Assessment of the use of drones in journalism and development programmes in Africa

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Abstract
Since the invention of the first modern unmanned aerial vehicle (UAV) in providing information, surveillance, and reconnaissance (ISR) to war managers, the commercialization of drones has provided various disciplines with an opportunity to put the tech to use in ways that would benefit the industry. Development communication is also quickly becoming the most pressing issue of our time and sourcing the right information that will drive change and package programmes for the sake of a community can only be realised if gathered and transmitted employing the right tool. While there are traditional means of capturing data for news and programming, UAV also referred to as drone technology is a tool that is finding its way in development communication. This requires full participation by the community if an initiative must be embraced. In Africa, drone technology is being utilised in various sectors such as agriculture, disaster management, security surveillance, health, and the media. Hinged on the Gatekeeping and Social Exchange theory, this study seeks to examine how the use of drones has served as an invaluable tool and is providing clues to support new ideas and development programmes across Africa, in four fields: disaster management, agriculture, healthcare, climate and combat operations. The paper used descriptive analysis with secondary data sourced from, reports across the internet, news, development agencies and academic research. Although the use of UAVs is quite novel in Africa, recommendations from this study entails project managers, media practitioners and governments to embrace change as it means a new way of doing things by encouraging adoption of such ideas and methods and improving overall training of field staff to effective news gathering.

Key Words: Development Communication, Drone, Technology, Africa, Journalism

Introduction

Development journalism is a product of the relationship between independent news media and the development partners in which reporters can generate human angle interest and community news stories to offer the community an insight into the development plans earmarked for them hence development communication. Drones and satellite-based remote sensing allow us to track and analyse the constantly changing natural and man-made environments in which we live. Unmanned Aerial Vehicles (UAVs), sometimes known as drones, are already being used in some of the most innovative community projects to improve data gathering, mapping, monitoring, and advocacy in distant locations. What is referred to as Earth Observation (EO), can be done from miles away without the physical presence of a human at the site. This advancement in technology is transforming societies across the world and Africa is no exception.

As stated by Miller et al. (1998), the impact of new and developing technologies on the economy, society, and individuals cannot be hidden (Miller, Michalski, & Stevens, 1998) as what was anticipated in 1982 from the report commissioned by the National Science Foundation is a current reality seeing how electronic information technology has transformed not just

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the American way of life but also the world at large (Rheinhold, 1982).

The internet which has also served as a tool for boosting interpersonal communication (Bargh & McKenna, 2004) is making virtual supported communication the norm in the business space (Derks & Bakker, 2010). While the use of the Internet allows journalists to communicate with the masses more quickly and affordably, a varied number of robo-systems now allow seemingly small businesses to thrive under virtual radar (Leonard, 2019). One of such virtual supports is the use of drones which serve community initiatives, to improve data collecting, monitoring, and advocacy in hard-to-reach locations to inform effective programming which form the key concept for generating stories for development communication.

Since the invention of the first modern unmanned aerial vehicle (UAV) in providing information, surveillance, and reconnaissance (ISR) to the military, government of nations and war managers (Shaw, 2014), the commercialization of drones in recent years has provided various disciplines with an opportunity to put it to use in ways that would benefit the industry. Although a majority of research papers consider its societal impacts plus ethical concerns looking at data security and privacy issues (Susini, 2015; Rao, Gopi & Maione, 2016; Gevaert et al., 2018), most contributions to the benefits of drones to society have been from news articles, blogs and reports from non-profit organisations such as UNDP, UNICEF. This study aims to investigate how a new technology, unmanned aerial vehicles (UAVs), sometimes known as drones, is revolutionising development communication across Africa, in four fields: agriculture, healthcare, climate and disaster management and combat operations and how it can be adopted by news agencies in the growing field of drone journalism.

This study was borne out of the researcher's observation that the benefits of drone journalism and development communication have been sparsely documented and only traceable in blogs, news reports, website reports and academic research. Books available for this field are too technical and will require some level of training to grasp the idea but for what it is worth, the drone technology is being employed in different ways across Africa and this study seeks to collaborate these reports.

Research Objectives:

1: Investigate the role of drones in providing clues and insights for project implementing agencies to support new ideas and development programmes across Africa.

2: Explore the potential of drone journalism in providing cues and enhancing development communication.

Conceptual Framework

According to Imoh (2013), development communication was introduced between the 50s and 60s as a fundamental aspect of rural development in Africa that will promote and expedite rural population involvement in the sharing of sustainable development as well as the responsibility for transformation products. Mefalopulos (2008) describes development communication as a means of communication designed to engage stakeholders and policy makers so they can establish a conducive environment for the people. Development communication also helps to assess risks and opportunities that will promote information exchange so as to create a positive social change for sustainable development.

One cannot begin to write about development communication without mentioning community development because it forms part of the bases for development itself. Community development which comprises the supply of infrastructure facilities to the people, is inextricably linked to development communication (Omofonmwan & Odia, 2009). Communication in community development focuses on strengthening the relationship between those advocating for a shake up from the status quo that will improve the living standards of members of collaborating communities and the individuals with whom they interact to make their vision a reality (Aruma, 2018). In communicating for a positive change, it contributes to the individual's human, cultural, socioeconomic, and political circumstances (Oyero, 2007). To put it in another way, development communication is the use of communication to deliver transformative answers to respond to development concerns (Kurubacak & Yuzer, 2011).

The goal of development communication is to document a country's conditions so that other countries can comprehend them. Journalists are urged to visit isolated corners of the country, engage with the people, and report back (McMahon, 2021). Proposed government projects to enhance the country's conditions are also examined by development journalism and the type of campaign around them determines whether or not they will be successful. In the end, the journalists may propose solutions for how they could be implemented, through the stories

published. This form of development journalism requires grassroot participation and frequently stimulates collaboration through interviews of citizens and community members.

What development agencies are doing with drones can be situated as a journalistic practice as the drones which are employed to gather data are done to inform their reports. In approaching development communication through information dissemination, the media needs to take on their functionalist role of educating the community through behaviour change social marketing, social mobilisation and media advocacy. Development communication involves social marketing and public opinion research that is usually used to improve communication effectiveness that would encourage social development from a condition of poverty to one of dynamic social economic growth (Jamias, 1999) by utilizing communication means and channels. Communication for social change requires the journalist to be familiar with these areas in order to participate in development communication. The researcher recognises the power of communication as a catalyst for social development and the advancement of society

What we have come to see is that communication regarding a people's development is critical for maintaining continuous attention to their concerns, as well as obtaining the necessary support from global leaders and the general public to give the process credibility (OECD, 2014). Experts also suggest that in order to attain development communication, media managers and project managers must guarantee that programs are both transformative and community's betterment, as well as facilitative in the sense that it teaches the community how to conserve some of society's fundamental ideals (Peirano & Aguirre, 2005).

How Drone Usage Came into Development

According to a technology insights platform, a drone is a pilotless aircraft that uses a variety of technologies to function, such as computer vision, artificial intelligence, obstacle avoidance technology, and others (CB Insights, 2020). Earls (2019) describes a drone as a robot that is designed to fly and may be commanded remotely. He goes on to say that a software-controlled flight plan is included in the system, which works in tandem with on-board sensors and GPS, which allows the drone to fly autonomously. The origin of drones was tied to the military usage as the norm, but today it is no longer just a feature of military forces around the world; it serves as target decoys, combat operations, research and development, and surveillance (Rubin, Arango, & Cooper, 2014; Insider Intelligence, 2021) but also the commercialisation of drones is currently opening the frontiers for adoption by different fields disaster management, media, health and agriculture. Earlier in 2014, the Hollywood Reporter, stated that the FAA (Federal Aviation Administration) was reviewing a Hollywood request for an exception to use drones, therefore the design and use of specialized high-definition photography drones has already legitimized the use of drones in Hollywood film production. (Giardina, 2014). By 2015, 3D Robotics 3DR,an American firm that specializes in enterprise drone software through a New Solo drone assured Hollywood of quality photos (NBC News, 2015). Lauk, et al., (2016) describes a drone as camera drones or unmanned aircraft systems (UAS) (2016)

Lauk, et al., describes the incredibly rapid development of camera drones which are continuously become smaller, smarter and affordable as their sales grow exponentially. Currently, the 'selfie drone' called 'Lily' has been released. It takes videos of their users by following them around, directed by a GPS signal attached to the user's wrist. For the purpose of this study, drones will be interchangeably described as camera drones, UAVs and UAS.

Theoretical Framework

The Social Exchange Theory by George Homans in 1958, posits that people weigh the potential benefits and risks of social relationships. When the risks outweigh the rewards, people will terminate or abandon that relationship (Cherry, 2020). Homans based his theory on the concepts of equilibration, expectancy and distributive justice in dyadic exchange. Homan (1958) uses three premises to define social interaction in small groups, as well as the rewards earned in proportion to their expenses and investments:

a) Success proposition: When one finds they are rewarded for their actions, they tend to repeat the action.

b) Stimulus proposition: The more often a particular stimulus has resulted in a reward in the past, the more likely it is that a person will respond to it.

c) Deprivation–satiation proposition: The more often in the recent past a person has received a particular reward, the less valuable any further unit of that reward becomes.

Screenshot 1; Homans 3 propositions: success, stimulus, and deprivation–satiation

Gatekeeping Theory

The earliest mention of gatekeeping theory was by Kurt Lewin in 1947, who coined gatekeeping, with the argument that gatekeepers operate in a multifaceted field, in which the gatekeeper and its environment have to be considered as one collection of yet symbiotic factors. According to Lewin (1943), gatekeeping is the process of selecting, and then filtering, items of media that can be consumed within the time or space that an individual happens to have a jurisdiction over. Later in 1978, Tuchman highlighted the gatekeeping processes used to include the ways news editors decide how to categorize and which news to report. This is because News is that part of communication that is designed to share information of changing events, issues, and characters within and without. Development Communication is linked to news and can be generated from a variety of happenings and sources such as novel research across any discipline, a new campaign, and evident case studies beneficiaries (change stories).

By 1991 with a worldview into the social sciences, Shoemaker introduced communications gatekeeping theory adapting Lewin's original model to factor the influence from societal, institutional, organizational, routine, and individual practices in gatekeeping channels.

Four ideal factors should be considered to ensure communication meant to improve a community's standard are not impeded they include: (1) their political power in relation to the gatekeeper; (2) their information production ability; (3) their relationship with the gatekeeper; and (4) their alternatives in the context of gatekeeping (Nahon, 2008). This study shall discuss the first 3 ideal factors against drone usage

Socio-Economic and Development Issues in Africa

A World Bank report in 2020, listed some of the socio-economic and development issues undermining development in Africa to include protracted conflicts which render many of its countries fragile, while significant gaps in education, health, and skills development have continued to keep people from reaching their full potential. This impacts heavily on the lives and livelihoods of people as it hinders regional integration and trade.

According to a report by the Food and Agriculture Organization (FAO), Africa's population will increase to about 2 billion people in three decades, requiring the farming sector to grow exponentially to sustain Africa while agricultural production must increase to match the growing population, which is expected to reach nearly 10 billion by 2050 (Simpson, 2021). Africa also encounters a set of public health concerns, including infectious diseases such as cholera, malaria, Ebola, HIV, and, most recently, the Corona Virus, as well as a rising burden of chronic disorders. In comparison to other parts of the world, Africa has more acute health issues, a large burden of diseases, and severely limited resources to address these issues. (Saker, 2004). Natural disasters, bad economic performance, and military conflicts have also contributed to this state of affairs

Although Africa's drone industry is booming, and it is quickly blooming into a multibillion-dollar business (DO4Africa, 2021), the playing field for journalists have been stringent for development journalism as much attention is drawn towards politics, sports and little expounds on communication for development. As a result, development issues and what should be projected to aid different types of actors interested in understanding the needs and assessing opportunities jointly in Africa are poorly represented by the media.

Technology is widely seen as an important tool for development, with technological breakthroughs implying improved methods of obtaining outcomes. Some breakthroughs have been witnessed in the utilisation of drones in Africa by development agencies and private businesses for example, in 2017, Astral Aerial, a Kenyan air cargo company, began employing drones to provide a variety of services, including work tracking, aerial mapping, oilfield exploration, and last-mile deliveries. The following section

looks at the amazing things that drones can do and have been used for in various African countries.

Drone to the Rescue in Disaster Management

In 2019, when CycloneDesmond hit Mozambique, the World Food Programme (WFP) working with the emergency workers were equipped with cutting-edge technologies. Unmanned Aircraft Systems (UAS), which were deployed to track increasing flood waters and map out better evacuation strategies for those affected (Rae, 2019). This may have been a heeded warning as earlier in 2014, IEEE had proposed the adoption of drones in disaster management which could be used to provide a temporary communication structure, making up-to-date maps of the impacted region, and searching for hot spots where rescue teams may have a better chance of discovering victims are just a few of the jobs we feel drones may excel at in disaster circumstances (Camara, 2014).

Similarly, in other parts of Africa, during Cyclone Eloise in January 2021, drones were utilized to help and search for survivors in affected parts of Mozambique, Malawi, Eswatini, Zimbabwe, and South Africa (Hakeenah, 2021).

Flying Robots Facilitate Agricultural Expansion and Reduce Desertification

To mitigate climate change and save their community from going under, two young men in Sudan designed a drone called *robot farmer* that can plant seeds to grow more trees to combat the growing desertification. Social development in Sudan is being developed by the young men Mohammed Alhatim Ahmed Ibrahim and Hatem Mubarak Hassanso that it can be operated by locals. The main relation is between agricultural development and economic growth. Agricultural development here can be identified through various indicators: growth in total factor productivity, growth in total output and the application of modern technology.

According to the Food and Agriculture Organization (FAO), in three decades, Africa's population will rise to about 2 billion people, requiring the farming sector to grow exponentially to sustain Africa. Increasing beneficial regulations for drone and UAV usage is integral to transforming Africa's agriculture sector (Simpson, 2021).

Drones can expedite the land registration procedure. According to Borgen Projects, only 10% of Africa's rural land is mapped and registered, leaving people uneasy about land ownership and disproportionately hurting rural farmers. People in trades other than farming would gain from drone use because they could utilize the land as a backup plan.

Drones also give farmers a bird's-eye perspective of their crops by helping them to better manage them and spot changes. UAV's with specialized sensors can alert farmers to changes like Normalized Difference Vegetation Index (NDVI), leaf area index and photochemical reflectance index (Simpson, 2021). This allows farmers to notice developments the human eye would not for example using NDVI, a person can receive information about water pressure, infestations, crop diseases and nutrient problems that may affect crop production. The Borgen Project reports that around 7,000 African farmers in Uganda have used these drone techniques to better manage their crops.

Drones and precision agriculture provide data that farmers can use to catalogue their crops and predict crop yields more quickly. Drones can also help a farmer keep track of his cattle and monitor his fencing. Furthermore, if farmers have comprehensive maps of their property, the time it takes to measure, appraise, and plant will be reduced by half. Farmers will have a more precise perspective of their farms, including size, crop health, and position, thanks to agricultural drones. This will boost their capacity to secure loans, which will bring additional economic benefits (Pinguet, 2021).

Ethiopia in collaboration with Agricultural Transformation Agency (ATA) is adopting drone usage to boost the market for farmers in a report by African Vibes in 2020, the agency was using the footages from the UAV as evidence to source aggregators and through the images, they can assess the state of the crops to inform their patronage. This is helping clusters of farmers who produce similar produce such as corn, barley, wheat, and sesame (Gupta, 2020).

The United Arab Emirates in 2021 was reported to have experimented on the use of UAVs to facilitate rainfall through a process known as cloud seeding which is a process of artificially stimulating the clouds to enable precipitation. CNBCTV18 (2021) reports that the move became necessary due to the increasing frequency of heatwaves and diminishing water sources, scientists in UAE have attempted cloud seeding by using a fleet of drones to create torrential downpours.

To enable farmers in Ghana, respond in real-time to pest, disease, and irrigation issues, a multi-special engineered drone that is specific to agriculture is reported to be increasing yields compared to the orthodox style which takes time and expends energy (Kimani, 2019).

In 2020, a private Artificial Intelligence company in Nigeria named AirSmat launched a line of agro techs to boost agriculture in Nigeria.

The software app called SmatCrows was one of such built to autonomously fly drones that will capture aerial farm data for processing (Nnaike, 2020). Additional uses of drones include keeping track of livestock, surveying fences, and monitoring for plant pathogens.

No Road Network Does not Stop a Flight

In a research by Stokenberga & Ochoa (2021) from their book 'Unlocking the Lower Skies: The Costs and Benefits of Deploying Drones across Use Cases in East Africa' discuss how UAVs were used in transporting laboratory samples, lifesaving items, and blood to specific locations, such as from the mainland to remote islands. Due to the Topography in Mwanza, Tanzania, drones were adopted as poor road network was not a hindrance in implementing project activities that would save lives.

Medical Drones Saving Lives

Sierra Leone is also one of the regions where UAV is finding a life-saving purpose. In a video to demonstrate what the United Nations International Children Educational fund (UNICEF) is doing with drones, shows ahealth worker who puts in packs of oxytocin which is meant to trigger contraction and prevent bleeding during childbirth to be transported to the community healthcare center. When it arrives at the center, medical personnel will open the box and hands the pharmaceutical packs to a nurse who is waiting. According to the video clip report, the drone could save lives by transporting supplies rapidly to rural hospitals and providing effective health care distribution of medical supplies, which is being done by Njala with UNICEF's help (BBC, 2020). In that same report the UNICEF Tech Development Specialist, Shane O'Connor disclosed that the organisation is looking to use drones for emergency response, disaster reduction and also data imagery around ground reality and mapping.

Photo 1; A nurse takes medical supplies from a drone. Credit: BBC

The Sierra Leone government and UNICEF conducted a test in 2019 when drones were launched from a 250m runway to demonstrate the capacity of drones to travel in a 200km square airspace to carry supplies to health centers, which have traditionally encountered delays owing to distances and type (UNICEF, 2019).

Drone Usage in the Face of Covid-19

How did you hear about Covid-19? In a survey by MEDA Nigeria WAY Project, 73% of the study population who were women, disclosed that they received information about covid through the radio. While 27% of 37 married women are small holder farmers in Pakistan where MEDA is running project PAVE affirmed that the traditional media channel (radio, television, and newspaper) as the primary source. The case in Limpopo, is quite novel. This is because drones have become a channel of not just collecting footage but a dissemination tool which has been used to spread COVID-19-related health information to community members. This strategy employed ultimately would save the lives of health officials to avoid exposure to the life-threatening pandemic. So, to get messages to the people, drones with loudhailers attached to them were deployed into the communities. Although the Limpopo Health Department deployed the drones only to the Greater Tzaneen Municipality, the researcher believes that a pace has already been set for media agencies to begin to adopt innovative ways to not just gather information but technology too that will make news dissemination interesting. In Limpopo, the awareness messages were recorded by the Greater Tzaneen mayor Maripe Mangena in languages that locals can understand.

Drones were also used in Limpopo to monitor hot spots to assist the police and the Tzaneen Coronavirus Emergency team with live footage of people at places like malls for adherence to COVID-19 regulations, as well as to spread COVID-19 messaging to community members about maintaining social distance, staying at home, and regular hand washing.

Combating Malaria in Southern Africa

The distance control staff would have to walk through areas where malaria cases have been identified with a geo-locator using a GPS and then applying insecticides cannot but be imagined to be a herculean task. However, this was not an effective method as the traditional method applied in South Africa by on roads and through pathways so as to find the breeding sites of mosquitoes, while it served for as long as it was the only way, there were some gaps for example a small puddle under a bush of an indentation in the ground that was filled with water may not be noticed by an individual who decides to just walk the usual paths. The main method of preventing malaria in South Africa's high-risk areas reported to have one or more malaria cases per 1000 inhabitants per year is the use of insecticide-treated bed nets and the spraying of insecticide on the inside walls of houses (Frank, 2021).

South Africa's health care research is working to confront the malaria situation by adopting drones in larvae control and what humans would have missed out during the long hours of area assessment, will be supported by technology. Since drones can drift over an area and take photographs of breeding sites and save the coordinates by geo-locating, the breeding sites for the mosquitoes can be uncovered and it can also provide an aerial view around a house where a malaria case has been diagnosed. It will thereby, and potentially, apply the insecticide to the water body with mosquitoes breeding in it. This helps to decrease the mosquito populations which consequently limits malaria transmission, saving time, energy, and human resources.

Steady Blood Bank in the Air for Tanzania

Instead of the traditional transportation system, which takes hours and includes a car and ferry trip to a hard-to-reach area in Mwanza, the UAVs was employed to not only bring medicine and assist in emergencies, but also collect blood samples to be transported to a distance of 240 kilometres (149 miles) away. The drone is used to drop a cargo of medical supplies which include blood units for transfusion in emergency surgeries, as well as treatment of malaria and anaemic on patients the roof of a hospital in Ukerewe.

According to a report by Anadolo Agency, these supplies are delivered on a dailybasis, to save lives on the island as part of the initiative launched by Tanzania's Health Ministry through its Medical Store Department (MSD) and other international partners (Makoye, 2021). This is in a bid to reduce Tanzania maternal mortality rates which record 556 deaths in every 100,000 deliveries, according to government data. While this is novel for Tanzania, experts are working to reach a larger section of the populaton.

Drones for the Battles

In 2021, the SADC technical committee recommended the deployment of six helicopters, four transport aircraft, two maritime surveillance aircraft and two UAVs as air support, to combat the security situation in Mozambique after the resolution by the bloc to deploy the Standby Force to fight Islamist terrorists who have killed around 3,000 people and displaced over 800,000 others in Mozambique since they began their quest in 2017 to establish a caliphate in Central and Southern Africa (Tebele, 2021).

In Africa, there is also growing concern over the use of drones for insurgency. The terrorist group Al-Shabaab has considerably boosted its use of drones to conduct survey flyovers to capture the actions of security troops, according to a study published by Blitz in 2021. The gang intends to use weaponized unmanned aerial vehicles, as they have the capability to strike airplanes and civil aviation infrastructure thereby causing aircraft damage (Blitz, 2021).

Drones and the Future for Africa

In the case of developing communication materials, a case of "gatekeepers" in the media organizations will mean the presence of news editors who assign development stories to appropriate reporters so that what is selected as news is at the discretion of the gatekeeper. But the internet is providing a major platform today for development agencies to be gatekeepers in the area of selecting what they want projected about their implementation hence the presence of a communications team who updates information of community activities to the organisation's websites. This has become a style for organisations who solely cannot rely on the mainstream media to provide the visibility they require to attract funders.

Another considerable group of gatekeepers in project implementation are the community stakeholders who include government, traditional leaders, community heads, youth groups, women and men groups. These are key factors to consider when preparing a programme plan as they are

called gatekeepers for a reason these are the people that act as a go-between, controlling access from one point to another. They may refuse, control or delay access to services. Friends or foe? In the case of recruiting allies, gatekeepers in this context may also be used to oversee how work is being done and whether it meets certain standards when the right channels consent.

Going back to Shoemaker's introduced communications gatekeeping theory, one of the four ideal factors that looks at the political power present, should be considered to ensure that it improves a community's standard so they are not impeded by gatekeeping functions. In 2021, Ayamga, et al., in order to contribute a solution to challenges faced by individuals and businesses whose imported drones were seized by customs or had to go through a cumbersome process for approval to use drones for lack of regulations, proposed a drone policy framework for developing drone regulations for Africa, expediting the individual countries' developing drone regulations. The second recommendation was for regulators liaising with security agencies such as the police and immigration officials to implement and enforce developed regulations (Ayamga, Tekinerdogan, Kassahun, & Rambaldi, 2021). While the first proposal is already being invoked around the globe, the researcher believes the second is quite a stringent measure that will further stifle the already existing bias around drones in the hands of private individuals.

The Gatekeeping Functions of Nations

As of 2018, only twohad approval for the flight of their commercial drones from the South African Civil Aviation Authority (SACAA) to fly Beyond Visual Line of Sight (BVLOS) since the drone legislation in South Africa in 2014.

In Côte d'Ivoire, Ghana, Nigeria, Namibia, and South Africa, Rocketmine, a commercial drone firm, was granted permission to fly Beyond Visual Line Of Sight (BVLOS), which is mostly used in mines to collect topographical data.

South Africa, which has legislation governing drone circulation, is one of the leading countries in the drone industry, having specialized in commercial drones since 2014 and launching a drone operations and flight school in 2017.

Drone training removes the challenges that come with adhering to rules and regulations, but more importantly, it provides businesses access to a team of highly skilled individuals who are keen on solving a variety of data challenges. The current SACAA laws for drone operators for Visual Line of Site (VLOS) operations limit flights to a radius of 500m from the drone operator and a maximum upward distance of 120m (McNabb, 2018). Dronelife (2018) reports that where there is an observer stationed at the maximum radius of the VLOS, an Extended Visual Line of Site (EVLOS) can be approved to accommodate for a radius of up to 1000m from the pilot while BVLOS, on the other hand, allows for a flight radius beyond 1km without an observer hence the name Beyond the Visual Line of Site.

The Civil Aviation Training Centre (CATC), in collaboration with Pro Wings Training from South Africa, began the first batch of four-week Drone pilot training in Tanzania in 2021, with over 20 participants (Changwila, 2021). The agency arranged this so that participants may receive the requisite training, and eventually acquire a drone operator's license.

Cameroon has General Drone Flying Rules; drones are not allowed to fly higher than 120 meters (394 feet) above the ground, and they must stay at least 15 meters (50 feet) away from any structures, including buildings, vehicles, ships, animals, and people (Cameroon Drone Regulations 2021). Drones are also not permitted to fly over crowds.

According to a study published by Punch Newspapers in Nigeria, technology companies that use remote sensing and big data to solve some of the challenges that Nigerian farmers face are subject to governmental constraints. In 2014, a Nigerian business argued that the government did not seem to understand the economic benefits of drones, claiming that this has hindered drone technology's efficacy in the agricultural domain and other industries. If given the green light, the company plans to use technology to improve agricultural production and make aggregation easier for farmers.

The issues around bottlenecks and censorship continue to grow around the usage of commercial drones. This gatekeeping function by the government and regulatory bodies in Nigeria and Cameroon, can be cushioned by applying the social exchange theory so that they can begin to appreciate the many benefits that drones offer. The findings are in line with the submissions around the theories for this study: because, if Africa must embrace a new culture of drone communication for development, and in designing communication materials targeted for dissemination, then stakeholders must be included as they remain gatekeepers in the policy development.

Communication for development also requires government participation in mass media can also help to get important information spread through the nation. Governments can use the media as a tool to educate the citizens on major development projects. The government can also use the idea of development and national security

to restrict freedom of speech for journalists especially in cases where journalists are told not to report certain issues because it will impact the development of the nation in question and therefore citizens are not actually giving access to the whole information.

Drone Journalism: Stretching Frontiers

From the reel-to-reel film camera to the HD Cam, the innovations to make capturing stories easier and interesting has become a full-time occupation for not just documentary film makers but also a journalist who is out 'to show' and not just 'to tell' the news. Creating a quality image or a story for the eyes necessitates capturing memories that will last a lifetime.

Drone journalism is the use of drones, also known as unmanned aircraft systems (UAS), for journalistic activities such as information gathering usually done from a bird's eye view. In his work titled *Dronalism: Journalism, Remotely Piloted Aircraft, Law and Regulation,* Goldberg (2015) terms the usage of drones for journalist process as *dronalism*. Before dronalism, helicopters were used to get an overview shot for live footage. The very first use of helicopters for journalist purposes was when John Silva, the chief engineer of the Los Angeles station in 1958, converted a small helicopter into the first airborne virtual television studio. The KTLA "Telecopter" became the standard tool for live television traffic reporting, disaster coverage, and that most famous glued-to-the-tube moment in the modern era of celebrity gawking, O. J. Simpson led a motorcade of pursuers on Los Angeles freeways after his former wife and a friend of hers were killed in 1994. Two university journalism programs started testing drones for journalistic purposes, in late November 2011 which are the Drone Journalism Lab, founded by Matt Waite, professor of journalism and mass communication at the University of Nebraska-Lincoln, and the Drone Journalism Program at the University of Missouri (Mellisa, 2011).

CNN was one of the first news organizations to deploy a drone for reporting, while BBC News used its first drone in 2013. CNN launched its own aerial team in mid-2016. One of CNN's drones, for example, assisted in the search for earthquake-affected villages in Nepal (Whittaker, 2018). In 2021, a drone video was used to show the devastation left in wake of 7.2-magnitude earthquake in Haiti (CBS News, 2021).

In Nigeria, while news media agencies are still grappling with digital technologies such as transiting from DV Cams to HD Cams, the use of drones for news coverage in the country has not been fully explored. What is currently obtainable are private media outfits and film makers who rent out drones to media practitioners who need it for a shoot. An online platform called 'storyhunter' is a global marketplace for vetted video professionals with a convergence of more than 20,000 videographers across 192 countries including Africa. Clients who require drone operators also can quickly get responses from qualified freelancers and video production companies by visiting their site.

Some of the advantages of drones are that the tech has created a tool that journalists can employ to gain access to locations where humans cannot, allowing them to explore areas of conflict, danger, and industry's toxic no-man zones at a lower cost and with more safety.

The social exchange theory shows how journalists can leverage on the development agencies for fresh footage to tell their stories working in partnership with the communities they work in. In such engagements, the theory proposes an economic exchange where gratifying each other's self-interest improves the partnership. Self-interest is not viewed as a negative term in this philosophy, but rather as a concept that strengthens the partnership. Social exchange between countries and drone producers is already underway. For example, to improve the delivery of medical supplies to remote locations, the Health Ministry and MSD in Tanzania teamed up with Zipline International and the popular DHL (an international package delivery service) in 2018 to put in service drones to deliver essential medical supplies to remote areas (Makoye, 2021).

So, having seen the application of drones in development projects across Africa, the emergence of Drone journalism to take footage of news events such as volcanic eruptions, war-torn villages, and natural disasters has also influenced and transformed journalism as an important area (Yegen, 2018). As a form of new media, news agencies such as CNN, have also been influential in adopting drones due to its remote-control ability to facilitate journalism. Because drones are operated remotely, journalists see it as safer and cost-efficient means of video recording, especially in highly vulnerable coverage. In addition to emergency response, drones have proved as useful reportage tools during times of natural disaster. Subsequently, in the aftermath of hurricanes and earthquakes, UAVs have been used to assess damage, locate victims, thereby affording development agencies to deliver aid across the affected communities. Drone journalism is a digital turn in the industry which has emboldened new entrants to the field, allowing journalists to capture both still images and videos, this is lending a unique aerial perspective to everyday news

coverage, allowing journalists to make their reports more insightful and innovative**.** In the past, reporters would take aerial footage with helicopters, which are often rented and incur higher production costs**.** In Nigeria, the Economic and Financial Crimes Commission (EFCC) posted an image of a drone it had used to monitor election activity in Benin, Edo state, during the Gubernatorial and State Houses of Assembly elections in 2019.

The use of drones by development agencies in Africa is a proof that these drone-generated content can be a valuable tool to tell a story (Ntalakas, et al., 2017) and journalists can work with these partners to get unique images that will make for reapproaching development stories that will give a clearer perspective to the communities in question.

As a journalist who is reporting developments, your job is to focus on conditions in developing nations and ways to improve them. The other type of development journalism involves heavy influence from the government of the nation involved. While this type of journalism can be a powerful tool for local education and empowerment, it can also be a means of suppressing information and restricting journalists. The practice of development support communication is a multi-sectoral process of information sharing especially about development agenda and planned action big links, planners, beneficiaries, and implementers. To provide explicit and intelligible information about their goal in development the projects explicitly provide opportunities for beneficiaries to participate in shaping development outcomes. It ensures that the community is kept constantly aware of the achievements and constraints of development efforts in the field.

When implementing partners and project managers see that journalists are interested in their drone footage for news, this will spur them to be more open to sharing to projects their operations on the field thereby exposing the world to a content that will attract investors to Africa. Seeing that drones have many applications in Africa, journalists can also project the viability of drones in their reports to facilitate the process so that nations can adopt the use of this tech. For example, due to the rate of insurgency, kidnapping and banditry in Nigeria, search and rescue teams can be trained to employ drones to not just monitor the movement of kidnapped victims, displaced vulnerable populations but to aid journalists to avoid the danger while the security carry out their search and rescue missions with minimal casualties. Also, journalist footage of disaster-risk zones can support development partners to deliver emergency medical cargo supplies to remote communities.

Conclusion

From the robot farmer in Sudan to the medical drone in Sierra Leone, the rain creator in Dubai and the disaster manager in Mozambique, Malawi, Eswatini, Zimbabwe, and South Africa this study has been able to explore how drones are providing clues for project implementing agencies to support new ideas and development programmes across Africa. An illustration of this is in the area of agriculture which offers farmers an alternative to fly a drone over their crops, accurately to identify an issue in a specific area, and take the necessary actions to correct the problem such as spot diseases on time and spraying the necessary pesticides.This gives the farmer time to be precise about what actions they need to take and then can afford them the time to focus on the overall task of production instead of spending time surveying their crops.

Also, drone usage practised by implementing agencies can provide cues for development communication that can be drafted by journalists as a follow up to projecting development stories to the communities and other nations for support and social exchange.

This study did not find supporting documents on drone journalism usage in Africa, or any news media owned agency on the continent employing the use of drones

The study also has looked at the three (3) ideal factors to be considered to ensure drones are not impeded they include: a social exchange between the drone manufacturer in relation to the government who are the gatekeeper and in the case of development agencies, there should be a relationship between them and the media agency to ensure free flow of information. This will majorly support the projection of development messages through the media who have their information production ability and have an existing relationship with the gatekeeper.

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