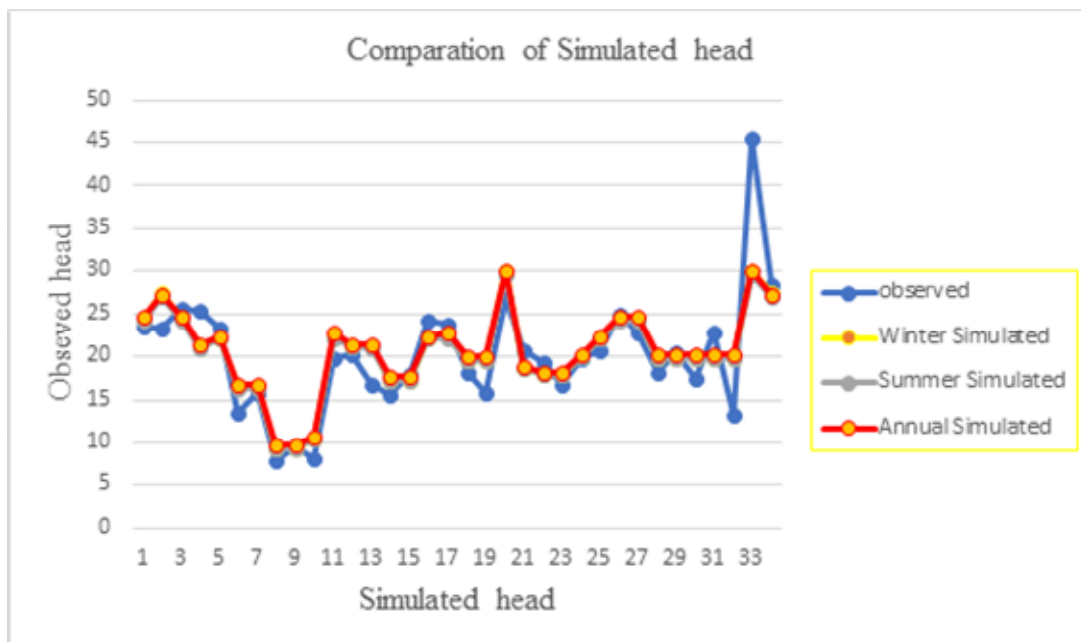
Figure 19: Comparison between the observed and simulated heads of different tress periods

CONCLUSION

Coupled WetSpass and MODFLOW was used to assess the groundwater recharge of Hormat-Golina sub basin. The model considers all meteorological, hydrological and biophysical factors of the area. In order to evaluate groundwater recharge and other water balance component of the watershed hydro- meteorology, land use, soil texture, topography and slope of the area has been investigated.

Based on the model output, the annual groundwater recharge in Hormat-Golina is 6.6 and 140.7 mm as a minimum and maximum value with a mean of 35.6 mm, which represents 4.7% of the total annual rainfall. 64% (22.8mm) of the recharge is occurred in summer (Jun to September) and the rest 36% (12.8mm) of recharge percolate in winter (October to May). The minimum and maximum values of annual Actual evapotranspiration of Hormat-Golina sub basin are 342.1mm and 758.9 mm with a mean value of 516.6 mm which accounts 68% of total rain fall (756.85mm). 64% (334.9mm) was found in the wet and the rest 36% (183.7 mm) occurred in dry season. The annual runoff from the model was 62.5 to 343.5 mm with a mean of 204.9 mm which represents 27% of annual precipitation (756.85mm). 51% (104.3 mm) of runoff occurred in wet season and the remaining 49% (100.6 mm) was occurred in the dry season.

The groundwater head in the Hormat-Golina Sub-basin was studied under various stress conditions (Dry season, wet season and annually). The groundwater head distribution varies from 9.37 to 29.86 meters in the winter (dry season), 9.53 to 29.89 meters in the summer (wet season), and 9.58 to 30.17 meters during yearly stress periods (recharges). With a correlation coefficient of 0.86, the calculated hydraulic heads in steady state fit well with the measured ones for all stress periods (summer, winter and annual recharge). Furthermore, the model-simulated head contour map revealed that the overall hydraulic gradient in the Sub-basin follows the hydraulic gradient from the western boundary to the Eastern boundary. In terms of groundwater management, a lower pumping rate with a higher recharge rate was an acceptable range, and future sustainability has been harmed by excessive groundwater exploration from the unconfined aquifer.

REFERENCES

[1]   A. Salem, J. Dezső, and M. El-Rawy, "Assessment of groundwater recharge, evaporation, and runoff in the Drava Basin in Hungary with the WetSpass Model," *Hydrology*, vol. 6, no. 1, p. 23, 2019.

[2]   UNESCO, "duplicateWater for People, Water for Life," *World Water Dev. Rep.*, p. 36, 2003.

[3]   O. M. Saether, P. de Caritat, and D. N. Lerner, "Groundwater recharge," *Geochemical Process. Weather. Groundw. Recharg. Catchments*, pp. 109–150, 2020, doi: 10.1201/9781003077916-4.

[4]   S. Tweed, M. Leblanc, I. Cartwright, G. Favreau, and C. Leduc, "Arid zone groundwater recharge and salinisation processes; an example from the Lake Eyre Basin, Australia," *J. Hydrol.*, vol. 408, no. 3–4, pp. 257–275, 2011, doi: 10.1016/j.jhydrol.2011.08.008.

[5]   S. K. Izuka, D. S. Oki, and J. A. Engott, "Simple method for estimating groundwater recharge on tropical islands," *J. Hydrol.*, vol. 387, no. 1–2, pp. 81–89, 2010, doi: 10.1016/j.jhydrol.2010.03.034.

[6]   Xu, G. Huang, H. Zhan, Z. Qu, and Q. Huang, "Integration of SWAP and MODFLOW-2000 for modeling groundwater dynamics in shallow water table areas," *J. Hydrol.*, vol. 412–413, pp. 170–181, 2012, doi: 10.1016/j.jhydrol.2011.07.002.

[7]   S. S. Rwanga and J. M. Ndambuki, "Approach to Quantify Groundwater Recharge Using GIS Based Water Balance Model: A Review," *Int. J. Res. Chem. Metall. Civ. Eng.*, vol. 4, no. 1, 2017, doi: 10.15242/ijrcmce.ae0317115.

[8]   S. S. Rwanga, "A Review on Groundwater Recharge Estimation Using Wetspass Model," *Int. Conf. Civ. Environ. Eng.*, pp. 156–160, 2013.

[9]   N. Ghouili, F. J. Horriche, M. Zammouri, S. Benabdallah, and B. Farhat, "Coupling WetSpass and MODFLOW for groundwater recharge assessment: case study of the Takelsa multilayer aquifer, northeastern Tunisia," *Geosci. J.*, vol. 21, no. 5, pp. 791–805, 2017, doi: 10.1007/s12303-016-0070-5.

[10]   Batelaan and F. De Smedt, "WetSpass: A flexible, GIS based, distributed recharge methodology for regional groundwater modelling," *IAHS-AISH Publ.*, no. 269, pp. 11-18b, 2001.

[11]   O. Batelaan and F. De Smedt, "GIS-based recharge estimation by coupling surface-subsurface water balances," *J. Hydrol.*, vol. 337, no. 3–4, pp. 337–355, 2007, doi: 10.1016/j.jhydrol.2007.02.001.

[12]   O. Batelaan and S. T. Woldeamlak, "ArcView interface for WetSpass, user manual," Version 19-5-2004, Vrije Universiteit Brussel, Brussels, Belgium, 2004.

[13]   G. Y. Lu and D. W. Wong, "An adaptive inverse-distance weighting spatial interpolation technique," *Comput. Geosci.*, vol. 34, no. 9, pp. 1044–1055, 2008.

[14]   M. Al Kuisi and A. El-Naqa, "GIS based spatial groundwater recharge estimation in the jafr basin, jordan - application of wetspass models for arid regions," *Rev. Mex. Ciencias Geol.*, vol. 30, no. 1, pp. 96–109, 2013.

Full Length Research

A study on Removing VAT and Other Taxes Levied on Feed and Feed Ingredients and its impact on the Performance of the Livestock Sector in Ethiopia

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Abstract

Feed in terms of supply, quality and affordability is a critical bottleneck to transform the livestock sector. An important intervention to partly solve the challenges related to feed is the removal of value added tax (VAT) and other import taxes levied on feed ingredients and formulated feeds. This study was prepared with the objective of evaluating the impact of removal of VAT and import taxes on feed ingredients and formulated feeds. Price of feed ingredients has increased annually over the last five years. Due to the involvement of brokers and multiple taxation led to VAT imposed on feed ingredients to be up to 60% or more. Moreover, imported feed ingredients are generally taxed for duty, sur and withholding taxes accounting for 23%. These taxes resulted to increased feed prices with negative consequence on performance of the sector. Price of formulated feeds increased by 64, 56, 86, 87, 193, 66% over the last five years for layers, broilers, chicks, dairy, fattening cattle and shoats, respectively. Feed prices have been increasing annually by a range of 9 to 38% over the last five years The current farm gate prices for an egg, a liter of milk, a kg live weight of broiler and a kg live weight of cattle are 4.50, 22.00, 150.00 and 100.10 Birr, respectively. Feed cost accounted 58, 64, 34 and 67% of the farm gate price, and the share of VAT and other taxes to feed cost were 26, 29, 26 and 40% for an egg, a liter of milk, a kg live weight of broiler and a kg live weight of cattle, respectively. The current analysis indicated that the removal of VAT and other taxes from feed ingredients and formulated feeds will reduce feed cost by an average of 30.3%, price of livestock products will decrease by a range of 9-27% and amount of feed produced will increase by about 35% for poultry and by 82% for dairy and fattening cattle. Such intervention will also improve the affordability of livestock products, and one can purchase 18, 10, 23 and 37% more egg, broiler meat, milk and beef, respectively for the same price paid with VAT. The analysis result also indicated that this intervention will create an enabling environment to achieve national targets set for livestock production in the ten years perspective plan (2012-22 EC). Therefore, removal of VAT and import taxes from all feed ingredients and formulated feeds used by all livestock species to produce food either for domestic consumption or for export is highly and urgently recommended. This action will definitely help in transforming the livestock sector to accrue better socio-economic benefits for society as well as for the nation.

Key words: Feed, VAT, Price

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INTRODUCTION

Ethiopia owns a huge livestock resource, which has significant contributions to the socio-economic development of the country. Livestock is a major livelihood for the pastoral and agro-pastoral communities and a source of nutrition and food security, and income for the majority households of the mixed crop livestock system. The sector has been estimated to contribute 28% to GDP (MoA, 10 years perspective plan), 10% to the export earnings, support livelihoods of 70% of the population and 31-48% to total household income (FAO, 2019). This contribution, however, is not proportionate to the immense livestock potential of the country. The main reason for this is the inadequate quantity and quality of feed supply partly due to the existing high prices of feeds and feed ingredients. Feed accounts 60-80% of the total cost of livestock production and as such greatly impacts the overall efficiency of the livestock sector both in terms of production volume and economic returns. High feed prices also challenge the affordable supply of livestock products to consumers. Thus, any intervention to reduce prices of feeds and feed ingredients will be directly reflected through enhanced production and commercialization of livestock with concomitant positive impact on household and national economy, and in food and nutritional security through affordable supply of livestock products to consumers.

The national feed balance showed a 21% deficit of feed supply on dry matter basis. This is aggravated by the limited availability of ago-industrial by-products and premix that are used to formulate quality feed. In addition to insufficient supply of such feeds, the ever increasing prices are becoming critical bottlenecks to commercialize and modernize the sector. High prices of feeds and feed ingredients are partly driven by the value added tax (VAT) imposed on agro-industrial by-products, and the VAT and other taxes (duty tax, sure tax and withholding taxes) levied on imported feed ingredients. Removal of such taxes is one key component to avail quality and affordable feed for livestock, with consequent positive impact on feed supply, livestock production, income generation, livestock product consumption and overall contribution of the livestock sector to the national economy (ATA, 2015). The government of Ethiopia has recently taken some positive measures of removing taxes and vat from certain feed ingredients. However, the vat removed was limited to poultry and did not include dairy and fattening. In the meantime the exemption did not even included all the items in poultry feed. This measure is partial and could not bring significant change on the price of poultry feed. Moreover, the dairy and meat sectors are suffering a lot from the escalating feed prices mainly due to the vat (FAO, 2018). Recently it has been observed that many dairy and feed lot farms are on the verge of closing since they could not afford the prices of feed.

The livestock sector goals have been set in the 10 years perspective plan of the Ministry of Agriculture (MoA, 2012 – 2022 EC). These goals are planned to be achieved through addressing critical bottlenecks in the sector including supply of adequate, quality and affordable feed. Achieving the target is possible only if the country can secure year-round sufficient, affordable and quality feed supply.To meet the goals the challenges associated with feed supply and escalating feed prices is the primary issue that needs to be addressed. Therefore, this study was conducted with the following objective:

➢   To evaluating the impact of VAT and import taxes on the supply of feed and feed ingredients
➢   To indicate and justify the need for the removal of VAT, and suggest policy directions for decision to catalyze feed supply and enhance performance of the livestock sector.

MATERIAL AND METHODS

Data Collection

Primary data were collected using questionnaire prepared for this purpose. Data were collected from private and union agro-processors (flour and oil extraction industries), farms (dairy, poultry and fattening farms), feed processors, feed input importers and suppliers, and Ethiopian Custom Authority. Both quantitative and qualitative data were gathered. Type of quantitative data collected include six years price data of formulated feeds for different livestock species (layers, broilers, chicks, dairy, cattle fattening and shoats fattening); price of different feed ingredients used to formulate rations; and price and taxes of imported feed ingredients (premix and other minor ingredients that is used in feed formulation). Moreover, data on the amount of feed required to produce a unit of livestock product (egg, broiler, milk, cattle body weight), and farm gate price of livestock products were gathered.

Qualitative data collected include information on the existing bottlenecks along the feed value chain, measures that should be taken to address the bottlenecks, the challenges related to sourcing of different feed ingredients, reasons for the high feed prices, marketing problems of feed ingredients and compound feeds, suggested impacts of removal of VAT and other taxes from feed ingredients and impact of processed feeds on farm productivity and the livestock sector in general.

Statistical Analysis

A Generalized linear model (Proc GLM) procedure of SAS (SAS, 2008) was used for the analysis of cereals and oil crops production and utilization from 2016-2020. The effects of year and crop type were included in the model. Then the analyzed data were organized using descriptive and inferential statistics.

RESULT and DISCUSSION

Commercial Animal feed and marketing

Feed value chain in Ethiopia is largely constrained by scarcity, quality and high price of raw materials and compound feeds. Shortage of foreign currency to import feed ingredients and lack of enabling environment to encourage investment in the feed sector are also noted by respondents as key challenges of the feed value chain. Increasing production of raw materials (feed ingredients), removing VAT and other taxes from feed ingredients, creating conducive environment for investment in the fed sub-sector, facilitating foreign currency for importation of feed inputs, and controlling the long marketing chain of feed ingredients and feeds are some recommended actions by respondents to help catalyze quality and affordable feed production and commercialization.

Compound feeds are the sole diet for semi-intensive and intensive poultry production systems. Compound feeds are also commonly used by dairy and fattening farms. The major ingredients used to formulate compound feed include maize, sorghum, flour processing by-products (wheat bran, wheat short, rice bran), different kind of oil seed cakes (soyabean meal, Nuog seed cake, linseed cake, groundnut cake, cotton seed cake, sesame seed cake, and others), molasses, and ingredients that are added in minute quantities to boost production (vitamins, minerals, amino acids and premixes). The supply of these ingredients is challenged by scarcity of production, rising prices and quality. These challenges are limiting the operation capacity of feed processing industries and consequently affect the supply and affordability of processed feeds to livestock producers. A main reason for the high prices of feed ingredients and processed feeds according to respondents is the VAT and other taxes (duty, sur and withholding taxes) imposed on the feed ingredients. Additionally, export of cereal and oil seeds without value addition plays a significant role for the scarcity of the agro-industrial by-products, which in turn increases the prices of these feed ingredients. The issue of VAT is aggravated by the lack of direct market linkage between agro-processors and feed processors leading to multiple taxation along the marketing chain (Figure 1). Multiple taxation can add the VAT imposed on feed ingredients up to 60% or more. The involvement of brokers along the marketing chain or marketing challenges on feed ingredients and compound feed does not only lead to multiple taxation but also elevate the price of ingredients and compound feed due to illegal hording and increasing prices of the ingredients, which in effect will have a consequence on the share of VAT. The lack of proper marketing chain also compromises quality of feed ingredients and compound feed.
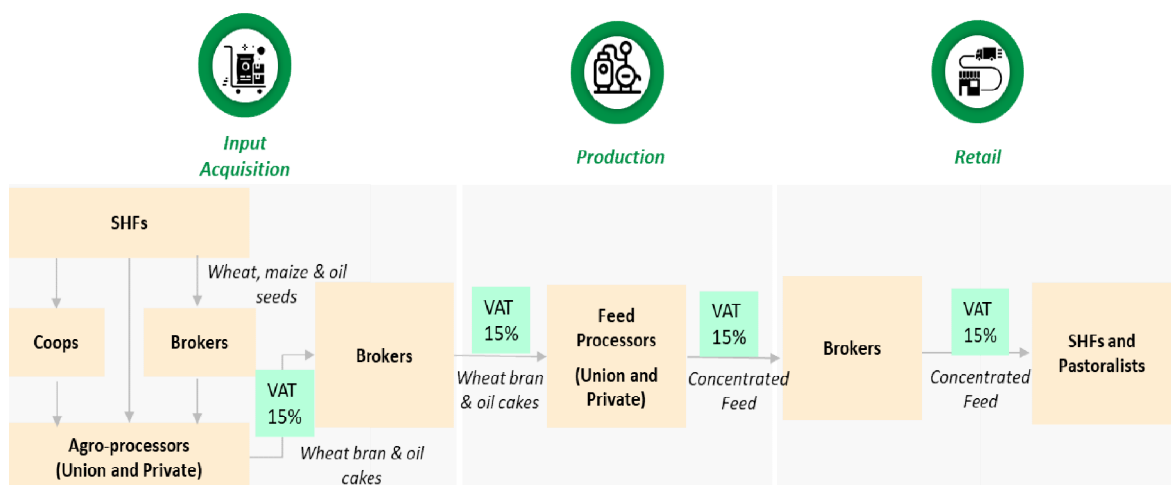
Figure 1. Industrial production of feed ingredients and formulated feeds is plagued by inefficient linkages between actors leading to decreased production quantities, multiple taxes and higher prices.

All respondents have recommended the removal of VAT and taxes from feed ingredients and processed Feeds. The presence of VAT and other tax on feeds negatively influence the productivity of farms by discouraging the use of formulated feeds, which increases the price per unit livestock product(s). The removal of VAT and taxes have been suggested to play great role in decreasing feed prices, in enhancing investment in the feed sector, in increased marketing of quality feed, in boosting livestock production and productivity, in increasing livestock product marketing, in decreasing cost per animal product and improving animal product consumption, and in increasing overall revenue to livestock producers. Feed processors suggested the removal of VAT from feed ingredients alone will improve their feed production capacity by about 20%.

The removal of VAT will decrease a minimum of 15% price from feed ingredients plus 15% from compound feeds. However, due to the involvement of brokers in the marketing of feed ingredients and compound feeds on the one hand (Figure 1) and the prevailing other taxes for imported feed ingredients on the other, the reduction in formulated feed prices due to VAT and tax exemption is apparently much higher.

Respondents from agro-industries noted that they sale their agro-industrial by-products to traders or brokers, and to some extent to feed processors and producer farms. A significant amount of by-products is produced from agro-industries. Up to 30% from wheat milling and up to 80% from oil extraction from oil seeds are by-products. According to respondents, agro-industries are however, challenged with shortage and rising cost of raw materials (e.g., wheat and oil seeds). This has limited the supply of agro-industrial by-products and consequently increased prices of these feed ingredients. The price increment on agro-industrial by-products is aggravated by the presence of VAT imposed on the by-products. As can be noted from Table 2 below, prices of agro-industrial by-products have been increasing over the last five years. Price of the feed ingredients in the current year grew by a range of 270 to 660% compared to the year 2008. Compared to last year, the prices of the ingredients have increased by a range of 63 to 250%. This is a significant price increment that impacts the performance of the livestock sector and the benefit that can be obtained from the sector. This indicates the need to decrease cost of the ingredients through various interventions, in which VAT removal would play a great role.

Table 2. Average price (Birr/Quintal) of ingredients used to formulate compound feed for the last five years and the current year

Ingredient type	Years				
	2009	**2010**	**2011**	**2012**	**2013**
Wheat bran	421	448	582	624	1700
Wheat middling	523	656	689	772	1800
Noug seed cake	620	705	810	1033	3200
Ground nut cake	460	500	513	775	2500
Soya bean cake	550	650	720	850	4000
Linseed cake	1200	1500	1920	2400	2550
Maize	450	557	695	1025	1400

Average price and taxes impose on premix and other feed additives used to formulate compound feed are shown in Table 3. Prices of these ingredients have increased over the last five years. Although poultry premix happened to be VAT exempted currently, the VAT exemption is not comprehensive to all minor ingredients used in the formulation of poultry rations (e.g., amino acids and minerals). On the other hand, VAT is not exempted from imported ingredients used for other species of livestock other than poultry (e.g., cattle and fish). Moreover, all imported items are liable for duty, sur and withholding taxes accounting for 23%. These feed ingredients are mainly imported from Europe (e.g., Belgium and Netherlands) and South Africa. Respondents noted in addition to VAT and taxes, lack of foreign currency and delay in costumes clearance (e.g., store rent) and related bureaucratic procedures as challenges of marketing of these ingredients, which will also be reflected in the sale price and consequently in the share of VAT of the ingredients.

Table 3. Average price (Birr/kg) of premix and other feed additives used to formulate compound feed for the last five years and the current year and the differ taxes imposed on them.

Type of feed Ingredients	Year (EC)						VAT (%)	Tax (%)		
	2008	2009	2010	2011	2012	2013		Duty	Sur	Withholding
Methionine	120	130	130	160	150	160	15	10	10	3
Lysine	131	154	140	196	170	170	15	10	10	3
Mono calcium phosphate (MCP)	65	59	68	71	124	124	15	10	10	3
Intraco layer premix 0.5%	29	50	37	36	48	48	-	10	10	3
Bestermine Vital	29	50	81	81	81	81	15	10	10	3
Fish & Tilapia Premix 1%	32	55	43	45	85	85	15	10	10	3
Broiler Starter Premix 1.67%	52	52	83	77	105	105	-	10	10	3
Broiler Finisher Premix 1.67%	92	125	116	91	153	153	-	10	10	3
Layer Premix 1.67%	79	110	112	112	112	112	-	10	10	3
Breeder Premix	61	90	83	70	70	70	-	10	10	3
Layer Premix 0.5%	54	78	68	55	103	103	-	10	10	3
Layer Premix 0.833%	11	14	44	51	51	51	-	10	10	3

3.2 Compound Animal Feed Price Trend

The price of compound feeds for different livestock species is reflection of the type of ingredients used and the cost of the ingredients. For all livestock species feed cost increased each year over the last five years (Figure 2 & 3). Feed prices increased by 64, 56, 86, 87, 193, 66% over the last five years for layers, broilers, chicks, dairy, fattening cattle and shoats, respectively (Figure 2). Feed prices have been increasing annually by a range of 9 to 38% over the last five years (Figure 3). The current formulated feed prices for layers, broilers, chicks, dairy, fattening cattle and shoats are 2075, 2283, 2250, 1800, 1700 and 1372 Birr/quintal, respectively. Compared to last year, increment in feed prices in the current year for layers, broilers, chicks, dairy, fattening cattle and shoats were 12, 10, 31, 44, 52 and 38%, respectively. The current greater rising feed prices will be reflected on livestock production, prices of livestock products and consequently on the economic contribution of the sector to household income, nutritional security and national economy.
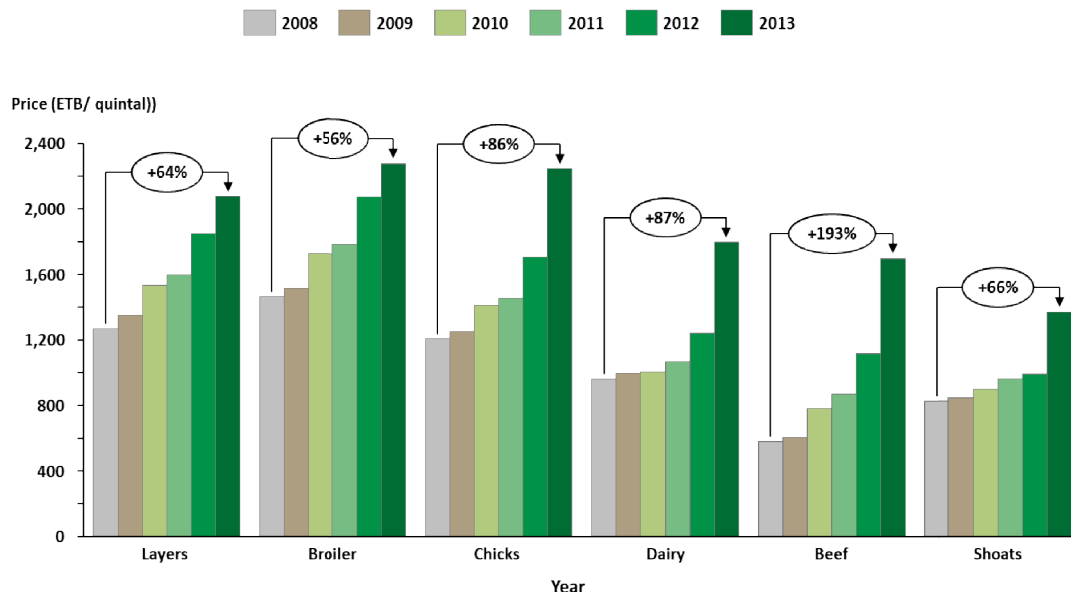
Figure 2. Cost of feed for different livestock species during the current year and the last five years and percentage price increment of feed over the last five years period
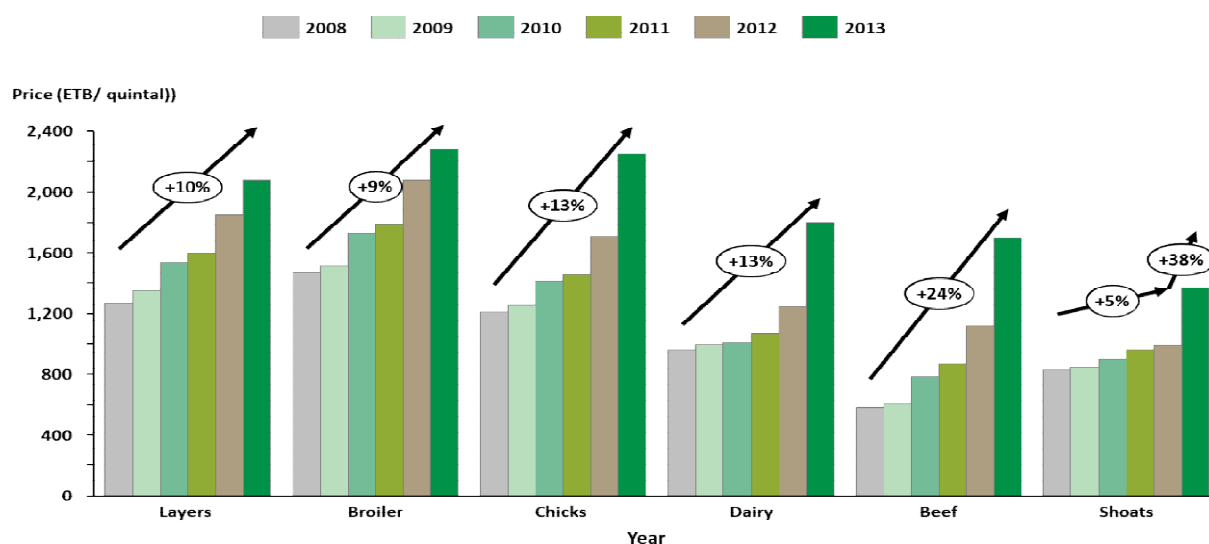
Figure 3. Cost of feed for different livestock species during the current year and the last five years and annual percentage price increment of feed during the last five years period

Outcome on Removal of VAT and Other Taxes from Feed Ingredients and Feeds Development of commercial feed industry

Removal of VAT and other taxes is expected to benefit the commercial feed industry through significantly increasing volume of feed production. If all the VAT and other taxes removed is directly invested on feed production, it is estimated that about 35% more layer and broiler rations and 82% more dairy and fattening cattle formulated feed will be produced (Figure 4). This increased feed production will not only drive up supply, but also will drive down feed prices. The removal of feed VAT will also avoid the relative competitive position of informal feed producers that may operate without VAT, which may deter the existing formal feed producers that produce quality feed from entering the market. Thus, the removal of VAT is expected to encourage the commercial feed industry to invest more.

According to the survey result farm gate prices for an egg, a liter of milk, a kg live weight of broiler and a kg live weight of cattle are Birr 4.50, 22.00, 150.00 and 100.10, respectively (Table 4). Total feed cost associated with the production of these livestock products was calculated from the amount required to produce the product times the cost of feed obtained from feed processors (see Table 4). Additional assumptions are 40% of the ration of layers and broilers constitute maize which is VAT free. The remaining 60% is assumed to have been paid VAT at least twice (see Figure 1). Moreover, about 3% of the ration constitutes imported feed additives taxed at 23%. For dairy about 40% and for fattening about 70% of the ration is assumed to constitute concentrate in which VAT is paid at least thrice when reached the livestock producer.

Feed cost and cost of production

Animal feed industry play a strategic and a key role in livestock development. Animal feed largely drives the cost structure of livestock production accounting up to 80% production cost, suggesting feed prices to be the major determinant of the price of livestock products (egg, milk, and meat). The share of VAT and import taxes from the total feed cost to produce an egg, a liter of milk, a kg live weight of broiler and a kg live weight of cattle were 26, 26, 29 and 40%, respectively (Table 4). These values if removed highlight a significant contribution to the growth and transformation of the livestock sector.

High feed cost due to VAT and other taxes exclude livestock producers from accessing quality feeds that force farmers to use low quality feed that negatively affect livestock production. The result of this study indicated that for the government aiming policy at advancing livestock industry has to ensure producers' access to quality and affordable feeds, and removal of VAT and other taxes from feed ingredients and formulated feeds plays a significant part in this regard.

Table 4. Feed cost and contribution of VAT and import taxes to feed cost per unit product

Animal product	Total feed cost contribution (%)	Contribution of VAT + tax from total feed cost (%)	Price reduction out of total feed cost (%)
Egg	57.64	26.0	55
Broilers (1 kg weight gain)	34.24	26.3	26.34
A Litter of milk	63.64	28.9	28.93
Beef (1 kg weight gain)	66.63	40.1	40.14

Table 5. Product prices, with and without VAT at farm Gate

Animal product	Product unit price with vat (Birr)	Unit price without vat (Birr)	Price reduction (%)
Egg	4.50	3.83	14.97
Broilers (1 kg weight gain)	150.00	136.47	9.02
A Litter of milk	22.00	17.95	18.41
Beef (1 kg weight gain)	100.10	73.33	26.75
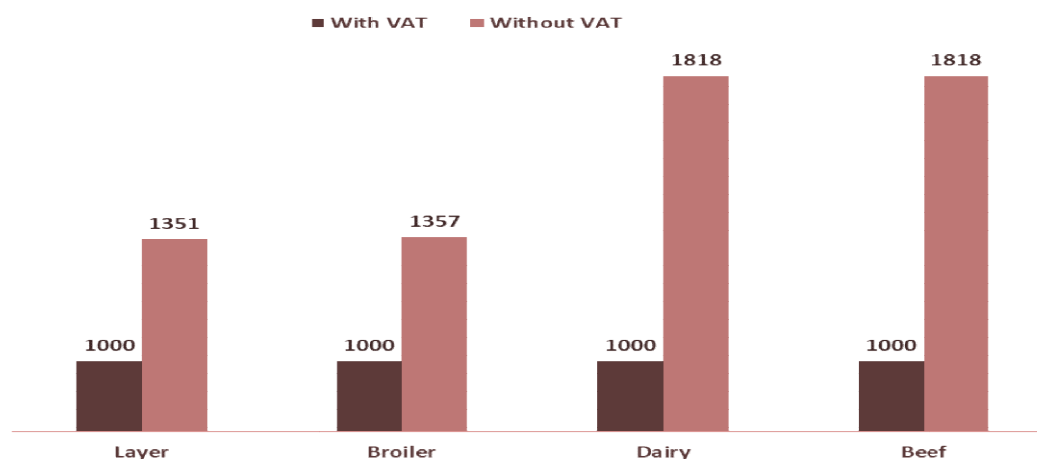
Figure 4. Increment in the amount of thousand tons of concentrate feeds produced for different livestock species due to removal of VAT and other taxes

If removal of VAT and other taxes drives real rate of return on investment to about 20%, this could be sufficient to attract private investment in the feed industry. Consequently, feeds prices is expected to drop in the short and medium term due to increased feed supply. However, increased competition will soon stimulate quality feed supply. It is important to note that the GoE also benefits from this policy in different perspectives. Firstly, although it may seem that VAT exemption would reduce fiscal inflows to the GoE, increased investment and production with generate more income to the government making the potential foregone VAT revenues rather hypothetical. In addition, the quality of commercially-produced feeds is inspected on a regular basis, and increased availability of such feed would enhance overall productivity of the livestock sector. This intervention would also increase in domestic supply of the feed that will benefit the economy through foreign exchange savings since the imports of livestock products mainly powder milk would fall.

Livestock product consumption and food security

If VAT and import taxes are removed, price of livestock products will decrease by a range of 9-27% (see Table 4). This is translated to purchasing of 18, 10, 23 and 37% more egg, broiler meat, milk and beef, respectively for the same price paid with VAT. Thus, if VAT and other taxes are removed from feed ingredients and formulated feeds, one can purchase with the same price 14 egg, 1.1 kg broiler meat, 1.23 liter of milk and 1.4 kg of beef as compared to purchasing 12 eggs, 1 kg broiler meat, 1 liter milk and 1 kg beef when produced with feed VAT and other taxes (Figure 4). This apparently increases the affordability of livestock products by consumers and will enhance the consumption of animal source foods (ASF). This will also improve the current per capita consumption of livestock products in Ethiopia, which is one of the lowest in the World (9 kg meat, 56.2 liters milk, 4 eggs; FAO, 2019).
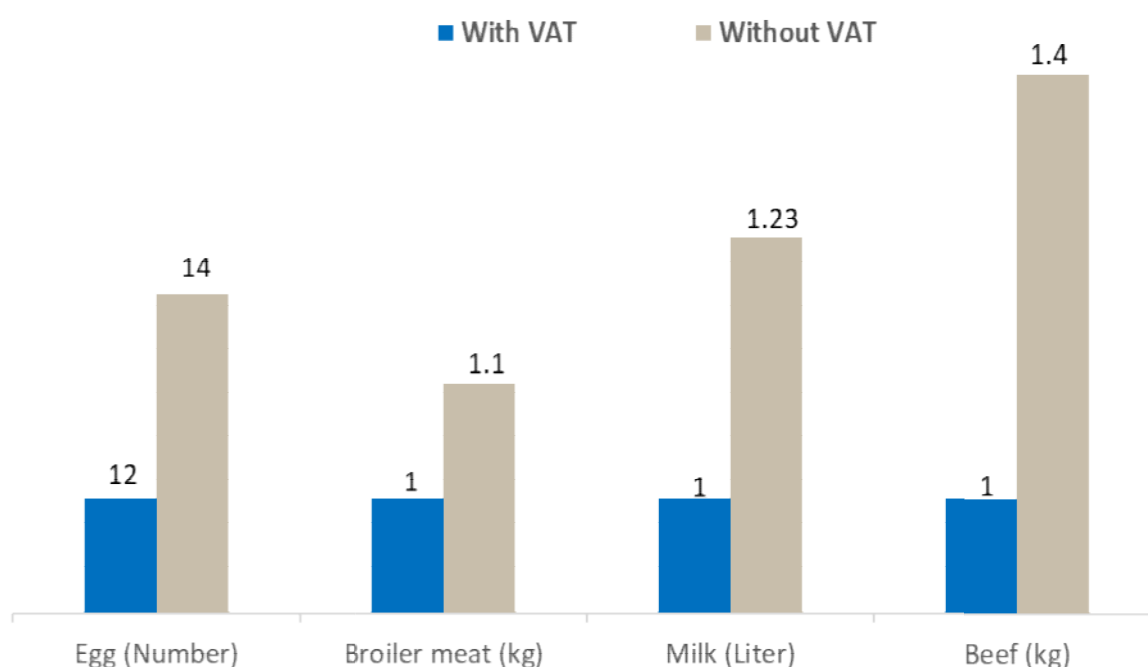
Figure 5. Increment in the amount of livestock products that can be purchased for the same price due to removal of VAT and other taxes

Ethiopia's GDP growing at 7-8%, the population growing at 3% annually and rising urbanization (ILRI, 2019) are proofs for the demand of livestock products to increase immensely in the future. More milk, eggs, poultry and red meat will be required to feed the growing middle class. This requires for a considerable effort to enhance the livestock sector, which is an opportunity for investment and domestic businesses. Thus, government's effort to address bottlenecks in the livestock sector should consider removal of feed VAT and other taxes that would discourage investment in the sector. Removal of VAT on feed and feed ingredient is expected to lead to a decrease in the selling price of the feeds, making them affordable to the farmers. This will lower production cost, enhance production and in turn increase affordability of ASFs.

Livestock improve food and nutrition security as ASF are rich in major and micro-nutrients. ASF are a major source of iron, zinc, calcium, riboflavin, vitamin A, vitamin B-12, and retinol, which have numerous benefits including linear growth, cognitive development and general health, leading to long term improvements in income and productivity. Milk in particular contains several critical micronutrients such as calcium, vitamin A, riboflavin and vitamin B12 that are essential for growth and development of children older than 12 months (Enahoro*et al.,* 2019). Children, pregnant and lactating mothers should be receiving ASF, whose consumption currently is quite low. However, to assure that this increased local demand can be met by local supply and not by imports, more attention will need to be paid to livestock-related investments, and the facilitation of an enabling environment that will allow for efficient livestock feed industry.

Transforming the livestock sector

The removal of feed VAT will strengthen the government's commitment of transforming the livestock sector by encouraging local manufacturers to produce high quality feeds at low cost, thereby making the business profitable. The removal of the tax is a huge relief to the industry at a time where the feed industry is struggling with the high cost of production. Thus, the removal of taxes on raw material for the manufacture of animal feeds will encourage private investment in the feed industry, thereby increasing the variety of feeds available and competition that could result in high quality products.

The sector is packed with poor quality feeds that may be affordable. Only few manufacturers are able to consistently manufacture feeds that meet quality standards. The removal of the VAT and import taxes from animal feed ingredients and formulated feeds is an indication that the government is committed to creating a conducive environment to attract investment in the feed industry. With quality investment and healthy competition, the quality of feeds supplied will grow and this will definitely improve value to farmers.

Attaining national targets

As outlined in the background section of this document (see also Table 4), Ethiopia has set targets for livestock production in the ten years perspective plan (2012-22 EC). This is possible if the country can secure year-round sufficient, affordable and quality feed supply. Considering the current base production level for egg, broiler meat, milk and red meat (10 years perspective plan) and decrease in product price due to removal of VAT and other taxes (estimate of this analysis), the percentage increment of the products that can be achieved due to removal of VAT and other taxes was calculated (Table 4). If the targets set for 2022 EC from the base year 2012 EC is equally divided for the 10 years period, expected annual growth for egg, broiler meat, milk and red meat are 15, 12, 17 and 49%, respectively. The current analysis indicated that the removal of VAT and other taxes from feed ingredients and feeds and associated reduced product prices if all invested on the production of the products, it would lead to the annual production growth rate of 35, 36, 41 and 67% for egg, broiler meat, milk and red meat, respectively (Table 4). This is well above the expected annual growth rate targets of the products set in the plan. Thus, removal of VAT and other taxes will enable the attainment of the national targets set in the ten years perspective plan.

Demand for feed is expected to increase associated with the 10 years perspective plan. Increasing demand for animal feed is driven by the obvious need to produce more livestock products. For example, the use of the cross-breed cattle population is expected to grow to nearly 3 million for more milk production, which will require enhanced feed and feeding services. Increased supply of feed is expected to be partly catalyzed by the removal of VAT and other taxes from feed ingredients and formulated feeds. Generally, the analysis showed that the removal of VAT and other taxes from feed ingredients and formulated feeds is expected to have the benefits of making feeds affordable to farmers, and to attract investment in the sector and thereby increasing supply of quality feed.

Table 6. Estimated production increment in livestock products due to removal of VAT and other taxes from feed ingredients and feeds compared to targets set in 10 years perspective plan of the MoA(ministry of Agriculture)

Livestock Product	Current Base production level	Goal set for 2022 EC	Estimated annual production from base year with VAT	Estimated annual production growth without VAT (%)
Egg (Billion)	2.2	5.5	2.97	35.1
Broiler meat (tons)	48,000	106,000	65,129	35.7
Milk (Billion liter)	4.3	11.6	6.05	40.6
Red meat (tons)	297,000	1,759,000	495,826	66.9

Conclusion and Recommendation

The current analysis indicated that the removal of VAT and other taxes from feed ingredients and formulated feeds:

- Will drive feed cost down by an average of 30.3%.
- Will reduce cost of livestock products by a mean of 17.3%.
- Will increase amount of feed produced by about 35% for layer and broiler and 82% for dairy and fattening cattle.
- Will improve the affordability of livestock products, which enable one to purchase 18, 10, 23 and 37% more egg, broiler meat, milk and beef, respectively for the same price paid with VAT.
- Will create an enabling environment to achieve national targets set for livestock production in the ten years perspective plan (2012-22 EC).

It is therefore, highly recommended and is timely to remove VAT and import taxes from all feed ingredients (locally produced and imported) that are used for feeding livestock and to make formulated feeds, as well as from formulated feeds. This action needs to include feed ingredients and feeds used for all livestock species that are used to produce food either for domestic consumption or for export. This action will definitely help in transforming the livestock sector to accrue better socio-economic benefits for society as well as for the nation. With greater investment, productivity and economic return from the sector due to this intervention, the government is expected to collect more revenue than that obtained from VAT and other taxes levied on feed and feed ingredients.

REFERENCES

1 ATA, 2015.Enhancing the tax regime on feed inputs to catalyze feed quality and poultry meat and egg production.

2. Enahoro D, Njuri N, Thornton P, Staal SJ. 2019. A review of projections of demand and supply of livestock-derived foods and the implications for livestock sector management in LSIL focus countries. CCAFS Working Paper no. 262 Wageningen, the Netherlands: www.ccafs.cgiar.org

3. FAO. 2018. *Ethiopia: Report on feed inventory and feed balance, 2018*. Rome, Italy. 160 pages.Licence: CC BY-NC-SA 3.0 IGO.

4. FAO. 2019. The future of livestock in Ethiopia. Opportunities and challenges in the face of uncertainty. Rome. 48 pp. Licence: CC BY-NC-SA 3.0 IGO

5. ILRI (2019). Options for the livestock sector in developing and emerging economies to 2030 and beyond. *Meat: The Future Series. Geneva, Switzerland: World Economic Forum*. Retrieved from https://hdl.handle.net/10568/99006

6. Ministry of Agriculture, 2020-202910 year's prospective plan

Full Length Research

Social media as podia for information sharing in Selected University in Nigeria

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Abstract

The world-wide development on the use of social media has boosted expert information sharing and interaction. This expansion has fashioned spaces for groups that regulate who acquires informed, efficient, encouraged and linked as members. The population for the study comprised 90 library staff in three Federal universities in the South-West geo-political zone of Nigeria. A stratified random sampling technique was adopted to subdivide the universities into samples. The instrument for the study is an Online Structured Questionnaire (OSQ) based on four (4) point scale rating, a midpoint mean of 2.5 was used as positive response criterion mean and accepted as a positive response. The result showed that WhatsApp was universally accepted as social medial podium used by the library staff, followed by Facebook and twitter. The findings discovered some benefits of using social medial, such as minimized travelling for meeting/share image/audios/text/animation, ideas/ knowledge/sharing/maintains chat history and scholarship among others. Findings further showed higher cost of data subscription, disregard to rules and regulation of the group, privacy and security, verbal attacks/open quarrel, unwanted copy/paste, delay/dragging of crucial matters in the podium, and information explosion /hacking into the podium were challenges encountered while using social media platforms. It was therefore, recommended that group must not be permitted to disintegrate due to the attitudes of a few members and violators of a group's rules should be warned, and strict measures can be taken to maintain the group's media's dignity among others.

Keyword: Group media podiums, Information sharing, Library staff, Nigeria

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INTRODUCTION

Today, library employees in Nigeria have many social media groups to which one may find himself subscribing to over ten groups and counting. These are all consequences of strategic sharing, which ensures that the information organisation is maintained alive by specialists who are willing to share. Information is shared among friends and colleagues, according to Ghasisani, Handayani and Munajat (2017).

In closed organizations, information sharing might become endless as long as it serves the group's goals or regulations. This indicates that there is information about the community that pulls individuals together, which usually leads to professional and personal gain (Munar& Jacobsen 2014).Thus, the number of closed groups for information

sharing on social media platforms is growing. The groups' members use digital platforms to communicate, generate, share, and process information (Lewis, 2010). This has made it easier for people to share information and has sped up the transfer of expertise.There are several things social media do to information services and sustainable relationship of library staff as partners in information professional. It indulges, includes, engages, informs, inspires and connects. Library and others in other sectors in Nigeria embrace and use social media tools to their full potential. In 2013, there were over 5 million active social media platform users in Nigeria (Terragon, 2013).

The Nigerian Library Association has different sections and chapters with aims and missions for information sharing. There are also institutions and other groups where library staff belong. These groups have avenues of engagement and information sharing (Igberaese&Akpojotor, 2014). The majority of library personnel in Nigeria are said to belong to a WhatsApp group run by a professional association, followed by a group that serves the entire library, a staff union group, and a group started by a colleague (Adomi& Solomon-Uwakwe, 2019). Twitter, Facebook, Instagram, WhatsApp, Youtube, and a slew of other social media platforms have brought people of like thoughts together to build a virtual community. Social media platforms, on the other hand, appear to have presented new obstacles for library employees in terms of sharing information and meeting user information needs and expectations.They have not studied the various closed groups in social media podiums and information exchange using different regions/institutions. As a result, this study evaluated the social media platforms for tactical information sharing in Nigeria, as well as the benefits and problems for Nigerian library workers.

Scope of the study

Social media were investigate as podiums for information sharing among library staff in selected universities (1) federal University of Technology Akure (2) Federal University of Agriculture, Abeokuta and (3)ObafemiAwolowo University Ile-Ife. The selected Universities are all located in Nigeria. The scope was chosen based on the observation of the researchers and to provide relevant information for the study.

Purposes of the study

The goal of this study was to evaluate the use of social media podiums for tactical information exchange among library professionals at a few Nigerian colleges. Specifically, the goal of this paper was to:

1.   Highlightthe social media podiums widely used by library professionals in Nigerian universities.
2.   Determine which professional social media groups the library's staff is a member of;
3.   Grab the benefits of social media groups of library staff
4.   Challenges of social media podiums used by library staff in selected universities in Nigeria

Review of Related Literature

Library Staff and Social Podiums Usage

   Young folks, in particular, are spending more time on social networking sites cheers to their improved communication abilities. As a result, there is growing worry around the world about pupils spending too much time on social media platforms. 75% of young adults claim that they would not be able to last one day without using social media and that a similar percentage of teenagers admitted that they would text a family member who is in the same house as them(Jones, 2015).Instant messaging apps like WhatsApp make it simple to communicate with individuals across large distances. The procedure has become rapid, simple, and low-cost. In a study conducted by (Si, L, 2012) it was discovered that instant messaging boosted social connectedness and the desire to communicate face to face. It's also suggested that the more you IM someone, the closer you are to them (Si, L, 2012).Users of instant messaging networks like WhatsApp, on the other hand, experience seven negative emotions: anxiety, guilt, pressure, distraction, shame, suspicion, and uncertainty (Si, L 2012).When faced with extended replies, these emotions can cause fear and a loss of self-esteem, as well as pressure to respond to messages rapidly, relationship suspicion of who another person is contacting, and uncertainty about the message's intended meaning. While there are benefits to using WhatsApp for

interpersonal communication, such as being able to communicate quickly with loved ones who are far away, it can also create communication obstacles due to diverse interpretations of a message, which can lead to a variety of negative emotions (Si, L, 2012).

The studies revealed numerous specific SM tools such as Twitter, Facebook, Blogging, Orkut, Badoo, Sky Blog, Google, LinkedIn, WhatsApp, Skype, My Space, Yahoo messenger, zoom, academic community blogs, online article bookmaking wikis, lib website for academic and social activities, SkyDrive, Google group used by students in a recent study by Njideka-Nwawih, Mutula, and Sambo (2021) on social media usage for academic purpose: A systematic literature review 2010 to 2020.The goal of social media usage has been identified as a determinant element for academics, as well as the effects of social media on learning. The study also identified difficulties that may limit the usage of social media for academic purposes.There are approximately 700 million active Facebook users, over 100 million LinkedIn members, 5 billion+ photographs on Flickr, 24 million articles on Wikipedia, 300 million Twitter users producing over 7,000 tweets each second, and over 2.9 billion hours of YouTube watching per month, according to statistics (Tortorella, 2012).High cost of data subscription/Internet access, poor battery, high rate of theft on campus, and lack of technical experts on repairs when faulty within campus are among the factors affecting the use of smart phones for information seeking by undergraduate students, according to Sambo, Lawal, and Helen (2021).According to Olajide, Otunya, and Omotayo (2017), the use of social media has boosted reach, socializing, knowledge, and information transmission.The National Library of Australia (NLA, 2010) adopted social media as a tool for business communication and community building. The Library of Congress utilizes social media to promote its services and engage with its online visitors (Braziel, 2009).WhatsApp is now a widely used social media platform for information sharing around the world. WhatsApp is a popular social networking platform in Malaysia.

According to a recent survey conducted by the Digital News Report (2017), Malaysians are the world's largest WhatsApp users, with 51%. More specifically, Mudzingwa (2018) claimed that in Zimbabwe, cell phones were primarily utilized for WhatsApp. Furthermore, according to recent study, WhatsApp was mostly employed as a communication tool (Tarisayi&Manhibi, 2017). Furthermore, according to the GlobalWebIndex (2020) study, WhatsApp was the most popular mobile application in 2019 based on monthly active users. WhatsApp was the third most popular social media network in the world, behind Facebook and YouTube (GlobalWebIndex, 2020). At Ankara University, Cetinkaya (2017) investigated the impact of WhatsApp use on academic accomplishment, finding that students formed positive attitudes toward the use of WhatsApp in their courses (Cetinkaya, 2017). Students attributed their favorable attitudes to content sharing and communication. More so, Tarisayi and Manhibi (2017) discussed how WhatsApp was used in Zimbabwe to implement a new curriculum.

Whatsapp as the Latest Trend among Library Staff

WhatsApp is a social media platform that allows users to send and receive messages as well as share media such as voice chats, videos, and photographs (Steele, 2014). Because it uses both data and Wi-Fi, it is not covered by your monthly text-messaging plan.WhatsApp is a messaging app that can be used on almost any device (and was originally free on smartphones) and is considered to be relatively safe and secure. WhatsApp's features, such as group chats and location sharing, are one of the reasons for its ever-increasing popularity among teenagers and young adults (Webwise, 2016).Furthermore, according to Ngozi and Oluchi (2020), WhatsApp was rated 100 percent as the most popular social media platform among librarians, followed by Facebook with 80 percent, Twitter with 50 percent, Instagram with 41.7 percent, and LinkedIn with 41.7 percent, while Skype and blogs were rated 33 percent and 25 percent, respectively.On WhatsApp and Facebook, it was also observed that 50% of the respondents belonged to 6-10 professional groups, while 33% and 25%, respectively, belonged to over 11 professional groups. According to a study by Oyovwe-Tinuoye and Adomi (2019) on the use of WhatsApp for the 2019 Nigerian Library Association election, the majority of their respondents used the NLA State chapter group WhatsApp to campaign for candidates; the WhatsApp platform also allowed respondents to receive election timetable, arrival of ballot papers, voting, election results, election results reactions, and so on; the use of harsh language by some people for campaigning, inability to keep track of campaign posts due to their frequency, unfavorable reactions to posts by supporters of some candidates, more so, impossibility of the administrator to summon some violators in group WhatsApp, among other things, were disadvantages of using WhatsApp for the election process.

RESEARCH METHODOLOGY

This study adopted a quantitative method because it involves statistical means of presentation. The study used descriptive survey research design as it is appropriate to provide detail explanation of events. Three universities were selected out of six federal universities in the south-west, Nigeria for the study (see below table 1). A stratified random sampling technique was adopted to subdivide the universities into samples. The sample from each university was randomly selected made up of ninety (90) Library staff. The instrument for the study is self-constructed Online Structured Questionnaire (OSQ) with Likert scale. Strongly Agreed (SA), Agreed (A), Disagree (D), and Strongly Disagree (SD). The OSQ was used to collect data and administered online via an assistant (Staff) who was able to compile their what Sapp phone numbers so as to use for sending the link to the OSQ to be filled and submitted. Google software was used to develop the OSQ. A Cronbach alpha index of 0.7 was obtained to determine the reliability of the OSQ. For the responses, it was based on four (4)-point rating scale, a mid-point mean of 2.5 was used as positive response criterion mean and accepted as a positive response because the average of individual mean score was 2.5

Table 1: Population of the Study

S/N	Names of the University	Library Staff
1	Federal University of Technology Akure (FUTA), Ondo State	30
2	Federal University of Agriculture, Abeokuta, Ogun (FUNNAB)	30
3	ObafemiAwolowo University, Ile-Ife (OAU) Osu State	30
	Total	90

RESULTS

Purpose 1: Social medial podiums widely used by library professionals in Nigerian universities

Table 2.

SN	Social media podiums used by library staff	SA	A	D	SD	$\bar{x}$	Decision
1	What Sapp	67	13	8	2	3.9	Accepted
2	Facebook	76	14	0	0	3.8	Accepted
3	Twitter	22	32	29	7	2.7	Accepted
4	Instagram	12	10	45	23	2.1	Rejected
5	LinkedIn	33	42	7	8	2.1	Rejected
6	Skype	10	11	49	20	2.1	Rejected
7	Blogs	2	12	43	33	1.9	Rejected
8	Snap chat	9	10	31	40	1.9	Rejected

Criterion Mean=2.50

Table 2 illustrates the social media podiums used by library personnel; 3.9 of the respondents strongly agreed that WhatsApp is the most popular accepted whereas Facebook 3.8 is the second acceptedwhile Twitter 2.7 is the fourth most popular accepted whereas Instagram/LinkedIn/Skype/2.1 and Blogs/Snap chat/1.9were rejected by the respondents. Participants also responded that, as long as one has internet access, WhatsApp was the most convenient and fastest way to share information. Furthermore, people use social media for diverse reasons based on their age, gender, social standing, and other characteristic

Purpose 2: Professional social media groups the library's staff is a member of;

Table 3

Professional social media podiums the library staff belong	SA	A	D	SD	$\overline{x}$	Decision
WhatsApp		82	8	0	0	3.9	Accepted
Facebook		52	35	2	1	3.5	Accepted
LinkedIn		21	51	12	6	3.0	Accepted

Criterion Mean=2.50

Table 3 displays the most popular social media podium's library staff belong to. WhatsApp was accepted by 3.9 percent of respondents, while Facebook was accepted by 3.5 percent and LinkedIn was accepted by 3.0 percent. This could be due to the convenience, popularity, and speed with which information is disseminated as long as data is available.

Purpose 3: Grab the benefits of social media groups of library staff.

Table 4

SN	Benefits of social media groups	SA	A	D	SD	$\overline{x}$	DECISION
1	Minimized travelling from meeting	67	13	8	2	3.9	Accepted
2	Share image/audio/videos/text/animation	82	8	0	0	3.9	Accepted
3	Ideas/ knowledge/sharing	54	23	9	4	3.7	Accepted
4	Maintains chat history	70	20	0	0	3.7	Accepted
5	Scholarship	55	32	0	3	3.6	Accepted
6	Employment prospect	45	39	4	2	3.4	Accepted
7	User friendly	51	20	11	8	3.2	Accepted
8	Award	21	51	12	6	3.0	Accepted
9	Fast and quick update	39	22	15	14	3.0	Accepted
10	Last seen feature	39	22	15	14	3.0	Accepted
11	Group writing and publication	33	23	24	10	2.9	Accepted
12	Collaboration/ partnership/ networking	20	44	13	13	2.8	Accepted
13	Building relationships	58	22	4	6	2.8	Accepted
14	Better search engine rankings	33	28	16	13	2.7	Accepted
15	Supports/volunteer	33	28	16	13	2.7	Accepted

Criterion Mean=2.50

Table 4 shows various benefits of social media groups, benefited by the respondents and all items were accepted by the respondents, as an advantages in using social media podium in the library. Such as minimized travelling from meeting/share image/audios/text/animation 3.9,ideas/ knowledge/sharing/maintains chat history 3.7, scholarship 3.6, employment prospect 3.4, users friendly 3.2, award/last seen feature/fast and quick update 3.0,group writing and publication 2.9, collaboration/ partnership/ networking 2.8, better search engine rankings 2.7, employment prospect 3.4, scholarship 3.6, award 3.0, building relationships 2.8, and supports/volunteer 2.7 respectively.

Purpose 4: Challenges of social media podiums faced by library staff in selected universities in Nigeria

Table 5

SN	Challenges of social media podiums used	SA	A	D	SD	$\bar{x}$	DECISION
1	Higher cost of data subscription	76	11	3	0	3.8	Accepted
2	Disregard to rules and regulations of the group	54	23	9	4	3.7	Accepted
3	Privacy and security	55	32	4	3	3.6	Accepted
4	Verbal attacks and open quarrel	45	39	4	2	3.4	Accepted
5	Unwanted copy/paste	33	23	24	10	2.9	Accepted
6	Delay/ dragging of important issues in the podiums	20	44	13	13	2.8	Accepted
7	Information explosion	33	28	16	13	2.7	Accepted
8	Hacking into the podium	33	28	16	13	2.7	Accepted

Criterion Mean=2.50

Table 5 displays challenges faced by the respondents in accessing social medial podium.Higher cost of data subscription 3.8, disregard to rules and regulation of the group 3.7, privacy and security 3.6, verbal attacks/open quarrel 3.4, unwanted copy/paste 2.9, delay/dragging of crucial matters in the podium 2.8, and information explosion /hacking into the podium 2.7 respectively.

Discussion of the findings

The findings in table 1 shown that WhatsApp is the most popular social media podium used by the respondents with 3.9, follows by Facebook 3.8 whereas Twitter 2.7 became third. It also, indicated that WhatsApp, Facebook and LinkedIn was accepted as social media podium library staff belonged to. This is in line with the findings of GlobalWebIndex (2020) with opined that WhatsApp was the most popular mobile application in 2019 based on monthly active users. Buttressed by Ngozi and Oluchi (2020) with opined that WhatsApp was rated 100 percent as the most popular social media platform among librarians, followed by Facebook with 80 percent, Twitter with 50 percent, Instagram with 41.7 percent, and LinkedIn with 41.7 percent, while Skype and blogs were rated 33 percent and 25 percent, respectively.Supported by Digital News Report (2017) emphasized that Malaysians are the world's largest WhatsApp users, with 51%. More specifically, Mudzingwa (2018) claimed that in Zimbabwe, cell phones were primarily utilized for WhatsApp.

The results in table 4 revealed that social media podiums had numerous benefits that made the library staff used it and belonged. According to the findings such benefits are; minimized travelling from meeting/share image/audios/text/animation ideas/ knowledge/sharing/maintains chat history, scholarship, employment prospect, users friendly, award/last seen feature/fast and quick update, group writing and publication, collaboration/ partnership/ networking, better search engine rankings, employment prospect, scholarship, award , building relationships and supports/volunteer. This is in consonance with the finding of Steele, (2014) with opined that WhatsApp is a social media platform that allows users to send and receive messages as well as share media such as voice chats, videos, and photographs. Buttressed by Si, L (2012) enumerated benefits of using WhatsApp for interpersonal communication, such as being able to communicate quickly with loved ones who are far away.

The results in table 5 indicated that users of social media podiums were facing a numerous challenges while accessing the podiums such as higher cost of data subscription, disregard to rules and regulation of the group, privacy and security, verbal attacks/open quarrel, unwanted copy/paste, delay/dragging of crucial matters in the podium and information explosion /hacking into the podiums. This is in line with the findings of Si, L (2012) with opined that, it can create communication obstacles due to diverse interpretations of a message, which can lead to a variety of negative emotions This is supported bySambo, Lawal, and Helen (2021) with opined that High cost of data subscription/Internet access, poor battery, high rate of theft on campus, and lack of technical experts on repairs when faulty within campus are among the factors affecting the use of smart phones for effective communication.

Implication of the findings

According to the study, social media podiums are popular among Nigerian library employees, with many of them preferring to participate in closed groups that transmit useful information for growth and development. It has also been demonstrated that professionals occasionally flout the rules of online communities. The consequence is that if professional etiquette is not observed and offenders are not sanctioned, meaningful information sharing may be impossible. The group's goal will not be met, and professional progress may be inhibited as a result, the ideals established by the exclusive group of social media platforms must be maintained in order for best practices to thrive.

CONCLUSION

The foundation of social media podiums with closed groups and active member input has become obvious. The information society of the twenty-first century, with professionals in the information industry, must stay relevant for an inclusive knowledge economy. Every library area is crucial, just as every employee has something to say on the social media stage. As a result of this research, staff should try to gauge other social media platforms besides Whatsapp and Facebook in order to recover more information. Furthermore, for members of any closed group, active participation is the only way to contribute to updates. Meanwhile, the advantages are great, and everyone should be encouraged and motivated to gain from them.

It was suggested that, based on the findings:

1. The group must not be permitted to disintegrate due to the attitudes of a few members.
2. Violators of a group's rules should be warned, and severe measures can be taken to maintain the group's media's dignity.
3. Library staff should be encouraged to investigate more social media sites for additional benefits, knowledge generation, networking, and sharing opportunities.
4. The rules and regulations of the professional social media group platform should be updated on a regular basis to remind members of the group's emphasis.
5. Unwanted posts should face severe consequences, as should members who make mistakes.

REFERENCES

Adomi, E. E. & Solomon-Uwakwe, B.(2019). Work related WhatsApp groups as knowledge sharing platforms among librarians in selected federal universities in Nigeria. *Journal of ICT Development, Applications and Research, 1*, 11 – 19. Retrieved from http://www.credencepressltd.com/journal/uploads/archive/20191564387275643175827.pdf.

Braziel, L. (2009). Social media marketing example #12: Library of Congress. Retrieved from http://www.igniteso cialmedia.com/social-media-examples/social-media-marketing-example-library-of-congress/.

Cetinkaya, L. (2017). The impact of WhatsApp use on success in education process.*International Review of Research in Open and Distributed Learning*, 18(7).http://www.irrodl.org/index.php/irrodl/article/view/3279/4446

Dunkerley, E., Allen, D., Pearman, A., Karanasios, S. & Crump, J. (2014).The influence of social media on information sharing and decision making in policing: research in progress. *Information Research,* 19 (4), 1-8.

Ghaisani, A. P., Handayani, P. W. &Munajat, O. (2017).Users' motivation in sharing information on social media.*Procedia Computer* 124 (2017), 530–535.

GlobalWebIndex (2020).*Global Media Intelligence report 2020.* https://www.gwi.com/reports/gmi-report

Irfan, M. &Dhimmar, S. (2019). Impact of WhatsApp Messenger on the university level

students: A psychological study. *International Journal of Research and Analytical Reviews*, 6(1), 572-586. http://ijrar.org/papers/IJRAR19J2805.pdf

Igberaese, M. O. &Akpojotor, O. L. (2014).Use of social media for information sharing among students of Federal University of Petroleum Resources Effurun.*Journal of Applied Information Science and Technology,* 7 (2), 38-45.

Jones, A. (2015, October 28). Teenagers dependent on social media.The Herald.

Lewis B. (2010). Social media and strategic communication: Attitudes and perceptions among college students. *Public Relations Journal*, *4* (3).

Mudzingwa, F. (2018).WhatsApp is still the Internet in Zimbabwe: Social media accounts for over 35% of mobile internet data traffic. *TechZim*, 5 October. https://www.techzim.co.zw/2018/10/whatsapp-is-still-the-internet-in-zimbabwesocial-media-accounts-for-over-35-of-mobile-internet-data-traffic/

Munar, A. & Jacobsen J. (2015).Motivations for sharing tourism experiences through social media.*Tourism Management*.*43*, 46-54.

Ngozi P. Osuchukwu&OluchiNguzoro, (2020).Social media as platforms for information sharing among librarians in Anambra State, Nigeria.*Journal of Library Services and Technologies,* 2(1), 41-50. ISSN: 2616-1354 (Print) 2636-7424 (Online) Available online at credencepressltd.com DOI: 10.47524/jlst.v2i1.4

Njideka, C. O, Stephen, M &Sambo, A. S (2021). Social media usage for academic purpose: A systematic literature review 2010 to 2020. *The Journal of Social Media for Learning.2(1)*, 17-29. ISSN2633-7843

NLA (2010). National Library of Australia publishes social media guidelines*.* Retrieved from http://web.resource shelf.com/go/resource blog/62891.

Olajide, A. F., Otunya, A. O. &Omotayo, O. A. (2017). How libraries are using social media:

Nigeria perspective.*International Journal of Digital Library Services,* 7 (3): 79-94.

Oyovwe-Tinuoye, G. O. &Adomi, E. E. (2019).WhatsApp and the 2019 Nigerian Library Association (NLA) election exercise.*Journal of Library Services and Technologies,* *1*(2), 14 –31.Retrieved from www.creden cepressltd.com/journal/uploads/archive/202015805126355230556880.pdf.

Sambo, A. S, Lawal, A. M & Helen, K (2021). The use of smart phones for information seeking by undergraduate students in Nigerian Specialized University*".Library Philosophy and Practice (e-journal)*. 5085. https://digitalcommons.unl.edu/libphilprac/5085

Si, L. (2012). Instant Messaging on Interpersonal Relationship.IM on interpersonal relationships, 30. Skills you need. (2016). Interpersonal Communication skills. Retrieved November 6, 2016, from Skills you need: http://www.skillsyouneed.com/ips/interpersonal-communication.html

Steele, C. (2014, February 20). What is WhatsApp? An explainer. Retrieved October 20, 2016, from PCMag: http://www.pcmag.com/article2/0,2817,2453710,00.asp

Tarisayi, K. S. &Manhibi, R. (2017). Social media tools in education: A case of WhatsApp use by heritage studies teachers in Zimbabwe. *Greener Journal of Social Sciences*, 7(4), 34-40.

https://www.researchgate.net/publication/319852391_Social_Media_Tools_in_Educat

ion_A_Case_of_WhatsApp_use_by_Heritage_Studies_Teachers_in_Zimbabwe

Terragon Limited. (2013). State of digital media in Nigeria. Retrieved from

http://slideshares.net/mobile*.*

Tortorella, D. (2012). Library marketing and promotion via social media.Retrieved from http://infopeople.org /training/library-marketing-and-promotion-social-*media.*

Webwise. (2016). Explainer: What is WhatsApp? Retrieved October 22, 2016, from Web Wise: http:// www.webwise.ie/parents/explainer-whatsapp/

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Full Length Research

Influence of use of medical information resources on job-specific task and non-job-specific task proficiencies of medical practitioners in teaching hospitals in South-West Nigeria

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Abstract

The study explores the influence of use of medical information resources on job-specific task and non-job-specific task proficiencies of medical practitioners in teaching hospitals in South-West Nigeria. The study adopted the survey design to investigate six teaching hospitals in the South-western Nigeria. Multi-sampling was used to administer 391 copies of questionnaire to the medical practitioner but 390 were returned for data analysis, making the response rate to be 99.7%. Data obtained were analyzed using inferential statistics (simple linear regression). Findings revealed that use of medical information resources (MIR) significantly influenced job-specific and non-job specific task proficiencies of medical practitioners in universities teaching hospitals in South-West, Nigeria. It was, therefore, recommended that the management of the teaching hospitals in the study area should improve the utilization of medical information resources by medical staff as this is vital to enhancing the job specific and non-job task proficiencies of the medical practitioners in the University teaching hospitals. Nonetheless, the management must bear in mind that the medical practitioners can still be proficient in their job and non-job specific tasks even when they do not utilize medical information resources.

Keywords: Job-specific task proficiency, non-job-specific task proficiency, Medical Information Resources, University Teaching Hospitals, South-West Nigeria

INTRODUCTION

Health care delivery system is central in meeting the goals and objectives of the university teaching health. The health care system in Nigeria is organized into a three-tier structure. They are primary, secondary and tertiary levels. National Health policy ascribes responsibilities of primary health care to local Governments and it comprises of clinics, comprehensive health centres and health posts under the management of local governments. Secondary health care level are the General and cottage Hospitals. They are under the responsibilities of state and federal Governments as the

case may be while the tertiary health care levels comprise of university teaching hospitals and specialist hospitals. The university teaching hospitals according to Ojo and Popoola (2015) are referral hospitals for primary and secondary health systems for specialized care and services, medical education and training of future and current physicians in residency programs to become consultants in different specialties in teaching hospitals. Thus, making teaching hospitals the primary health institutions providing tertiary level of healthcare to the citizenry. Nonetheless, the objectives of the healthcare service delivery might be unattainable if adequate attention is not given to the job performance of medical practitioners.

Several works have been done on the job performance of employees in the past (Abdel-Razek, 2011; Oyewole & Popoola, 2013; Yaya, Akintayo & Uzohue, 2016), However few attentions have been devoted to understanding the performance of medical practitioners in their technical and non-technical job roles. Other names for technical and non-technical performance on the job are called job specific task proficiency and non-job-specific task proficiency (Campbel, 1990). Job Specific Task Proficiency (JSTP) refers to the ability of medical practitioners in the technical duties such as quality of work, quantity of work, job knowledge, skills and work efficiency, training and professional development, creativity, innovation, paying attention to details, being result-oriented, making optimal use of information resources and competencies. On the other hand, Non-Job Specific Task Proficiency (NJSTP) are those behaviours displayed by medical practitioners which do not contribute to the technical core duties but are required to enhance organizational growth. Examples of NJSTP include written and oral communication, demonstration of efforts, personal discipline and team work (Campbel, 1990).

Monde, Akakandelwa and Kanyengo (2017) emphasized that the role of university teaching hospitals in the healthcare delivery system of a nation cannot be overemphasized and they are central in meeting national health goals especially in providing innovative treatment and delivery of quality health care services to the patients. University Teaching Hospitals in Nigeria and in particular university teaching hospital in South-West, Nigeria is established to provide the best and affordable quality health care to Nigerians in general, to enhance the job specific and non-job specific task proficiencies of medical practitioners to enable them produce better work outcome, enhance safety of patients and to conduct relevant research in health problems and development of science (Bassey, Ojua, Bassey & Ottong, 2012; Ojo & Popoola 2015; Torkula, 2020). The failure of the teaching hospitals management to pay attention to the performances of their human capacity could derail the achievement of the state, national and global health goals. Nevertheless, the job-specific and non-job-specific task proficiencies of medical practitioners in teaching hospitals in South-West Nigeria could be improved by paying attention to the use of medical information resources which equips the medical practitioners with relevant and useful knowledge. Ukpebor (2012) noted that electronic resources provide accurate and timely information, especially for students who depend greatly on the electronic resources for information to advance research and collaboration with other researchers around the world for intellectual growth.

Use of medical information resources (MIR) for effective job performance is paramount to healthcare delivery and very vital in achieving job functions in everyday work activities. According to Nwafor-Orizu and Onwudinjo (2015), the construct 'Use' could be employed to determine the extent of use of document in the library. In this study, the construct ``use'' means updating knowledge of medical practitioners through the use of the resources as well as putting the knowledge acquired into appropriate use. The extent of use of MIR in this study means the level to which medical practitioners utilize information in meeting their job needs and assignments. The use of MIR is central in quality improvement in work activities, clinical decision making and may depend on quality of information resources available and accessible for immediate use. Xianjin Zha, Jinchao Zhang, Yalan Yan (2014) noted that the construct use refers to the actual usage of library resources such as electronic resources or print resources with respect to the frequency of use and the amount of time involved. Gakibayo, Ikoja- Odongo, and Okello-Obura (2013) and by Isiakpona, and Ifijeh (2012) in a separate study listed the different types of e-resources to include e-books, e-journals, and other electronic materials such as e-articles, e-theses and e-dissertations, different databases (MEDLINE, HINARI, Cochrane Library, EBSCOHOST, JSTOR, Science direct, IEE) and CD-ROMs, which are likely to be the alternative to the print media. The research conducted by Dhanvandan, Esmail, and Nagarajan (2012) studied the use of e-resources in four medical college libraries in Puducherri, Pakistan and found that 80-90% of library users were aware of and accessed e-resources for teaching and research activities. However, none of the aforementioned authors provided information on the extent to which users utilize the medical information resources in various formats. Also, the influence of use of medical information resources on job specific and non-job-specific task proficiencies of medical practitioners has been examined in previous studies (Ajuwon, 2006; Ajuwon & Popoola, 2014; Brennan,Edwards, Kelly, Miller, Harrower & Mattick, 2014; Dunn, Marshall,Wells & Backus, 2017). Therefore, there is need to examine the influence of extent of use of medical information resources on job specific task and non-job-specific task proficiencies of medical practitioners in Nigeria.

Literature Review

Numerous works have been done on medical information resources in relation to performance of employees in the work places. However, there is a dearth of information on use of medical information resources and job performance of medical practitioners. The study of Nwokedi and Ogundare (2005) noted that one of the major objectives of any library is to ensure that maximum use is made of its resources and services. Gatero (2010) conceived that the aim of investigating the availability and utilization of information and communication technology is for accessing health information by medical professionals in Kenya. The motivation for seeking information by medical faculty is the need to understand and perform tasks related to patient care/clinical information, pharmacological information, current approaches to treatment, current practices in medical and clinical trials. In the course of their clinical practice, the main findings of the study were that medical professionals continuously needed knowledge. Clinical governance, care of patients and professional updating on the current medical practices were the main reasons for needing and using information.

Phua and Lim (2007) conducted a study evaluating the amount of time the residents and interns at the National University Hospital spent on using various medical information resources to answer clinical questions and how useful they perceived these resources to be. The doctors use the information resources to frequently to update their knowledge, answer clinical questions as well as maintaining adequate patient's management and care. The result showed that doctors used teaching sessions and print textbooks, rating them as most useful in improving physician performance. A study carried out by D'Alessandro, Kreiter, and Peterson, (2004) on usage of computer resources at the point of care. The general paediatricians used computer resources including digital libraries to seek answers for clinical queries at the point of care as they are effective and more time-efficient in search of information. The result revealed that the use of computer resources had positive effect on physician decision making.

The investigation of Westbrook, Gosling and Coiera (2004) which asked the question, do clinicians use online evidence to support patient care? This study examined the clinician's actual and reported use of a point-of-care online information resource. The study found that clinicians use online evidence primarily to support clinical decisions relating to direct patient care; and secondly, clinicians use online evidence predominantly for research and continuing education. Clinicians' online evidence use increases patient care. The use of the online resources was found to significantly improve the accuracy of the answers provided from online resources, indicating the potential benefit of using information resources by medical practitioners. The clinicians consulted and reported that they used online information resources personally to improve patient care when consulting.

A study by Hussain and Kumar (2013) reported the use of information resources by faculty of Pharmacy in Chennai. A well structure questionnaire was used for collecting opinions of the library users about usage of information resources and services. The findings showed that most of the academic librarians from the master school of management visit the library for adequate access of reference resources and services for effective and efficient job performance. Findings further showed that books, periodicals and newspaper are the most used information resources that enhance job performance among faculty members while maps, charts microfilms/microfiches are of less used.

Shariff, Bejaimal, Sontrop, Iansavichus, Weir, Haynes…. & Garg (2011) in a study titled searching for medical information online: a survey of Canadian nephrologists evaluated how nephrologists use online information sources including UpToDate (92%), PubMed (89%), Google (76%) and Ovid MEDLINE (55%). Community-based nephrologists were more likely to consult UpToDate first (91%), while academic nephrologists were divided between UpToDate (58%) and PubMed (41%). The study revealed that nephrologists used a variety of online sources to retrieve information from bibliographic resources and specialized medical resources to guide the treatment and care of patients.

According to Marshall, Morgan, Thompson and Wells (2014), of the 4,520 respondents, 75% suggested that they definitely or probably handled patient care differently after making use of information obtained from the library. This led the authors to conclude that doctors valued the use of the information resources they used. Another value of medical library resources is seen in their accessibility. Patient care outcomes were examined in relation to four information access methods such as asking librarian(s), performing searches in a physical library, searching libraries' web sites and searching library resources on an institutional intranet. The findings of the study showed that all library access methods have consistent positive relationships with the clinical outcomes, providing evidence that library services had a positive impact on patient care quality.

Marshall, Sollenberger, Easterby-Gannett, Morgan, Klem, Oliver, Thompson, Romanosky and Hunter (2013) described research conducted in a web-based survey of physicians, residents, and nurses. Three quarter of the respondents suggested that they had definitely or probably handled aspects of the patient care situation differently as a result of the information they received from the library. Among the reported changes were pieces of advice given to the

patient (48%), diagnosis (25%), and choice of drugs (33%), other treatment (31%), and tests (23%). Almost all of the respondents (95%) agreed that the information resulted in a better-informed clinical decision. Respondents' reports suggested that the information allowed them to avoid the following adverse events: patient misunderstanding of the disease (23%), additional tests (19%), misdiagnosis (13%), adverse drug reactions (13%), medication errors (12%), and patient mortality (6%). Ajuwon (2006) conducted a survey on 172 physicians to assess physician's use of internet for health information for patients care at the University college hospital (UCH) Ibadan, Nigeria. The database most recently searched was MEDLINE/PubMed in 99% of cases. The findings revealed that physicians generally use internet for patient's care. In a related study, Musa and Omopupa (2005) conducted research to determine the utilization of hospital library by health workers in a tertiary health institution in Ilorin, Kwara State. The analysis revealed that most of the respondents used the library, and a significant proportion of the doctors were found to use the library facilities more than any group of health professionals through the reading of library textbooks and Medline use.

Oyefeso (2013) studied the use of information resources by medical doctors in Olabisi Onabanjo University Teaching Hospital. The findings show that medical doctors perceive the library to be very relevant source of information and the internet as the major source of information. A very high percentage of the respondents sourced information with a very high frequency in attending to patients. The study by Kutu and Olajide (2020) examined the level of information resources availability, utilization and job performance in selected university libraries in North-Central Nigeria. The finding of the study showed relationship between level of information resources utilization and academic librarians job performance.

In similar study, Westbrook, Coiera and Gosling (2005) assessed the impact of clinicians' use of high-quality evidence from online information sources beneficial in solving clinical problems and enriching their capability in their performance in answering clinical questions. The result of the findings showed that online information resources use resulted in a 21% improvement in clinicians' performance in answering clinical questions within a defined time period. The use of online information resources significantly improved the quality of answers provided by clinicians to typical clinical problems. The study by Okoro and Okoro (2009) examined the use of Internet and electronic information resources in accessing medical information for providing patient care with emphasis on gender and status. According to the authors, medical information is very essential to medical doctors especially in credible discharge of their duties. Medical practitioners need adequate and quick health information to possess knowledge and core technical skills to be competent and knowledgeable in clinical practices for efficient practice of medicine. The results indicated that among the male resident doctors, the most common reason for searching medical information was for examination preparation. Updating knowledge was the most common reason for both the male and female consultants, followed by research, for teaching and publication.

The performance of doctors involves use of medical information resources and information technology. They use MIR to acquire skills and to gather information to create new knowledge for quality patient's management, care and decision making. The University teaching hospitals management will have to stock and equipped the medical libraries with the right, current and relevant MIR to ensure optimal performance and quality delivery of healthcare services in the discharge of their duties. This will make them to compete with their counterparts both nationally and internationally in terms of professional practices and medical research. In view of this, Wu (2011) affirmed that a worker uses documents to understand a task's related topics and solve specific problems. When medical practitioners begin their clinical and professional duties, they use MIR for information that will help them in day-to-day activities. Using MIR will support them in answering clinical questions, clinical care of patients and updating of knowledge which will help medical practitioners to contribute meaningfully to their job functions. MIR can enable medical practitioners to perform well in their work schedules, make informed professional decisions and guide them in the right directions to choose from the best available evidences from medical information resources.

OBJECTIVES

The specific objectives of the study are to:

1.   examine the influence of extent of use of medical information resources on the job-specific task proficiency of medical practitioners in South-West, Nigeria.
2.   determine the influence of extent of use of medical information resources on the non-job-specific task proficiency of medical practitioners in South-West, Nigeria.

Research Hypotheses

The study sought to provide answers to the following research hypotheses:

1. There is no significant influence of extent of use of medical information resources on the job-specific task proficiency of medical practitioners in South-West, Nigeria.
2. There is no significant influence of extent of use of medical information resources on the non-job-specific task proficiency of medical practitioners in South-West, Nigeria.

METHODS

The study used the descriptive research design to investigate the job performance of medical doctors in university teaching hospitals in South-West, Nigeria. The population of this research consisted of 2,913 medical doctors in University Teaching Hospitals in South-West geopolitical zone of Nigeria. Southwestern Nigeria is one of the six geo-political zones and made up of six states are Lagos, Ondo, Osun, Ogun, Ekiti, and Oyo. The university teaching hospitals in the region are: University Teaching Hospital, Ado Ekiti, Lagos University Teaching Hospital, Idi-Araba, Lagos, Olabisi Onabanjo university Teaching Hospital, Sagamu, University of Medical Sciences, Ondo, Obafemi Awolowo University Teaching hospital, Ile-Ife and University College Hospital, Ibadan. The sample size of the study was 391 medical doctors, based on Taro Yamane sampling size determination formula. A 3-stage sampling technique comprising purposive, proportionate stratified and accidental sampling methods were adopted for the study. The research instrument indicated a reliability index of 0.788, signifying that the research instrument is reliable. Out of the 391 copies of questionnaire administered, 390 copies were retrieved for data analysis which constituted 99.7% of the response rate. Inferential statistics (simple linear regression) was used to answer the research hypotheses.

FINDINGS

The respondents' analyzed demographic data are shown in Table 1

Table 1. Respondents' demographic information

Demographic Variables	Frequency (n)	Percent (%)
Gender		
Male	255	65.4%
Female	135	34.6%
	390	100.0%
Age		
Below 30 years	117	30.0%
30-40 years	156	40.0%
41-50 years	97	24.9%
51-60 years	17	4.4%
Above 60 years	3	0.7%
	390	100.0%
Years of experience		
1-10 years	242	62.1%
11-20 years	101	25.9%
21-30 years	35	9.0%
31-40 years	9	2.3%
41 years and above	3	0.8%
	390	100.0%
Highest educational qualification		
MBBS	225	57.7%
MSC	98	25.1%

PHD	67	17.2%
	390	100.0%
Professional qualification		
FRCS	213	54.6%
FRCP	85	21.8%
FMCS	75	19.2%
FMCP	5	1.3%
FWACS	7	1.8%
FWAC	5	1.3%
	390	100.0%
Area of specialization		
Community medicine	22	11.7%
Internal medicine	17	9.0%
Paediatrics	28	14.9%
Surgery	37	19.7%
Obstetrics and gynaecology	52	27.7%
Haematology	30	16.0%
Pathological science	2	1.1%
	188	100.0%
Job position		
Medical officer	106	27.3%
Senior medical officer	68	17.5%
Registrar	113	29.1%
Consultant	101	26.0%
	388	100.0%

Source: Researcher's Field Survey, 2021

The result of the study on gender is shown in Table 1. Table 1 revealed that two hundred and fifty-five respondents (n=255, 65.4%) were males while 34.6% (n=135) of the respondents were females. This suggests that there are more male medical practitioners than females in the University teaching hospitals in South-west, Nigeria. Hence, the University teaching hospitals in South-west, Nigeria is male-dominated profession. The result on age revealed that 70.0% of the respondents (n=273) were below 40 years of age. These are usually the active working ages. From the result, it could be concluded that many employees in the medical sector under study were still in their prime age, young and energetic. Therefore, most members of the medical work force are within the productive age, which encourages efficient, effective and productive performance. Sixty-two percent (62.1%) of the medical personnel in the University teaching hospitals had 1-10 years' work experience while those with 41 years and above were 0.8%. This result showed that many of the participants in the study area have worked in the medical sector for quite a while. By implication, the tacit knowledge and job experience of the medical practitioners can be vital in achieving organizational effectiveness of the University teaching hospitals.

Table 1 indicates that medical practitioners with MBBS (57.7%, n=225) have the highest educational qualification while PhD is the least at 17.20% (n=67). This type of result is expected since as university teaching hospitals will more likely give higher priority to employing people with basic qualifications than others. The very few participants that possess doctorate degrees indicate the need for medical doctors to upgrade their qualifications, a situation which the National Universities Commission has constantly complain about. Table 1 indicates that medical practitioners with 54.6% (n=213) possessed FRCS while FWAC is the least at 1.3% (n=5) and FMCP (N=5, 1.3%). This shows that most staff in the University teaching hospitals, Nigeria have the basic professional qualification in medicine. Obstetrics and gynaecology unit had the highest number of staff, 27.7% (n=52) while Pathological science (1.1%, n=2) was the least. This result also suggests that the sample cut across the various units in the University teaching hospitals under study. Twenty-nine percent (29.1%, n=113) of employees in the study were registrars while the senior medical officers were 17.5% (68). This suggests that registrars participated more in the study. This result could also imply that the University teaching hospitals under study are largely dominated by registrars.

Hypothesis 1: There is no significant influence of extent of use of medical information resources on the job-specific task proficiency of medical practitioners in South-West, Nigeria.

Table 2. Simple linear regression analysis of use of medical information resources and job specific task proficiency of medical practitioners

Predictors	B	Beta (β)	T	P	R^2	Adj. R^2	F	ANOVA (Sig.)
(Constant)	2.142		20.338	.000				
Use of MIR	.363	.459	10.080	.000	0.211	0.209	101.607	0.000*
Dependent Variable: Job specific task proficiency								
Predictor: (Constant), Use of MIR								
DF (F-Statistic) = 1, 380								
DF (T-Statistic) = 379								

Source: Field Survey Results, 2021

Table 2 shows that use of medical information resources (MIR) significantly influenced job specific task proficiency of medical practitioners in University teaching hospitals in South-West, Nigeria (R^2 = 0.211, β = 0.459, t (379) = 10.080, $p <$ 0.05). The model shows that use of medical information resources explains 21.1% (R^2 = 0.211) variation in job specific task proficiency of medical practitioners. This means that use of medical information resources predicts job specific task proficiency of medical practitioners in University teaching hospitals in the study area. Hence, the null hypothesis which states that use of medical information resources will not significantly influence job specific task proficiency of medical practitioners in University teaching hospitals in South-West, Nigeria was rejected. By implication, utilization of medical information resources by medical staff is vital to enhancing the job specific task proficiency of medical practitioners in the University teaching hospitals. The regression model generated from the data in Table 2 is:

The regression model generated from the data in Table 2 is:

Regression Model:

JSTP = 2.142 + .363 U + *u* ……………………Model 1

Where:

JSTP = Job specific task proficiency
U = Use of MIR
u = Disturbance term (All uncaptured variables that can influence JSTP but not included in the model)

The result of the regression model 1 indicates that, holding use of MIR to a constant zero, job specific task proficiency would be 2.142, implying that in the absence of use of MIR, medical practitioners in the University teaching hospitals in South-West, Nigeria would still be proficient in their job specific task based on the reason that other factors (denoted by *u*) not investigated in the study can still influence job specific task proficiency. In addition, the model shows that when use of MIR is improved by one unit on a measurement scale, there will be corresponding 36.3% (0.363) increase in the job specific task proficiency of medical practitioners. This result suggests that use of MIR is a strong predictor of job specific task proficiency of medical practitioners.

Hypothesis 2: There is no significant influence of extent of use of medical information resources on the non-job-specific task proficiency of medical practitioners in South-West, Nigeria.

Table 3. Simple linear regression analysis of use of medical information resources and non-job specific task proficiency of medical practitioners

Predictors	B	Beta (β)	T	*P*	R^2	*Adj.* R^2	F	ANOVA (Sig.)
(Constant)	2.527		23.124	.000				
Use of MIR	.295	.375	7.888	.000	0.141	0.138	62.221	0.000*
Dependent Variable: Non-job specific task proficiency								
Predictor: (Constant), Use of MIR								
DF (F-Statistic) = 1, 380								
DF (T-Statistic) = 379								

Source: Field Survey Results, 2021

Table 3 shows that use of medical information resources (MIR) significantly influenced non-job specific task proficiency of medical practitioners in university teaching hospitals in South-West, Nigeria (R^2 = 0.141, β = 0.375, t (379) = 7.888, $p < 0.05$). The model shows that use of medical information resources explains 14.1% (R^2 = 0.141) variation in non-job specific task proficiency of medical practitioners. This means that use of medical information resources predicts non-job specific task proficiency of medical practitioners in university teaching hospitals in the study area. Hence, the null hypothesis which states that use of medical information resources will not significantly influence non-job specific task proficiency of medical practitioners in university teaching hospitals in South-West, Nigeria was rejected. Therefore, the utilization of medical information resources by medical staff is vital to enhancing the non-job specific task proficiency of medical practitioners in the University teaching hospitals. The regression model generated from the data in Table 3 is:

The regression model generated from the data in Table 3 is:

Regression Model:

JSTP = 2.527 + .295 U + *u* …………………….Model 2

Where:

JSTP = Non-job specific task proficiency
U = Use of MIR
u = Disturbance term (All uncaptured variables that can influence JSTP but not included in the model)

The result of the regression model 2 indicates that, holding perception on MIR to a constant zero, non-job specific task proficiency would be 2.527, implying that in the absence of use of MIR, medical practitioners in the University teaching hospitals in South-West, Nigeria would still be proficient in their non-job specific task based on the fact that, other factors (denoted by *u*) not investigated in the study can still influence non-job specific task proficiency. Also, the model shows that when use of MIR is improved by one unit on a measurement scale, there will be corresponding 29.5% (0.295) increase in the non-job specific task proficiency of medical practitioners. This result indicates that use of MIR is strongly connected to non-job specific task proficiency of medical practitioners.

DISCUSSIONS

Hypothesis one investigated use of medical information resources and the dimensions of job performance job specific task proficiency of medical practitioners in University teaching hospitals in South-West, Nigeria. The finding shows that use of medical information resources (MIR) significantly influenced job specific task proficiency of medical practitioners in University teaching hospitals in South-West, Nigeria. This finding is consistent with previous study of Oyefeso (2013) on the use of information resources by medical doctors in Olabisi Onabanjo University Teaching Hospital found a very high percentage of medical doctors sourced information with a very high frequency in attending to patients. Likewise, the study of Phua and Lim (2007) on the amount of time the residents and interns at the National University Hospital spent

on using various medical information resources to answer clinical questions and how useful they perceived these resources to be also supported this finding. The doctors use the information resources to frequently to update their knowledge, answer clinical questions as well as maintaining adequate patient's management and care. The finding also corroborates D'Alessandro et al (2004) on usage of computer resources at the point of care. The general paediatricians used computer resources including digital libraries to seek answers for clinical queries at the point of care as they are effective and more time-efficient in search of information. The result revealed that the use of computer resources had positive effect on physician decision making.

Hypothesis two revealed that use of medical information resources (MIR) significantly influenced non-job specific task proficiency of medical practitioners in University teaching hospitals in South-West, Nigeria. This finding supports Marshall et al (2013) described research conducted in a web-based survey of physicians, residents, and nurses. Three quarter of the respondents suggested that they had definitely or probably handled aspects of the patient care situation differently as a result of the information they received from the library. Among the reported changes were pieces of advice given to the patient (48%), diagnosis (25%), and choice of drugs (33%), other treatment (31%), and tests (23%). Almost all of the respondents (95%) agreed that the information resulted in a better-informed clinical decision. Respondents' reports suggested that the information allowed them to avoid the following adverse events: patient misunderstanding of the disease (23%), additional tests (19%), misdiagnosis (13%), adverse drug reactions (13%), medication errors (12%), and patient mortality (6%). Similarly, the finding supports Gatero (2010) who conceived that the aim of investigating the availability and utilization of information and communication technology is for accessing health information by medical professionals in Kenya. The motivation for seeking information by medical faculty is the need to understand and perform tasks related to patient care/clinical information, pharmacological information, current approaches to treatment, current practices in medical and clinical trials. In the course of their clinical practice, the main findings of the study were that medical professionals continuously needed knowledge. Clinical governance, care of patients and professional updating on the current medical practices were the main reasons for needing and using information. The result also corroborated Marshall et al (2014) who discovered that 75% of health care personnel admitted handling patients care differently as a result of the information accessed from the library.

CONCLUSIONS

The study concludes that the use of medical information resources (MIR) is a strong predictor of job-specific and non-job-specific task proficiencies of medical practitioners of medical practitioners in the university teaching hospitals, South-West, Nigeria. However, in the absence of use of MIR, the medical practitioners would still be proficient in their job and non-job specific tasks based on the reason that other factors not investigated in the study can still influence job and non-job specific task proficiencies. Therefore, the paper recommended that, the management of the teaching hospitals in the study area should improve the utilization of medical information resources by medical staff as this is vital to enhancing the job specific and non-job task proficiencies of the medical practitioners in the University teaching hospitals. Nonetheless, the management must bear in mind that the medical practitioners can still be proficient in their job and non-job specific tasks even when they do not utilize medical information resources.

REFERENCES

Abdel-Razek, 2011 Abdel-Razek, W.A. (2011). Factors affecting the effectiveness of the job   performance   of   the specialists working in the youth care at Helwan University. *World   Journal of Sport Sciences*, *4*(2), 116-125.

Ajuwon, G. A. (2006). Use of internet for health information by physicians for patient care in a teaching hospital in Ibadan, Nigeria. *Biomedical Digital Libraries*, *3*(12), 1-9.

Ajuwon, G.A., & Popoola, S. O. (2014). Influence of internet accessibility and demographic   factors on utilization of web-based health information resources by resident doctors in Nigeria. *African Journal of Medicine and Medical Sciences*, *43*(1), 61–71.

Bassey, A. O., Ojua, T. A., Bassey, U. A., & Ottong,J. G (2012), Conflicts between line and   staff employee and the achievement of organizational goals and objectives: A   study of University of Calabar teaching hospital. *International Journal of Business and Social   Science*, 3(6), 116-121.

Brennan, N., Edwards, S., Kelly, N., Miller, A., Harrower, L., & Mattick, K. (2014). Qualified doctor and medical students' use of resources for accessing information: What is used and why? *Health Information and Libraries Journal*, *31*(3), 204-214.

Campbel, 1990 Campbell, J. P. (1990). Modelling the performance prediction problem in industrial and organizational psychology. In M. D. Dunnette and L. M. Hough (Eds.), *Handbook of industrial and organizational psychology, 1,* 687-732. Palo Alto, CA: Consulting Psychologists Press.

D'Alessandro, D. M., Krieter, C. D., & Peterson, M. W. (2004). An evaluation of information-seeking behaviours of general paediatricians. *Paediatrics*, *113*, 64–69.

Dhanvandan, Esmail, and Nagarajan (2012) Dhanavandan, S.; Esmail, S. M.; & Nagarajan, M. (2012). Access and awareness of ICT resources and services in medical college libraries   in Puducherry.Library Philosophy and Practice (e-journal).   http://digitalcommons.unl.edu/libphilprac/750/

Dunn, Marshall,Wells & Backus, 2017). Dunn, k., Marshall, J.G., Wells, A.L., & Backus, J.E.B. (2017). Examining the role of MEDLINE as a patient care information resource: An analysis of data from the value of libraries study surveys. *Journal of Medical Library Association, 105*(4), 336-346.

Gakibayo, A., Ikoja-Odongo, J. R. & Okello-Obura, C. (2013). Electronic information resources utilization by students in Mbarara   university   library.   *Library   Philosophy   and   Practice   (e-journal)*,   869. https://digitalcommons.unl.edu/libphilprac/869

Gatero, G. M. (2010). Utilizing of information and communication technologies (ICTs) for accessing health information by medical professionals in Kenya: A case study of Kenyatta National Hospital. *Journal of Health Information in Developing Countries*, *1*(1), 60-87.

Hussain, A. & Kumar, K. (2013). Utilization of information resources and services of the master schools of management library. A study. *International Journal of Library Science*, 9(3),39-52

Isiakpona, C. D. & Ifijeh G. (2012). Availability of electronic resources for service provision in   University libraries in Ogun State Nigeria. *Samaru Journal of Information Studies,* 12   (1&2), 7-14*,*

Kutu, J. O., & Olajide, O. (2020). Information resources availability, utilisation and job   performance   of   academic librarians in selected university libraries in North-Central,   Nigeria. Library Philosophy and Practice (e-journal). 4084.   https://digitalcommons.unl.edu/libphilprac/4084.

Marshall, J. G., Sollenberger, J., Easterby-Gannett, S., Morgan, L. K., Klem, M. L., Cavanaugh,   S. K., & Hunter, S. et al. (2013). The value of library and information services in patient   care: Results of   a   multisite   study. *Journal of Medical Library Association*, 101(1),   38–46. doi:10.3163/1536-   5050.101.1.007 PMID:2341840

Marshall, J.G, Morgan, J.C, Thompson C.A., & Wells, A.L. (2014) Library and information services: Impact on patient care quality. *International Journal of Health Care and Quality Assurance*, *27*(8), 672-83. Retrieved from: http://dx.doi.org/10.3163/1536-5050.101.1.007

Monde, M. W, Akakandelwa, A., & Kanyengo, C.W. (2017). Nurses and use of research information in clinical practice: A case study of the university teaching hospital in Zambia. *Library Philosophy and Practice (e-journal), 1560*. Retrieved from: http://digitalcommons.unl.edu/libphilprac/1560

Musa, O.I., & Omopupa, K.T. (2005). Utilization of hospital library by health workers in a   tertiary health   institution   in Ilorin, Kwara State. *The Tropical Journal of Health Sciences*,   *12*(1), 36-40

Nwafor-Orizu, O. E., & Onwudinjo, O. T. (2015). Availability and use of health information   resources   by   doctors in teaching hospitals in South –East, Nigeria. *Information   and Knowledge Management*, *5*(9), 102-108.

Nwokedi, V. C., & Ogundare, T. (2005). Studies on the information needs and seeking behaviours of science based postgraduate students in a Nigerian University: A case study of University of Jos. *Borno Library, Archival and Information Science Journal*, *2*(1), 232.

Ojo, A.I. and Popoola, S.O. (2015). Some correlates of electronic health information   management system success in Nigerian Teaching Hospitals. *Biomedical Informatics   Insights*, 2 (7),1–9 doi: 10.4137/BIIII.S20229

Okoro, C. C., & Okoro, I. (2009). The use of medical information in Nigeria: The influence of gender and status. *Journal of Continuing Education in the Health Professions Banner*, *29*(4), 254-258. doi:10.1002/chp.20044

Oyefeso, O. O. (2013). Information acquisition and effective performance of medical doctors: A   study   of   medical doctors at Olabisi Onabanjo University Teaching Hospital. Journal of   Health Information (JHI), 1(1), 38 – 44.

Oyewole, G. O., & Popoola, S. O. (2013). Effects of psycho-social factors on job performance of library personnel in federal colleges of education in Nigeria. *Library Philosophy and Practice (e-journal)*. 872. Retrieved from https://digitalcommon.unl.edu/libphilprac/872/

Phua and Lim (2007) Phua, J., & Lim T.K. (2007) Use of traditional versus electronic medical information resources by residents and interns. *Medical Teacher*, 29(4), 400–2.

Shariff, Bejaimal, Sontrop, Iansavichus, Weir, Haynes…. & Garg (2011) Shariff, S. Z., Bejaimal, S A.D, Sontrop, J M.,

Iansavichus, A. V., Weir, M. A., Haynes, R. B., Speechley, M. R., Thind, A., & Garg, A. X. (2011). Searching for medical information online: A survey of Canadian nephrologists. *Journal of Nephrology, 24*(06), 723-732.

Torkula, T. T. (2020). Challenges in quality care delivery in tertiary health facilities in north-   central Nigeria. Walden Dissertations and Doctoral Studies Collection. Walden   University.
        https://ScholarWorks.waldenu.edu/dissertation /8154/

Ukpebor, C.O. (2012). Availability and use of electronic resources in African universities: The   Nigerian   perspective. *PNLA Quarterly*, 76(3), 190-199. www.pnla.org.

Westbrook, J. I., Coiera, E.W., & Gosling, A.S., (2005). Do online information retrieval systems   help   experience clinicians answer clinical Questions? *Journal of the American Medical Informatics Association*, *12*(3), 315–321. doi: 10.1197/jamia.M1717

Westbrook, J.I., Gosling, A. S., & Coiera, E., (2004). Do clinicians use online evidence to support patient care? A study of 55,000 clinicians. *Journal of the American Medical Informatics Association*, *11*(2), 113-120. doi:10.1197/jamia.M1385.

Wu (2011) Wu, M. M. (2005). Why print and electronic resources are essential to the academic law library. *Law Library Journal, 97*(2), 233-256.

Xianjin Z., Jinchao Z. & Yalan Y. (2014). Exploring the effect of individual differences on user   perceptions of   print and electronic resources. Library Hi Tech,32(2), 346 –367.   http://dx.doi.org/10.1108/LHT-07-2013-009

Yaya, Akintayo & Uzohue, 2016) Yaya, A. J., Akintayo, A. O., & Uzohue, C. E. (2016). Emotional intelligence and productivity of librarians in public universities in Nigeria; A correlational approach. *European Journal of Education and E-Learning, 1*(1), 76-127.

International Journal of Academic Research in Education and Review

Full Length Research

Review of Ethiopia Education Sector Development Programme VI in Perspectives of Filling the Labour Market Skill Gap

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Abstract

Skill gap in Labour market at both domestic and international level is the current agenda of higher education systems of Ethiopia to across the globe opportunities as a domestic unemployment challenges because of divide gap between what is delivered and what is expected. It is concern because the direct result of this mismatch is increasing unemployment and widening social divide. Therefore government focus at Education Sector Development Programmes and policies to generate transformational plans to change the substructure. Education is the root of transformation of all sectors of economy. So review of education sector development programmes VI in perspectives of filling the labour market skill gap is evitable in nature.

Keywords: Higher Education, Labour Market, Policy and Strategy, Skill Gap.

INTRODUCTION

Labour market faces drastic changes in its both structure and demand because of rise of technology and advancement of economy (Achchab&Temsamani, 2022). Simultaneously labour market faces inequalities because of difference in hierarchical social structure and unequal opportunities for resource access (Barbieri&Gioachin, 2022). In the era of digital labour market the demand of skill labour rises very fast because quality of skilled labour decided the direction of economic growth of an economy. This creates a gap between demand side of labour market and supply side of skilled labour (Bannò et.al, 2022). Foremost reason for this demand and supply side gap among of labour market is tertiary unskilled graduates produced by the universities especially in Ethiopia (Mekonnen, 2021). In Ethiopia, there is an significant gap still exists between skills, knowledge and attitudes are relevant to preparing the graduates for careers as professional labour and due care were the most important for make them skilled. So there is a urgent need of provide better skills and training to graduate students in bridging the perceived skills gap (Getahun&Mersha, 2020). Skill gap leads to labour market inefficiencies and failures (Mustapha &Osho, 2019).

Rational of Study

Ethiopia is a country of young population with over 70 percent of the total population is below the age of 30 that is the base of labour market (Anteneh et. al., 2022). But in spite of this huge young population a visible gap exist between demand side of labour market and supply side of skilled labour (Bannòet.al., 2022).Education imparted by universities

are lop sided and traditional in nature, so skilled based learning is the solution the fill the divide between labour market skill demand the graduates supply by the universities in Africa. By skilled based learning universities will mainstream the resultants of this divide like poverty (Susilaningsih et. al., 2022). In Ethiopia, student's perception about employment oriented education is not healthy. They considered it as inferior to normal education (Wudneh et. al., 2022). Thus for access, equity, and internal efficiency in general education Ethiopia federal ministry of education developed education Sector Development Programme VI in perspectives of filling the Skill Gap in Labour market for a period of 2013 – 2017 E.C. (2020/21 – 2024/25 G.C.) Ministry of Education of the Federal Democratic Republic of Ethiopia has been conducting Education Sector Development Plan (ESDP) for the last twenty five years. By implementing all of the previous ESDP-1 to ESDP-5, huge achievements have been registered in Access to Education and Coverage, though a longer mile is still remaining in terms of Education Quality, Equity, especially for students with Special Needs and those from pastoralist community (Assefa, 2022).The current Education Sector Development Plan, ESDP-6, is designed to strongly address the gaps of the previous EDSPs. Additionally Hallmarks of ESDP-6 are the new and revised curricula after more than two and half decades, use of digital technology for quality improvement, new thoughts in to the non-Formal and Adult Education, , introduction of skills training at Grade-11 and Grade-12 so that hundreds of thousands of students completing secondary education system become junior professionals in their areas of Training. This, in particular, is aimed to enabling the General Education produce skilled labor for the job market without requiring college level education for those that might not have the chance to join Tertiary Education (Feyisa et. al., 2022).

Formal approaches to education and life skills for communities grounded in human capital and human rights approaches have failed to achieve the social change objectives of resilience and sustainable development. Life skills informed by indigenous pastoralist perspectives regarding what skills matter most, for what purposes, and how they are (or can be) taught to children and young people may offer a new perspective on how to conceptualize and teach these skills through the education system (Yitbarek,2022).

Review of ESDP VI Plan

Education Sector Development Programme (ESDP) is the sixth phase of education sector developmental plan started in year 2021 for the next five years i.e., for 2020/21 – 2024/25 G.C., with the objectivise to providing knowledge, skills and values, which prepares all students as citizens with competency, creativity, productivity and responsibility. This plan is released in the year 2021 is called *Education Sector Development Programme VI (ESDP VI)*.

ESDP (VI) plan central towards nurturing the young with life skills that are needed by the global market by put forwarding the revolutionary changes in education sector through creating the vocational base of the secondary level education at first stage especially developing the labour market required skills generation at Grade-11 and Grade-12 with help of career awareness and job shadowing activities. ESDP VI included the seven major programmes but its third Programme that is "Quality improvement and relevance to the labour market", and fifth programme," Preparing students for the labour market through a career and technical education programme" especially designed for filling the divide between global market demands and skill gap.

Labour Market Imperfections and Skill Nurturing

The execution of Education Sector Development Program (ESDP) III (2010/2011) remarked that one of the difficulties of the Ethiopian education sector that should be tended in the arrangement of ESDP IV (2010/2011-2014/2015) is improvement in student accomplishment through reliable spotlight on the upgrade of the teaching and learning process. Therefore, ESDP VI cantered towards quality education on base of skills development and values addition to promote citizenship behaviour among the students especially guidelines are clearly demonstrated for this in Education Sector Development Program, Programme 3 (Lerra, 2021).

This programme is committed towards providing quality teaching and teachers by the end of 2025 and developing the student support system sidewise for higher secondary education (Dereso et. al., 2021).The ESDP VI framed on the periphery of educational approach of learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for nurturing the entrepreneurial spirit among learners to full fill the imperfections of labour market in Ethiopia (Kant et. al., 2021).

Career and technical education (C&TE) is framed to nurture learners to become responsible citizens, personnel, and decision makers in a universal economy, while providing lifelong learning and academic and technical preparation for success in their chosen career (DeJaeghere et. al., 2022). Through formal and informal opportunities, every learner reaches his/her full potential to work in teams and take leadership roles, and to demonstrate entrepreneurship,

resilience, emotional intelligence, and strong communication skills. Special consideration will be given to children challenged by natural or anthropogenic challenges so that they can receive the same services and continue their education in an environment conducive to learning and teaching in Ethiopia education plan ESDP VI preference of vocational education over is clearly manifested to create a skill development based ecosystem (Socwell, 2022).

Intrinsic international inclusion

Broadening the width and quality of instructive programs has been framed to make connect Ethiopian universities with international linkages and alliance as a continuation of ESDPV (Admasu&Desta, 2021). To an extent the structure of education in Ethiopia is supported by international partners by providing financial assistance as well as personal support to the implementation of education programmes to support international labour market demands.

Evaluation

In ESDP V period, annually they contribute about 156$ million that is near about 6 percentage of overall education budget. The ESDP VIfocused on more inclusive approach by linkage of major partners and there active visibility. In the shadow of COVID-19 pandemic ESDP VI faced some challenges to maintain its motion. So it needs additional efforts and resources to mitigate with uncertainty.

The guidelines framed for linkage with labour market by fulfilling the demand and supply of skilled labour has not been sufficiently provided with policy guidelines to describe rationales, objectives and means and lay down guiding principles for individual institutions in their efforts towards internationalization.

Some of the Education policy documents provided very broad guiding principles on the necessity of establishing labour market connections with skilled personal development and supply. Time frame designed to complete the objectives is limited in nature.

There was a lack of human capacity, both at the dedicated both at administrator level and at the regional level. Qualified teachers and classroom facilitators and the shortage of skilled teachers resulted in overcrowded classrooms, teachers on low-paid temporary contracts, inadequately trained teachers, and low overall teacher motivation. Inadequate O-class facilities and lack of learning resources have also been a concern. Poor education quality, including inadequate infrastructure and WASH facilities, inadequate learning resources, overcrowded classrooms, poorly trained teachers, and teacher absenteeism often contributes to children leaving school. Some students have been pushed through to higher grades regardless of their skill attainment and end up leaving school because they are not able to follow their lessons.

No in-service training programmes have been established in the emerging regions, due to the absence of ownership of evening and distance education, the unavailability of in-service training guidelines, lack of awareness of in-service training programmes among the concerned bodies, the lack of strong and effective structural arrangements, the absence of policy and strategy, and the lack of commitment among educational leaders at all levels.

RECOMMENDATIONS

The quality of education and training at all levels is to be enhanced to improve learning outcomes. All students will have the opportunity to achieve high levels of learning outcomes, comparable to those of high performing international systems. There is a need to maintain and strengthen national learning assessments for improvements. Vocational skills assessments and exit examinations will be strengthened. Thus, the aspiration is to be among the best performing countries in the region in terms of student performance in international assessments such as TIMSS and PISA, as well as in world skill competitions, in 10 years' time. System-wide accreditations will continue to be maintained and strengthened at all levels to meet international, regional and national standards. The quality of general education will be improved by providing knowledge, skills and values that make all students creative, competent, productive and responsible citizens the unity of the country, appreciating shared values, diversity, interculturality, brotherhood, peace and inclusion. To align with current and future labour markets, curriculum flexibility will be introduced in Grades 11 and 12 to provide equitable access to the skills, knowledge and values needed to access different career paths and to make effective use of school resources. Likewise, STEAM-specific curricula will be updated and offered to enhance subject knowledge and develop skills and abilities.

Through a modular approach to teaching, higher education institutions (HEIs) will also develop new courses and programmes that respond to current or emerging labour market needs. ICT will be systematically and extensively

integrated into all HEIs programmes. Courses will also be offered both online and through blended approaches. Also, quality practical training will be provided to existing science and technology and art teachers, as well as laboratory and workshop assistants, as part of the new STEAM approach.

   The current CPD system will also be revised and an effective system will be established for science and technology teachers. Secondary school graduates, as part of the general education professionalized curriculum, will also complete a vocational and technical education programme in addition to core academic subjects in Grades 11 and 12 in seven areas: manufacturing, construction, biological and chemical sciences, information technology and computer science, business science, language and social sciences, performing arts, and visual arts, in order to acquire the knowledge, skills, attitudes, and entrepreneurial foundations necessary to enable them to join the world of work upon completion of general education.

REFERENCES

- Achchab, S., &Temsamani, Y. K. (2022). Use of Artificial Intelligence in Human Resource Management:"Application of Machine Learning Algorithms to an Intelligent Recruitment System". In *Advances in Deep Learning, Artificial Intelligence and Robotics* (pp. 203-215). Springer, Cham.
- Admasu, E., &Desta, A. (2021). Internationalization of Higher Education System in Ethiopia: A Review of Education Policies and Strategies. *Agathos: An International Review of the Humanities & Social Sciences*, *12*(1).
- Anteneh, Z. A., Engida, H. B., Mamuye, M. A., Yehun, Y. T., Guadie, A. G., Dagnew, Y. A., ... &Gelaw, T. T. (2022). Patterns of cardiovascular diseases among cardiac disease suspected patients in Bahir Dar City, Ethiopia: Rheumatic heart disease in patients suspected with Heart diseases. *Ethiopian Medical Journal*, *60*(01).
- Assefa, Y. (2022). Exploring "Intersectoral Collaboration" towards the Integration of Indigenous Knowledge into Adult Education Programs in North Wollo, Ethiopia. *Education Research International*, *2022*.
- Bannò, M., Filippi, E., & Trento, S. (2022). The Automation of Occupations in Europe: The Role of Labour Market Institutions and Human Capital. *Available at SSRN 4003932*.
- Barbieri, P., &Gioachin, F. (2022). Social origin and secondary labour market entry: Ascriptive and institutional inequalities over the early career in Italy and Germany. *Research in Social Stratification and Mobility*, *77*, 100670.
- DeJaeghere, J., & Murphy-Graham, E. (2022). Life Skills Education for Youth: Critical Perspectives.
- Dereso, C. W., Kant, S., &Maheshwaran, M. (2021). Education sector structural digital transformations incomprehensive Universities of Ethiopia in post COVID-19 periods. *Education*, *2*(6).
- Feyisa, M. B., Feyisa, A. B., Moreda, A. K., &Hailu, Y. (2022). The practices and challenges of conducting action research in some selected secondary schools of Bale Zone, Oromia, Ethiopia. *Educational Action Research*, 1-13.
- Getahun, M., &Mersha, D. (2020). Skill gap perceived between employers and accounting graduates in Ethiopia. *Financial Studies*, *24*(2 (88)), 65-90.
- Kant S., Muthuraman, M., &Wata, C. (2021). Links between Entrepreneurship Education Outcomes and Entrepreneurship Behavior in Higher Education: A Review and Evaluation in Case of Ethiopia. *Journal of Indigenous Knowledge and Development Studies*, *2*(2), 94-110.
- Lerra, M. D. (2021). Leadership Competencies for Quality Education in Rural Primary Schools of Ethiopia: The Case of Amhara and Oromia Regional States. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *12*(12), 4156-4168.
- MEKONNEN, M. A. (2021). *The Causes of youth unemployment among tertiary graduates in Ethiopia* (Doctoral dissertation, KDI School).
- Mustapha, A. I., &Osho, M. O. (2019). The Impact of Manpower Development on Organizational Efficiency in National Inland Waterways Authority of Nigeria (NIWA), International Journal of Arts and Humanities (IJAH) Ethiopia, 8 (1), 103-115.
- Socwell, C. P., Kanagasaba, K., & Pope, R. (2022). The Utility of Mayo Clinic's Early Screen for Discharge Planning (ESDP) Tool: A Critical Narrative Review. *Journal of Acute Care Physical Therapy*, *13*(1), 24-44.
- Susilaningsih, E., Aprilia, N., &Hayati, S. (2022). The Effectiveness of Teaching Materials Loaded with Blended Learning with a Scientific Approach on Buffer Solution Learning. *JurnalInovasiPendidikan Kimia*, *16*(1), 59-64.
- Wudneh, L., Seifu, A., &Dagnew, A. (2022). Practices of cooperative training in the Amhara Regional State TVET colleges and companies, Ethiopia. *Cogent Education*, *9*(1), 2020608.
- Yitbarek, S., Wogasso, Y., Meagher, M., & Strickland, L. (2022). Life Skills Education in Ethiopia: Afar Pastoralists' Perspectives. In *Life Skills Education for Youth* (pp. 245-265). Springer, Cham.

Full Length Research

Electronic Information Resources Usage and Challenges for Academic Purpose: A Systematic Literature Review 2011-2021

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Abstract

The study's purpose is to give an up-to-date estimate of global electronic information resource utilization and problems for academic purposes from 2011 to 2021.To investigate global literatures on electronic information resources, the researcher conducted a comprehensive literature study (EIR). This analysis used 31 literatures that met stated basic conditions among 62 empirical studies on EIR published between 2011 and 2021. The results of the investigation were documented and analysed through theme analysis. The findings reveal numerous specific electronic information resources (EIR) tools such as e-books, e-journal, e-newspaper, e-zines, e-thesis, e-clipping, e-patents, e-standards, e-conference proceedings, e-databases, e-technical reports, e-dissertations, CD-ROM, full text database, reference database, statistical database, image collection, indexing and abstracting databases among others. Only empirical study literatures focused on EIR between 2011 and 2021 were used in this article. However, this study did not include any resources that were not electronic

Keywords: E-resources, Academia, Usage impact, University, Researchers, Libraries

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INTRODUCTION

The notion of electronic information resources (EIR) was introduced with the emergence of Information Communication Technology (ICT) in the twenty-first century, which has further enlarged the scope of library information resources. The kind of electronic information resources that university libraries might be able to obtain are determined by the patrons' needs, as well as the cost and complexity of the contents. E-books, e-journals, e-Newspapers, e-zines, databases, full text database, reference database, statistical database, image collection, multimedia products, e-thesis, e-clipping, e-Patents and e-standards, indexing, and abstracting are among the sorts of EIR found in libraries, according to (Kenchakkanavar, 2014). Electronic information resources, according to (Asha and Rani 2015), include e-books, CD-ROMs, e-conference proceedings, e-databases, e-technical reports, e-theses and e-dissertations, and academic databases to name a few, all of which require information literacy skills to allow library users to make adequate use of EIR.

Furthermore, (Khan, 2016) claims that hundreds of thousands of monographic materials, journals, learning resources, and databases, among other things, are now available in electronic formats, and that these materials can be accessed from all corners of a country, thereby increasing the use of information, literature, and information systems efficiency.

University library users are more independent than ever before, as they no longer need to physically visit the library to obtain information resources that may fit their needs. With the advent of ICT, users can now use their libraries' Electronic Information Resources (EIR) at their leisure from their dormitories, offices, and homes.

Electronic information resources are those materials that require computer access, whether through a personal computer, mainframe, or handheld devices accessed remotely over the internet or locally, according to the International Federation of Library Associations (IFLA, 2012).Similarly, (Mansur, 2012). Electronic resources are on-demand information sources in an electronic format. Researchers, students, and other library users can access the information at any time to satisfy their needs. Any information source that the library offers access to in an electronic format is referred to as an electronic information resource. Electronic information resources, often known as e-resources, are becoming more widely accepted, particularly in academic settings such as universities, colleges of education, and polytechnics. Because of the high acceptability rate, university libraries have purchased a large number of Electronic Information Resources (EIR) to supplement their print collections. Electronic resources, sometimes known as e-resources, are digital information that may be accessed via the Internet. University libraries should develop electronic resources that are relevant to their consumers in order to attract library users and provide effective information delivery.

Statement of the Problem

University libraries in Nigeria currently provide materials in electronic formats as a result of the present development in Information and Communication Technologies (ICT). Universities have invested heavily in Electronic Information Resources (EIR) and other computer-based technologies to provide services so that undergraduate students can gain access to information that will enhance their scholarly research work. Despite the positive reports on EIR used for academic purposes has been scarce in literature. Therefore, the understanding of the current literatures on EIR usage and challenges for academic purposes worldwide is highly relevant during the current pandemic era. This consciousness could influence students and academics positively as they might decide to adopt EIR to advance academic programmes.

Objectives of the Study

The purpose of this research is to look into the usage of electronic information resources for academic purposes, as well as the tools that are used and the influence that EIR has on students.

Significance of the Study

Some of the current approaches of controlling the cost, time, and easy access to information include the growth of EIR and its integration for learning purposes among students of higher education. As a result, it's critical to look at empirical literature results on EIR usage for academic purposes. This research will expose this information as well as provide a more comprehensive understanding of EIR usage and problems. It can also be taken into account while making decisions about EIR and online learning programs during pandemic or other comparable situations.

Scope and Delimitation of the Study

The research is limited to relevant literature on the usage and problems of EIR in academic settings around the world. The review will be time-limited, as only literatures produced between 2011 and 2021 will be examined, and there will be no regional or other restrictions.

METHODOLOGY

This research was carried out by viewing through literatures that looked at the usage of electronic information resources and obstacles for academic purposes around the world. Articles were included if they addressed the use and problems of electronic information resources for academic purposes, while those that concentrated on the use of electronic information resources for advertising or social networking were excluded. Editorials, articles that were not peer-reviewed, and commentaries were also excluded from the study. For this investigation, a broad search technique on peer-reviewed papers was done in January 2021. Three primary themes were incorporated in the search method to focus on the tittle electronic information resources usage and challenges for academic purposes: e-resources use relevance, challenges, and educational aims. The search involved typing "e-resources use", "challenges," "impact" and

"academic purpose" separately in Google scholar. In Google scholar, I typed "e-resources use," "challenges," "impact," and "academic purpose" separately. The searches returned 9,700 publications from 2011 to 2021, of which 69 were retrieved and analysed, and 36 fulfilled the study's inclusion criteria.

Review of Literature on Electronic Information Resources Use

(Olatoye&Muchaonyerwa, 2020) investigated the factors that influence undergraduate students' attitudes and perceptions of using electronic information resources (EIR) in selected universities in the Eastern Cape, South Africa. The study's major goal was to look into the attitudes and perceptions of undergraduate students at the University of Fort Hare and Rhodes about using electronic information resources. The goal was to see if their attitudes and perceptions have a good or negative impact on e-resource use in a few colleges in South Africa's Eastern Cape. The study population and sample size were chosen using purposive and proportionate stratified random sampling techniques, and data was collected using a questionnaire and an oral interview. The findings revealed that respondents frequently face challenges that have a negative impact on their attitudes and behaviour when using e-resources. They believe that further unique computing abilities are required before someone can be proficient enough to use these resources successfully. In order to conduct this study, 377 copies of the questionnaire were randomly distributed to undergraduate students from both schools' faculties, and the findings were analysed using the Statistical Package for the Social Sciences (SPSSVersion 32). Additionally, assumptions were examined in order to make valid claims based on the acquired data, and the results show that undergraduate students' perspective and attitude influence their use of E-journals. Recommendations were made, including the necessity for a widespread education campaign on the usage and benefits of E-resources among undergraduates' students through training and re-training, seminars, and workshops.

(Sahabi et al., 2020) investigates the use of electronic information resources by Ahmadu Bello University library students in Nigeria. The study looked at how undergraduates in the Ahmadu Bello University Library in Zaria used electronic information resources. The study used a survey design with a study population of 4,189 undergraduate students who registered with the university libraries between the 2017 and 2019 academic sessions at Ahmadu Bello University, Zaria (Students' registration records are available in the university library's reader's services section), from which a sample of 838 respondents based on Wimmer and Dominick's formula. Using a basic random procedure, the researcher judged 20% of the study population appropriate from each library unit. SPSS software, frequency distribution, and percentages were used to analyze the data. According to the statistics, the majority of Ahmadu Bello University Library, Zaria undergraduates employed electronic information resources for research and academic objectives.

(Ansari, 2020) studies use and awareness of e-resources among research scholars of literature subjects in Banaras Hindu University. The findings shows that 100% (N=82) respondents opted that e-resources are available online, 63.41 (N=52) respondents think they give innovative ways of searching according to the need of information, 63.41% (N=52) respondents said they provide multiple access, 48.78 (N=40) respondents think they provide bibliographic data, abstract and full text. There are some respondents also who were confused about the feature of e-resource. The figure shows 17.07% (N=14) respondents think they allow sequential reading only, 7.32% (N=6) said they are available in printed form and 4.88% (N=4) said the articles could be photocopied. The figure indicated that a proper orientation about using e-resources is needed to increase the usability of e-resources among research scholars of literature disciplines. It also revealed that e-resources provide the facility to use it anytime and anywhere according to the convenience of the users. It is beneficial to utilize free and leisure time. There are many advantages of e-resources and some of them are listed below. The respondents were allowed to choose their favourite advantages of using e-resources and data is presented in figure 6. The majority of respondents 92.68% (N=76) like its convenience, 59.76% (N=49) feel its effective and fast communication, 68.29% (N=56) like its time and space-saving, 58.54% (N=48) like its searching and browsing facilities, 70.73 (N=58) like its cross-reference linking and 87.80% (N=72) likes because it can be used on mobile among others.

The use of electronic information resources by students at higher institutions in Taraba State, Nigeria (Abubakar and Mamman, 2020). The use of electronic information resources by students at tertiary institutions in Taraba State, Nigeria, was investigated in this study.The study's particular aims were to determine the types of electronic information resources (EIR) accessible at tertiary institutions, the extent of use of those resources, and the satisfaction received from using those resources in the universities. The study used a quantitative research method using a cross-sectional survey methodology. The study's population consisted of three higher education institutions having accessible and functional electronic information resources, namely: With 10748 registered users, Taraba State University, Federal University, Wukari, and Taraba State College of Nursing and Midwifery made up the population, while 370 people were chosen at random from the libraries. The sample size for the study was calculated using the Research Advisor table from 2006.The data gathering instrument was a questionnaire. Statistical Package for Social Sciences (SPSS) version 16.0 was used to evaluate the data obtained, which included descriptive and inferential statistics. The findings revealed that

the tertiary institutions under investigation had a variety of electronic information resources, E-books, e-journals, e-mails, online databases, and CD-ROMs are just a few examples. The degree of use of the available EIRs was likewise discovered to be moderate, and the majority of users were satisfied with the EIRs offered in their institution libraries. The study also discovered a statistically significant link between electronic information resource accessibility and consumption in the assessed institutions: x2 (10, N=327) =12.447, (Sahabi and Omagbon, 2020) investigates undergraduates' information literacy skills and usage of electronic information resources in Nigerian university libraries: a review of the literature from 2015 to 2019. The research looked at the literature on information literacy abilities and the use of electronic information resources by undergraduates in Nigerian university libraries. In University Libraries in Nigeria, a review was conducted to examine undergraduates' information literacy skills and use of electronic information resources. A total of 50 pieces of literature were examined. The findings show that knowledge and abilities in the use of e-library resources have a significant impact on the quality and quantity of academic work. As a result, students in tertiary institutions must improve their information literacy skills.

(Manjack et al., 2019) investigated electronic information resources in Gombe State, Nigeria, with a focus on university libraries. The primary goal of the research was to look into how undergraduate students in Gombe State, Nigeria, used electronic information resources in university libraries. The study was guided by three (3) research questions and a single hypothesis. The study employed a cross-sectional survey research approach. The survey included 2,970 undergraduate students who had registered with the library. Using a basic random selection procedure, a sample of 297 people was chosen. The questionnaire was the most important tool used. For the research questions, mean and standard deviation were used, and for the null hypotheses, a t-test was used. The results revealed that all of the study's electronic information resources are available, with electronic books receiving the most answers. It was also discovered that institutional repositories were the most frequently used electronic information sources. According to the findings, there is no significant difference in the use of EIR by undergraduate students.

(Maxwell and Budu, 2019) looked at how students at a top Ghanaian postgraduate theological university used technological resources. By using the survey study design, 33 postgraduate students were randomly selected to receive copies of the questionnaire. The data was primarily displayed as frequency and percentage distributions in Microsoft Excel 2013.The study's findings revealed high levels of awareness, appropriate computer abilities, derivation of various benefits, and usage of e-resources for academic reasons, as well as most respondents' inadequate search skills due to a lack of training. Access issues, search and retrieval issues, and staff-related issues were all barriers to e-resource use.

They investigated the usage of electronic resources by postgraduate students at the University of Cape Coast (Ankrah and Atuase, 2018). The study employed a cross-sectional survey design. A total of 275 students were surveyed, accounting for 30% of UCC's 915 postgraduate students. The selecting approach followed the lottery method. For uniformity, data from the completed questionnaire was altered. To enter the results from the questionnaire into the computer and analyse quantitative data, a coding manual was first created. Tables and charts were utilized in conjunction with quantitative analysis, which included frequencies and percentages. Insufficient search skills, a lack of instruction on how to utilize e-resources, and an inadequate computer at the library are among the obstacles affecting the usage of e-resources, according to the study's findings.

(Ankrah and Acheampong, 2017) look into students' awareness of electronic resources available at the University of Professional Studies Accra (UPSA), their use of these resources, the problems they experience, and the relationship between students' computer literacy skills and resource use. The data demonstrated that UPSA students are fairly knowledgeable about electronic resources, that they frequently utilize electronic resources to do research and complete projects, and that their usage of the resources outnumbers their use of print papers by a significant margin. The utilization of technological resources and reading skills were found to be directly connected using the Chi-square test. The main problems to using the library's electronic resources that were observed and reported were overcrowding of the library's electronic resources area by students due to an insufficient number of computers, and insufficient skills and training to use the resources.

(Mwantimwa and Elia, 2017) conducted research into the use of electronic information resources in Tanzanian universities. The study used a mixed methods research strategy to gather, process, and analyse data, as well as discuss the findings. In total, 119 academics and researchers took part in the research. The data was analysed using SPSS and STATA. The core findings indicate that most academic staff and researchers are aware of, have access to, and use e-resources to support teaching and research. Slow internet connectivity, inability to access full-text articles, unreliable power supply, and inaccessibility of e-resources outside university premises due to IP address limitations, inadequate ICT infrastructure, and insufficient skills and knowledge are among the challenges and problems that prevent effective use of e-resources. The study discovered that in order to improve the quality of teaching and research, online technologies should be used to increase the use of e-resources.

Challenges of E-Resources Use

Electronic information resources: An overview of challenges faced by faculty members (Saddiqa and Hussain, 2021) is a study conducted by (Saddiqa and Hussain, 2021). The purpose of this study is to look into the difficulties that respondents confront when using electronic information resources. The study's particular aims were to look at the demographic data, investigate the problems that faculty members were having, and see if there was a difference in opinion between male and female faculty members when it came to issues with electronic information resources. The structured questionnaire was utilized to collect data from the respondents, and the survey research method was applied. From a total population of 661 faculty members, 340 were chosen using the stratified sampling technique. The data was analysed with SPSS version 22 (Statistical Package for Social Sciences), and descriptive and inferential statistics were used to achieve the results. The data was gathered from the four faculties of the examined universities, with the social sciences faculty accounting for the majority of respondents (34.4%). The lecture accounted for the vast majority of the sample, with male responses outnumbering female respondents. Low internet speed, poor IT infrastructure, absence of internet, non-availability of full-text access to most e-journals, lack of understanding of e-resources, lack of collaboration of library and computer lab staff, and lack of printing facility were the key issues noted by faculty members.

(Nesba and Mac-Anthony, 2021) investigates the many barriers that students face in accessing electronic resources at a Ghanaian public university library. The study's major goal is to determine the various hurdles or limits that student's face when accessing electronic resources depending on their demographic and contextual characteristics. A descriptive survey design was used, and structured questionnaires were randomly distributed to 558 students from the university of Cape Coast's four constituent colleges. Data was collected, analysed, and descriptive statistics were generated using SPSS. Students faced six key challenges in accessing electronic information resources in the library, including delays in downloading information, poor internet connectivity, and limited accessibility of the university portal, insufficient computers in the library, poor lighting, and limited ancillary services (on-the-spot printing facilities), with differences based on gender, academic level, and other factors. Only 24% of males and 26% of females reported no difficulties or problems with electronic information download delays. Approximately three-quarters of all users reported bad internet connectivity and inadequate machines while accessing electronic materials. In the Colleges of Education Studies, Agriculture and Natural Sciences, and Humanities and Legal Studies, 40 percent of undergraduate students faced four to six obstacles at the same time. Across all four universities, first-year undergraduate students were the least likely to report several obstacles, regardless of gender. To address the stated difficulties, this implies the necessity for focused and context-specific solutions.

(Okogwu, 2019) looked on the challenges of postgraduate library users in university libraries in South East Nigeria accessing electronic resources. The study analyses the challenges faced by postgraduate library users at university libraries in South East Nigeria in accessing electronic resources. The survey discovered seven challenges faced by postgraduate library users while using e-resources in university libraries, with mean scores ranging from 2.78 to 3.18, all of which are higher than the 2.50 cut-off mark on a 4-point rating scale. The lack of continuous access to electronic resources (mean = 3.18) is placed first in the overall mean, while e-resources are too complicated to use (Mean = 2.78) is ranked lowest as difficulties experienced in using the library's electronic resources.

(Premarathne, 2017) conducted research at the University of Peradeniya on the usage of electronic information resources by arts undergraduates during the preparation of final year dissertations. The primary issues linked with non-use of EIR, according to the report, are a lack of skills in information searching, relatively limited training possibilities, and limited Internet access facilities. The impact of the Internet on collaborative and independent learning has been the subject of several studies. Opportunities for lifelong learning made available by the Internet have also been highlighted. Several academic institutions are currently offering a variety of online courses aimed at various parts of society.

(Ugwu and Orsu, 2017) looked into the difficulties that undergraduate students have when using online information resources. This investigation was conducted using a qualitative research method. The participants in the study were first-year students in their third year of study. Basic library, research, and information skills should have been acquired by these pupils. The data was collected from the participants via a questionnaire. The frequency or percentages for the pertinent codes that comprised the themes were determined using descriptive statistics. The findings revealed that lack of browsing skills, low internet bandwidth, and insufficient ICT infrastructure are the most significant direct factors underlying students' challenges with online information use, while indirect factors include lack of internet access at home, absence of online assignments, lack of motivation to use online information, and the majority of students not using online information.

CONCLUSION

Clearly, the use of EIR by students is a critical issue in the academic world. Personal values for electronic resources, which are in turn based on personality variables, time factors, and facilities considerations, are considered as having a substantial impact on students' academics. If electronic resources are used for scholarly objectives, they will almost certainly produce positive results, whereas if they are used for pleasure, they will almost certainly produce negative results. Despite the fact that there appears to be an increasing number of research publications on the use of electronic resources by students in higher education for academic purposes, primary research on the effects of e-resources on student use and education is scarce. On a variety of levels, the few articles included in this review demonstrate potential in students' usage of electronic information resources for academic purposes. If we need continuous positive return measures to counter the technology challenges for maximization of its potentials, and advocate for positive purpose with the use of electronic e-resources among students, we may need to come to terms with the idea that e-resources have challenges that can also affect academic output. Academics must realize the goal that lies ahead with the use of electronic information resources, and expect beneficial academic output in some way, as well as be able to discover opportunities that can lead us there. E-resources technology, on the other hand, has the potential to improve academic engagement, information exchange, and community building.

E-resources have been widely and quickly accepted in academic domains, and academic universities have repeatedly said that they can effectively use and access electronic resources despite several challenges. Some academics sought training to help them use electronic resources more effectively, while others learnt by trial and error. The majority of university professors have claimed to be computer literate. Among the many electronic resources accessible, e-journals are the most widely used. In terms of e-resources utilized by academics in universities, the Web, e-mail, and search engines rank below e-journals. Academics use databases and electronic journals for a variety of purposes, including teaching and research. Academics have expressed pleasure with their usage of electronic resources and expressed a desire to continue using them since they help them do better research and improve scholarly communication. As the future unfolds and restrictions to their usage are removed, e-resources will continue to gain popularity among academics.

DISCUSSION

The introduction of e-resources sparked a lot of curiosity among pupils. Based on the findings of the examined literatures, EIR has benefited students and scholars by offering a platform that fosters communication and lifelong learning, as well as ease of access to knowledge and open education, e-learning materials, e-library, and knowledge for enjoyment. Teachers who convey information to students also profit from the usage of e-resources, according to this study, because they frequently share academic resources, discuss viewpoints, follow each other's research, keep up with current research trends, and expand their professional networks. The literatures on the usage of e-resources for academic purposes that were reviewed for this study provided a discovery path. Despite the problems mentioned, such as user awareness, Internet issues, technology obsolescence, copyright issues, maintenance culture, inconsistent power supply, and insufficient funds, the study discovered numerous positive effects of EIR use for academic purposes. Other barriers to using e-resources have been found, such as insufficient training and on-the-job retraining.

RECOMMENDATIONS

Meanwhile, e-resources have been shown to improve academic performance in higher education among students of all levels. As a result, it is critical that academic administrators or librarians aim to strategically hand-pick the most important EIR that will improve teaching, learning, research, and recognized e-resources use difficulties and improve for good returns.

REFERENCES

Abubakar, BappahMagaji&Mamman, HarunaAudu (2020) Utilization of electronic information resources by students of tertiary institutions in Taraba State, Nigeria*Journal of ICT Development, Applications and Research,* 2020, 2, 36 - 47 ISSN: 2636-7432 (Print) 2636-7440 (Online) Available online at credencepressltd.com

Adeniran, P.O. &Onuoha, U.D. (2018). Influence of information literacy skills on postgraduate students' use of electronic resources in private university libraries in South-West, Nigeria.Retrieved From: http://www.scirp.org/journal/cn.

Ankrah, E. &Atuase, D. (2018). The use of electronic resources by postgraduate students of the University ofCape Coast. *Library Philosophy and Practice (e-journal)*, 1632.Retrieved. From: http://digitalcommons.unl.edu/libphilprac/1632

Ansari, MohdShoaib, (2020) "Use and Awareness of E-resources among Research Scholars of Literature Subjects in Banaras Hindu University".*Library Philosophy and Practice (E-journal)*. 4667. https://digitalcommons.unl.edu/libphilprac/4667

Asha, R.M., Kaur, G. & Rani, S. (2015). Use of internet and electronic information resources by teachers and students of physiotherapy Colleges of Punjab, India: A case study. *American Journal of Educational Research, 3(7),* 886-892. Doi: 10.12691/education-3-7-12. http://pubs.sciepub.com/education/3/7/12/index.html

Azubuike, C. O. (2016). Information literacy skills and awareness of electronic information resources as influencing factors of their use by postgraduate students in two universities in South-West Nigeria.*Library Philosophy andPractice (e-journal).* 1407. Retrieved on From: http://digitalcommons.unl.edu/libphilprac/1407.

IFLA (2012).Key issues for e-resources collection development: A guide for libraries. Retrieved From:http://www.ifla.org/publications/key-issues-for-e-resource-collection-developmenta-guide-for-libraries

IGI Global (2019).What is electronic resources. Retrieved on 7th March, 2020.From:https://www.igi-global.com/dictionary/electronic-resources/43164

Kenchakkanavar, A. (2014). Types of e-resources and its utilities in library.*International Journal of Information Sources and Services,* 1(2), 97-103.https://www.researchgate.net/publication/268508509

Khan, J. (2016).Impact of information communication technology on library and its services*. International Journal of Research Granthaalayah, 4*(9): 97-100.

Manjack, F.U., Fari, S.A. &Dangani, B.U. (2019). Utilization of electronic information resources by the undergraduate students in the university libraries in Gombe State, Nigeria.Retrievedfromhttps://www.researchgate.net/profile/Felix_Usman_Manjack/publication/331522293_utilization_of_electronic_information_resources_by_undergraduate_students_in_university_libraries_in_gombe_state_nigeria/links/5c7e2faa299bf1268d393bf4/utilization-of-electronic-information-resources-by-undergraduate-students-in-university-libraries-in-gombe-state-nigeria.pdf?origin=publication_detail.

Mansur, S (2012). E-resources collection development in engineering college libraries: A challenge for knowledge centre managers. *International Journal of Digital Library Services, 2*(1), 166-177. Retrieved. From: http://www.academiaa.ed/11968640/_e-resources_management_at_the engineering _college library.

Maxwell, N. Akuffo& Stephen Budu (2019).Use of electronic resources by students in a premier postgraduate theological university in Ghana.*South African Journal of Information Management.21(1),* 1-9.Retrieved. From: https://doi.org/ 10.4102/sajim.v21i1.1026

Mwantimwa, K &Elia, E. (2017).Utilisation of e-resources to support teaching and research in higher learning institutions Tanzania.University of Dares Salaam. *Library Journal*, 12 *(2)*, 98-123.

NesbaYaa Anima AdzobuArmah& Mac-Anthony Cobblah (2021). An assessment of the multiple challenges associated with student's access to electronic resources at a public university library in Ghana. *International Journal of Knowledge Content Development & Technology 11, (1):*65-84

Nwosu, R.O., Okeke, I. E. &Ejedafiru, E.F. (2013).Challenges of electronic information management in Nigerian university libraries.IOSR *Journal of Humanities and Social Science* (IOSR-JHSS) 13(2), 75-79.Retrieved. From: www.Iosrjournals.Org.

Okogwu, F.I. (2019). Difficulties of accessing electronic resources among postgraduate library users in university libraries in South East Nigeria.*Library Philosophy and Practice*. Retrieved From https://digitalcommons.unl.edu/libphilprac/2425/

Olatoye.O.I.O, Nekhwevha.F &Muchaonyerwa. N (2020) Determinants of undergraduate students' attitude and perception towards the use of electronic information resources (EIRs) among undergraduate students in selected Universities in Eastern Cape, South Africa. *Open Access Library Journal, 7: e6094.* https://doi.org/10.4236/oalib.1106094

Owolabi, KehindeAbayomi; Ajiboye, B.A.; Lawal, O.W.; and Okpeh, S.C., (2012)."Use of electronic information sources (EIS) by faculty members in Nigerian Universities".*Library Philosophy and Practice (e-journal).* 721. https://digitalcommons.unl.edu/libphilprac/721

Oyedapo, R.O. &Ojo, R.A. (2013).A survey of the use of electronic resources in Hezekiah Oluwasanmi Library, ObafemiAwolowo University, Ile-Ife, Nigeria.*Library Philosophy and Practice (e-journal)*.Retrieved. From:http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2200&context=libphilprac

Premarathne, S.P. (2017). Use of electronic information resources by arts undergraduates during the preparation of final year dissertations: a study at University of Peradeniya. *Journal of the University Librarians Association of Sri Lanka, 20*(2), 59-69

Saddiqa&Hussain, Mohammad (2021) Electronic information resources: An overview of problems faced by the faculty members". *Library Philosophy and Practice (e-journal).* 5616. https://digitalcommons.unl.edu/libphilprac/5616

Sahabi, M. K., Askia, N. K., Unobe, E. S (2020). Use of Electronic Information Resources by Undergraduates of Ahmadu Bello University library in Nigeria.*International Journal of Academic Research in Education and Review. 8(5)*: 118-126

Tahir Jan, HaroonIdrees, and MuhammafAsifNaveed (2020) Impact of HEC electronic information resources on research productivity of academicians: A systematic review.*PLISJ quarterly journal of Library Promotion Bureau.* PLISJ 51 (ICEIL-II Issue).

Thanuskodi S and Ravi S, Use of digital resources by faculty and research scholars of ManonmaniamSundaranar University, Tirunelveli.*DESIDOC Journal of Library and Information Technology*, 31 (1) (2011) 25-30.

Ugwu, C.I. &Orsu, E.M. (2017). Challenges of utilization of online information resources by undergraduate students: Implications for information services. *Library Philosophy and Practice.* Retrieved from https://digitalcommons.unl.edu/libphilprac/1668/

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Full Length Research

Effects of Industrial Action on Workers' Productivity in Auchi Polytechnic Auchi, Edo State, Nigeria.

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Abstract

Purpose: This study examines the effects of industrial action on workers' productivity in Auchi Polytechnic. This paper identify the extent to which strike determine workers' productivity in Auchi Polytechnic, Auchi. The paper also ascertain extent of which picketing determine workers' productivity in Auchi Polytechnic, Auchi. Find out the extent of which work-to- rule determine workers' productivity in Auchi Polytechnic, Auchi.

Design/Methodology/Approach: Descriptive design adopted. The research instrument used for data collection in this study was the questionnaire. The population for the study is two thousand, two hundred and sixty (2260) staff of Auchi polytechnic. The total population was large and as a result the researcher selected a sample size of three hundred and forty (340) using TaroYemane formula for sample size determination. Availability or convenience sampling technique was adopted in this study. The researchers administered and retrieved the completed questionnaire from the respondents. The statistical methods employed to analyze the data are the descriptive and inferential statistical methods.

Findings: This paper reported that strike, picketing and work-to- ruledetermine workers' productivity in Auchi polytechnic, Auchi. The hypotheses tested showed that there is a significant relationship between strike, picketing and work-to- rule and workers' productivity.

Research implication: Government, employers and Auchi Polytechnic management should ensure that workers are adequately motivated and remunerated to prevent industrial action such as strike, picketing and work-to- rule.

Originality/Value: The paper provided valuable insight into the effect of industrial action (strike/picketing/work-to-rule) on workers' productivity and need for government and Auchi polytechnic management to ensure that workers are provided with befitting working conditions and environment in order to prevent industrial actions in the institution and as such foster workers' productivity

Keywords:industrial action, workers, productivity, polytechnic, Auchi

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INTRODUCTION

Employees hold a strategic position in an institution due to their importance in the manufacturing process. They play an incalculable part in achieving numerous organizational aims and objectives, as well as the government's economic plan. Employers and employees will always have problems and disagreements, whether about compensation or the

general state of the workers' service. Industrial action has become so common and disruptive in Nigerian universities that it has impeded the growth of some polytechnics (Ojielo, 2002). Industrial action has become so common and disruptive in Nigerian universities that it has impeded the growth of some. Industrial actions are unavoidable at many firms around the world, according to Ilevbare, Ojeleye, and Ilevbare (2012). Industrial action, according to Sherlekar (2001), encompasses all forms of opposition or adversarial relationships among individuals, groups, and/or organizations. Industrial action is a conflict, disagreement, or battle between two parties marked by open antagonism and deliberate interference with the other party's goals and objectives (Fajana 2000). Industrial action, according to Bankole (2011), happens when two or more people or groups believe they have incompatible aims and activity interdependence. Industrial action is a conflict between or among industrial relations players, usually over matters of contrasting interest. The following is an example: Individual owners and managers on the one hand, and working people and their organizations on the other, exhibit a wide range of behavior and attitudes that indicate resistance and divergent orientations.

According to Otobo (2005), collective action takes place amongst groups, with personality and other structural characteristics playing a role. It also tends to limit the phenomenon to what occurs between two opposed groups, owners/managers versus workers and their organizations. Industrial action may result in negative feelings, resentment, and hostility among employees, preventing them from working together as a team, resulting in a drop in work performance, low productivity, customer loss, high labor turnover, negative effects on the organization's goodwill, and eventual collapse. To avoid the aforementioned consequences, it is critical to develop a work performance measuring system that will serve as an indicator of whether employee job performance is improving or declining (Ilevbare, Ojeleye& Ilevbare2012).

Statement of the problem

Auchi Polytechnic has been plagued by frequent industrial actions in the past due to disagreement between personnel, management, and the government. Staff and their trade unions frequently view industrial action as the sole way to safeguard and promote their socioeconomic interests, and as a result, they routinely engage in it. Inadvertently, the polytechnic staff persistent industrial actions have harmed not just academic activity in the institution, but also worker productivity. Industrial activities have far-reaching implications for union-management and government relations. The government, polytechnic administration, and other stakeholders should step up their efforts to stop this monster from destroying our educational system. Industrial action has serious ramifications, and unless immediate action is made to address this heinous phenomenon, the Nigerian educational system would suffer greatly. This study seeks to evaluate the effect of industrial action on worker productivity at Auchi Polytechnic in this context.

Objective of the study

The main objective of this study is to investigate effect of industrial actions on workers of Auchi polytechnic productivity. Specifically, the study sets out to:

i.   identify the extent to which strike determine workers'productivity in Auchi polytechnic, Auchi
ii.   ascertain extent to which picketing determine workers'productivity in Auchi polytechnic, Auchi
iii.   find out the extent to which work-to- rule determine workers'productivity in Auchi polytechnic, Auchi.

Research Questions

The following research questions are raised for this study
i.   To what extent does strike determine workers 'productivity in Auchi polytechnic, Auchi?
ii.   To what extent does picketing determine workers 'productivity in Auchi polytechnic, Auchi?
iii.   To what extent does work-to- rule determine workers 'productivity in Auchi polytechnic, Auchi?

Research Hypotheses

  i.   There is no significant relationship between strike and workers 'productivity in Auchi polytechnic, Auchi
  ii.   There is no significant relationship between and workers 'productivity in Auchi polytechnic, Auchi
 iii.   There is no significant relationship between work-to- rule and workers 'productivity in Auchi polytechnic, Auchi

Review of related Literature

Strikes are frequently mentioned in talks of industrial action. Strikes are the most visible and consequential form of industrial strife. However, they are, regrettably, only a component of the conflict phenomena (Fashoyin, 2005). The study of conflict has been claimed to comprise "the entire range of conduct and attitudes that indicate opponents and management on the one side, and working people and their organizations on the other. Industrial action, according to Sherlekar (2001), encompasses all forms of opposition or antagonistic relations inside or among individuals, groups, and/or organizations. Industrial action is a conflict, disagreement, or struggle between two parties that is marked by open animosity and/or intentional interference with the other party's goal achievement (Fajana 2000). The firm strives to maximize service delivery through the use of workers' services, while employees strive to maximize the benefits that come with providing their labor services, such as comfortable pay and other benefits. It is stated that they (workers and management) would want to end any sort of strike (particularly work stoppage) rather than allow it to degenerate since they will suffer some form of loss (Mas, 2004). According to Ivancevich (2007), a strike is an attempt by employees to stop working in order for their employer to make more concessions. It is said to be a primary negotiation tool utilized by labor unions. It can range from an economic strike, in which employees cease working until their demands for better working conditions are met, to a sit-down strike, in which employees strike but continue at work. Osuorji and David (2014) investigated the effect of incessant strikes on academic performance of business education students in Abu, Zaria. Aiming to determine the extent to which the strike action has affected academic performance of Business Education students in ABU, Zaria; and to assess the perception of students about incessant strikes on academic performance of Business Education in ABU, Zaria. The study adopted descriptive survey research design. The result shows that incessant strikes by lecturers have a resultant effect on the academic performance of the students.Fashina (2001) attributes the causes of industrial crisis in the Nigerian workplace to policy inconsistencies and wrong placement in organizational priorities on the part of the management. When employers place higher premium on capital input far above the workers without appreciating that the latter makes the former productive, would brood industrial rancor. This connotes that poor remuneration may be a strong cause of industrial crisis. Low level of workers' motivations with respect to remuneration (both promptness and total package) has been a bone of contention between the workers and employers.

Work-to-rule is a job action in which employees do no more than what is required by their contract's rules and strictly adhere to all safety and other regulations, which may cause a slowdown or decrease in productivity because they are not working during breaks or unpaid extended hours and weekends (for example, checking email) (Morgan,1998). This type of action is less disruptive than a strike or lockout, and following the rules is less likely to result in disciplinary action. Work-to-rule as a form of industrial action can include refusal to work overtime, duty travel, or signing up for additional responsibilities that need employee consent (Wikipedia, 2022).

Picketing, on the other hand, according to Twarog (2006) is a kind of protest in which individuals (called pickets or picketers) assemble outside a place of business or a site where an event is taking place. This is frequently done to deter others from entering ("crossing the picket line"), but it can also be done to bring public attention to a subject. Picketers usually try to avoid becoming violent. It can have a variety of goals, but the most common one is to put pressure on the targeted party to satisfy specific criteria or discontinue activities. This pressure is applied by causing harm to the business through customer loss and poor publicity, or by deterring or prohibiting personnel or customers from visiting the site, preventing the firm from running regularly. Picketing is a popular practice used by trade unions to discourage dissident members, members of other unions, and non-unionized workers from working during strikes. Those that labour despite the strike and cross the picket line are referred to as scabs (Beckett, 2009 cited in Wikipedia ,2022).

Theoretical framework

This is based on the wage bargaining theory proposed by John Davidson. Wage fixing, according to this view, is based on the negotiating power of workers/trade unions and employers. Wages tend to be higher when employees are more powerful in the negotiation process. If the employer plays a larger role, salaries are likely to be low. According to

this idea, pay rates have an upper and lower limit, and the actual rates between these limitations are set by the employers' and workers' negotiating strength. The salaries and hours of labour were ultimately set by the relative negotiating strength of the employers, according to John Davidson, the first proponent of the bargaining theory of wages.

Research Methodology

The impacts of industrial action on worker productivity in Auchi polytechnic are investigated using a descriptive design. In this study, a descriptive survey is ideal because it allows for the examination of a very small and big population using a questionnaire to establish the present status of industrial activities and staff productivity at Auchi Polytechnic. The participants in this study are all Auchi polytechnic employees. As a result, the population is two thousand two hundred and sixty (2260) (Auchi Polytechnic Staff Telephone Directory, 2019). The TaroYemane formula for sample size determination was used by the researchers to determine the study's sample size.

Formula: $n = \dfrac{N}{1 + N(e)^2}$

Where   n = Sample size
N = Population size
e = Sampling error or level precision.

$n = \dfrac{2260}{1 + 2260(0.5)^2}$

$n = \dfrac{2260}{1 + 2260(0.0025)}$

$n = \dfrac{2260}{1 + 5.65}$ $n = \dfrac{2260}{6.65}$

n = 340

As a result, a sample size of 340 employees was chosen for the study. In this study, the availability or convenience sampling technique was used. The study used just those respondents (employees) who were available and willing to participate. The questionnaire was employed as a research tool in this study. The questionnaire was created in accordance with the research objectives and other pertinent information. There were two sections to the questionnaire: Section one featured the respondents' biographical information, whereas section two dealt with issues raised by the study's research questions. The statistical methods employed to analyze the data are the descriptive and inferential statistical methods. The descriptive methods employed are the frequency tables and simple percentages while the inferential method employed is the Kendall's tau-b with test of its significance. Kendall's tau-b (τb) correlation coefficient (Kendall's tau-b, for short) is a nonparametric measure of the strength and direction of association that exists between two variables measured on at least an ordinal scale. It is considered a nonparametric alternative to the Pearson's product-moment correlation when your data has failed one or more of the assumptions of this test. It is also considered an alternative to the nonparametric Spearman rank-order correlation coefficient (especially when you have a small sample size with many tied ranks).

The formula is given by

$$\tau = \dfrac{(C - D)}{(C + D)}$$

where:

C = the number of concordant pairs
D = the number of discordant pairs

Assumptions

a.   Your two variables should be measured on an ordinal or continuous scale. Examples of ordinal variables include Likert scales (e.g., a 7-point scale from strongly agree through to strongly disagree), amongst other ways of ranking categories (e.g., a 5-point scale explaining how much a customer liked a product, ranging from "Not very much" to "Yes, a lot"). Examples of continuous variables (i.e., interval or ratio variables) include revision time (measured in hours), intelligence (measured using IQ score), exam performance (measured from 0 to 100), weight (measured in kg).

b.   Kendall's tau-b determines whether there is a monotonic relationship between your two variables. As such, it is desirable if your data would appear to follow a monotonic relationship, so that formally testing for such an association makes sense, but it is not a strict assumption or one that you are often able to assess.

RESULTS

The data collected from the questionnaire were analyzed using simple descriptive analysis of frequency counts and percentage in order to determine responses to the items in the questionnaire and to describe the characteristics of the respondents in terms of their views. A total number of three hundred and forty (340) copies of the questionnaire was administered and 330(97. 1%) returned completed from the respondents and were subsequently used in the study.

Table 1. Respondents' demographic characteristics (n =330)

	No of the respondents	%
Gender		
Male	153	46.4
female	177	53.6
Educational Qualification of the Respondents		
SSCE	44	13.3
NCE/ND	55	16.7
HND/BSC	98	29.7
PGD	28	8.5
MSC/MBA	74	22.4
Ph.D	31	9.4
Age Distribution of the Respondents		
18 – 25	89	27.0
26 – 33	104	31.5
34- and above	137	41.5
Total	**330**	**100**

Source: (Fieldwork, 2021)

Table 1 reveals the gender distribution of the respondents with female 177 (53.6%) and male 153(46.4%). This implies that the majority of the respondents in this study are females. On the Educational Qualification of the respondents, HND/BSC has the highest number of respondents with 98 (29.7%), followed by MSC/MBA with 74 (22.4%). Others are NCE/ND with 55 (16.7%), SSCE with 44 (13.3%), Ph.D31 (9.4%) and PGD 28 (8. 5%). On the age distribution of the respondents, respondents within the age bracket of 34 and above with 137 (41.5%) are of the majority. Followed by respondents within the age bracket of 26 – 33with 104 (31.5%). While respondents within the age bracket of 18 – 25with 89 (27.0%) came last.

Table 2. the extent strike determine workers productivity in Auchi polytechnic, Auchi

Extent	No	%
Very Little Extent (VLE)	-- --	
Little Extent (LE)	--	--
Little Extent (LE)	-- --	
Some Extent (SE)	19 5.8	
Great Extent (GE)	206.1	
Very High Extent (VHE)	291 88.1	
Total	**330 100**	

Source: (Fieldwork, 2021)

Table 2 shows the extent strike determine workers productivity in Auchi Polytechnic, Auchi. 291 respondents representing (88.1%) agreed to a Very High Extent that strike determines workers productivity in Auchi Polytechnic, Auchi. 20(6.1%) responded that strike determine workers productivity to a great extent. 19(5.8%) responded that strike determine workers productivity to some extent.

Table 3. The Extent Picketing Determine Workers Productivity in Auchi Polytechnic,Auchi

Extent	No	%
Very Little Extent (VLE)	--	--
Little Extent (LE)	--	--
Little Extent (LE)	--	--
Some Extent (SE)	--	--
Great Extent (GE)	188	57.0
Very High Extent (VHE)	142	43.0
Total	**330**	**100**

Source: (Fieldwork, 2021)

Table3 reveals the extent picketing determine workersproductivity in Auchi Polytechnic, Auchi. Respondents representing 188 (57.0%) agreed picketing determineworkersproductivity in Auchi Polytechnic, Auchi to Great Extent. 142(43.0%) responded that picketing determine workers productivity to a Very High Extent.

Table 4. The Extent Work-To- Rule Determine Workers Productivity in Auchi Polytechnic, Auchi

Extent	No	%
Very Little Extent (VLE)	--	--
Little Extent (LE)	--	--
Little Extent (LE)	--	--
Some Extent (SE)	--	--
Great Extent (GE)	140	42.4
Very High Extent (VHE)	190	57.6
Total	**330**	**100**

Source: (Fieldwork, 2021)

Table4 reveals the extent work-to- ruledetermine workers'productivity in Auchi Polytechnic, Auchi. Respondents representing 190 (57.6%) agreed work-to- ruledetermine workers'productivity in Auchi Polytechnic, Auchi to Very High Extent. 140(42.4%) responded that work-to- ruledetermine workers' productivity to a great extent.

Hypothesis 1

H_0: There is no significant relationship between Strike and workers' productivity
H_1: There is significant relationship between Strike and workers' productivity

Table 5. Relationship Between Strike and Workers' Productivity

			Strike	Workers Productivity
Kendall's tau_b	Strike	Correlation Coefficient	1.000	-.645**
		Sig. (2-tailed)	.	.000
		N	330	330
	Workers Productivity	Correlation Coefficient	-.645**	1.000
		Sig. (2-tailed)	.000	.
		N	330	330

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

The value of the Kendall's tau-b correlation (-0.645) shows that there is a high negative and significant (since 0.000<0.05) correlation between strike and workers' productivity. Therefore, reject (H_0) Null Hypothesis and accept (H_1) the alternative hypothesis which states that there is a significant relationship between strike and workers' productivity in Auchi Polytechnic, Auchi . This implies that strike have significant effect on workers' productivity.

Hypothesis 2:

H_0: There is no significant relationship between Picketing and Workers' productivity
H_1: There is significant relationship between Picketing and Workers' productivity

Table 6. Relationship Between Picketing And Workers' Productivity

			Picketing	Workers Productivity
Kendall's tau_b	Picketing	Correlation Coefficient	1.000	-.464**
		Sig. (2-tailed)	.	.000
		N	330	330
	Workers Productivity	Correlation Coefficient	-.464**	1.000
		Sig. (2-tailed)	.000	.
		N	330	330

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

The value of the Kendall's tau-b correlation (-0.464) shows that there is a moderate negative and significant (since 0.000<0.05) correlation between Picketing and employees' productivity. Therefore, reject (H_0) Null Hypothesis and accept (H_1) the alternative hypothesis which states that there is a significant relationship between picketing and workers' productivity in Auchi Polytechnic, Auchi. This is an indication that picketing has significant effect on workers' productivity.

Hypothesis 3:

H_0: There is no significant relationship between Work-to-rule and employees' productivity
H_1: There is significant relationship between Work-to-rule and employees' productivity

Table 7.significant relationship between Work-to-rule and employees' productivity

			Work_to_Rule	Workers Productivity
Kendall's tau_b	Work_to_Rule	Correlation Coefficient	1.000	-.591**
		Sig. (2-tailed)	.	.000
		N	330	330
	Workers Productivity	Correlation Coefficient	-.591**	1.000
		Sig. (2-tailed)	.000	.
		N	330	330

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

The value of the Kendall's tau-b correlation (-0.591) shows that there is a high negative and significant (since 0.000<0.05) correlation between Work-to-rule and employees' productivity. Therefore, reject (H_0) Null Hypothesis and accept (H_1) the alternative hypothesis which states that there is a significant relationship between Work-to-rule and workers' productivity in Auchi Polytechnic, Auchi. This shows that Work-to-rule have significant effect on workers' productivity.

Discussion of findings

The result of this study revealed that strike determines workers'productivity in Auchi polytechnic, Auchi to a very high extent. This finding is in conformity with Osuorji and David (2014) that investigated the effect of incessant strikes on academic performance of Business Education students in Abu, Zaria. Aiming to determine the extent to which the strike action has affected academic performance of Business Education students in ABU, Zaria; and to assess the perception of students about incessant strikes on academic performance of Business Education in ABU, Zaria. The study adopted descriptive survey research design. The result shows that incessant strikes by lecturers have a resultant effect on the academic performance of the students.

The study also revealed discovered in that picketing determines workers'productivity in Auchi Polytechnic, Auchi to a Great Extent and Very High Extent. This finding corroborates Twarog (2006) that stated that picketers normally endeavour to be non-violent. It can have a number of aims, but is generally to put pressure on the party targeted to meet particular demands or cease operations. This pressure is achieved by harming the business through loss of customers and negative publicity, or by discouraging or preventing workers or customers from entering the site and thereby preventing the business from operating normally. Picketing is a common tactic used by trade unions during strikes, who will try to prevent dissident members of the union, members of other unions and non-union members from working. Those who cross the picket line and work despite the strike are known pejoratively as scabs.

It was also discovered that work-to- ruledetermine workers'productivity in Auchi polytechnic, Auchi to Very High Extent and to a great extent. This finding is in agreement with study of Work-to-rule is a job action in which employees do no more than the minimum required by the rules of their contract, and precisely follow all safety or other regulations, which may cause a slowdown or decrease in productivity, as they are no longer working during breaks or during unpaid extended hours and weekends (checking email, for instance). Mas (2004) further posits that the effects of industrial action in public organisation in Nigeria have both micro and macro implications. At the microeconomic level, the workers of the unions involved lose their immediate pay and hence their market purchasing powers that result in reduction in welfare. On the other hand, the employer whose workers are on strike loses the union services and as a result becomes unable to meet their customers' orders; this invariably affects their returns and profit margin. While at the macroeconomic level, it results to loss of output of goods and services.

CONCLUSION

Industrial action occurs when two or more people or groups perceive that they have incompatibility of goals and interdependence of activity. Industrial action is a disagreement between or among institution unions and institutions management mostly over issues of divergent interest such as poor remuneration, low level of workers' motivations, poor working conditions, and breach of collective agreement and policy inconsistencies and wrong placement of institutional priorities.. This pointed out that strike, picketing and work-to- rule affect workers' productivity to a very high and great extent in Auchi polytechnic, Auchi. Industrial action comes with dire consequences ranging from low productivity, poor performance, exodus of trained personnel and disruption of official activities and closure of the institution for a period of time.

RECOMMENDATIONS

Based on the findings, the following are recommended:

i.   Government and Auchi polytechnic management should ensure that staff are adequately motivated and remunerated to prevent industrial action and thereby facilitates increase productivity.
ii. Government and Auchi polytechnic management should ensure that workers are provided with befitting working conditions and environment in order to prevent industrial actions in the institution and as such foster productivity.

iii.   Government and Auchi polytechnic management should ensure that every collective agreement reached with staff dishonored and strictly adhere to in order to prevent industrial actions.
iv.   Government and Auchi polytechnic management should put an end to all forms of inconsistencies in the institution policies and wrong placement priorities.

ACKNOWLEDGEMENT

REFERENCES

Bankole, A.R. (2011). *Principle of personnel management*. Lagos: Sege- Prints.
Beckett, A (2009). *When the Lights Went Out: Britain in the Seventies*. London: Faber & Faber.   70.
Bloomsbury, G. (2002). A strategy for Industrial relations in Great Britain.*Britain Journal ofIndustrial Relations* 10(20), 12-20
Fajana, S. (2000).*Industrial Relations in Nigeria*. Lagos: Labofin and Company
Fashoyin, T. (2005).*Industrial Relations in Nigeria.*Lagos: Longman Nigeria Plc
Ilevbare, F. M., Ojeleye, B &Ilevbare, O. E (2012). Influence of industrial conflict on   perceived   employee   work performance in selected Local Government Area in OsunState. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*3(5), 439-446
Ivancevich, J. M. (2007). *Human resources management*. Singapore. Mcgraw Hill, InternationalEdition, Singapore
Mas, A. (2004).*Labour Unrest and the quality of Production*: evidence from the constructionequipment resale market. Industrial Relations/Labor Economics Seminar, Berkeley: Princeton University.
Morgan, Gareth (1998). *Images of Organization*. Thousand Oaks, California: Sage Publications.   165
Ojielo, M. O. (2002). *Managing organizational conflict: A system approach.* Ibadan:John   Archers (Publishers) Ltd
Otobo, D. (2005). *Industrial Relations: Theory and Controversies.* Lagos: MalthousePress Ltd.
Osuorji, A. N.& David, S. (2014) The Effect of Incessant Strikes on academic performance of Business Education students in Abu, Zaria. *Association of Business Educators of Nigeria*
Sherlekar, S.A. (2001). *Management: Value-oriented Holistic Approach*, Mumbia HimalayaPublishing House.
Twarog,J (2006) .Informational pickets, rallies, vigils and leafleting at health care facilities. *Massachusetts Nurse*, 77 (3), 9
Wikipedia (2022).Work-to-rule.http:///F:/Work-to-rule%20-%20Wikipedia.html
Wikipedia (2022).Picketing.http:///F:/Picketing%20-%20Wikipedia.html

Major Evaluation Techniques in English

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Abstract

In a comprehensive program of appraisal in the modem colleges, objective tests constitute one of the major techniques of evaluation. Other major techniques for assessing pupil growth development may be Anecdotal records and observational methods, short answer test, oral and essay examinations, questionnaires, inventories, and interviews, checklists and rating scales, personal reports and projective techniques, socio metric methods, and, case studies and cumulative records. The adequacy of each evaluation method should be judged on commonly accepted criteria - validity, reliability, objectivity norms and practicability as these apply to the educational situation and the purposes of the educators. In discussions, the large numbers of specific evaluation techniques, methods and devices have been classified into categories for convenience. While it may be argued that these categories are somewhat arbitrary, any other classification scheme would be equally dependent upon the purposes and logic of an author, the present classification follows closely.

Keywords: modem colleges, pupil growth development, oral and essay examinations, questionnaires, inventories, and interviews

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PROCEDURES TO BE FOLLOWED

As a first step, the teacher should study the direction for the administration of the test. This involves more than cursory reading of the directions, particularly when a standardized test is to be administered. Rather, each specific direction given in the test manual should be checked against the test booklet and, if necessary, appropriate notations should be made on a specimen copy of the text booklets.

Prior to the day of testing, the teacher should assemble the materials needed, text booklets, answer sheets, scrap paper, an adequate supply of pencils or crayons, a copy of the test manual a watch or clock, and a sign - " Testing - Do Not Enter". The test should be administered in a comfortable familiar setting. The students 'own classroom should be used unless that room is very noisy. If warranted, the arrangements should be made for a shift in rooms prior to the date of testing. If some students in the group are not to be tested at the scheduled time, provision for their care during the testing period should also be made in advance.

SHORT ANSWER TESTS

Written tests used by the teachers for measuring pupil may be classified as essay examinations or short answer examinations. The latter is often referred as objective or "new-type" tests. The essay examination, which generally asks the pupil to discuss, compare, give reasons and the like, requires the formulation of an extended verbal answer to the question. On the other hand, in short answer tests, the pupil responds by the selection of one or more of several given alternatives, by giving or filling in a word or a phrase, or by some other device which does not call for an extensive written response.

VALUES AND LIMITATIONS OF SHORT ANSWER TESTS

Values:

Short-answer tests, in comparison with essay examinations, possess certain definite advantages. In an essay examination, the process of writing a response is extremely time - consuming. Use of a short - answer test where the response is quickly given, makes it possible for the pupil to answer many more questions in the same amount of time. As a result, short - answer tests generally show much better coverage of total content than essay examinations. Even spotty preparation may result in high grades when a pupil happens to study just that material called for by a few essay questions. Such chance results operate to a far less degree when short - answer tests are employed. In the later situation the teacher may be more certain that the grades the pupil earns is a true measure of his achievement.

TYPES OF SHORT - ANSWER TESTS

Completion items- The completion item requires the pupil to complete the thought of a sentence by finding the word or words that have been omitted, or it directs him to a question by writing his answer in the blank space provided as the pupil needs to decide upon his answer and then write it out. A test composed of completion items takes longer to administer than other forms of objective tests if the test is timed. Moreover, the pupil who writes slowly is handicapped. The scoring of the answers is not fully objective compared to other types of items and alternative correct responses need to be included in the scoring key.

TRUE - FALSE ITEMS

The true - false items require the pupil to express his judgment of a given statement by indicating True or False, Yes or No, or some similar response. It is adapted to the testing of simple facts, ideals, and concepts. Scoring of tests composed of true - false items is easy and objective. Such tests seem simple to construct, but this apparent advantage is not a real one. In practice, considerable care is needed in forming the statements so that the ability to be measured is actually revealed.

True - False questions have been the source of greater irritation to pupils than almost any other type of short - answer question. This - Irritation, too, is generally expressed by the superior student who may see one or more exceptions to a statement which would be acceptable to a somewhat less - informed person.

In constructing true-false items, care should be taken' to avoid several common pitfalls.

- ☐   Avoid broad generalizations.
- ☐   Avoid testing minutiae.
- ☐   Avoid double statements.
- ☐   Avoid long, complicated statements.

MULTIPLE - CHOICE ITEMS

The multiple - choice item requires the pupil to recognize which of several suggested responses is the best or the correct way to answer a question to complete a statement. While the completion item requires the pupil to produce the correct response without suggestion, the multiple-choice item calls for recognition only. It is adapted to the testing of complex ideas and interpretations. The scoring of the multiple choice item tends to be more objective and simpler than that of the completion item. The multiple - choice item is superior to the true-false item, which 'resents only two alternatives, in that it reduces the opportunity for guessing the correct answer. The multiple - choice types of question is also relatively free from absolutes in that the best statement is to be selected as the correct answer from the alternatives given. The correct answer therefore is relative to several other given statements rather than to all possible statements, not given as in true - false questions.

Multiple - Choice questions are found in several patterns. Probably, the most common pattern is the use of a "stem" which sets the question followed by several alternative statements, one of which is assumed to be the best answer.

MATCHING ITEMS

The matching exercise consists of two parallel columns of words, phrases or sentences. The pupil is required to match or associate each item of one column with the item which corresponds to it in the other column. Each matched pair is scored separately. Actually however the pairs are inter-dependent because an incorrect response may make an item unavailable for correct pairing. For this reason, one of the two columns should contain more items than the other. Also, it is better to have two short matching exercises than one long one. Some test experts recommend three items in one column and five in the other as being the best number for reliable results. Younger children may be asked to draw lines between the items which match. Older children may be directed to indicate the appropriate letter for matching item.
The matching exercise takes little specimen time on a test, but its usefulness is limited. It is not adapted to the testing of complex ideas or concepts.

ESSAY EXAMINATION

   The Essay examination is still popular. The Essay examination calls for a relatively free written response a problem situation, in which the written answer, when properly to analyzed by the scorer reveals information regarding selected aspects of the organization and functioning of the pupil's mental life. The essay examination has survived the continued criticism of experts in educational measurements and the remains and approach widely used by class room teachers in achievement testing.
   The relative popularity of essay examination is not difficult to understand. The most widely used tests are those which are prepared, administered, scored and interpreted by the room teacher. They are generally constructed for use with those pupils enrolled in the course taught by the teacher who prepares the test. The teacher may have many purposes in mind in administering the test - to motivate his pupil's to determine the success with which he has taught the unit of the subject matter, to encourage additional study. The preparation of valid objective - type testing materials not only requires more time but calls for training and experience which the class room teacher seldom has had an opportunity to obtain. Nearly every teacher, however, looks upon himself as expert enough to construct a suitable essay test in his own subject, and to arrive at a satisfactory grade for a pupil. Technicalities such as adequate sampling of content, test validity and test reliability are to often dismissed or ignored.

SUGGESTIONS FOR IMPROVING THE ESSAY EXAMINATION

☐   Each question in an essay test should be planned to measure one defined objective of instruction for which no valid or reliable short answer test is available.
☐   Essay questions should be formulated to require a definite, restricted answer for objective tested.
☐   Avoid ambiguous questions.
☐   The pupil should not be allowed to make a choice among several questions. The use of the optional questions makes it almost impossible to arrive at comparable scores for pupils who have answered different questions.
☐   In grading essay examinations, a standard should be formulated in which a specific number of credits is allotted to each significant point which the pupil is expected to make when there is a limited range of choice among acceptable answers or parts of answers. All or most of such possible choices should be included in the standard answer.

ORAL EXAMINATION

   The oral questioning of an individual pupil constitutes an excellent means of following the thought process which he has used in solving certain problems, such as one in mathematics. Used in this manner the oral quiz becomes a valuable tool for the diagnosis of pupil difficulties. Skillful, questioning by the teacher too may help the pupil to apply known scientific information to a new situation or to see implication such as those involved in adopting a given economic policy. The use of this approach should not generally be looked upon as a rod for measuring pupil achievement rather it represents a worthwhile instructional technique.
   In some situations an oral examination constitutes the only way in which a measure of pupil attainment can be obtained. When children have not yet mastered the intricacies of reading, an oral examination must be used. The oral examination, used in the course of class room work, does the obvious advantage of saving the time and expense which is involved in reproducing copies of a test. As a result oral administration of teacher - made tests of the short answer

type is frequently found in a sense, oral presentation of such teacher - made tests eliminate some of the difficulties which are associated with the administration of printed tests. The relative informality of the oral test situation is far less frightening timid child. The pupil need not ponder over an item which he finds difficult, losing so much time that he cannot complete the test. Moreover, the oral examination places a premium upon oral rather than reading comprehension.

   There are two requisites for successful test administration. First, the directions given in the test manual for administering the test must be followed without deviation. Even slight modification of the direction destroys the standardized nature of the test situation if for example the pupil asks for the meaning of a word during a test the examiner must avoid a direct answer to the question unless the manual specifically permits help. Without such permission, the teacher should indicate that the information cannot be given and that the pupil should go on to the next item.

REFERENCES

1.Angelo, T.A. & Cross, P.K. Classroom Assessment Techniques, Jossey Bass: San Francisco, 1991
2.BhaskaraRaoSwamy, CAP &Dutt, BSV Self Evaluation I Student teaching, Discovery publishing House, New Delhi 1997.
3.Bradfield, J.M. &Moredock, H.S. Measurement and /evaluation in Education, Newyork:Macmillan, 1989.
4.Harkavy, Michal The New Webster's International Encyclopedia, 2.vols, London, 1988.
5.Shalaway, Lorida Learning to Teach, Newyork:Macmillan, 1987.
6.Sterne, S.S. Fundamental concepts in Language Teaching, Newyork:Longman, 1982.

Review

Efficacy of Training Community Level fieldworkers: Prospects for Effective Planning and Implementation of Community Based Rehabilitation

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Abstract

The demand and need for rehabilitation is much higher than what is provided by available rehabilitation workers as well as services especially in low and middle income countries such as Nigeria. It is expected that adequate training will address some issues in the training of community level personnel to effectively carry out Community Based Rehabilitation (CBR) services. This paper seeks to examine efficacy of training community level field workers and its prospects for effective planning and implementation of CBR. The concept of CBR was discussed. In addition, training programmes for CBR field workers were presented. The paper also highlighted the principles and practices of training CBR personnel. Similarly, challenges of training CBR field workers were outlined and suggestions were proffered in terms of funding CBR training programmes, enactment of policies and legislations and also the active participation of persons with special needs and their families, community members, volunteers, caregivers etc.

Keywords: Community Based Rehabilitation (CBR), Field Workers, Persons with Disabilities.

INTRODUCTION

The effective planning and implementation of Community Based Rehabilitation (CBR) programme requires resource personnel that are equipped and competent to provide qualitative rehabilitation services to persons with special needs. Community based field workers or Community-level workers are a strong base of workers in CBR personnel that are trained to provide community based rehabilitation services. Personnel under this level according to Economic and Social Commission for Asia and the Pacific (ESCAP, 2014, 1985) include nongovernmental agents, heath and community workers, extension agents, school teachers, community service personnel, members of the community, families of persons with special needs and persons with special needs themselves. They are trained on how to apply simple rehabilitation techniques and also coordinate simple referral services as a basis for achieving the goal of CBR programmes.

CBR is referred to as a strategy within the general community development for the rehabilitation, equalization of opportunities and social inclusion of all people with disabilities. It represents an effort to entrust members of the family and community with the task to perform rehabilitation process in a simplified way that illiterate community members are able to carry out therapeutic exercises, produce and use simple aids and services (International Labour Organization. United Nations Economic, Social and Cultural Organization, World Health Organization, 2004). It provides support and assistance to persons with disabilities, reduces stigma and also enables them to get equal access as persons without disabilities.

Similarly, according to Wirz (1996) asserts that a prime area for research in CBR is in the area of training needs for CBR workers. Community or mid- level rehabilitation workers often require specialized training if CBR is to become an effective strategy for service delivery for the huge and largely unmet needs for persons with special needs. More so, there is dissatisfaction with most of the CBR training programmes whose outcomes presents radical changes in the training needs of CBR field workers.

Therefore, there is need to design a CBR programme and its effectiveness proven. This is due to the fact that the key strength of the CBR model according to Kuiper and Doig (2013) is that enhanced opportunity for provision of training and education of others; family, support workers and also skill sharing among members of the immediate social network surrounding the client. It is necessary that special CBR training programme be organized and designed for CBR workers especially in instances where the community based model relies on community workers as well as family members. More so, the CBR training manuals available and used in training personnel in CBR often lay more emphasis on the transference of technical knowledge unrelated to the practical use of this knowledge and which concentrates rather on technical skills than creativity and problem solving skills (Wirz & Chalker, ud). These training manuals need to be broken down into a language (local language eg. Hausa, Igbo, Yoruba etc.) to ease understanding among community and family members. Over the years, emphasis has been laid on personnel who are already overburdened with their existing responsibilities and have no time providing rehabilitation services for persons with special needs. There have been so many CBR programmes mushrooming in various countries including Nigeria but with a lot of differences on areas of emphasis, approaches and models. Such programmes have not been able to address the problems faced by persons with special needs. These problems are attributed to lack of financial human and material capacity/support as well as technical support (Ngoma, Davies & Seifert, 2008). More so, CBR personnel training curriculum in most instances is prepared based on the experience of the institutional instructors, who teach trainees to work in an institutional set up rather than in the community. According to Thomas, T. & Thomas, J. (2012), they are loaded with technical skills training and lack the essential prerequisites to be successful in the community, namely, the ability to be innovative and to organize the families and the community for CBR work. This results in the CBR workers functioning as institutional extension workers, rather than as community level workers. Similarly, there is actually very little published formal CBR research and the under-theorized field of CBR is a problem since it is accepted for implementation in Nigeria on the pilot basis. Therefore, subsequent studies will serve as headway in establishing CBR training programmes for community-level CBR field workers Nigeria.

This argument is based on the assertion by O'Toole and McConkey (1997) who argued that the CBR approach has remained in its infancy stage in most countries in the world and a major reason for this, they believe, is the lack of attention given to the development of human resources in the current models of CBR. They also opined that a new model of training is required which incorporates the following characteristics: training curricula derived out of the needs of persons with special needs and their careers; information and skills conveyed should be culturally valid and directly applicable to home and community settings; the primary recipients should be family support workers, family members and, where possible, people with disabilities and the training should be available in the locality.

Concept of Community Based Rehabilitation(CBR)

CBR is defined as a strategy within community development for the rehabilitation, equalization and social integration of persons with disabilities (World Health Organization, 2004). This is achieved through the collaborative and combined efforts of persons with disabilities, their families and communities. It also involves the appropriate health, education, vocational and social services provided. According to World Health Organization (2007), there are five key elements/components that present the different components of CBR for community development, skills training and building capacity for persons with special needs these are presents in the CBR matrix presented below:

HEALTH	EDUCATION	LIVELIHOOD	SOCIAL	EMPOWERMENT
Promotion	Early Childhood	Skills Development	Personal Assistance	Advocacy and Communication
Prevention	Primary	Self-Employment	Relationship, Marriage and Family	Community Mobilization
Medical Care	Secondary and Higher	Wage Employment	Culture and arts	Political Participation
Rehabilitation	Non-formal	Financial Services	Recreation, Leisure and Sports	Self-Help Groups
Assistive Devices	Life-long Learning	Social Protection	Justice	Disabled Peoples Groups

Figure 1: The CBR Matrix. Source: World Health Organization, (2010b)

As presented in Figure 1 above, the health component is one of the important components of the CBR matrix and its aim is to help persons with disabilities achieve their higher attainable standard of living by addressing five elements (promotion, prevention, medical care, rehabilitation and assistive devices). This is aimed at providing health promoting activities, prevention of disabilities through early detection, treatment and limiting reversing impact of already existing impairment, access to medical care, undertake rehabilitation activities, proper knowledge and use of appropriate assistive devices. Secondly, the educational component includes the early childhood care and education, primary education, secondary and higher education, non-formal education, and lifelong education. According to United Nations International Children's Education Fund (2020), all children, irrespective of where they live or their circumstances (including those living with special needs) have the right to quality education since education starts at birth and is actually broader than just school but to equip individuals with basic skills for independent living. Therefore, there is need to ensure that irrespective of the nature of impairment, no child should be discriminated against (or denied education) on the basis of impairment. As opined by WHO (2010a, 2021), education is the right of every child including children living with impairments (sensory, physical, intellectual/cognitive). This would ensure that no child is left behind as a principle of Education For All (EFA) globally.

A major goal of CBR is to ensure that a child form period from birth acquires early childhood care and education to promote easy transition, creating a welcoming and inclusive primary education system, increased participation and enrollment in secondary and higher education , promoting accessible inclusive higher education programmes, enable persons with special needs develop adequate knowledge and skills that will improve their quality of life and participate in non-formal schooling as a preparation for formal schooling or an alternative to formal schooling . In addition, individuals with disabilities have access to lifelong learning opportunities and also a variety of learning experiences. Thirdly, CBR seeks to enable persons with special needs gain livelihood by developing skills for work opportunities and decent work, gain self-employment, access wage employment, have access to financial services, to develop their economic activities, attain social protection and be allowed to attain and sustain employment. This is in line with the assertion by Ngoma, Davies, & Seifert (2008) which states that persons with special needs should be given all the necessary assistance they require to acquire and sustain employment. Therefore, vocational guidance, training, job placement and post-employment services are inevitable for improving livelihood and quality of life of persons with disabilities.

Moreso, as outlined in the CBR matrix social rehabilitation ensures that persons with disabilities get personal assistance to live with self-determination and dignity, participate in building lasting relationships, marriage and family life, contribute to cultural and artistic lives of family and community life, participate actively in recreation, leisure and sports, and also have access to justice on equal basis as their counterparts without disabilities. Finally, figure one above indicates that empowerment is the last component of the CBR matrix and outlines its components to include empowering persons with special needs through advocacy and communication to enable them express their needs and desires effectively,   work together with stakeholders in community mobilization to achieve common goals, create opportunities for active participation in politics, provide assistance through self-help groups and also encourage persons with special needs to work in partnership with disability peoples groups or organizations to plan, monitor and implement CBR programs (World Health Organization, 2010b).

Training Programmes for CBR Field Workers

Globally, there is a low number of well-trained rehabilitation practitioners required for delivery of adequate services (WHO, 2019). The few available in most cases do not possess the required competencies and skills to meet the diverse needs of persons with disabilities. Over the years families and community members have taken up the responsibility of health and social workers who have been relied on or used in providing CBR services in several countries; an option which is rather negative and uncalled for.CBR field workers are trained to meet specific needs of persons with disabilities in their respective communities which may differ due to cultural and religious practices amongst others factors.

A study by Vuuren and Aldersy (2018) on the training needs of CBR workers for the effective implementation of CBR programmes revealed that CBR workers represent a diverse group requiring a broad range of skills. More so, there is currently no standardized training for CBR and training varies widely depending on context. However, education and training programmes are developed on the basis of the need of groups of people to acquire new knowledge and skills, or to increase their knowledge and improve their skills, in given areas of human endeavor. These perceived training needs would inform the contents of any training programme which is identified after needs assessment in order to ensure the credibility of the training programme and also meet the training needs. There are recognized public and private institutions which offer education and training programmes in which the body of knowledge and skills are determined nationally as in the case of universities and institutes.

Specialized training is required to meet the training needs of CBR workers to enable them take on more strategic and more empowering roles in CBR especially with the corresponding shift in professional roles (Lang, 2011). This roles where hitherto were coordinated by specialists or technicians based on highly skilled expertise. The specific roles of CBR field workers are expected to be clearly spelt out in order to strengthen the workforce. In addition, new courses and programmes in CBR are developed on the basis of felt, observed and/or expressed needs in the society. These needs are expected to be documented and curricula are developed in order to meet the training needs (Nganwa, Mirembe & Kisanji, 2003).

Training programmes need to be regularly or periodically reviewed and the aim is to ensure that the specific training needs of personnel are met by institutions, parastatals or communities that provide these training programmes. The scope of CBR programmes listed in majority of programmes include: advocacy, disability inclusion, clinical skills, health promotion, disability and diversity, community participation, cultural awareness, social justice, capacity building, CBR guidelines, networking and referral, legislation and disability research amongst others (Ned, Tiwari, Hess-April, Lorenzo and Chikte (2020).

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Principles and Practices of Training CBR Personnel

Several CBR trainers have opined that there are several distinct principles that must be adopted in providing training to CBR personnel. According to Kuipers, and Doig (2013), the training of community-level workers is a key challenge as the transfer of skills to clients, family and community members central to CBR and cannot be taken for granted. The following are principles and practices in training CBR personnel:

1. An adult learning approach to presentation of materials must be used rather than relying solely on the traditional pedagogical approach.
 2. Interactive or experiential learning is much more successful and promotes thinking and reasoning rather than rote learning.
3. Training of CBR workers should be based on acquiring competence and skills across the spectrum of CBR matrix. Further research is required to determine the competencies of CBR workers as well as define roles of various personnel at the community level (Ned, Tiwari, Hess-April, Lorenzo and Chikte, 2020).
3. A functional approach to assessment and intervention is essential, rather than the traditional 'medical model' to diagnosis and treatment. A functional approach is more meaningful to the client and caregivers and provides greater motivation to improve, as clients can see that the interventions affect their ability to perform normal activities of daily living.
4. Theoretical sessions must be interspersed with practical sessions whereby participants can practice their skills and

acquisition of knowledge on each other, before exposure to clients with disabilities.
 5. Fieldwork practice sessions are essential, from the very beginning of any training programme (including CBR) so that participants can put into practice what they have learned in the classroom.
6. Regular review of knowledge and skills, with concurrent feedback is highly recommended (evaluation is necessary to allow for meaningful comparison across context in order to ensure service provision).
7. Level and complexity of knowledge and skills presentation must be tailored to the needs and educational standards of the participants.
 8. Training in documentation is essential. It provides an objective baseline assessment for the functional status of the client, from which realistic, measurable treatment goals can be established. Therapists can therefore evaluate efficacy of interventions and progression of therapy. It is essential that measurable outcomes be introduced. Such documentation can also be of value to CBR coordinators, in that they can measure effectiveness of their CBR programmes; they can also discover deficits in CBR workers' knowledge and abilities, thereby identifying continuing education needs.

Challenges of training CBR field workers

   Training and retraining of CBR workers can be a challenge CBR trainers, managers and facilitators. The under-theorized field of CBR (because its full implementation relies on it) is a major challenge in CBR training in Nigeria amongst other challenges. These challenges are outlined below:
   Funding: it is often assumed that that CBR is a cheaper intervention option in the rehabilitation of persons with special needs generally (Ngoma, Davies and Seifert (2008). The cost of training and retraining rehabilitation workers or volunteers, supervision, procurement of equipment and materials etc. involves a lot of money. Inadequate funding is a major challenge in the implementation and sustenance of all programmes. Funding rehabilitation programs is inevitable in sustaining and maintaining such programmes and the lack of funding structure at all levels is a major challenge affecting rehabilitation programmes.
   Policies and Legislation: The lack of policies to reinforce the rights of persons with special needs has affected the provision of rehabilitation in Nigeria. The lack of policies and laws to support the provision of rehabilitation services has affected its implementation. Policies and legislation are mandatory to ensure quality of service provision, monitoring and supervision, accountability and successful implementation.
   Other challenges include the lack existence of rehabilitation centers in rural areas, lack of adequate guidance for parents of children with visual impairment on facilities and resources for their children, inadequate personnel (rehabilitation workers, field supervisors programme coordinators etc.) for existing rehabilitation programmes, lack of sustaining existing rehabilitation programmes and lack of adequate training institutions for the training and re-training of rehabilitation officers for effective service provision.

Suggestions

The following suggestions are thereby proffered:

1. Funding of existing CBR programmes should be prioritized because of the role it plays in improving the quality of lives of persons with special needs and also required by training programmes.
2. Policies and legislation should be enacted and passed into law to ensure the effective implementation, monitoring, supervision and sustenance of existing pilot CBR programmes for persons with special needs generally.
3. Rehabilitation centres should be established (and also ensure their sustainability) in rural areas to improve accessibility: parents, caregivers, special educators, volunteers and community members should be encouraged to be actively involved (and willing to be trained as community level field workers) in the rehabilitation programmes.
4. The Disability Rights Commission, Ministries in charge of employment, Governmental Organizations, Non-Governmental Organizations etc. should employ CBR field workers into the mainstream and ensure that personnel for CBR should be enlightened on the competencies, capabilities and potentials of CBR community level personnel.
5. The enactment of policies and legislations will serve as headway in establishing CBR training programmes for community-level CBR field workers in Nigeria.
6. Persons with special needs and their families, community members, volunteers, caregivers should be encouraged to serve as community level CBR workers. Community members should be encouraged to become more actively involved in the provision of services to persons with special needs.
7. CBR programme facilitators, managers, trainers, curriculum developers should be in the forefront of developing and designing new curricula for community-level personnel in Nigeria based on the CBR matrix. More so, educational

researchers should carry out studies on training of CBR personnel as the most important area of CBR which also poses a key challenge in the provision of rehabilitation services to persons with special needs.
8. A standardized approach to Traning CBR workers at the community level should be provided eg. training manuals and materials can be produced in local language ie. Hausa, Yoruba, Igbo, etc.

CONCLUSION

CBR is a sustainable programme aimed at providing comprehensive rehabilitation programmes and services for persons with visual impairment as well as persons with various sensory, physical and cognitive/intellectual disabilities in Nigeria. All relevant stakeholders must be actively involved in realizing this goal.

REFERENCES

Economic and Social Commission for Asia and the Pacific (2014).*Guide on disability indicators   for   the   incheon strategy*. Bangkok: United Nations Publication. Retrieved from www.unescap.org.

Economic and Social Commission for Asia and the Pacific (1985). *Community based   disability   prevention   and rehabilitation: guidelines for planning and management*.   Bangkok: United Nations Publication

International Labour Organization. United Nations Economic, Social and Cultural Organization,   World   Health Organization (ILO, UNESCO, WHO) (2004). CBR: *A strategy for   rehabilitation, equalization of opportunities, poverty reduction and social inclusion of   people with disabilities*. Joint position paper in CBR. Geneva, 2004.

Kuipers, P. & Doig, E. (2013). Community-based rehabilitation. In J. H. Stone, M. Blouin, (eds).   *International Encyclopedia of Rehabilitation.* Retrieved from http://cirrie.   bufalo.edu/encyclopedia/en/article/362/

Lang, R. (2011). Community-based rehabilitation and health professional practice: developmental   opportunities and challenges in global North and South. *Disability and   Rehabilitation.* 33(2), 165-173.

Nganwa, A. Mirembe, J. & Kisanji, J. (2003). *An evaluation of CBR training programmes in Uganda.* Community Based African Network (CAN). Consultancy Report. Kampala April,   2003.

Ned, L., Tiwari, R., Hess-April, L., Lorenzo, T.&Chikte, U. (2020). A situational mapping   overview   of   training programmes for CBR workers in Southern Africa: Strategies for   strengthening   accessible   rural   rehabilitation practice. *Front. Public Health.* 8;569279   doi10.3389/fpubh.2020.569279.

Nganwa, A., Mirembe, J. & Kisanji, J. (2003).*An evaluation of CBR training programmes in Uganda*. Community Based African Network (CAN). Consultancy Report, Kampala April,   2003.

Ngoma, P., Davies, M. and Seifert, H. (2008). *Global partnerships and CBR. In CBR: Inclusive   policy   development and implementation*. In Hartley, S. & Okune J. (Eds). University of   East Anglia Norwich, U.K.

O'Toole, B. & McConkey, R. (1997). *Innovations in Developing Countries for People with Disability*.   Lisieux   Hall Publications, Chorley, Lancashire, 1997.

Thomas, M. & Thomas M. J. (2012). Training of personnel for CBR. *Asia Pacific Disability Rehabilitation Journal.* 5 (3), 34-43.

United Nations International Children's Education Fund (2020). *The Challenge: one in five every of the worlds out –of-school children is in Nigeria.* Abuja Nigeria: UNICEF Press Centre.

Vuuren, J. M. & Aldersey, H. M. (2018). Training needs of CBR workers for the effective implementation   of   CBR programmes. *Disability CBR and Inclusive Development*.   Retrieved from www.infontd.org/resource.

Wirz, S. (1996). Where should research into CBR be directed in the next 10 years? Action Aid   Disability News. Vol 7, 1.

Wirz, S. & Chalker, P. (ud). Training Issues in Community Based Rehabilitation in South Asia.   *Asia Pacific Disability Rehabilitation Journal*.

World Health Organization (2021). *Disability and Rehabilitation.* Community Based   Rehabilitation. CBR retrieved from https://who.int/disabilities/cbr/matrix/en.

World Health Organization (2010a). Introductory booklet. *Community based rehabilitation CBR   guidelines.* Switzerland: WHO press Retrieved from http:/whqlibdoc.who.int./publications/2010/9789241548052-introductory-engine.pdf.

World Health Organization (2010b). *CBR guidelines Health component*. Geneva: World Health Orgarnization. Retrieved from http://whqlibdoc.who.int/publications/2010/978924154   8052 -health-eng-pdf.

World Health Organization (2019). WHO Rehabilitation 2030: A call for action. Retrieved   online from

http://www.who.int.disabilities/care/rehab-2030 on 12th September 2022.

World Health Organization(2007). Disability and rehabilitation status. Review of disability issues   and   rehabilitation services in 29 African countries. Geneva: WHO.

World Health Orgarnization (2004). *CBR: a strategy for rehabilitation, equalization of opportunities, poverty reduction and social inclusion of people with disabilities*. Joint position paper in CBR. Geneva, 2004.

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Full Length Research

Assessment of the Publication Output of Librarians in Academic Libraries

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Abstract

The study assesses the publication output of librarians. As a result of the status accorded librarians a "publish or perish" syndrome a hallmark of career progression in the academia hangs on them in the face of multifarious duties of teaching, research and provision of information. The study discusses librarians publication output, the foreign or local category by which librarians publish, and the challenges encountered in their publication effort. Considering the demand on librarians to research and publish alongside the enormous duty of provision of information in the era of information explosion, librarians are faced with dual responsibility of publishing alongside their daily administrative duties. This study therefore assesses the publication output of librarians in academic libraries in Delta state. A total of 71 librarians drawn from 7 academic libraries in Delta state constituted the population of this study, however out of the 71 copies of the questionnaire distributed 55 were returned. The number of respondent was 55(64.7%). The instrument used for data collection was a structured questionnaire, with section A and B, section A for personal data and section B for the research questions. The data obtained from questionnaire were analyzed using frequency count and simple percentage. The findings of the study revealed that librarians in spite of their demanding job activities have published a great deal; librarians have over 97.9% of their works published in local publications. Some challenges that affect the quantity of publication output by librarians were highlighted and recommendations were made.

Keywords: Assessment, Publications output, Librarians, Libraries and University

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INTRODUCTION

The development of libraries and the librarianship profession in Nigeria cannot be separated from the tremendous growth of universities in the country. The historical account of librarianship profession dates back to the early 19th century when universities where just being established. Academic libraries and librarians are vital part of the academic institutions, librarian employed in university, polytechnic and college libraries are regarded as academic librarians. Academic librarians are professionals who hold a first degree in Library and Information Science or a first degree in any subject field plus a Master's Degree in Library and Information Science from a recognized University. Administrative responsibility, professional degree, titles nor skills qualify members of the academic community for academic status, but their teaching and research role. Therefore, the function of the librarian as participant in the teaching and research role is one of the essential criteria for academic status.

In the past librarians were not always categorized as academic staff; they were recognized more as administrative staff. Librarians were either academic or administrative staff based on the structure of the individual institution (Edem, 2004). In colleges, polytechnic and universities where librarians were classified with administrative department research and publications were deemphasized, as they needed only three requirements for promotion: 3 years since the last promotion, availability of vacancies; and satisfactory performance. Edem (2004) further stated that in that era, librarians working in academic libraries were not required to publish the same number of articles as their teaching counterparts, because as at that time emphasis was not placed on publication before promotion. Notwithstanding, librarians' career advancement in such academic institutions was faster, librarian did not have the rights, privileges, rank, title and benefits equivalent to their teaching counterparts, hence many librarians preferred to have academic status in order to benefit like their teaching counterparts. The status though it has many benefits, however comes with challenges, such as publishing to earn promotion.

As a follow up the above development, Adomi and Mordi, (2003) states that publishing is recognized all over the globe as an integral part of academics. In academic publishing, a paper is an academic work that is usually published in an academic journal, it contains original research results or reviews. Such a paper also called an article will only be considered valid if it undergoes a process of peer review by one or more referees (who are academics in the same filed) in order to check that the content of the paper is suitable for publication in a journal. Publishing is a vital element because it determines whether or not a candidate can move up in the academic hierarchy. This makes it imperative that all librarians be involved with the functions that are traditionally associated with the profession which is the provision of information alongside publishing. The all-embracing and encompassing role of librarians in handling information explosion, information technology coupled with the varied roles of teaching, research and provision of information to staff and student has over the years saddled the academic librarians with a lot of responsibilities because they are expected to play key roles in utilizing these 21st century opportunities. There is no doubt that the demands for information provision in the era of information explosion and the use information communication technology for processing and making information readily available is enormous and challenging for librarians in academic libraries. Being confronted with increased administrative, technological and academic activities along with rendering effective information services, librarians in academic libraries face numerous challenges, which has direct or indirect bearing on their publication output. It is a combination of all these expectations and challenges that tends to impact negatively on the output of the academic librarians.

Purpose of the Study

Specifically the study sets out to:

1.   Determine the publication output of librarians in academic libraries.
2.   Determine the category of publication (foreign or local) in which librarians publish more.
3.   Identify the challenges encountered by librarians in their publication effort

Research Questions

The following research questions guided the study.
1.   What is the publication output of librarians in academic librarians?
2.   In which category of publication (foreign or local) do librarians in academic libraries publish more?
3.   What are the challenges to publication output of librarians in academic libraries?

Review of Related Literature

The literature related to the subject of this study is reviewed under the following sub-headings;

Publication Output of Librarians

According to Oni (2009), Publication of librarians in universities is conceptualized as a way in which research results, speculation, criticism, intellectual enquiry and creative effort of individual are fulfilled. It is accepted generally that career advancement and promotion decision of academic staff including librarians are influenced stupendously by the quality

and quantity of articles published (Nkereuwen, 2005). Agboola and Oduwole (2005) opined that it is imperative getting librarians in Nigerian Universities to publish so as to justify their status. It is an undisputed fact that a publication is recognized globally as an integral part of academic profession and has become an essential requirement for career advancement and promotion. As a result of the mandate and the academic status accorded librarians, they have been doing all within their ability to see that they meet up with the publication requirements confronting them. In Nigeria academic institutions, the value of academics is weighed by their academic publication and contribution to scholarship.

Gregory and Medford (2006) maintains that academic librarians would also benefit a great deal from publishing because it allows them to maintain their academic status, obtain promotion and gives them the opportunity to add to the body of knowledge that goes into creating our literature. As with most professional degrees, librarians have the duty of contributing to their profession through research writing, publication, attendance and participation at professional conferences Publishing is a major criterion for librarians to defend the academic status accorded them, maintain equal rights as their teaching counterparts, advance in their career, identifies one's contribution to knowledge, enrich the teaching learning process, serves as a determinant to institutional prestige and contributes to the wealth and economic growth of a nation (CALA, 2008). Mabawonku (2005) carried out a bibliometric study on the trends in library and information science research in Africa from 1999 - 2002; reported that 59 (49.2%) out of 120 of the research work were by Nigerian authors. The study revealed that Nigeria authors still constitute the highest percent of single producer of library and information science works. The study concluded that despite the challenges of research and publication, librarians are doing their best to publish in order to advance in their career.

Foreign / Local Category of Librarians Publications Output

As a result of the "publish or perish" syndrome hanging on the necks of librarians, there has been great emphasis on the quality of publication output not only the quantity. According to Adomi and Mordi (2003) publication output which is the number of publications alone is no longer sufficient as evidence of publication output, but the quality of publication is of great significance.The author stated that the quality of publication is interpreted as publishing in internationally recognized, peer review journals. Mabawonku (2005) stated that the librarians are motivated to publish in foreign journals, to enhance their visibility and satisfy the needs of the employer. In Nigeria, some universities have made it lucid for all academic staff, that for your publication to be considered for appraisal exercise, it must be published in foreign journals. According to Adomi and Mordi (2003), the University of Benin overtly insisted on foreign publications to get to a senior academic rank. These authors are of the view that librarians who publish with local journal must also publish in foreign journal to ascertain the credibility of their work.A number of authors stated that academic institutions have made it imperative for all academic staff, that for their publication to be considered for appraisal exercise, it must be published in foreign/international journals. A study by Oni (2009) carried our descriptive survey on publication output of librarians in some university libraries in Edo and Delta States of Nigeria with 55 respondents, the study showed that about 75% of respondents published in foreign/international journals within Africa, while about 25% of the respondents published with other international countries.Fox (2007) carried out an empirical study on scholarship of Canadian research university libraries and reported that of 467 returns, only 13% of this sample, librarians could be regarded as active scholars in foreign journal, while 29% were above average, 46% below average and 11% showed very low scholarly output in international journals. This study reveals that publishing in foreign journals is seen to be low. A descriptive survey carried out by Idiodi and Bozimo (2010), on the research productivity of librarians in university librarians in south-south of Nigeria using questionnaire for collection of data states that of the 143 respondents close to 52 (15.6%) of librarians admitted to not having any publications in a foreign journal, while a slightly fewer number 48 (42.1%) have between 1 to 5 publications in foreign journal. This study reveals that the respondents publish most of their works in local journals.

Challenges of Librarian's Publication Output:

Librarians always complain that some problem need to be addressed if they are to publish smoothly and regularly. Research and publication is very crucial to librarians with academic staff status. For quite some time now librarians have been documenting their views on the barriers against them if they are to perform their professional duties and also carry our research and publication activities (Olorunsola and Ibegbulam, 2003).

Some librarians' emphasized on the issue of "Lack of Time" as one of the factors militating against their publication output. Lecturers have research interest and they build this into their teaching program, but the librarian do not have this

type of opportunity (Ochai and Nedosa, 2004). These scholars went on to add that the combination of professional duties with the difficulties of research and publishing journal articles, books and workshops proceeding was the greatest obstacle and challenge to career advancement.

Work schedule in libraries is often cited by some librarians as a barrier to research and publication. How is one expected to carry out research and publish when required to work every day, 40 hours a week for a years? (Olorunsola & Ibegbulam, 2003). They went further to stress that, librarianship as an 8am to 4pm job in Nigeria requires constant job presence severely limits the librarians ability to meet promotion and tenure expectations. Librarians in their pursuit of career advancement have encountered a number of problems in their research and publication effort. A descriptive survey by Oni (2009) on publication output of librarians in universities in Edo and Delta using questionnaire for data collection with 55 respondent showed the gender responses to problems faced by librarians in publishing, where 30(54.5%) males and females agree that work schedule is a major problem affecting librarians publication output. This showed that a majority of male and female respondent face the challenge of insufficient time to research and publish. They complained that the librarians work schedule demand that the librarian must be at his desk all through workings 8am – 4pm attending to his clientele. This commitment to be at their job rob them of ample time into research endeavors. From the same study, the issue of low funding as it affects librarians publication output with 43(78.2%) males and females agreeing to the issue of low funding is one of the challenges of librarians publication output.

A descriptive survey by Idiodi (2010) on constraints on the research productivity of librarians in selected university libraries in Nigeria using questionnaire for data collection with 114 respondents showed that 64% of respondent found it difficult to allocate adequate time for research. The study revealed that time was one of the major challenges faced by librarian in their publication effort. Also the study showed that 78.1% of the respondents agree that inadequate finance is a constraint on their research productivity. The study revealed that lack of funds pose as problem to the publication effort of librarians. This study revealed that lack of time and lack of funds is a challenge to librarians' publication output.

METHODS

This study employed a descriptive survey design to investigate the publication output of librarians in academic libraries in Delta State. Academic libraries located in Delta State were used for the study. The population of this study consisted of 71 librarians from 7 academic libraries in Delta State and the researcher used the entire population because the population under study is not large. The research instrument employed for data collection was questionnaire. The instrument was designed by the researcher in line with the purpose of the study. The questionnaire was used because it is capable of gleaning data from the respondents (it gives the respondents ample time to think about the items before responding, it elicits meaningful answers which will be analyzed and it also ensures confidentiality of responses). Data was collected through the administration of questionnaire, as researcher personally administered some of the questionnaire to the respondents. The researcher also employed the services of a research assistant (staff) in library to assist in administering and collection of the questionnaire. A total of 71 copies of questionnaire were distributed but 55 were successfully retrieved, which was used to analyze the data. The data obtained was analyzed using simple percentage and frequencies to answer the research questions. Simple percentage and frequency was used to analyze the research questions 1 and 2, while a four point rating scale of strongly agree, agree, disagree and strongly disagree), SA, A D, and SD (4, 3, 2 and 1) was used for analyzing research question 3 with a rating scale point of 2.50 response and above as strongly agree and below 2.50 response as disagree.

Discussion of Results and Findings:

Research Question 1: What is the publication output of librarians in academic librarians in Delta state?

Table 1. Descriptive Statistics on Publication Output of Librarians in Delta State

State	No of Publication	Freq. of Publication	Percentage
Delta	0.00	7	12.7
	1.00	3	5.5
	2.00	9	16.4
	3.00	8	14.5
	4.00	6	10.9
	5.00	6	10.9
	6.00	3	5.5
	7.00	1	1.8
	8.00	1	1.8
	9.00	2	3.6
	11.00	1	1.8
	12.00	1	1.8

Continuation of **Table 1.**

	13.00	2	3.6
	16.00	1	1.8
	17.00	1	1.8
	18.00	1	1.8
	24.00	1	1.8
	25.00	1	1.8
Total	299	55	100.0

Summary of Table 1

Number of Publication	No of Lib	Mean of Pub	Standard Deviation	No of mean of standard					
		0-5	6-10	11-15	16-20	21-26	26- above		
Delta 299 (49%)	55	5.77	5.75	39	7	4	3	2	0

Table 1 shows that librarians in academic libraries in Delta State had a total of 299 number of publications output, where 39 (70.9%) of respondents have published between 0.00-5.00 publications, 7(12.7%) of respondents have published between 6.00-10.00 publications, 4(7.2%) respondents have published between 11.00-15.00 publications, 3(5.4%) of respondents have published between 16.00-20.00 publications, 2(3.6%) of respondents have published between 21.00-25.00 publications, 0.00(0.0%) respondents have published 26 and above publications. This reveals that librarians in academic libraries in Delta states have a good number of publications to justify their academic status. The publication output of librarians in academic libraries in Delta State as found out from this study revealed that librarians have been responding to the research and publishing demand placed on them after obtaining academic status. Librarians have been seen to research and publish for appointment, promotion and to maintain academic status. This finding is in line with that of Wirth, Kelly and Webster (2010) who report a general upward trend in peer reviewed articles over a period of time. This implies that research and publication is important to librarians and is part of their job to facilitate their career advancement and to maintain their academic status.

Research Question 2: In which category of publication (foreign or local) do Librarians in academic Libraries in Delta States publish more?

Table 2. Category of Publication (Foreign and Local) by Librarians

Publication Category	State
Foreign	23(5.6%)
Local	276(88.4%)
Total	**299(100%)**

Table 2 shows that most of the publications by librarians in academic libraries in delta state were in local publications, as indicated 276(88.4%) of the 299(100%) publication were published in local outlets. analysis shows that 23 representing 5.6% were published in foreign outlet and 276 representing 88.4% were published in local outlet by librarians in academic libraries in delta states. the study reveals that librarians in academic libraries in delta state publish their works majorly in local publications outlet. this is in agreement with Mabawonku (2005) who states that librarians are seen to publish more with local publishers and motivated them to research and publish articles that will be of appeal to foreign publishers. it therefore implies that librarians in academic libraries in delta state should embrace publishing in foreign outlets. this is necessary because it will give them international recognition, enhance their visibility and increase their readership.

Research Question 3: What are the challenges to the publication output of librarians in academic libraries in Delta State?

Table 3: Mean Responses to Challenges of Publication Output

Challenges to publishing	N	Mean
Work schedule as obstacle to publishing	55	3.55
Lack of time to research and publish	55	3.61
Lack of funds to carry out research	55	3.58
Limited local journals to send articles to	55	2.22
High Publication charges	55	3.44
Limited Local book publishers	55	2.46
Demand for further degree	55	3.62
Delay in journal acceptance or rejection	55	2.53
Lack of facilities for research	55	3.11
Limited databases for research	55	2.46
Lack of incentives for research	55	2.76
Fear and anxiety of paper rejection	55	2.78

Table 3 shows that of the 12 challenges listed, 10 were endorsed by librarians as the challenges they face in their publication output. The mean of these challenges is 2.50 and above which stands for Agree. These include; work schedule, lack of time, lack of funds, high publication charges, demand for further degree, delay in journal acceptance or rejection, lack of facilities, limited databases, lack of incentives and fear and anxiety of paper rejection with a mean response of 3.55, 3.61, 3.58, 3.44, 3.62, 2.53 and 3.11 respectively. The challenges that were not endorsed by librarians as their mean is below 2.50 are limited local journals to send articles to, limited local book publishers and limited

database for research with a mean response of 2.22, 2.46 and 2.46 respectively. The study reveals that librarians in academic libraries Delta State are faced with various challenges in their publication effort. The challenges faced by the respondents are work schedule, lack of time, lack of funds, high publication charges, demanding for further degree and lack of facilities. This is in agreement with fox, (2007) who stated that finding time for research and publication output is a major challenge. Lack of adequate finance is identified as a major problem of librarian's publication output, this is in line with Fosu (2001) who stated that low funding has been a major problem hindering activities of research. Work schedules was also identified as a problem, this is in consonance with Olurunsola and Ibegbulam, (2003) who avers that the librarianship profession is an everyday work activity, working 40 hours a week throughout the year. This implies that librarians do not have access to all the resources that will facilitate qualitative and quantitative publication output.

Conclusion and Recommendations

Based on the findings from the study, it could be concluded that the status accorded librarians in academic libraries is deserved as they have been seen to have researched and published to a great extent to maintain academic status, appointment and promotion. The use of local publication dominates the use of foreign publication by librarians. The problems librarians encounter majorly in their publication effort are work schedule, lack of time, lack of fund, high publication charges, demand for further degree, and lack of facilities, however the following recommendations were made based on the findings

1. Librarians in Academic libraries in Delta States should make frantic efforts to write on topics that would be of appeal to foreign publishers; this will facilitate their works being accepted by foreign publishers, also it would show that the woks are of quality and high standard.
2. Work schedules challenges should be structured by the management of the academic institution in such a way that librarians have free time such as the stipulated 26 days annual research leave to carry out research and publication.
3. Lack of time as a challenge to librarians in their research and publication effort should be organized by the management of the institution by providing "release time" to enable them carry out research work. "Release time" is the time made available within the working hours of librarians in other to enable them engage in research.
4. Regarding high publication charges for publishing works, librarians should engage in collaboration. Two or three librarians could collaborate and research on a work then they all take up the financial responsibility of the publication, this will go a long way in tackling the issue of high publication charges.
5. Demand for higher degree as a challenge to librarians should be tackled by giving them sufficient time to pursue higher degree and also engage in research and publishing.

REFERENCES

ACRL (2007). Librarian Faculty Status: What Does It Mean In Academia? Library Philosophy and Practice. Retrieved 29 December 2015 from http://unlib.unl.edu/ipp/

Adomi, E.E. and Mordi, C. (2003). Publication in Foreign Journals and Promotion of Academics in Nigeria. *Learned publishing*, 16(1), 226-235.

Agboola, A. T. and Oduwole, A.A. (2005). Staff Seminars and Publications Productivity: A Study of Academics in Ogun State. *Nigeria Library Management,* 26, (8-9), 478-486.

CALA (2008). Occasional Paper Series- Chinese America Libraries Association. Retrieved 4th June 2014 from cala web.org/file/ops.pdf.

Edem, U.S. (2004). Academic Qualification: Their influence on publication Output Among Librarians   in   Nigeria Universities. *Annuals of Library Science and Documentation,*   41, (4), 135.

Fox, D. (2007). The Scholarship of Canadian Research University Libraries: partnership *Journal   of   Library   and Information Practice and Research*. (2), 1-27.

Fuso, V.K. (2001). Scholarly Productivity at the University of Ghana, 1960-1970: Implication   for   University.   *Library Management*, 23, (10), 13-27.

Gregory, G. M. and Medford, N.J. (2006). The successful Academic Librarian: Winning   Strategies   For   Library Leaders.   Retrieved   10th   November,   2020   from   http://www.ala.org/ala/acr/pubs/crljournal/   back issue20069/maycrl/gregoryreviewcfm.

Mabawonku, I. (2005). Trends in Library and information Science Research in Africa, 1999-2000. *Africa Journals of*

Library Archives and Information Science, 11, (2): 79-88.

Nkereuwen, E. E. (2005). "Accrediting Knowledge the Ranking of Library and Information Science   Journals." *Library Review*, 46, (2), 29-104.

Ochai, A. & Nedosa, P. S. (2004). Publication Output of Librarians: the Search for Alternatives   Justice.   *Africa Journals of Library Archives and Information Science,* 8, (2), 89-96.

Olorunsola, R. & Ibegbulam, I. J. (2003). Flexible Working Hours for Academic Librarians in Nigeria. *Library Review,* 52 (2), 70-75.

Idiodi, E.O. (2008). Institutional Support and Libraries Research Productivity in Nigeria   University   Libraries.   Nigeria Libraries: Journal of the Nigeria Library Association, 45 (1),   40-42.

Idiodi, E.O. and Bozimo, D. (2010). Research Productivity of Librarians in University   Libraries   in   Nigeria.   *Library Philosophy and Practice.* 8(2), 15.

Oni, O. (2009). *Publication Output of Librarians in University Libraries in Edo and Delta State   of   Nigeria*. (Unpublished Theses) Delta State University, Abraka.

Rogers, E. M. (2003). *Diffusion of Innovation,* (4[th]Ed.). New York, NY: The Free Press.

Wirth, A., Kelly, M., & Webster, J. (2010). Assessing Library Scholarship: Experience at Land   Grant   University. *College and Research Libraries*, 71 (6), 510-524

Full Length Research

Analytical Study on the Application of Information Communication Technology (ICT) Devices for Teaching Enhancement in South West Nigeria Federal Colleges of Education

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Abstract

Education is considered globally as the instrument per excellence for social and economic transformation of the society and teachers are the centre upon which the process of education is accomplished. However, despite the commitments of Nigerian government agencies and regulation bodies to ensure production of quality teachers for primary education, scholars have identified gap in the content delivery which is undermining the quality of basic education teachers. The low quality of basic school suggests that Nigeria Colleges of Education may not be using ICT devices to their advantage. While there are numerous studies on the advantages derived from using ICT devices by the higher institutions in the developed countries, it is possible that Colleges of Education in Nigeria recognize the significant role of using ICT devices in enhancing effective teaching learning process but may not be using it to their advantage. Hence this study investigated the use of ICT devices in South West Colleges of Education, with a view to find out the ICT devices available, its adequacy, benefits of use and the challenges of using ICT devices for teaching learning process. The study employed survey research design. The population of the study comprised 17,981lecturers and students of four Federal universities in the South West, Nigeria. The sample size of 392 was determined by using Taro Yamane (1967) formula. Stratified and simple sampling techniques were used to select 92 lecturers and 300 students from the 4 Federal colleges used for the study. Data was collected with structured and validated questionnaire. Cronbach Alpha reliability coefficient for the constructs ranged from 0.82 to 0.95. Data were analysed by using descriptive analysis. Findings showed that the level of teaching learning process was moderate, ICT devices were available but not adequate. It was also found that use of the available ICT tools was beneficial to both the students and the lecturers. Respondents also identified the challenges facing the use of ICT tools to include inadequate funding to procure ICT infrastructure and modern ICT tools, unstable network and power supply and lack of policy on ICT use in the tertiary institutions. The study concluded that college authorities should liaise with TETFUND to provide ICT infrastructures such as broadband access that will facilitate speedy internet access as well as alternative power supply to resolve the challenges of unstable power supply for enhanced teaching learning process. Furthermore, the College administrators should make available adequate ICT devices and these should be properly maintained by the college departments and units to optimize its use. In addition, college authorities should sensitize and encourage lecturers to use tutorial hours to resolve the challenges of limited hours allocated to courses.

Key Words: Application, ICT devices, South West Colleges of Education, Teaching learning process.

INTRODUCTION

Education is considered globally as the instrument per excellence for social and economic transformation of the society and teachers are the center to which the process of education is accomplished. Hence, teachers are indispensable instrument and very crucial in inculcating the right kind of values through effective instructional delivery of curriculum in the educational system. According to Phillips (2018), teachers are mandated to equip the students with the cognitive, affecve and psychomotor behavior required to cope effectively as a member of the society. Through the teachers, knowledge for understand the evolving world are passed to the pupils. It is therefore the aspiration of every society to give her citizens sound education. Colleges of Education are integral part of higher educational institution in Nigeria that award Nigeria Certificate in Education. The concept of the Nigerian College of Education is to produce quality professional teachers for basic education in Nigeria. Positioning the Colleges of Education for production of quality teachers has therefore continue to attract researchers' attention. This is because the quality of teachers' performance on the job depends on the quality of training they received, bearing in mind that the quality of any educational system depends to a great extent on the quality of teachers and no education can rise above the quality of its teachers. According to Akpan and Ita(2015), the quality of teachers determines the quality of teaching and knowledge impacted to the students and the learning outcomes.

Specifically, National Commission for Colleges of Education (NCCE) was establish by Nigeria Government in 1989by Act 13 of January 1989 and amended by Act 12 of 1993 and saddled with the responsibilities of regulating the activities of Colleges of Education to produce quality teachers for basic education in Nigeria. Basic education is education that empowers the pupils with the relevant skills, knowledge, ideas values and attitudes needed to make informed decisions and live a self-sustaining life. They are taught basic knowledge in mathematics, English Language, Science, Social studies Religious knowledge and one of the three popular languages. To accomplish the above objective and ensure effective curriculum implementation in the NCE- awarding institution, NCCE mandated management of the Institutions to create Quality Assurance units to monitor institutions' curriculum inputs, process and products so as to produce quality basic education teachers equipped with knowledge and skills required by the educational advancement of 21st Century digital era. Further to the above, the units are to be managed by experienced Chief lecturers with Masters' Degree in Education Measurement and Evaluation. This is to ensure that all the guidelines provide in the implementation framework are adequately followed.

However, despite the commitments of NCCE to ensure production of quality teachers that can compete favorably with their counterpart in the developed countries of the world in the Nigeria Colleges of Education, scholars have identified gap in the content delivery (Obioma, 2006), Akpan&Ita, 2015;Akinola, 2017; Alile, 2018). Similarly, other scholars (Nordin, Davis &Ariffin, 2013; Aina & Olanipekun, 2015; Abdalla & Ali, 2017; Lawal and Braimoh ,2018; Okafor &Obikwelu (2019) observed some gaps in Nigeria teacher education and one of the gaps was not integrating ICT use into teaching and learning, which remains the key to sound education in all learning institutions. In addition, recent findings (Egesah & Wahome, 2016; Teschler, 2016; Uthman & Muhammed, 2018) about quality of basic education in Nigeria revealed high proportion of incompetent teachers which contradicted standard set for the NCE-awarding institutions. The low quality of basic school teachers suggests that Nigeria Colleges of Education may not be using ICT devices to their advantage. This observation is further supported by Johnson (2019) who noted that the level of using ICT devices to engage students for teaching enhancement in Nigerian tertiary institutions was still in its infancy and very low. While numerous studies (Baishakhi& Kamal, 2016; Uthman & Muhammed, 2018;Olaiya, 2019) have revealed the advantages derived from using ICT devices by the higher institutions in the developed countries for smooth delivery of instructions, it is possible that Colleges of Education in Nigeria recognize the significant role of using ICT devices in driving effective academic engagement of students but may not be using it to their advantage. The use of adequate ICT devices present viable opportunities through which colleges of Education graduates teaching in the nursery and primary schools can ascertain smooth delivery of instructions to their students.

Given the importance of ICT devices use to achieve effective teaching learning process in the educational institutions, it becomes imperative for Nigerian colleges of Education lecturers to use ICT devicesto supplement their work in this digital era. The use of ICT devices provides the learners with realistic experience, which capture their attention and assist in understanding the historical phenomena (Baishakhi & Kamal, 2016). It promotes profound innovations, encourages the use of diversified approaches aimed at increasing flexibility of academic engagement, affords students opportunity to learn anytime and anywhere and interact simultaneously with ease and convenience. Researches (UNESCO, 2015; Hayter, 2016) have also shown that higher educational institutions in the developed countries derived a lots of advantages in using ICT devices to impart knowledge and skills required by the educational advancement of the 21st century. This underscore the need for using appropriate ICT devices to make teaching-learning process simple, interesting and easy to apply the required 21st century skills.

In Nigeria, efforts made by Federal and States government through their agencies in the Ministries of Education such as TETFUND, Quality Assurance units and other donor agencies at providing enabling environment for enhancement of ICT devices use for academic engagement of students have not yielded positive results. Johnson (2019) opinedthat the level of using ICT devices to engage students for teaching enhancement in Nigerian tertiary institutions was still in its infancy and very low. The above assertion was supported by Lawal and Braimoh's (2018) study which noted that critical among the gaps in teaching education in Nigeria is the challenge of the integration of technologies into classroom instruction and argue that integrating ICT globally into teaching and learning remains the key to sound education in all learning institutions. Further to the above Kafyulilo, Fisser, Pieters and Voogt(2015) observed that despite the many benefits of integrating technology into teaching identified in studies (Gur & Karamete, 2015; Sahin, 2011), studies indicate that many schools in Nigeria are yet to use these advantages. In addition, George's (2019) study revealed that the use of ICT devices in providing effective academic engagement in Nigerian higher institution of learning is being continually undermined and called into question. This is a gap and only few studies have investigated the use of ICT devices in the Federal Colleges of Education in South West, Nigeria. It is on this basis that this study investigated the use of ICT tools in South West Colleges of Education with a view to find out the level of teaching learning process, ICT tools available, its adequacy, benefit of use and the challenges of using ICT tools for enhanced teaching learning process so as to proffer solution that will put our students digitally at learning par with their counterparts in the developed countries of the world.

Research Questions

1) What is the level of students' engagement for enhanced teaching learning process by lecturers in the South West Nigeria Colleges of Education?
2) What are the perceptions of the students and lecturers on the ICT devices available for enhanced teaching/learning process in the South West Nigerian Colleges of Education
3) What is the perceptions of students and lecturers on the adequacy of ICT devices used for enhanced teaching leaning process in South-West Nigerian Colleges of Education?
4) What is the perceptions of students and lecturers on the benefit of ICT devices use for enhanced teaching learning process?
5) What are the challenges of the ICT devices used to engage for enhanced teaching learning process?

Literature Review

Education is considered globally as the instrument per excellence for social and economic transformation of the society. Hence, many nations of the world strive to commit much wealth to the establishment and management of educational institutions at various levels. Globally, higher institutions are established for training and production of skilled manpower for national development and teachers are the center to which the task is accomplished. According to George (2019), teachers are mandated to equip students with the cognitive, affective and psychomotor behaviors required to effectively cope as a member of the society and hence, are indispensable instrument in educational system. Students are trained to acquire skills, knowledge, positive value by engaging in academic activities offered by tertiary institutions. According to Ghasemi, Moonaghi and Heydari (2018), academic engagement' refers to students' participation in or giving attention to their academic work. Similarly, Delfino (2019) describes it as the students' attention to school work, interaction with their fellow students, teachers, school activities and school environments.

Engaging students with effective teaching goes a long way to influence students' achievement in higher education (Kahu, 2013). The core of educational engagement is teaching and learning process and this is more efficient when learning is reinforced to stimulate, motivate and as well as arrest learners' attention with instructional materials of different varieties. In the 21st Century era, the emergence of technology has made it possible for teachers to improve students' engagement. ICT devices constitute important tools for driving instructional delivery in the 21st Century. More importantly, development in the educational sector has made it mandatory for lecturers to engage students digitally so as to participate actively and acquire the knowledge and skills required to be at per with their counterpart internationally. Coleman, Gibson, Cotten, Howell-Moroney and Stringer (2016) argued that appropriate use of ICT in teaching had transformed the learning environment from teacher-centred to learner-centred. The authors stressed further that the shift in the role of the teacher from knowledge transmitter to that of a facilitator, knowledge navigator and a co-learner created more interactive learning environment for teachers and learners and opened new opportunities for learners to

engage in critical thinking. Besides, UNESCO World Education report (2019) emphasizes that the quality of professional development of teacher education depends on the extent of ICT integration in higher education program.

However, Oyefar, Adejoh, Adisa, Abdulsalam and Alabi (2021) noted that towards the end of the twentieth century, Nigeria and many other African countries, including South Africa, Kenya, Ghana, Uganda, Nigeria and Senegal keyed into the global reform of the public and the private sectors driven by ICT and integrated ICT into teaching, learning and research. Oyefar et. al. explained further that while it was easy for some countries such as South Africa to facilitate ICT-based education through National Research and Education Networks (NRENS), majority of African countries including Nigeria have not succeeded in creating conducive policy and institutional environments for ICT-based learning in their higher education. According to Nwankwoala (2015), Nigerian government acknowledged the importance of integrating ICT into education as emphasized in the revised National Policy on Education (FRN, 2004), section 11 subsections 102 (d) that 'Government shall provide facilities and necessary infrastructure for the promotion of information and communication Technology at all levels of education, but yet to have a separate ICT policy for higher or university education.

Similarly, World Bank Report (2016) also found that subsequent review of National Policy on Education have not radically taken into consideration the need to use public–private partnerships to support digital tertiary education. This lack of clear-cut policy framework has continued to limit the capacity of tertiary institutions' leadership to integrate ICT into teaching, learning and research thereby making the use of ICT devices less exciting to the lecturers. In addition, Commonwealth of Learning (2017) report argued that Nigeria suffers from a combination of lack of comprehensive policy on ICT in higher education, poor funding, poor supply of ICT infrastructure, poor power supply and lack of training for lecturers and students. The report stressed further that Nigerian government has attributed poor funding to the dwindling nature of the economy and hence has not developed any policy to rapidly use ICTs to change the face of teaching and learning in higher education in Nigeria.

Several other studies (Achimugu et al. 2010; Ajayi 1996; Akpan 2014; Idowo et al. 2004; Okafor et al. 2011; UNESCO 2015) have been conducted on ICT adoption, availability, accessibility, integration and policy support in higher institutions of learning in Nigeria. Current researches (Ghavifekr & Athirah 2015; Yusta, 2016; George, 2019, Sani, Alabi, Danjuma & Momoh, 2021) have also shown that various types of ICT tools are available in Nigerian tertiary institutions for smooth delivery of instructions and this include computer set/Lap top, internet facility, handset, LCD projector, Photocopier and Public Address, interactive white board, television, film projector, VCD/DVD players, multi-media projector, Scanner to Digital Audio and Video. The use of ICT devices was much beneficial to teaching learning process. It provides the learners with realistic experience, which capture their attention and assist in understanding the historical phenomena (Baishakhi& Kamal, 2016). The use of ICT devices promotes profound innovations, encourages the use of diversified approaches aimed at increasing flexibility of academic engagement, affords students opportunity to learn anytime and anywhere and interact simultaneously with ease and convenience.

However, Ghavifekr, Kunjappan, Ramasamy and Anthony (2017), was quick to point out that availability of ICT tools does not guarantee its effective use due to factors such as limited connection and network access, technical support, limited time and lack of effective training of staff on IT skills as revealed in Malaysia. This assertion was supported by Akyol and Erdem's (2021) study which revealed that equipment and facilities for effective teaching and learning were deficient in Nigerian schools. Literature has also established that while ICT tools were widely used in the developed countries of Europe, Japan, Russia, America and China higher schools amongst others to promote academic engagements, it has not been widely integrated into most African tertiary institutions until the onset of COVID 19 pandemic (Johnson, 2019). This finding gave credence to Edhereveno and Oniovosa (2014) and Coleman et. al. (2016) arguments that despite the efforts being made by Nigerian Federal and States government through their agencies in the Ministries of Education such as TETFUND, Quality Assurance units and other donor agencies at providing enabling environment for enhancement of ICT devices use for academic engagement of students, the influence of using ICT devices for academic engagements were not well felt due to its inadequacy.

Different from above, some set-backs are identified in literature. Edumadze, Ossei-Anto, Edumadze, Tamakloe, Asamoah & Boadi (2014) identified the challenges of ICT tools use to include lack of adequate funding for ICT, lack of adequate knowledge of the benefits of ICT in the teaching and learning process, and lack of support and training. Similarly, Suleiman, Yahya and Tukur (2020) found that high cost of ICT tools, exorbitant internet access fees and the peripherals such as printers, monitors, documents, modems, extra disk drives and other devices including basic computers were not available in a lots of higher institutions in Nigeria. In addition, several studies (Albirini, 2006; Ghavifekr & Wan Athirah, 2015) have also identified technical faults, lack of effective training, non-availability of some ICT infrastructures such as broadband access as factors that can hinder use of ICT tools for academic engagement.

In addition to the above, Nwakile (2018) identified challenges of ICT tools use to include lack of time to adequately use the tools, its unavailability in schools, users 'resistance to change, poor maintenance culture, technical problems and

lack of required skills on the part of the students and teachers. Empirical studies conducted by Bade *et al*. (2015) also highlighted the challenges of using ICT tools to include inadequate ICT tools, epileptic power supply, poor maintenance, high cost of facilities and peripheral parts, lack of ICT skills and poor internet access.

The above challenges notwithstanding, Universities and Colleges in the developed countries had been using ICT tools to their advantage for imparting in students the knowledge and skills required by the educational advancement of the 21st century (UNESCO 2015). Laronde *et al.* (2017) highlighted the benefits of using ICT tools to include teaching and enhancing students' retentive memory, explaining complex instructions and ensure comprehension of complex instructions, creating interactive classes and making lessons more enjoyable to improve student attendance and concentration. Laronde et. al. added that use of ICT devices afforded distance learners the opportunity to access online instructional materials easily for resource-based learning. Also, in their studies Suleiman, Muhammad, Zakari, Jyoti, Shitu and Ukashatu (2020) identified the advantages that students benefit from use of ICT tools to include motivation, cooperative learning, fast communication, e-conference, e-learning and collaborative research. The use of ICT tools adds new dimension to learning experiences because concepts were easier to present and comprehend when the words are complemented with use of ICT devices. In addition, research findings around the world (Suleiman, Yahya& Tukur, 2020) had shown that using ICT tools has led to improved learning and better teaching methods for students, make dynamic learning experience more concrete, relevant, realistic and improves students' critical and analytical thinking. This study therefore investigated the use of ICT tools in South West Universities, with a view to discovery how best to optimize it for enhanced teaching learning process.

Research Methodology

Descriptive survey design was used for the study because the study dealt with the current use of ICT devices for teaching learning process at the Federal College of Education in South West, Nigeria. The target populations were students and lecturers of all the four Federal Colleges of Education in South West Nigeria. Federal Colleges of Education were the focus of the study because they are well funded by TETFUND and are supposed to model both the States and Private colleges. The sample size of 480 from the population of 17,981 was determined by using Taro Yamane (1967) formula. Stratified and simple sampling techniques were used to select the 325 students and 165 lecturers across all the Colleges of Education investigated. The researcher gave more attention to the faculties than the Departments to ensure equitable representation of the sample. A total of 325 (comprising Part 1, 2 and 3) students currently being taught were randomly selected from the students list obtained from the student Affairs based on their best performance at the last session examination while the 165 lecturers used for the study comprised lecturer II, lecturer I and senior lecturers selected from each school using simple random sampling. A total number of 392 responses were collected and this comprised 92 lecturers and 300 students respectively making 87% of the 480 administered questionnaire.

The three (3) instruments used to collect data for the study were Teaching Learning Engagement Questionnaire, Lecturers' Perception Questionnaire(LPQ) and Student Perception Questionnaire (SPQ).The Teaching Learning Engagement Questionnaire instrument was adapted from NNSE instrument that has been extremely tested to ensure its validity and reliability (Strydom et al., 2010) while Lecturers' Perception Questionnaire (LPQ) and Student Perception Questionnaire (SPQ) were self-constructed by the researcher. The instruments contained sections A and B. Section A contained information on respondents' demographic data while section B contained information on the students and lecturers' perception on the use of ICT devices for teaching learning process. Accordingly, questionnaires were personally administered and collected on the spot by the researcher with 8 assistants. The questions were closed ended and placed on fivelikert-scale. Lecturers' Perception Questionnaire (LPQ) and Student Perception Questionnaire's (SPQ) contents and constructs validity were ascertained after subjecting it to responses of a comparable group of sample. The reliability of NNSE instrument together with the Lecturers' Perception Questionnaire (LPQ) and Student Perception Questionnaire (SPQ) were ascertained by test-retest method using standard correlation procedure and was found to be between 0.82 to 0.95. Descriptive statistic was used to analyse the data collected from the research questions. The criterion for decision making was determined by finding the mean of the nominal values assigned to the five likert options in each questionnaire items. Use of ICT devices for academic engagement was measured by the ICT devices available, its adequacy, benefits and challenges of ICT devices for enhanced teaching learning process.

Presentation and Discussion of Results

The results of data analysis are presented in this section. The results are presented in this section.

Table 1: List of sampled Federal Colleges of and sample size

State	College of Education	Ownership	Proposed sample size		Achieved sample size	
			Lecturers	Students	Lecturers	Students
Lagos State	Federal College of Education (Technical) Akoka, Yaba Lagos.	Federal government	35	80	24	77
Ogun State	Federal College of Education, Abeokuta	Federal government	40	85	20	70
Oyo State	Federal College of Education (Special), Oyo (SPED)	Federal government	30	80	18	68
Ondo State	Adeyemi College of Education, Ondo, Ondo – State	Federal government	50	85	30	85
	Total		165	325	92	300

A sample of 480 samples was drawn from the study population of 17, 981 colleges of Education lecturers and students in a manner that ensured equitable representation of all the schools and departments in the college using Taro Yamane (1967) formula. From the 480 administered questionnaire, only 392 were properly completed and returned making 87% of the questionnaire administered. For the qualitative data, 24 number of lecturers and 77students were used from Federal College of Education (Technical) Akoka, Yaba , Lagos, 20 lecturers and 70 students from Federal College of Education, Abeokuta, 18 lecturers and 70 students from Federal College of Education (Special), Oyo (SPED) and 30 lecturers and 85 students from Adeyemi College of Education, Ondo were the questionnaire duly completed and collected and used in each of the Colleges of Education investigated.

Research Question One: What is the level of teaching learning process in South West Nigerian colleges of Education?

Table 2. Teaching learning process engagement of students in South West Colleges of Education.

	My lecturers …	Very High Level 5	High Level 4	Moderate Level 3	Low Level 2	Very Low Level 1	N	Mean	Decision
1	Encourage course discussions in class during teaching learning process	18	60	184	110	20	392	3.12	Moderate Level
2	Always explain topics taught to our understanding	42	105	148	65	32	392	3.15	Moderate Level
3	Teaching learning engagements are often affected by incessant strikes embarked upon by COEASU	51	90	225	20	6	392	3.42	High Level
4	Give us assignments regularly and return it promptly after marking	45	140	70	72	65	392	3.07	Moderate Level
5	Apply theories to practical during teaching learning process	23	90	210	45	24	392	3.11	Moderate Level
6	Analyse topics taught in depth by examining all parts of the topic	32	95	205	43	17	392	3.21	Moderate Level
7	Evaluate their point of view to our understanding	12	122	107	118	33	392	2.90	Moderate Level
8	Form new ideas from various pieces of information	51	70	146	80	45	392	3.01	Moderate Level
9	Use examples to illustrate difficult areas of the topics taught	44	70	190	81	7	392	2.96	Moderate Level
10	Uses tutorial hours to complement the short time allocated to courses.	10	26	102	130	24	392	1.90	Low Level
11	Relate their teaching to societal issues during teaching learning process	46	95	200	27	24	392	3.29	Moderate Level
12	Summarise topics taught before commencing another topic	22	95	138	120	17	392	2.96	Moderate Level
	Over-All Mean = 3.01								

***Decision Rule: Very Low Level (VLL) = 1.00-1.79; Low Level (LL) = 1.80-2.59; Moderate Level (ML) = 2.60-3.39; High Level (HL) = 3.40-4.19; Very High Level (VHL) = 4.20-5.00.
Source: Field Survey, 2020

Table 1 shows the descriptive statistic result for research question one. The result showed that the level of engaging students in teaching learning process in South West Colleges of Education was moderate with overall mean score of 3.01. The result revealed further that responses on all the items except items 3 and 10 indicated that their levels of engagement were moderate with mean score between 2.90 and 3.29. Responses on item 3, which sought opinion on how often teaching learning engagements are affected by incessant strikes embarked upon by COEASU revealed high level with mean score of 3.42 while responses on item 10 which investigated lecturers' Use of tutorial hours to complement the short time allocated to courses by lecturers indicated low level with mean score of 1.90.This may not be unconnected with the low excitement in using ICT devices for teaching learning process, inadequate hours allocated to

lecture engagements, poor funding of the system and incessant strikes embarked by College of Education Academic Staff Union (COEASU).

Research Question Two: What are the perceptions of students and lecturers on ICT devices available to engage students for teaching learning process in the South West Colleges of Education?

Table 2A: Students' perception on the availability of ICT devices used to engage students

	ICT Devices Availability for teaching-learning process	VERY MUCH AVAILABLE	MUCH AVAILABLE	AVAILABLE	LESS AVAILABLE	NOT AVALABLE	N	MEAN	DECISION
1	Instructional White Board	15	23	180	75	7	300	2.88	Available
2	Television Access	35	50	180	30	5	300	3.27	Available
3	LCD/Film projector	8	20	75	180	17	300	2.41	Less Available
4	Public Address System	40	75	160	20	5	300	3.42	Much Available
5	Laptop computer/Handset	24	45	150	75	6	300	3.17	Available
6	Sound system and speaker	12	43	220	23	2	300	3.31	Available
7	Digital Camera	15	30	68	165	14	300	2.48	Less Available
8	CD ROM/DVD Player	10	25	72	175	18	300	2.45	Less Available
9	Internet Facility	10	30	70	1	30	300	2.43	Less Available
10	Laser Printer	14	25	185	60	16	300	2.87	Available
11	Photocopy Machine	20	50	140	75	15	300	2.95	Available
12	Optical disks CD/DVD	45	90	120	35	10	300	3.12	Available
13	Desktop Computer	25	40	150	75	10	300	2.98	Available
14	Digital Scanner	18	42	82	145	13	300	2.69	Available
	Grand Mean	**2.89**							

Key: Very Much Available (VMAv) = 4.20-5.00, Much Available (MAv) = 3.40-4.19, Available (Av) = 2.60-3.39, Less Available
(LAv) = 1.80-2.59, Not Available (NAv) = 1.00-1.79
Source: Field Survey, 2020

Students were asked to indicate their views on the availability of ICT tools used in their college for teaching learning process. The result in Table 2A shows that ICT tools were available with overall mean score of 2.89. The result shows further that only Public address system with mean score of 3.47 was considered to be much available. Instructional White Board with mean score of 2.88,lasser printer with mean score of2,87, photocopier machine with mean score of 2.95, Digital scanner with mean score of 2.69 Television access with mean score of 3.27, laptop computer/ handset with mean score of 3.17, sound system with mean score of3.31, photocopy machines with mean score of 2.95, optical disk with mean score of3.12 and Desktop Computer with mean score of2.98 were all considered to be available while

LCD/film projector with mean score of 2.41,digital camera with mean score of 2.48, CDRom/DVD player with mean score of 2.45 and internet facility with mean score of 2.43 were less available. Implicitly, the moderate level of teaching learning engagement recorded confirmed that all the ICT tools investigated were either much available, available or less available to engage students with teaching learning process. None was un-available.

Table 2B: Lecturers' Responses to Availability of ICT devices used to engage students for Teaching and Learning process

	ICT Devices Available for teaching-learning process	VERY MUCH AVAILABLE	MUCH AVAILABLE	AVAILABLE	LESS AVAILABLE	NOT AVALABLE	N	MEAN	DECISION
1	Instructional White Board	3	7	44	25	3	92	3.02	Available
2	Television Access	16	20	45	10	1	92	3.43	Much Available
3	LCD/Film projector	2	6	27	50	7	92	2.41	Less Available
4	Public Address System	25	40	22	5	---	92	3.92	Much Available
5	Laptop computer/Handset	20	25	40	6	1	92	3.62	Much Available
6	Sound system and speaker	8	15	42	25	2	92	3.02	Available
7	Digital Camera	4	15	66	7	--	92	3.17	Available
8	CD ROM/DVD Player	5	15	26	40	6	92	2.71	Available
9	Internet Facility	5	10	22	48	7	92	2.54	Less Available
10	Laser Printer	3	9	30	42	8	92	2.53	Less Available
11	Photocopy Machine	15	25	36	10	6	92	3.36	Available
12	Optical disks CD/DVD	2	8	31	45	6	92	2.49	Less Available
13	Desktop Computer	8	15	42	25	2	92	3.02	Available
14	Digital Scanner	4	8	56	20	4	300	2.87	Available
	Grand Mean	**3.01**							

Key: Very Much Available (VMAv), Much Available (MAv), Available (Av), Less Available (LAv), Not Available (NAv)NAv = 1.00-1.79 ;LAv = 1.80-2.59; Av = 2.60-3.39; MAv = 3.40-4.19; VMAv = 4.20-5.00.
Source: Field Survey, 2020

Table 2B shows the descriptive statistic result of research question one. Lecturers were asked to indicate their views on the availability of ICT tools used in their college for teaching learning process. The results in Table 2B shows that ICT tools were available with overall mean score of 3.01. The result shows further that only Public address system with mean score of 3.92, television access with mean score of 3.34 and laptop computer/ handset with mean score of 3.62 were considered to be much available. Instructional White Board with mean score of 3.02, sound system with mean score of 3.02, digital camera with mean score of 3.17, CDRom/DVD player with mean score of 3.02, desktop computer with mean score of 3.02, digital scanner with mean score of 2.87, photocopier machine with mean score of 3.36 were all ICT tools considered by the lecturers to be available. LCD/Film projector with mean score of 2.41, internet facility with

mean score of 2.54, laser printer with mean score of 2.53 and optical disk with mean score of 2.49 were less available. Implicitly, the moderate level of teaching learning engagement recorded also confirmed that all the ICT tools investigated were either much available, available or less available to engage students with teaching learning process. None was un-available.

Research Question Three: What is the adequacy of the ICT devices used to engage the students?

Table 3A: Students' Perception on the Adequacy of ICT devices used to engage students for Teaching and Learning process

	ICT Devices Adequacy for teaching-learning process	VERY MUCH ADEQUATE	MUCH ADEQUATE	ADEQUATE	LESS ADEQUATE	NOT ADEQUATE	N	MEAN	DECISION
1	Instructional White Board	10	18	25	160	87	300	2.01	
2	Television Access	8	15	50	150	77	300	2.09	
3	LCD/Film projector	4	10	20	162	104	300	1.83	
4	Public Address System	12	20	68	140	60	300	2.28	
5	Laptop computer/Handset	5	8	15	180	92	300	1.85	
6	Sound system e.g. speaker	5	10	25	174	86	300	1.91	
7	Digital Camera	5	13	25	145	112	300	1.85	
8	CD ROM/DVD Player	7	15	25	145	108	300	1.89	
9	Internet Facility	5	8	15	180	92	300	1.85	
10	Laser Printer	6	15	25	162	92	300	1.94	
11	Photocopy Machine	5	10	56	134	95	300	1.99	
12	Optical disks CD/DVD	6	15	20	145	114	300	1.85	
13	Desktop Computer	4	8	46	140	102	300	1.93	
14	Digital Scanner	10	15	25	148	102	300	1.94	
	Grand Mean	**1.94**							

Key: Very Much Adequate (VMAQ), Much Adequate (MAQ), Adequate (AQ), Less Adequate (LAQ), Not Adequate (NAQ)
 NAQ = 1.00-1.79; LAQ = 1.80-2.59; AQ = 2.60-3.39; MAQ = 3.40-4.19;   VMAQ = 4.20-5.00 .
Source: Field Survey, 2020

Table 3A shows the descriptive statistic result of research question two. Students were asked to indicate their views on the adequacy of ICT tools available for use in their college for teaching learning process.The result shows that the ICT tools available was less adequate with overall mean score of 1.94. The result shows further that Instructional White Board with mean score of 2.01, Television access with mean score of 2.09, LCD/Film projector with mean score of 1.83, public address system with mean score of 2.28, laptop with mean score of 1.85, sound system with mean score of 1.91, digital camera with mean score of1.85,CD Rom with mean score of 1.89, internet facility with mean score of 1.85, laser printer with mean score of 1.94, photocopier machine with mean score of 1.99, optical disk with mean score of 1.85, desktop with mean score of 1.93 and digital scanner with mean score of 1.94. were considered by the students to be

less adequate. From the above finding, none of the ICT tools investigated had mean score below non adequate (n=1.79). Implicitly, all the investigated ICT tools were being used by the lecturers to engage the students with teaching learning process but are less adequate with mean score that ranged between 1.83 and 2.28.

Table 3B: Lecturers' Perceptions on Adequacy of ICT devices used for teaching learning process

	ICT Devices Adequacy for teaching-learning process	VERY MUCH ADEQUATE	MUCH ADEQUATE	ADEQUATE	LESS ADEQUATE	NOT ADEQUATE	N	MEAN	DECISION
1	Instructional White Board	2	4	8	58	20	92	2.02	
2	Television Access	2	5	12	45	28	92	2.00	
3	LCD/Film projector	1	2	3	70	16	92	1.93	
4	Public Address System	3	7	54	24	4	92	2.79	
5	Laptop computer/Handset	3	4	7	60	18	92	2.07	
6	Sound system e.g. speaker	1	3	8	56	25	92	1.93	
7	Digital Camera	2	6	8	46	30	92	1.96	
8	CD ROM/DVD Player	2	5	8	50	27	92	1.97	
9	Internet Facility	1	4	9	48	30	92	1.89	
10	Laser Printer	1	4	10	42	35	92	1.85	
11	Photocopy Machine	2	5	10	50	25	92	2.01	
12	Optical disks CD/DVD	2	3	9	52	26	92	1.95	
13	Desktop Computer	1	3	16	46	26	92	1.99	
14	Digital Scanner	3	4	8	42	35	92	1.89	
	Grand Mean	**2.02**							

Key: Very Much Adequate (VMAQ), Much Adequate (MAQ), Adequate (AQ), Less Adequate (LAQ), Not Adequate (NAQ)
NAQ = 1.00-1.79; LAQ = 1.80-2.59; AQ = 2.60-3.39; MAQ = 3.40-4.19; VMAQ = 4.20-5.00
Source: Field Survey, 2020

Table 3B shows the descriptive statistic result of research question two. Lecturers were asked to indicate their views on the adequacy of ICT tools used for engaging their students in teaching learning process. The result shows that the ICT tools available were less adequate with overall mean score of 2.02. The result shows further that except the public address system that was considered adequate with mean score of 2.79, all other ICT tools starting with Instructional White Board (n=2.02), Television access (n=2.00), LCD/Film projector (n=1.93), laptop(n=2.07), sound system(n=1.93), digital camera (n=1.96),CD Rom (n=1.97), internet facility (n=1.89), laser printer (n=1.88), photocopier machine (n=2.01), optical disk (n=1.95), desktop (n=1.99) and digital scanner (n=1.89) were considered by the lecturers to be less adequate. The overall finding reveals that apart from the public address system that was adequately available, all other available ICT tools investigated were less adequate but none of them was not adequate as they all had mean score above mean score of 1.79. Implicitly, all the investigated ICT tools were being used by the lecturers to engage the students with teaching learning process. Public address system was adequate in all the Colleges while all other ICT tools were less adequate with mean score that ranged between 1.85 and 2.07.

Research Question Four: What is the perceptions of students and lecturers on the benefits of ICT devices use?

Table 4A: Students' Perceptions on Benefits of ICT devices used for teaching learning process

	ICT Devices Benefits for teaching-learning process	VERY MUCH BENEFICIAL	MUCH BENEFICIAL	BENEFICIAL	LESS BENEFICIAL	NOT BENEFICIAL	N	MEAN	DECISION
1	Instructional White Board	35	150	90	15	10	300	3.62	
2	Television Access	45	145	85	16	9	300	3.67	
3	LCD/Film projector	25	100	140	20	15	300	3.33	
4	Public Address System	40	95	150	10	5	300	3.52	
5	Laptop computer/Handset	9	120	140	20	11	300	3.32	
6	Sound system e.g. speaker	25	120	110	25	20	300	3.35	
7	Digital Camera	30	90	140	28	12	300	3.03	
8	CD ROM/DVD Player	15	50	125	78	32	300	2.79	
9	Internet Facility	25	65	160	35	15	300	3.17	
10	Laser Printer	26	95	125	42	12	300	3.27	
11	Photocopy Machine	25	150	75	35	15	300	3.45	
12	Optical disks CD/DVD	32	90	120	40	18	300	2.96	
13	Desktop Computer	20	35	120	78	47	300	2.68	
14	Digital Scanner	36	78	145	30	11	300	3.33	
	Grand Mean	**3.25**							

Key: Very Much Beneficial (VMB), Much Beneficial (MB), Beneficial (B), Less Beneficial (LB), Not Beneficial (NB)
NB = 1.00-1.79; LB= 1.80-2.59; B = 2.60-3.39; MB = 3.40-4.19; VMB= 4.20-5.00
Source: Field Survey, 2020

Table 4A shows the descriptive statistic result of research question four. Students were asked to indicate their views on the benefits of ICT tools used for engaging them in teaching learning process. The result shows that the ICT tools used to engage students were beneficial with overall mean score of 3.25. The result shows further that all ICT tools investigated were considered to be beneficial to teaching learning process. Instructional White Board (n=3.62), Television access (n=3.67), public address system (n=3.52), photocopier machine (n=3.45) were considered by the students to be much beneficial while LCD/Film projector (n=3.33), laptop computer/handset (n=3.32), sound system (n=3.35), digital camera (n=3.03), CD Rom (n=2.79), internet facility (n=3.17), laser printer (n=3.27), optical disk (n=2.96), desktop (n=2.68) and digital scanner (n=3.33) were considered by the lecturers to be beneficial in teaching learning enhancement. The overall finding reveals that all the available ICT tools investigated were either much beneficial or beneficial for teaching learning process with none that is less or not beneficial. Implicitly, all the investigated ICT tools were being used by the lecturers and are beneficial in enhancing teaching learning process.

Perceptions of Lecturers on the Benefits of ICT tools used for enhanced teaching learning process

Table 4B: Lecturers' Perceptions on Benefits of ICT devices used for teaching learning process

	ICT Devices Benefits for teaching-learning process	VERY MUCH BENEFICIAL	MUCH BENEFICIAL	BENEFICIAL	LESS BENEFICIAL	NOT BENEFICIAL	N	MEAN	DECISION
1	Instructional White Board	11	50	24	3	4	92	3.66	
2	Television Access	14	41	30	5	2	92	3.65	
3	LCD/Film projector	8	46	32	5	1	92	3.60	
4	Public Address System	15	40	31	4	2	92	3.67	
5	Laptop computer/Handset	8	30	45	6	3	92	3.37	
6	Sound system e.g. speaker	7	30	45	8	2	92	3.35	
7	Digital Camera	10	30	40	9	3	92	3.80	
8	CD ROM/DVD Player	8	25	40	10	9	92	3.14	
9	Internet Facility	15	25	36	10	6	92	3.36	
10	Laser Printer	14	25	40	8	5	92	3.27	
11	Photocopy Machine	16	20	45	10	1	92	3.43	
12	Optical disks CD/DVD	10	15	28	25	14	92	2.80	
13	Desktop Computer	5	15	26	40	6	92	2.71	
14	14. Digital Scanner	8	15	56	9	4	92	3.17	
	Grand Mean	3.36							

Key: **Very Much Beneficial (VMB), Much Beneficial (MB), Beneficial (B), Less Beneficial (LB), Not Beneficial (NB)**
NB = 1.00-1.79; LB= 1.80-2.59; B = 2.60-3.39; MB = 3.40-4.19;   VMB= 4.20-5.00
Source: Field Survey, 2020
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Lecturers were asked to indicate their views on the benefit of ICT tools in their college for enhancement of teaching learning process. The result in Table 4B shows that the ICT tools used to enhance students' engagement were beneficial with overall mean score of 3.36. The result shows further that all ICT tools investigated were considered to be beneficial to teaching learning process. Instructional White Board (n=3.66), Television access (n=3.65), LCD/Film projector (n=3.60), Public address system (n=3.67), digital camera (n=3.80) and photocopier machine (n=3.43) were considered by the students to be much beneficial while laptop computer/handset (n=3.37), sound system (n=3.35), CD Rom (n=3.14), internet facility (n=3.36), laser printer (n=3.27), optical disk (n=2.80), desktop computer (n=2.71) and digital scanner (n=3.17) were considered by the lecturers to be beneficial in teaching learning enhancement. The overall finding reveals that all the available ICT tools investigated were either much beneficial or beneficial for teaching learning process with none that is less or not beneficial. Implicitly, the lecturers considered all the investigated ICT tools as beneficial and being used by the lecturers to enhance teaching learning process.

Research Question five: What are the challenges of the ICT devices used to engage for enhanced teaching learning process?

Table 5: Responses on the challenges of using ICT devices for enhanced teaching learning process in South West Nigeria Colleges of Education

ITEMS		Strongly Agree(SA) 4	Agree (A) 3	Strongly Disagree (SD) 2	Disagree (D) 1	No	Mean	Decision
1	Inadequate time for usage of some ICT devices	175	160	40	17	392	3.26	Strongly Agree
2	Inadequate funding to procure ICT devices	145	160	52	35	392	3.06	Strongly Agree
3	Inadequate training on the use of ICT devices	120	170	65	37	392	2.95	Agree
4	Inadequate Broadband access	140	175	40	37	392	3.07	Strongly Agree
5	Poor attitude of students towards learning and assignments	22	65	150	145	392	1.86	Disagree
6	Exorbitant internet access fees	160	150	42	40	392	3.10	Strongly Agree
7	Epileptic power supply	160	150	52	30	392	3.12	Strongly Agree
8	Lack of commitments by the lecturers	25	40	160	167	392	1.80	Disagree
9	Poor maintenance culture	160	150	50	32	392	1.72	Disagree
10	Insufficient infrastructure to support the use of ICT devices	165	132	60	35	392	3.09	Strongly Agree
11	Lack of Policy on ICT use in the tertiary Institutions	164	170	40	18	392	3.22	Strongly Agree
12	Inadequate experts to handle technical faults arising from using ICT devices	130	180	60	27	392	3.08	Strongly Agree
	Group Mean = 2.89							

Key: Disagree (D) =1.00-1.99; Agree (A)= 2.00-2.99; Strongly Agree (SA)= 3.00-4.00.
Source: Field Survey, 2020

   The respondents (lecturers and students) were asked to indicate their views on the challenges of using ICT devices in their college for enhancement of teaching learning process. The result in Table 5 reveal the agreement of respondents that the use of ICT tools for teaching learning enhancement was faced with a lots of challenges with overall mean score of 2.89.Further, the respondents strongly agreed that inadequate time for usage of ICT devices (n=3.26), inadequate funding to procure ICT devices (n=3.06), inadequate Broadband access (n=3.07), epileptic power supply (n=3.12), exorbitant internet access fees (n=3.10), insufficient infrastructure to support the use of ICT devices (n=3.09),lack of Policy on ICT use in the tertiary Institutions (n=3.22),inadequate experts to handle technical faults arising from using ICT devices (n=3.08) were challenges that hindered effective use of ICT devices for enhanced teaching learning process. In addition to the above results, the respondents agreed that inadequate training on the use of ICT devices (n=2.95) posed as challenge but disagreed that lack of lecturers' commitments (n=1.80), poor attitude of students towards learning and assignments (1.86) and poor maintenance of ICT devices constituted set-backs in enhancing teaching learning process.

Discussion of Findings

This study investigated the use of ICT tools in South West Colleges of Education, with a view to find out the level of teaching learning process, ICT tools available, its adequacy, benefit of use and the challenges of using ICT tools for enhanced teaching learning process so as to proffer solution that will put our students digitally at learning par with their counterparts in the developed countries of the world. Federal Colleges of Education are the choice of this study because they are regularly being funded by TETFUND and therefore expected to model both private and State Colleges in standard. The reason for this is hinged on the anticipated that the higher institutions under full TETFUND sponsorship will play a pivotal role in raising the standard of education in Nigeria.

Twelve (12) question items were used to measure the level of teaching learning process and findings revealed that with overall mean score of 3.01, the level was moderate, which indicated that both the students and lecturers were actively participating in the teaching learning process using the available ICT devices for best learning experience. Further to the above, the study revealed that the incessant strikes embarked upon by COEASU often affected teaching learning engagements and that the level to which lecturers uses tutorial hours to complement the short time allocated to courses was low. The finding corroborates George's (2019) study which attributed low academic engagement in the South West Universities to incessant strike embarked upon by ASUU compared with Colleges of Education Academic Staff Union (COEASU) due to outright neglect and poor funding. The finding also agrees with Ghavifekr, Kunjappan, Ramasamy and Anthony's (2017) study which identified limited time, limited connection and network amongst others as factors in teaching learning engagements. Conversely, the finding disagrees with Chukwuorji (2018) study that found the level of teaching learning process low in Nigerian tertiary institutions. The finding also contradicts Amparado and Son's (2018) study which argued that little academic work was happening in Nigerian higher institutions. Implicitly, the moderate level of teaching learning engagement could be due the fragile stability enjoyed by both the students and lecturers in the college system compared with their counterpart in the Nigerian universities as argued by George's (2019) study which attributed low academic engagement in the South West Universities to incessant strike embarked upon by ASUU due to outright neglect and poor funding

Findings in table 2 reveals the ICT devices available for teaching learning engagement in the universities investigated to include Interactive white board, television access, Digital Scanner. Desktop Computer, Optical disks CD/DVD, Photocopy Machine, Laser Printer, Internet Facility, CD ROM/DVD Player Digital Camera, Sound system and speaker, Laptop computer/Handset, Public Address System, LCD/Film projector. The overall mean scores of both students and lecturers' responses revealed that ICT devices were available with 2.89 and 3.01 respectively. Public address system was considered by both the students (n=2.89) and lecturers (n=3.01) as the most available devices in the colleges investigated, followed by television access, sound system and laptop/handsets; these facilities remain a major tool of disseminating knowledge and use of ICT provide the chances for students to be active and take more parts or roles for their best learning experience.

The finding of this study corroborates the findings of Sani Alabi, Danjuma, and Momoh (2021) in Federal universities, Lokoja, Kogi State, Nigeria, which reported availability and accessibility of computers and internet for faculties and departments. The findings also agree with earlier findings of Ghavifekr and Wan Athirah, 2015) who acknowledged availability of ICT devices in his study conducted in Malaysia but found that teachers lacked enough training opportunities in the use of ICT devices in the classroom. Since the findings revealed that ICT devices were available, it implies that the lecturers engage the students digitally and they participated actively and acquired the knowledge and skills required to be at per with their counterpart internationally. However, Ghavifekr, Kunjappan, Ramasamy and Anthony (2017) was quick to point out that availability of ICT tools does not determine use of ICT tools due to factor such as limited connection and network, technical support, limited time and lack of effective training of staff on IT skills as revealed in Malaysia. Hence there is need for the ICT devices to be adequate for enhancement of effective teaching learning process.

The finding on inadequacy of ICT devices revealed that both the students (n=1.94) and lecturers (n=2.02) responded that the available ICT devices were less adequate. The result showed further that apart from the public address system that was adequately available, all other ICT tools investigated wereless adequate with mean score above 1.79. The fact that both the students and the lecturers responded that the ICT devices were inadequate showed that both the government and Administrators of Colleges of Education in the South West Nigeria need to improve their policies and focus their programs making ICT devices adequately available and integrate them into the higher education sector. The finding corroborates Johnson (2019) who noted that the level of using ICT devices to engage students for teaching enhancement in Nigerian tertiary institutions was still in its infancy and very low. The finding is also in agreement with the report of Commonwealth of Learning (2017) study which noted that, although, there had been a steady increase in internet connectivity between 2012 to 2016 (from 16.1 per cent to 25.67 per cent) and engagement in ODL, at best,

access to the internet in most higher institutions of learning is still very poor. The finding also agrees with the study of Edhereveno, Oniovosa (2014) which reported that the challenges of lecturers in tertiary institutions was no longer in covering the course contents or in adopting appropriate teaching pedagogy, but having accessibility and adequacy of ICT devices required to embrace teaching and learning. Similarly, the finding also agrees with Yusta (2016) that infrastructural requirements for the application of ICT in our educational system are presently not adequate due to constant power shortage which mostly discourages people from acquiring the ICT equipment. The study also aligned with Akyol and Erdem's (2021) study which revealed that equipment and facilities for effective teaching and learning are deficient in Nigerian schools.

Findings on the benefits of ICT devices for enhancement of teaching learning process shows that using ICT devices are beneficial with overall mean scores of 3.25 and 3.36 respectively from both the students and lecturers. The finding reveals further that all the available ICT tools investigated were either much beneficial or beneficial for teaching learning process with none that is less or not beneficial. The use of ICT devices therefore is more likely to benefit students in higher quality teaching than those institutions where they were not available.This implies thatadequate use of ICT use in the classroom is important for giving students opportunities to learn and apply the required 21st century skills in this digital era. The responses suggest that students were happy learning with digital technologies and this is in agreement with World Bank (2016) study that reported much enthusiasm among African students to apply digital technologies to learning, particularly following the rapid increase in mobile technologies in the continent. This finding is in agreement with that of Teng and Wang (2021) which found that the use of ICT devices such as LCD/Film projector, internet, digital camera assisted students to remember the concept taught for longer period of time and provided opportunities for effective communication between teacher and students. The finding is also in agreement with George's (2019) study which found that the use of ICT devices such as sound system, desktop computer, public address system and instructional white board enabled students to have better understanding of the taught behaviours thereby bringing effectiveness into learning. Also in agreement with this finding is Suleiman, Yahya and Tukur's (2020) study which found that use of ICT devices had introduced innovation in teaching, facilitates smooth delivery of instructions and saves time and energy.

Findings on the challenges of using ICT devices for enhanced teaching learning process showed that both the students and lecturers with overall mean score of 2.89 agreed that the use of ICT devices was faced with some challenges. This study found that the major challenges to the use of ICT tools in enhancing teaching learning process in South West Colleges of Education were inadequate funding to procure ICT devices, followed by lack of policy on use of ICT devices in the college, Inadequate Broadband access broad base access. Exorbitant internet access fees, Epileptic power supply, Inadequate experts to handle technical faults arising from using ICT devices, Insufficient infrastructure to support the use of ICT devices and insufficient time for usage of ICT devices. While they agreed that inadequate training on the use of some ICT devices constituted a barrier to using ICT devices, they however disagreed that poor attitude of students towards learning and assignments, lack of commitments by the lecturers and poor maintenance culture were barriers to use of ICT devices for enhanced teaching learning process. The finding was also in agreement with Nwakile' (2018) study which identified challenges of ICT devices use to include lack of time to adequately use the tools, poor maintenance culture, technical problems, space and lack of required skills. The finding also corroborates report of Commonwealth of Learning (2017) study which revealed that Nigeria suffers from a combination of lack of comprehensive policy on ICT in higher education, poor power supply and poor supply of ICT infrastructure such as broadband access that was not accessible in a lots of Nigerian Universities.

This finding also corroborates research studies (Adam 2003; Muianga et al. 2013; Sawyer 2004; World Bank 2016) which identified policy inconsistencies and poor strategic plans as some of the major problems deepening ICT-based education in Africa. It is also in agreement with Okafor et al. (2011) and World Bank (2012) studies which described Nigerian government's commitment to funding of higher education as abysmal and lackluster. However, the finding disagrees with Akpan (2014) and UNESCO (2015) which identified issue of competence and skills of students and lecturers as barriers capable of affecting their competing favorably in ICT-based teaching with their counterparts around the world. The finding also agrees with Teferra and Altbach (2004) study which considered insufficient electricity supply as a grave danger to higher education because access to internet is dependent on the amount of electricity supplied.

CONCLUSION

Based on the outcome of this study, it was concluded from the responses of both students and lecturers that the use of ICT devices can enhance teaching learning process in the South West Colleges of Education. ICT devices were available to both the students and the lecturers in the Colleges investigated but not adequate. The study also

established that the use of few ICT devices available was much beneficial to teaching learning process thereby facilitating better the taught behaviour and this brought effectiveness to teaching learning process. However, the effect of using ICT devices was not felt much due to its inadequacy in the Federal Colleges under study. The study also established that the use of ICT devices was also beneficial to lecturers in that it enables them to introduce innovation in teaching, which in turn facilitates smooth delivery of instructions.

RECOMMENDATIONS

The following recommendations were made based on the study findings.

1) The College administrators should liaise with TETFUND to fund the provision of ICT infrastructures such as broadband access that will facilitate stable internet facility.
2) The College managements should make available adequate ICT devices and these should be properly maintained by the experts, College departments and units so as to optimize its use.
3) The college managements should also provide alternative regular power supply to resolve the challenges of unstable power supply for enhanced teaching learning process.
4) Sufficient tutorial hours should be allocated to supplement all courses hours for lecturers to have enough time to use ICT devices for enhanced teaching learning process.
5) Lastly, government at all level should improve funding of education to reduce the incessant strikes embarked upon by COEASU so as to facilitate adequate engagement of students for academic works.

REFERENCES

Achimugu, P., Oluwagbemi, O. and Oluwaranti, A. (2010). An evaluation of ICT diffusion in Nigeria's higher educational institutions, Journal of Information Technology Impact, 10 (1), 25–34.

Ajayi, G. O. (1996). Full Internet connectivity in Africa: The journey so far and the way forward', In M.A. Sanni and O. Adagunodo Ed., Telematics for Development in Infotech '96, Ife; National Centre for Technology Management (NACATEM), Telecommunications Foundation of Africa. 17-34.

Akpan, C. &Ita, A. A. (2015). Teacher's professional development and quality of universal basic education in Lagos State, Nigeria. Global Journal of Arts, Humanities and Social Science. 3(9), 65-76

Akpan, C.P. (2014). ICTs competence and lecturers job efficacy in universities in cross river state, Nigeria. *International Journal of Humanities and Social Sciences,* 4 (10), 259-266

Akyol, T., &Erdem, H. (2021).*Behavioural engagement of elementary school students in Turkey: A mixed method study*. IGI Publisher of Timely Knowledge. DOI: 10.4018/978-1-7998-4658-1.ch006

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Journal of Computers & Education, 47* (4), 373-398.

Alile, E. (2018). Educational system in Nigeria, primary, secondary and tertiary institution.

Amparado, M, A. & Son, A. L. (2018). Integration of information and communication technology (ICT) tools in the instructional program of a university: *International Journal of Social Sciences and Educational Studies. 5(1), 62-85.*

Association of African Universities, (2000). *Technical experts meeting on the use and application of information and communication technologies in higher education institutions in Africa*. May 17-19, University of Dar-es-Salam,Tanzania.

Association of African Universities, (2000). *Technical experts meeting on the use and application of information and communication technologies in higher education institutions in Africa*. May 17-19, University of Dar-es-Salam, Tanzania.

Baishakhi, B. & Kamal, D. (2016). Role of ICT in 21st Century's Teacher Education. *International Journal of Education and Information Studies;* 6 (1), 1-6.

Bede, B.C.O., Termit, K.R.S and Fong, S.F. (2015). Need for ICT integration for effective instructional delivery in Nigerian collage of education. *Journal of Education and Practice*. 6 (3), 51-56

Coleman, L., Gibson, P., Cotten, S. R., Howell-Moroney, M., & Stringer, K. (2016). Integrating computing across the curriculum: The impact of internal barriers and training intensity on computer integration in the elementary school classroom. *Journal of Educational Computing Research*, 54(2), 275-294.

Commonwealth of Learning (2017). *Open Educational Resources Policy for Education in Nigeria.* Columbia:

Commonwealth of Learning.

Delfino, A.P. (2019). Student engagement and academic performance of students of Partido State University. *Asian Journal of University Education. 15* (3),42-55

Doglas, M. (2017). *ICTs in the 21st century business.* Boston; Flat world Knowledge Press.

Edhereveno, S. E. Oniovosa, O. E. (2014). Imperative of information technology in tertiary education; Asian *Journal of Education and e-learning;* 2(6), 419-422.

Edumadze, J. K. E., Ossei-Anto, T. A., Edumadze, G, Tamakloe, W. K., Asamoah, E., &Boadi, E. (2014). Evaluating the awareness and perceptions of lecturers in using e-learning tools for teaching in university of Cape Coast *(IJCAR).* 3 (1), 1-11.

FRN (Federal Republic of Nigeria), 2004, National Policy on Education, Yaba: NERDC Press.

George, G. K. (2019). Information and communication technology use and academic achievement in tertiary institution. *Information Technology for Development,* 25(6), 715-732.

Ghasemi, M.R., Moonaghi, H.K., &Heydari, A. (2018). Student-related factors affecting academic engagement: A Qualitative Study Exploring the Experiences of Iranian Undergraduate Nursing Students. *Electronic Physician,* 10 (7), 7078-7085.

Ghavifekr, S., & Wan Athirah, W. R. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science,* 1 (2), 175-191.

Ghavifekr, S., Kunjappan,T., Ramasamy, L. & Anthony, A. (2016). Teaching and learning with ICT devices:Issues and Challenges;from Teachers' Perceptions: *Malaysia Online Journal of Educational Technology*,4 (2), 38-52.

Gideon, W. Z. (2019). Teacher's professional development and quality assurance in Nigeria basic schools. British Journal of Education, 8(2), 95-105.

Graduate Un-employability." *Journal of Educational Review, 8* (3), 231–239.

Idowo, P.A., Abimbola, O.I., and Adagunodo, E. R. (2004) 'A comparative study of information and communication technologies at higher educational institutions in Africa: Case studies from Nigeria and Mozambique Journal of Information Technology Impact, Vol. 4, No. 2, pp. 67–74.

Johnson, R. M. (2019).The influence of technology on the future of educational development. *Journal of Human Resources Management Review.* 27 (5), 156-176.

Laronde, G. et al., (2017). "A Case Study of the Integration of Information And Communication Technology In A Northern Ontario First Nation Community High School: Challenges And Benefits," *Journal of International Education Research (JIER),* 13 (1), 27–34.

Muianga, X., Hansson, H., Nilsson, A., Mondale, A., Mutimucuio, I. and Guambe, A. (2013) ICT in education in Africa – Myth or Reality: A case study of Mozambican higher education institutions; *The African Journal of Information Systems,* Vol. 5, No. 3, pp. 106–17.

Nwakile, I.C. (2018). *Audio-visual in communication*; Lagos: Ike Olu Press Ltd.

Nwankwoala, H.N.L., (2015), 'An investigation of lecturers' and students' use of ICTs in Nigerian university education as a panacea for national development', Research on Humanities and Social Sciences, Vol. 5, No. 20, pp. 18–29.

Ogunrewo, J. and Odunsina, E.K. (2010). *An appraisal of internet use among academic staff members of Joseph Ayo Babalola University, Ikeji, Osun State, Nigeria.* Ozean Publication. 4 (2), 379-385.

Okafor, E.E., Imhoriopi, D. and Urim, U.M., 2011, 'Utilisation of Internet services and its impact on teaching and research outputs in private universities in Southwestern Nigeria', International Journal of Emerging Technologies and Society, Vol. 9, No. 2, pp. 135–51.

Olaiya, S. O. (2018). Quality control in Nigeria primary schools; Ibadan; Evans Brothers.

Oyefar,J. K., Adejoh, P., Waziri B. Adisa, B.W.,Abdulsalam, K.A. & Tunde Alabi, T.(2021). ICT Utilisation and associated barriers in teaching among Middle-level Academics in Nigerian Universities. *JHEA/RESA,* 19 (1), 295-120

Philip, W. O. (2018). Reflection on teacher's job performance in Nigeria basic schools; Implication for planning. *Nigerian Journal of Teacher's Education*; 45 (1),56-65

Saima, R. et al. (2011). Procedia - Social and Behavioral Sciences. 28, 78 – 81

Sani, J. O., Alabi, C. O., Danjuma, S., &Momoh, J. (2021).The use of ICT devices for lecture preparation and delivering in Federal University, Lokoja, Kogi State, Nigeria; *Multidisciplinary Journal* ,6 (1),144-154.

Strydom, F., Kuh, G., & Mentz, M. (2010). Enhancing success in South Africa's higher education: Measuring student engagement. *Acta Academica,* 42 (1), 259-278.

Suleiman, M., Muhammad, M., Zakari, I. G., Jyoti, S., Shitu ,U. (2020) "Role of ICT for Authentic Assessment in Higher Education,"*Tathapi Journal UGC Care, 19 (*38), 128–136.

 Suleiman, M., Yahya, A. T &, Tukur, M. (2020). Effective utilization of ICT devices in higher schools; *Journal of Xidian University*, 14 (9), 586-594.

Sunday, A. F. (2015) "Effective teaching with ICT in Nigerian Higher Institutions: A Solution to

Teferra, D. and Altbach, P.G., 2004, 'Africa's higher education: challenges for the 21st century', *Higher Education, Vol. 47, pp. 21–50.*

Terchler, U. (2016). Graduate employment and work in selected European countries. *European Journal of Educatio,* 35, 2.

Toyo, O. D. (2017). "Information and communication technology adoption and educational growth of colleges of education in Agbor and Warri , Delta State , Nigeria," *International Journal of Education and Evaluation, 3* (7),19–32.

UNESCO (United Nations Educational, Scientific and Cultural Organization), 2015, Information and Communication Technology (ICT) in Education in Sub-Saharan Africa: A Comparative Analysis of Basic E-readiness in Schools, Canada: *UNESCO Institute of Statistics.*

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2015). *Information and Communication Technology (ICT) in Education in Sub-Saharan Africa: A Comparative Analysis of Basic E-readiness in Schools, Canada*: UNESCO Institute of Statistics.

Uthman, S. S., Lawal, A. & Muhammed, A. Y. (2018). Quality assurance practices and institutional delivery among secondary schools. *Journals of Professional Teacher,* 1(CC1) 50-65.

Yusta, N. (2016). Impact of Instructional Resources on Mathematics Performance of Learners with Dyscalculia in Integrated Primary Schools, Arusha City, Tanzania. *Journal of Education and Practice*, 7 (3), 2222-1735.

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Full Length Research

Castration Options for Persons with Special Needs in Nigeria

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Abstract

This paper examined castration options for persons with special needs. The origin/history of castration and the various types of castration were outlined. More so, the reasons for castration were also highlighted. The sexual and reproductive rights of persons with special needs were discussed Finally, conclusion and recommendation was proffered in terms of providing legislation and policies concerning the sexual and reproductive rights of persons with special needs in Nigeria.

Keywords: castration, persons with special needs, origin

INTRODUCTION

On January 23rd 2019 the Discrimination against Persons with Disabilities (Prohibition) Act, 2018 was signed into law after nine years of relentless advocacy by disability rights groups and activists. However, this group of persons still faces a number of human rights violations that that stems from social, religious, cultural etc dimensions. Castration over the years has being an option for persons with special needs due to the seventy of their disabling conditions. This alternative is usually recommended by health practitioners or forcefully carries out by parents, guardians or caregivers of persons with special needs. For instance a child with severe mental retardation or a very aggressive child with special needs Castration can describes as any action, surgical, chemical or otherwise by which a male loses the functions of the sexual organs. Similarly, to castrate is to remove the testicles of a male animal or person (Oxford Advanced Learners' Dictionary, 2010).

Castration is done in both sexes (male and female) but males are more castrated in our society. In the case of the woman, female genital mutilation is mostly practiced. However, she can still enjoy sexual pleasures but cannot reproduce. In male folks, castration involves the total removal of all male genitalia (including the testes) and this renders him totally sterile. In addition it affects the individual psychologically and mentally.

Aiyeleso (2001) defines persons with special needs as exceptional persons, children, youths and adults with one form of disability or learning difficulty or the other such as persons with hearing impairment, visual impairment, mental retardation, with other health and physical disorders, multiple disabilities, gifted and talented who because of the disabilities or impairments need special services in other to live a useful live in the society. Because of the vulnerable nature of this individuals their rights are often been tempered with. Castration as an option for persons with special

needs is an infringement of their human rights and should be totally discouraged as everybody has the right to live the condition notwithstanding. It has been observed that castration has always been an option for persons with mental retardation as compared to other categories of persons with special needs.

According to the International Disabilities Alliance (2010), the sexual and reproductive rights of persons with disabilities have traditionally been denied, ignored or at best misunderstood by medical and health professionals, policy makers and the wider society. As a result of this, persons with special needs have frequently been considered genderless or asexual. This paper therefore examines castration as an option for persons with special needs in Nigeria.

HISTRORY (ORIGIN) AND FORMS OF CASTRATION

Castration has been in existence since biblical times and human history when eunuchs were utilized to guard women's quarters or act as chamberlains'. In Matt 19:12 and I quote "some are born eunuchs, some have been made eunuchs by others, and some choose not to marry for the sake of the kingdom of heaven. Castration should be the choice of the individual concerned and should not be done forcefully.

Similarly, Indiana in 1907 became the first state to pass an involuntary sterilization measure based on eugenic principles. This law required the sterilization of inmates of state institutions who were insane, idiots, imbeciles, feebleminded, convicted rapists or habitual criminals. This procedure had to be recommended by a board of experts which was determined by each state. By 1931, 30 states had passed involuntary sterilization measures. Some if these laws applied to a very wide range of "defective", including "sexual perverts, drunkard, epileptic and diseased degenerate persons (Batchelor, 2001)

Castration of sex offenders has been in existence since the early 20th century. Europe and United States of America have passes castration laws against sex offenders and Denmark is the biggest user of castration as against sex offenders this tradition is as a result of research studies from this nation (Derek. 2001). Similarly, in Nigeria as other African countries, slaves and guards in chiefs' palaces in ancient times were castrated to prevent them from sexually harassing the wives and daughters of the chiefs. It has always been an option for male slaves and house helps in royal families. This serves as a punishment or as a protective measure in avoiding cases of rape or sexual assault of female adults in the royal family. This was practiced in Kogi state and other parts of northern Nigeria.

In the past 10 years, the discussion of sterilizing the mentally retarded is no longer in a genetic context. The main issue is how to protect the incompetent person and the right of that person to be sterilized. Castration should only be an option if convinced that the operation will benefit the individual with special needs. Just like persons with special needs, slaves of those days had no fundamental human right as it was. It is forcefully done coupled with inhuman treatments with no anesthesia administered during the process .they were forced to bear the pain that accompanies the castration process. This is in contrast to what is practiced in other countries of the world where castration options is only sex offenders.

There are various forms of castration as outlined by Anderson (2015) and Aremu (2012) which includes the following:

(A) Chemical Castration: In this case, regular injections of anti-androgens are administered to the persons undergoing the procedure. This type of castration is less painful and the risk of infection and attendant death is minimal.
(B) Physical (Surgical) Castration: This is normally done by quacks but can also be performed by a doctor. A very sharp object or razor is used to chop off both the penis and testicles; thereafter oil is applied to the wound. A lot of blood is lost due to the nature of operation. The operation also causes immense pain as easily prone to infection this is because most times the objects for operations are hardly sterilized.
(C) Horse hair castration: In ancient times, the processes used for castration was to tie the penis and scrotal sac tightly with a hair from a horse's tail. The idea behind this is that when both the penis and scrotal sac are tightly tied, the process stop blood supply to both organs and thereafter they would degenerate and fall off. This process follows a very long duration of time and very painful, but the slaves in those days including persons with special needs had no choice.

REASONS FOR CASTRATION

Castration option carried out without medical advice is an infringement on human rights especially if carried out without the conscience of the individual. Individuals with special needs irrespective of sex, race, age nationality and educational/socio-economic background should not be discriminated against and avoid infringement of their basic

human right including right to sexual and family. This is because sex is one of the basic human needs of man. However, in some countries castration involving the removal of all male genitalia was seen as the same as a death sentence. Also in some communities, person with severe mental problem who are prone to attacking and attempting to rape the female folk are castrated to keep them in check. Similarly temporary chemical castration is also carried out as a punishment and preventive measures for several repeated sex crimes such as rape or other sexually related violence of violent and aggressive persons with disability similar to seclusion.

Obviously, there are some instances where castration is the only alternative for persons with special needs this option should only be allowed based on medical recommendation on the basis of the individuals health condition. For instance, if a male person with special needs is diagnosed as suffering from a health problem such as cancer of the testes, prostate cancer or cervical cancer and ovarian cancer in the case of a woman, the best option is total removal of the affected body part in other to save the life of the individual concerned.

Basically as enumerated by Wilson and Roehrborn (1999), persons with special needs are castrated based on the following reasons.

1. Medical reasons for castration: Some medical conditions may require the individual to be castrated e.g. testicular cancer, ovarian or cervical cancer and prostrate cancer.
2. Castration as a preventive measure: Persons with special needs especially severely mentally retarded and the like are usually castrated in order to avoid a replication/reproduction of their kind, a superstitious belief that if a person is mentally retarded, for instance, there is that tendency that he/she will give birth to a child with same problem. Castration in humans has been proposed and sometimes utilized as a method of birth control in certain poorer regions.
3. Castration as a punishment: In ancient times, after battle winners castrated their captives and seize their power. This practice was used by the winning side to torture or demoralize their enemies. According to Piyush (2013), it was also employed to extinguish opposing male lineage and thus allow the victor to sexually possess the defeated groups' women.

SEXUAL AND REPRODUCTIVE RIGHTS OF PERSONS WITH SPECIAL NEEDS

Persons with special need have the same sexual and reproductive health needs as any other person in the society. Persons with disabilities have the right to protection against discrimination as well as full and equal participation and freedom to enjoy all human rights. They are often deprived of their right to independent living. The federal ministry of health and a wide variety of stakeholders put together a comprehensive document to provide a policy direction to the government, civil society, orgarnized private sector, disability groups etc on how o deal with reproductive and health concerns of persons with special needs especially women and girls (Federal Ministry of Health, 2018).

Article 23 of the International Disability Alliance (IDA, 2010) on respect for home and family states the elimination of discrimination against persons with disabilities in all matters relating to marriage, family, parenthood and relationships to ensure that persons with disabilities exercise their right to the following

a)Marry and found a family on the basis of free and full consent,
b)Decide freely and responsibly on the number and spacing of their children and to have access to age-appropriate information, reproductive and family planning education and the means necessary to enable them exercise these rights are provided,
c)Retain their fertility on an equal basis with others (including children with disabilities),
d)Adopt and receive appropriate assistance in the performance of their child-rearing responsibilities.
e)Receive early and comprehensive information, services and support for children with disabilities and their families
f) Not be separated from their child on the basis of a disability of either the child or one or both parents.
g)Ensure that where the immediate family is unable to care for a child with disabilities, every effort is undertaken to provide alternative care within the wider family and failing that within the community in a family setting.

CONCLUSION AND RECOMMENDATIONS

Castration of persons with special needs should not be an option unless medical advice and recommendation is sought which should be based on health condition only. It is important to note that everyone has the right to enjoy sexual and family life irrespective of his/her special needs. Therefore castration should be a matter of choice for everyone (not even a person living with a disability). Therefore, castration should not be considered as an option for persons with special

needs in Nigeria. To ensure this if done, there is need to ensure that the national Policy on Sexual and Reproductive health and rights of persons with disabilities is fully implemented in Nigeria in order to achieve this goal.

REFERENCES

Aiyeleso, M. M. (2001). The needs for counseling parents of special needs children. In E. D.   Ozoji, I.A. Kolo & T. A. Ajobiewe. *Contemporary issues in guidance, counseling and   special needs education.* A book of readings in honour of late professor B.A. Okeke-Oti.

Anderson, N. (2015). Castration.

Aremu, F. (2021). What is Chemical Castration. Healthline Media. Retrieved from   http/www.healtline .com.

Batchelor, D. (2001). *Dahu batchelor's opinions: chemical castration and sterilization.*   Retrieved   from www.dahnbatchelor opinions.blogspot.com…/chemical-castration-and-sterilization.html.

Derek,   W.   L.   (2001). *Castration   of   sex   offenders: "off   with   their   head".* Retrieved   from www.oncetallen.com/castration.html.

Holy Bible (2009). *New living translation*. Tyndale house Publishers, Inc. Carol   Stream,   Illinois.

Federal Ministry of Health (2018). National policy on sexual and reproductive health and rights   of   persons   with disabilities with emphasis on women and girls. Ministry of Health.   Nigeria.

International Disabilities Alliance (2010). IDA submission on Economic, Social and Cultural   Rights.   Day   of General Discussion on Sexual and Reproductive Health Rights. Retrieved   from www.http/ohcr.org.discussions on 10th September 2017.

Oxford Advanced Learner's Dictionary (2010). New eight edition, Oxford University press,   Great Claredon Street, Oxford, New York.

Piyush, S. (2013). *Castrating male to eunuchs*. Retrieved from http://www.gobookee.net./men-   that-have-been-castrated/

Wilson, J. D. & Roehrborn, C. (1999). Long term consequences of castration in men: lessons   from the skoptzy and eunuchs of the Chinese and Ottoman. The Journal of Clinical   Endocrinology and Metabolism. 84 (12), 4324-4331 retrieved from https://doi.org/10.   1210/cem.84.12.6206

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