

DIFFUSION OF INNOVATION THEORY AND SENIOR STAFF ATTITUDE TOWARD PAPERLESS INFORMATION PROCESSING AND COMMUNICATION IN THE TOWN PLANNING AND DEVELOPMENT AUTHORITY, ILORIN, KWARA STATE

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Abstract

Against the backdrop that information and communication technologies are product of innovation which have become the bedrock of human activities, a qualitative study was undertaken to ascertain employees' attitude toward paperless information processing and communication in the workplace. Anchored on Diffusion of Innovation theory, an in-depth interview was personally conducted with ten senior staff of Town Planning and Development Authority, Ilorin, Kwara State, Nigeria. Findings of the study reveal that most employees are desirous of having their workplace shift from a paper to paperless office due to ease of communication and other derivable advantages. Besides, lack of infrastructure confronts efforts at going paperless in the workplace. The study concludes that much of communication in most offices is greatly carried out through printed paper. The study recommends among other things the need for employers to take a holistic approach in ascertaining and providing basic infrastructure and training of staff to become computer literate so as to ensure an efficient paperless work environment.

Keywords: Attitude, paperless, communication, information processing, diffusion of innovation

Introduction

Advances in Information and Communication Technologies on the world stage have caused a remarkable change in the mode of information management and communication in all spheres of human existence. Among these are government institutions like ministries, agencies and parastatals which are aware of this change and see the need to promote the use of these new technologies through the development of e-administration. Given the paradigm shift in information management and communication from paper to a paperless society, several scholars and researchers (Djassemi & Sena, 2006; Chao, Hegarty & Stefanidis, 2012; Orantes-Jiménez, Zavala-Galindo and Vázquez-Álvarez, 2015) developed interest to research on the concept of a paperless society. However, these studies lack focus on workers' attitude about information management and communication in government institutions.

The concept of the paperless office entered the public's imagination in 1975, when a Business Week article entitled "The Office of the Future" predicted that by 1990 "most record-handling will be electronic" (Georgesku, Tugui, Dumitriu & Georgesku, 2008). Found in the body of research on paperless society in information processing and communication situated in the corporate world is that by Djassemi and Sena (2006), who provided insights into the evolution of paperless communication in a factory environment. Furthering research on paperless society was Chao (2015), who explored the implementation of a paperless system with reference to small and medium-sized businesses. Extending the frontiers of studies on paperless environment are Orantes-Jiménez, Zavala-Galindo and Vázquez-Álvarez (2015), who understudied the significance of paperless society as it impacts on e-governance. Similarly, Kapur (2010) has examined the benefits of paperless tax preparation drawing attention to the fact that going paperless saves time and money, and allows administrators or junior staff members to do high-value activities that used to require experienced tax preparers. Kapur (2010) further posited that a paperless environment also frees up knowledge capital, enabling the senior team

to focus on leading and growing the business. Other scholars like Georgesku, Tugui, Dumitriu and Georgesku (2008) dwelt on implications of paperless office environments and the realities organizations face in their attempts to go paperless. On their part, Chao, Hegarty and Stefanidis (2012) explored the global impacts and challenges of paperless books.

Prior to the advent of paperless society was the predominant use of paper-based processes which according to Kissell (2013) involved the handling of physical documents, photocopying, archiving, and retrieving physical document(s) from a file cabinet. This method of transmitting the written word has been so considered valuable in some places that giving up this means of communication will be difficult. In fact, studies have even shown that people are able to retain 30% more information if it is shown to them on paper than if they see it on a computer screen (King, 2001). Nevertheless, institutions and organizations that use paper-based processes are challenged in diverse ways. They face security risks due to paper documents that have (a) been lost, (b) been damaged, (c) been misfiled, or (d) fallen into the wrong hands (Mills-Senn, 2014). It is in attempt to surmount these challenges that paper-based information processing and sharing is being substituted or complemented with a paperless one.

Statement of the Problem

In spite of the fact that the idea of a paperless society has generated interest among scholars, it appears little or nothing is written on attitude of workers toward adopting paperless in their work place. While some studies like that of Djassemi and Sena (2006) provide insights into the evolution of paperless communication in a factory environment, that of Chao (2015) explores the implementation of a paperless system with reference to small and medium-sized businesses. Another perspective on studies on paperless environment is the study by Orantes-Jiménez, Zavala-Galindo and Vázquez-Álvarez (2015) which thrust is on the significance of paperless society as it impacts on e-governance. On his part, Kapur (2010) examines the benefits of paperless tax preparation drawing attention to the fact that going paperless saves time and money, and allows administrators or junior staff members to do high-value activities that used to require experienced tax preparers. A study by Georgesku, Tugui, Dumitriu and Georgesku (2008) dwells on implications of paperless office environments and the realities organizations face in their attempts to go paperless.

A scan on these studies convinces one that there exists a research gap in studies on a paperless environment since hardly any touches on workers' attitude in their work place. Even, if they do, there is seemingly absence of such studies in Nigeria. This forms the basis to which this study is undertaken.

Objectives of the Study

The broad objective of the study is to examine the workers' attitude toward their work environment. Specifically, the objectives are to:

1. Understand workers' attitude towards the use of paperless in their work place;
2. Identify ways workers use paperless information for communication in their work place;
3. Identify the factors that affect workers' use of paperless information for communication;
4. Identify ways workers can improve on paperless information for communication.

Theoretical Framework

The study made use of Diffusion of Innovation theory attributed to Everett Rogers, who attempted to identify and explain the factors that lead to why people adopt innovations (new ideas and technologies) such as going paperless. At the core of this theory is the likelihood that a new idea, product, or practice will be adopted by members of a given culture. Diffusion of innovation theory examines innovations from many perspectives including innovation-development process, innovation-decision process, attributes of innovations and their rate of adoption, different adopter categories, as well as topics on leadership and change agents and innovation in organizations. The theory proposes that five attributes affect the adoption of an innovation namely: relative advantage, compatibility, complexity, trialability, and observability (Scott., Plotnikoff., Karunamuni., Bize & Rodgers, 2008).

Relative advantage is the degree to which an innovation is perceived as being better than the idea it supersedes. Rogers' theory suggests that innovations that have a clear, unambiguous advantage over the previous approach will be more easily adopted and implemented (Greenhalgh., Robert., Macfarlane., Bate & Kyriakidou, 2004). Thus, if a potential user sees no relative advantage in

using the innovation, he is unlikely to adopt it. Compatibility is the degree to which an innovation fits with the existing values, past experiences, and needs of potential adopters. The presumption here is that the more compatible the innovation is, the greater the likelihood of adoption. Complexity is the degree to which an innovation is perceived as difficult to understand and use. Furthermore, Rogers suggested that new innovations may be categorized on a complexity-simplicity continuum with a qualification that the meaning (and therefore the relevance) of the innovation may not be clearly understood by potential adopters. When key players perceive innovations as being simple to use the innovations will be more easily adopted. Trialability is the degree to which an innovation may be experimented with on a limited basis. Given that new innovations require investing time, energy and resources, innovations that can be tried before being fully implemented are more readily adopted (Greenhalgh., Robert., Macfarlane., Bate & Kyriakidou, 2004). Lastly, observability is the degree to which the results of an innovation are visible to the adopters. If there are observable positive outcomes from the implementation of the innovation then the innovation is more adoptable.

Diffusion of innovation theory further indicates that adopters of an innovation vary. Rogers categorized them into five. These include early adopters, early majority, late majority, and laggards. Early adopters are first to accept and adopt an innovation. This category is followed by early majority, late majority, and lastly, the haggard that are skeptical in adopting an innovation.

The applicability of this theory is predicated on the fact that paperless usage has come at the time in the evolution of people's beliefs, attitudes, behaviours and technology. Many people have reached a stage where they believe that new technologies to simplify daily activities are constantly emerging, and therefore develop a positive attitude towards information and communication technologies generally. In the work place, people are already using technologies like computers for information processing and communication as well as smartphones to make digital transactions rather than relying on paper. This is facilitated with the Wi-Fi Internet access that is nearly ubiquitous. Above all, the viability of information and communication technologies convinces even those who might have reservations about paperless environment to adopt it.

Literature Review

Different scholars and researchers have provided various but similar definitions of the term "paperless" in a society or workplace. According to Murthy (2013), the terms "paperless," "electronic," and "digital" are often used interchangeably to describe work which previously was done with paper, but which now has been adapted to information and communication technology (ICT) devices and software. The advent of paperless office does not extinct the relevance of paper. Sellen and Harper (2002) argued in this direction that paper is still an important medium in work because it is better suited than many current technologies for certain tasks. Corroborating this assertion, Ashby (2011) citing K2 Enterprises (nd) posited that 80% of information is still retained on paper, even though more than 80% of the documents we work with exist in electronic form. The implication is that paper will continue to occupy an important place in office life and will increasingly be used in conjunction with an array of electronic tools (Sellen & Harper, 2002).

On account that there is a concurrent use of paper and electronic devices to process and transfer information, one could conclude that paperless information and communication implies the gradual use of technology to process information for efficient sharing of the information. The process which is leveraged on information and communication is increasingly evident in the workplace, public or private setting, where they have automated most of their processes. As Reaz, Hussain, and Khadem (2007) pointed out, some universities, such as the University of Phoenix, Western Governors University, UK Open University, University of California, and Hong Kong University, are playing a pioneering role to achieve this paperless environment in the respective campuses. The practice in being entrenched both in private and public Nigerian settings. Perhaps, the motivation to migrate from a paper to paperless arrangement has prompted a corresponding increase in research in a paperless environment.

A conceptual study by Djassemi and Sena (2006) explored the evolution of paperless communication in a factory environment and reviews some of the key technologies that contribute to the implementation of a paperless system including digital communication, the virtual factory, computer-integrated manufacturing, and web-centric information flow. The challenges facing users of a paperless information system are also discussed. The study concluded clearly that "paper" has not been eliminated. Instead, there are paper substitutes or representations prevailing throughout the

factories

In a conceptual study by Murthy (2013) titled "Paperless Organisation" the author explored the meaning, origin, global trends, process and steps to go paperless. The study also deals with the functionality of the paperless office, and the advantages to both individuals and organisations. Murthy (2013) concludes that even though document management and workflow automate processes are entrenched for the paperless office; the information professional still has an important, notwithstanding much broader, role to play. Murthy rationalises that information manager understands the internal and external environments of the organization, works across organizational boundaries and is part of the alliance between domain experts, information experts and information technology experts.

Ashby (2011) carried out a study titled "Extension's Progress in the Paperless Revolution: Balancing Digital and Paper" which examines the theory of a paperless workplace and its possible implementation in Extension, based on the advantages and disadvantages involved. The objective is to re-evaluate dependency on hard copy documents due to failure to fully implement a paperless system in given places. The study concludes that paper is still a basic element of our job. Consequently, the study recommends that for paperless strategies to succeed, organizations must understand that it is a goal that must be motivated by significant organizational changes, rather than a desire not to use paper anymore.

A dimension to studies on paperless environment is noticed in the study undertaken by Chao, Hegarty, and Stefanidis (2012) titled "Global Impacts and Challenges of Paperless Books: A Preliminary Study. This study focuses on comparing the different perceptions between ebooks and printed books, as the ebooks are now rapidly challenging the traditional publishing market globally. This study, through an empirical survey examined from the consumers' standpoints, focuses on a range of managerial issues about ebook adoptions. The study reveals among other things that ebooks have significant advantages in many aspects over the printed books. Although ebook adoption is growing rapidly, in some ways, it still lacks some of the advantages existed in printed books, e.g. there are many different and incompatible platforms for the usage of ebooks, and the consumers do not need to have the concern of copyright for printed books. The findings of this preliminary study suggest that publishers may need to more aggressively promote ebooks not only as a way to reduce the cost, but also as a way to preserve our global environment.

Methodology

An in-depth interview was conducted with ten senior staff of Town Planning and Development Authority, Ilorin, Kwara State, Nigeria purposively selected. The agency is saddled with the responsibilities of approving of buildings and erection of masts. Population of the study was 128 senior staff (Press Unit, 2018) of the agency out of which a two-day oral interview was personally conducted with ten of them. Choice of the number of interviewees was informed by what Dowla (2011) posited that the issue of sampling is not the size but the depth of information acquired through various respondents. Since purposive sampling was adopted for the study, the number of interviewees stopped at a saturation point. The data obtained was transcribed and presented as contained in the following sub-heading.

Data Presentation and Analysis

RQ1. Understand workers' attitude towards the use of paperless in their work place. This objective was to probe into how staff feels and their readiness to key into paperless office. The responses obtained from the interviewees were interesting most of which were in support of a paperless office in their work place. According to one of the interviewees:

I am fully in support of paperless office on the ground that it makes planning job easier and time-saving. In other states of Nigeria like Lagos which has allowed the paperless office initiative to materialise, its adoption has not only enhanced information sharing but also shot economic status of the state to a higher level.

Corroborating the willingness of members of staff and management to key into paperless office, another interviewee, who felt the need for a paperless office is rather overdue and should be adopted was more emphatic. According to her:

As far as I am concerned the idea is belated. The only thing that can happen to the

Authority is going paperless fully. My view point is based on the incomparable advantages associated with a paperless environment such as economy of time and resources.

Her view was further buttressed by another interviewee, who said:

Gone are the days of using paper and ink... The world is a global village where no one can afford to lag behind. That is why even in our context, carrying planning approval on hard copies is being phased out.

Even as most interviewees were certain that going paperless is a good thing to do, another interviewee had some reservation about the idea of a paperless office. According to her, anyone interested in a paperless environment must take to account the basic infrastructure which is a pre-requisite to a seamless paperless office. In her words:

In as much as the innovation is a global best practice our office and the country in general are not ripe for that at least for now. This is because there are instances of frequent power outage in the office for weeks that paralyzes the activities of the Authority in no small measure despite the office not being operating paperless hundred percent.

RQ2. Identify ways workers use paperless information for communication in their work place.

In a work environment, information is processed and communicated to stakeholders in different ways. In our context, when the interviewees were required to identify ways paperless activities are carried out particularly where, one of the interviewees was apt:

A paperless environment makes possible the daily running of the office. By that I mean instead of distributing printed memoranda and other pieces of information through other means, automated message-sharing becomes an alternative.

Stretching the ways management and staff use paperless in the workplace for the purpose of communication, another interviewee who spoke the mind of other interviewees said:

Nowadays, advertisement for qualified candidates in places of work is virtual. The same applies to responses to such adverts. This shows that both the employer and employee do not necessarily meet physically before the latter gets to know about existing opportunities and apply accordingly.

Similarly, another interviewee, who had some experience in other climes where printed paper is being phased out or rather complemented on full scale with paperless means of communication among members of staff in a work place emphatically, reiterated that:

In Saudi Arabia, for example, paperless office is in vogue. Almost all transactions are automated and this gives people more confidence in office operations.

RQ3. Identify the factors that affect workers' use of paperless information for communication.

Several factors affecting operations of a paperless office were accounted for by respondents. One of these is the irregular power supply. Making reference to a recent power outage that truncated activities of her work place for several weeks, she concluded that:

A fundamental problem confronting paperless environment is the erratic power supply. Due to the recent power outage, the activities of the Authority were paralysed.

Another interviewee, who also spoke the mind of other interviewees, identified infrastructure required for the smooth operations in the paperless work environment. According to him:

In order to operate a paperless office, there is every need to acquire soft and hardware equipment, ensure there is regular internet service among other things. Most of these are lacking in our place.

To his point of view, a respondent identified media literacy on the part of both management and other staff. This is an imperative as he put it:

One of the big challenges of a paperless office revolves around computer literacy. That is training of both management team and other employees on how to handle information and communication technologies including computers, printers, and smart phones. Switching to paperless overnight is not sufficient. A basic requirement is tied to it and that is training of staff without which all efforts and resources procured would come to naught.

Ro4. Identify ways workers can improve on paperless information for communication.

Broadly, almost all the interviewees were of the view that for a paperless environment to thrive, it is necessary to acquire the basic infrastructure, ensure training of staff and encourage them to key into the trendy world of information and communication technology. This explains while one of the interviewees said:

Given the opportunity to speak with my employer, specifically the Governor of the State, the only thing I will plead for is to have a full-fledged paperless work environment.

Discussion of Findings

In this era of electronic communication, major changes are taking place in the global work place and this is the background to which this study was conducted to understand employees' attitude toward the change from printed paper to paperless. Findings are interesting. Not only do employees have interest in paperless office. They desire full implementation of paperless in their work place. This is evident in responses of the interviewees who strongly feel their work place should adopt paperless just as other parts of the world. This enthusiasm could be on an account that paperless does not portend the extinction of printed information on papers but complements it to enhance information processing and communication. Therefore, as Jovanovic (2000) argues, unnecessary printing (desktop publishing) of documents is thus avoided and happens only when and where the need arises, (print-on-demand) and closer to the ultimate user. This reflects a move from a 'print and distribute' to a 'distribute and print' scenario of the Internet and intranet environment.

Even as there appears to be a general consensus in opinion of interviewees that paperless office is a worthwhile practice, few other respondents expressed some reservations about it. Indeed, those employees who appear to be resistant to change from paper to paperless office can be likened to the haggard; one category of diffusion of innovation theory that is skeptical in adopting an innovation. Their obstinacy about paperless office is probably due to the lack of structures that paperless office can leverage on. Resentment from few of the interviewees is in conformity with what Ashby (2011) posits that there may also be generational resistance from employees as they accept new technologies. Older employees may be resistant due to their skill sets and lack of technological knowledge. But with changing age demographics in the workforce, paperless environments and other technological advances are taking over the business world (Ashby, 2011). Taking to consideration the fact that paperless office is becoming trendy in all spheres of human endeavour, it will be unthinkable for one not to key in the technological age. Like any other innovation, a paperless office is not achieved in the overnight; staffs of the company have to accept and adapt to the transition, seeing it as a new way of doing business (Orantes-Jiménez., Zavala-Galindo. & Vázquez-Álvarez, 2015).

Given the limited resources, the transition from paper to paperless could be gradual in a workplace. For instance, employers could begin with intranet. Within an organization an intranet creates a Web-enabled digital environment for the entire organization, providing services such as electronic mail, GroupWare and search engines. Through a standard Web browser the intranet enables cross-platform information access, sharing and communication across traditional organizational boundaries (Ives, 2001).

For electronic communication to work, enabling infrastructure like regular electricity supply and internet service as well as other technologies like computers and smart phones are indispensable in a paperless environment. However, the interviewees identify these key technologies as lacking in their work place. This affirms Georgesku, Tugui, Dumitriu and Georgesku's (2008) assertion that when we say electronic documents, we use not only hardware like desk computers or laptops and software programs for writing. These means also components and software solutions like: scanners, storage systems, Fax over IP (Internet protocol), Wireless Local Area Networks, Secure remote access, E-learning systems, and advanced printers. Besides availability of these is staff education which has to

do with the human factor essential to the success of a paperless environment.

Conclusion and Recommendations

Even if some people unfortunately still have a negative attitude toward electronic communication, the information age has come to stay. The ready accessibility of electronic information and communication technologies has prepared it possible to migrate from a paper-based to a paperless way of working. Based on findings of this study, it's clear that few major obstacles stand in the way of a paperless office which is infrastructure and resistance by few employees to reengineering work processes to accommodate such a switch. That should not come as a surprise because work routines relied on paper documents for a long time. Even today, with computers on most every employee's desk and e-mail fast becoming the leading mode of communication, paper maintains a firm foothold.

In view of the basic findings of the study, it is hereby recommended that those who are skeptical about paperless office should have a rethink and key into the trendy word of electronic communication. Obviously, it will be difficult to jump-start it. However, with gradual steps electronic communication will be entrenched in workplaces.

Employers should provide essential infrastructure such as computers, soft wares, efficient power supply and dependable internet service for the smooth operations of the paperless office.

It is also recommended that staff education concerning computer literacy should be prioritized. It is only by so doing that employees will be properly equipped to work in a paperless environment.

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