

Assessment of Public Awareness and Interest on Establishment of E-Government in Nigeria

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Abstract

This study aimed to ascertain whether the citizen interest significantly support the establishment of e-government in Nigeria. Kaduna Polytechnic was used as the case study. For a month, a cross-sectional survey was conducted in the institution having randomly selected departments from the stratified colleges of the institution. The data on agreement or disagreement from the respondents were used for assessments. The survey was carried out by the same questionnaire for all respondents. The total support or agreement to the establishment of e-government was 83.33% between the age of 25 to 68 years, with the rates of 50% and 33.33% in men and women, respectively; while the total disagreement to the establishment of e-government was 13.1% between this age range, with the rates of 6.67% and 6.43% in men and women, respectively ($P < 0.05$). The agreed rates that are in support of e-government initiation were 22.62%, 21.43%, 28.57% and 10.71% between the ages of 25-35, 36-46, 47-57, 58-68, respectively. Disagreed rates were 3.57%, 2.39%, 3.09%, and 4.05%, for the same age ranges. While disagreed rates were 3.57%, 2.39%, 3.09%, and 4.05%, for the same age ranges. From our finding of the test performed, There are no significant difference between the interest of respondents with age range of 25 to 65, interest of male and female respondents and the interest of respondents with categories of computer knowledge for the establishment of e-government in Nigeria, since the ANOVA value of 0.163 is greater than significance level value of 0.05, chi-square value of 0.238 is greater than 0.05 and t value of 0.917 is greater than 0.05. There should be very serious awareness campaign and enlightenment before the establishment of e-government since many respondents indicate zero knowledge of e-government.

Keywords: e-government, e-services, e-democracy, e-security, management of e-government.

1. Introduction

E-Government is the term that reflects the use of information and communication technology (ICT) in public administration to change structures and processes of government organizations.

Furthermore, the concept is an attempt to offer more ease of access to governmental information and services for citizens, businesses and government agencies and there is great potential for improving and advancing interaction between the above. The aim is also to improve the quality of services and to provide greater opportunities for participation in democratic institutions and processes (Lambrinouidakis et al., 2003). Aicholzer et al, (2000) assert that e-Government is a powerful guiding vision for the transformation which governments must adapt over the next years.

Electronic Government, or e-Government and its many synonyms, has been on the international agenda for several years. Since the late 1990s, governments at all levels have launched e-Government projects in order to provide electronic information and services to citizens and businesses. At present, e-Government is on the agenda both in research and practice and this new arena of public interest attracts the great attention of governments, technology providers, and researchers (Curtin et al., 2004). Although e-Government has existed for several years, in many ways it is still in its infancy, and its study is even younger. According to Grönlund (2002), the e-Government field is certainly generating an increasing amount of research literature. However, the research field of e-Government is rather broad and several researchers are involved in a range of different research projects on different topics within the field. When studying references, there is, as yet, no kernel of established e-Government researchers or concept creators and the field of

research has in no way matured as yet. Thus, the field is indeed immature and, according to Grönlund (2002), appears to run the risk of not achieving maturity, for several reasons. The purpose of this paper consequently, is to provide an extensive interaction with citizen to ensure a reasonable interest before the initiative of e-Government. Therefore, some interesting trends in current research into e-Government are identified and critically analyzed in order to ascertain the public interest to e-Government establishment in Nigeria.

Despite the importance of e-government to any nation, there is still fear of rejection by the citizen if proper sensitizations exercise is not carried out to improve their interest before the introduction of e-government. The level of the citizen readiness is very paramount, so that if the interest is very low government can still continue the awareness campaign rather than wasting resources with low level of utilization. To solve the above problem, this study aim to administer questionnaires to capture citizen interest within the case study area with objective of carrying out a statistical analysis to estimate the interest level of the citizen for the establishment of e-government in Nigeria.

2.0 Literature Review

2.1 Selection Procedure

The analysis focuses on current research into e-Government. At a general level, studies eligible for analysis were those explicitly concerning e-Government and concepts closely related to the area. At a more specific level, current research within the field of e-Government was chosen to provide a representative sample, relevant to e-Government research. The search for current research included journals as well as conferences. To identify relevant e-Government papers, a keyword search on library databases and search engines on the World Wide Web was conducted. Keywords included 'e-Government', 'governmental systems', 'public systems', 'e-Democracy', 'e-Services', and 'e-Security'. Secondly, papers from conferences where sources were widely accessible and whose emphasis was on research were identified. Thirdly, the reference lists of the papers surveyed was investigated to relate the researchers to each other and to find more relevant research in the field. Articles excluded from the analysis included those whose focus exclusively concerned technical aspects. The intention was to use the science citation index to crystallize a kernel of well quoted researchers in the field, but because of the immaturity and the youth of the field, the effort failed.

Furthermore, with the keywords of the papers and the research issues as a base, researchers and papers were grouped together into a few overarching areas within the research field of e-Government. The areas identified overlapped and connected to each other, thus some researchers and papers belong to more than one area. Analysis was based on the areas grouped and the research directions and results found. The research found was compared and assessed to find areas of assimilation and dissemination and to identify possible deficiencies or shortcomings in existing research in the area of e-Government.

2.2 The Area of e-Government

The potential of e-Government can be fully realized only if it is harnessed to the existing social and political context of government. According to the Gupta et al, (2003) there are three prerequisites that affect the potential of e-Government: a minimum threshold level of technological infrastructure, human capital, and e-connectivity for all. Jaeger (2003) claims that mature, effective e-Government has the capacity to create new methods and ways for participation in government, acting as an endless wire, electronically threading together citizens, businesses, and all levels of government in a nation. E-Government is still in its formative stages and any idealized visions of e-Government are just that. "Because egov continues to evolve, the full measure of its success awaits assessments." (Relyea, 2002). It has been emphasized that an important goal of e-Government is the delivery of faster and cheaper services and information to citizens, business partners, employees, other agencies, and government agencies (Layne and Lee, 2001). Easy and equitable access to public information and services has always been a goal of open and democratic governments. However, e-Government is a much more substantial transformation than e-Service delivery. E-Government defines an area, the public sector, as well as the institutions, people, and processes which operate within this area. It is obviously not only about services or technology; it is about reinventing the way in which governments interact with citizens, governmental agencies, businesses, employees, and other stakeholders. It is about enhancing democratic processes and also about using new ideas to make lives easier for the citizen by, for example, transforming government processes, enabling economic development, and renewing the role of government, itself, in society.

E-Government is usually presented as using Information technology (IT) to: (1) provide easy access to government information and services to citizens and business; (2) increase the quality of services, by increased speed, completeness and process efficiency; and (3) provide citizens with the opportunity to participate in different kinds of democratic processes. The implementation of e-Government involves not only a profound transformation in the way government interacts with the governed but also the reinvention of its internal processes and organization. E-Government concerns both internal and external use of IT, for internal administration as well as for external services (Grönlund, 2002).

E-Government remains a knowledge field in its exploratory stages and is, consequently, difficult to accurately define. Furthermore, it encompasses such a broad spectrum that it is difficult to find one expression that specifies what e-Government really represents. However, the term is loosely used to describe the legacy of any kind of use of information and communication technology within the public sector and represents the use of the Internet to deliver information and services by the government (Relyea, 2002). Despite the lack of and difficulty in agreeing upon a commonly accepted definition of the concept, there have been efforts to create a definition and e-Government has been variously defined in the literature and research (Grönlund, 2002; Curtin et al., 2004; Aicholzer et al, 2000; Jaeger, 2003; Layne et al, 2001; Relyea, 2002). However, sometimes e-Government is defined as electronic service delivery to citizens, but those working in the field maintain that e-Government is concerned with far more than simply making some public information and citizen services available on the Internet. "E-Government runs wide cross all aspects of government, deep within the core of every governmental entity, and will inevitably be a transforming agent for government and governance." (Curtin et al., 2004).

2.3 E-Services

E-Services form an emerging field which is rapidly gaining attention and importance. Citizens expect and demand governmental services with a high degree of quality, quantity, and availability in a 24-hour, seven-days-a-week, and year-round fashion. Governments all over the world are developing information systems and electronic services that have the capacity to meet these emerging service needs and demands of citizens and other clients (Lauer, 2004; Curtin et al., 2004; Banathy, 1996). There have been suggestions concerning the potential for more efficient and user centered methods for delivering e-Services. Thus, user awareness of these services, their willingness to use them, and ease of use all are important factors for the further development of

e-Government (Chen, 2001). There have been a number of studies concerning e-Services provided and also those services citizens actually need and desire (Bardach, 2002; Jaeger, 2003; Devadoss, 2003; Lauer, 2004; Mullen, 2004). The conclusion is that, in most cases, governments do not provide the necessary and desired e-Services of their users. Nevertheless, governments at all levels and in a wide range of nations have made significant commitments to staffing, finances, and technology in order to develop and improve the delivery of e-Services to their citizens. According to Jaeger (2003), success in delivering electronic services depends upon the capability and self confidence of citizens in performing e-transactions, as well as their trust and Governments Citizens at National level and Local level confidence in the protection of their personal data within an open and accountable government.

However, few studies have explored the core factors that influence citizens' adoption of e-Services. This is an important issue, because the success and acceptance of e-Government initiatives are dependent on citizens' willingness to adopt and utilize these services. Higher levels of perceived ease of use are not significantly associated with intentions of increased use of e-Services. Carter and Bélanger (2004; 2005) have tried to explore this gap and have investigated the effects of relative advantage, compatibility, ease of use and image with regards to the citizens intention to use e-Services. Their results show that perceived ease of use, compatibility, and trustworthiness are significant predictors of citizens' intention to use e-Services and that perceived relative advantage, perceived image, perceived compatibility, perceived usefulness, and relative advantage are significant elements of e-Government adoption. Carter and Bélanger (2004; 2005) have also developed and tested a concise model of citizen adoption of e-Services. Since the success and acceptance of e-Government initiatives are dependent on citizens' willingness to utilize the services provided, there should be more research into this factor; e.g., more elaborate models and methods should be developed.

There is also a need to identify and explain the advantages of using e-Services to citizens as opposed to their current means of retrieving information from and completing transactions with government agencies. With reference to the lack of e-Government usage, the main emphasis has concerned access, which has resulted in the focus primarily being on the important issue of 'the digital divide'. This includes aspects such as an economic gap, a racial gap, a geographic gap, and a disability gap which have all been identified as reasons for citizens not using e-Government information and services. Social or behavioral reasons that might influence citizens not to choose to access and use e-Services have been ignored. However, Jaeger and Thompson (2004) focus on this issue and demonstrate that e-Government should be carefully examined at both the theoretical level and practical level. They discuss aspects of social behavior which may offer means for greater understanding of the usage of e-Government information and services and they believe that the concepts of normative behavior and information poverty can be applied to research that has been conducted and could serve as a framework for future studies. Evaluation of e-Government is critical. However, there has been little research focusing on this factor. Carter et al, (2005) have developed a theory model for the evaluation of e-Services, which can also serve as a tool for understanding why government websites succeed or fail to help citizens find required information.

According to Kaliontzoglou et al, (2004), there is a failure to move from web-based information to e-Service provision, and thus research whose purpose is the further development of e-Services is necessary. However, research whose purpose is to guide development (Devadoss et al, 2003), management, and evaluation of e-Government services is still in its infancy. Consequently, tested concepts and well-understood practices are in short supply. Mullen et al, (2004) point out that little progress has been made in the transition to e-Service delivery in most areas of local government. Chen and Gant (2001) examine the potential of Application Service Providers (ASP) to transform e-Services at the local level. The ASP model assists local government to overcome barriers in offering next wave e-Services, such as a shortage of skilled IT staff and limited financial resources. Gronlund (2002) and Jaeger et al, (2004) propose a Shared Service Centre (SSC) to manage obstacles such as high costs, lack of expertise and to share the development of similar functionality. Jaeger et al, (2004) have explored the concept of a SSC and have found it to be feasible to achieve operational efficiency and have gained considerable attention from politicians and other government representatives.

2.4 E-Democracy

E-Democracy is explored as a subset of the greater, and more important, philosophical topic of democracy itself. E-Democracy focuses on the use of information and communication technologies in supporting democratic decision-making processes and in allowing more effective and transparent engagement between government, business, and citizen. According to Lenk et al, (2000) there are several different research areas which fall under the general heading of e-Democracy including for example electronic voting, access equity, online interaction for public decision making, information reliability, political coordination among multiple stakeholders, and public monitoring of and communication with elected officials. Bardach (2002) describes an initial characterization framework and argues for the urgent need to better understand those e-Democracy pilot projects that have already been conducted and are currently being developed. The framework addresses the issue of what should be characterized in these pilot e-Democracy projects in order to better identify both types of citizen participation exercises and the appropriate technology to support them. This will then offer an analytical framework for electronic participation. Most of research discovered in the field of e-Democracy is concerned with e-Voting. According to Relyea (2002), e-Voting has been recognized as a tool, not a means of enhancing or reinvigorating democracy. Lauer (2004), whose focus was on integrity, has analyzed security risks that may threaten e-Voting schemes and further, has proposed several recommendations. Lauer (2004) have explored the security related procedures surrounding the successful development and deployment of e-Voting in legally-binding government elections. According to their findings, security in e-Voting has two aspects: namely technical and procedural aspects and further research is required into both these areas. E-Voting is of current interest but, more research is necessary concerning other aspects of the e-Democracy field.

Models, methods, and theories must be developed and a citizen centric approach must be adopted to ensure its success. E-Democracy is an area which is important and substantial because it offers citizen means to participate in the democratic process.

2.5 Organization and Management of E-government

There is a need to develop theories, models, and methods within the area of e-Government. Thus far, the research has mainly involved descriptive studies, philosophical studies, theoretical research, and empirical studies (Grönlund, 2002). In Grönlund's (2002) survey of the state-of-the-art e-Government research in 2002, the discovery was made that theory generating and theory testing are not frequent in research approaches, but case studies and product descriptions are. However, efforts are being made to elaborate both theories and models. Layne and Lee (2001) have described different stages of e-Government development and have proposed a "stages of growth" model for fully functional e-Government. Relyea (2002) explores the theory of information and the degree to which new methodologies may be designed for governments in order to better share information with the public for the common good. Grönlund (2002) has identified a need for a model of government that goes beyond the individual organization in order to discuss e-Government theoretically. He has tried to offer a way to fill the gap in e-Government effectiveness by developing a theory of e-Government/e-Governance information systems, which considers governance as a system rather than as individual organizational units and processes, and views information systems from that perspective. The purpose of the theory is to provide a general framework. Grönlund (2002) also claims that the strategic perspective regarding e-Government remains to be researched. Jaeger et al (2004) introduced a strategy for assessing the practical frameworks used by government managers to guide e-Government investment decisions. They outline a gap analysis strategy and present a preliminary application of the analysis. The gap analysis strategy serves two purposes, namely to give information concerning the design, development, and use of e-Government investment decision-making tools and processes and to propose a strategy for initiating discussion in the debate about information system research relevance.

Valuations and measurements are urgently required to enable the field to develop and there is a great need for more research into such issues. According to Gupta and Jana (2003), the importance of measuring the performance of e-Government cannot be over emphasized. They proposed a flexible framework to choose an appropriate strategy for measuring the tangible and intangible benefits of e-Government. There is also an identifiable lack of developed and well understood rules and models for ethical behavior in e-Government. Mullen and Horner (2004) propose a framework for evaluating the extent to which different types of mistakes are related specifically to the technologies used and also to identify instances where rules and models of ethical behavior may be deficient. A definition of most basic concepts and most of the fundamental questions concerning ethics and morality is urgently required within the e-Government field. Banathy (1996) raised these questions concerning system developments several years ago and these are now of great importance in contemporary research within the e-Government field. These aspects are essential for the development and deployment of e-Government and confirm the need for additional research in this area.

The field of e-Government has been influenced by many disciplines and to enrich the field several researchers have used a variety of established and theoretical theories to study e-Government. For example Chen et al (2001) has used the Stakeholder theory to examine e-Government research, Bardach (2002) has used the Network theory to examine IT enabled interagency collaboration, Relyea (2002) has used the Diffusion of Innovations Related theory to examine the impact of computerization on innovation within governments, and Jaeger (2003) has utilized Weber's theory of bureaucracy to examine contemporary e-Government related research and literature. Most research in the field is concerned with development, services, citizen participation etc and, at present, there are still only a few research projects concerning the organizations, i.e., the governments. How should these be transformed to facilitate the development and deployment of the electronic government? Aicholzer and Schmutzer (2000) discuss three major organizational challenges faced by initiatives associated with the implementation of e-Government: (1) guiding principles and problems of restructuring administrative functions and process; (2) requirements of and barriers to coordination and cooperation within public administration; and (3) the need to organize monitoring of performance in terms of e-Government.

2.6 E-Security

E-Government services have to be secure with regards to all aspects, so that the government and the users trust the system and feel confident in using it. Security is critical since it can influence citizens' willingness to adopt the services offered. In the area of e-Government, concerns regarding the extent to which information security and user privacy can be ensured are raised. Information System Security is thus an essential management responsibility for e-Government, which must satisfy the fundamental security properties of availability, confidentiality, integrity, accountability, and information assurance (Joshi et al, 2001). Lambrinoudakis et al, (2003) have compiled a list of security requirements applicable to the entire e-Government platform. They conclude that most of the e-Government security requirements can be fulfilled through the PKI (Public Key Infrastructure) security services. In the study by Devadoss et al, (2003), many issues are discussed from a tele-cooperation perspective. They have found that human and social factors interact at every level and they have developed an exploratory framework for future examination of e-Government initiatives. The framework proposes that requirements should be tested in a G2C (government-to-citizen) initiative, where user participation and user communication with systems developers are the key issues.

2.7 Interactions Within E-government

There have been a number of categories identified for interaction within e-Government: government-to-citizen (G2C), government-to-employee (G2E), government-to-government (G2G), and government-to-business (G2B). Each uses Internet technology to provide government services online. G2C implies that citizens are allowed to retrieve government information and complete government transactions, such as license renewal, online. G2E implies that government agencies are allowed to interact

with their employees online. G2G supports online communication and interaction between government agencies. G2B allows businesses to retrieve timely government information and complete transactions with government agencies online (Carter and Bélanger, 2004).

Layne and Lee (2001) have developed a model for different degrees of interaction and have addressed the requirements for integration. The model consists of four stages of e-Government growth, i.e., cataloguing, transaction, vertical integration, and horizontal integration, which emphasize the citizen as a user of governmental services and offer a path for governments to follow. They also suggest challenges, both in terms of the organization and technical factors. The model developed by Layne and Lee (2001), is furthermore used as a basis for other research projects, e.g Lauer (2004) findings suggest that e-Government growth is more pronounced in some areas than others and that there is a need for research concerning interaction in the development towards one-stop government systems. According to Bardach (2002) a holistic developmental approach provides important guidelines for addressing different aspects concerning this aspect. The focus of the majority of research in this field is on the relationship between government and citizen and external services. Curtin et al, (2004) point out the consequences with regards to considerations related to the allocation of resources in the public sector and Grönlund (2002) claims that it is also important to consider the efficiency of internal operations.

3.0 Methodology

3.1 Study subjects

A cross-sectional survey conducted to capture citizen interest in Kaduna Polytechnic. This survey was conducted in Kaduna Polytechnic in Northern Nigeria, using a multi-stage stratified sampling method. In the first phase, College of Science and Technology (CST), College of Business and Management Studies (CBMS) and College of Engineering (COE) were randomly selected in the institution. In the second phase, a random department was selected in each college. In the third stage, one hundred questionnaires were randomly administered in each department, total of five hundred questionnaires were administered in all the colleges and four hundred and twenty were received.

3.2 Data collection

All respondents filled the same questionnaire, which included demographic characteristics, personal and their departments. The questionnaire also included age class, e-learning knowledge, state origin and categories of staff of the respondents.

3.3 Statistical analysis

Data processing and analysis were carried out with the statistical package for social science (SPSS) software. Qualitative data were compared by χ^2 test and quantitative data by Non parametric t test (Mann-Whitney test). The Analysis of variance (ANOVA) test was used to establish performance of interest based on age class. $P < 0.05$ was treated as significance.

3.4 Presentation of Data and Graph

Table1 show the respondent responses based on age with the interest rate.

Age interval	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
25 – 35	55 (13.10%)	40 (9.52%)	4 (0.95%)	3 (0.71%)	12 (2.86%)
36 – 46	70 (16.67%)	20 (4.76%)	2 (0.48%)	2 (0.48%)	8 (1.91%)
47 -57	90 (21.43%)	30 (7.14%)	4 (0.95%)	3 (0.71%)	10 (2.38%)
58 – 68	35 (8.33%)	10 (2.38%)	5 (1.19%)	2 (0.48%)	15 (3.57%)

Table2 show the respondent responses based on sex with the interest rate.

Sex	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
Male	150 (35.71%)	60 (14.29%)	5 (1.19%)	8 (1.91%)	20 (4.76%)
Female	100 (23.81%)	40 (9.52%)	10 (2.38%)	2 (0.48%)	25 (5.95%)

Table 3: Show the respondent responses based on computer knowledge

Computer Knowledge	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
Very Sound	50	30	26	35	40
Sound	20	25	35	25	20
Not Sound	25	20	19	20	30

1 Strongly Agree 2 Agree 3 Neutral 4 Strongly Disagree 5 Disagree

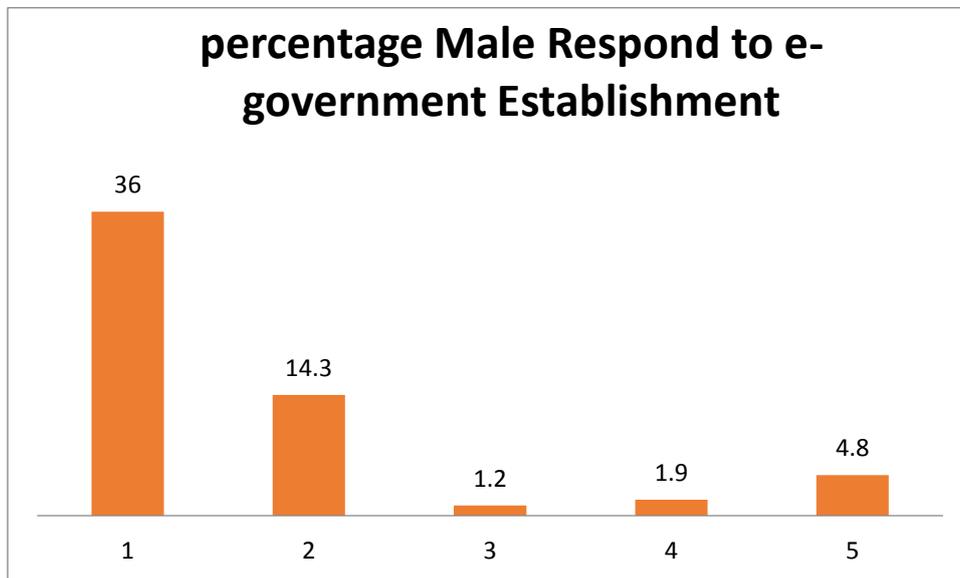
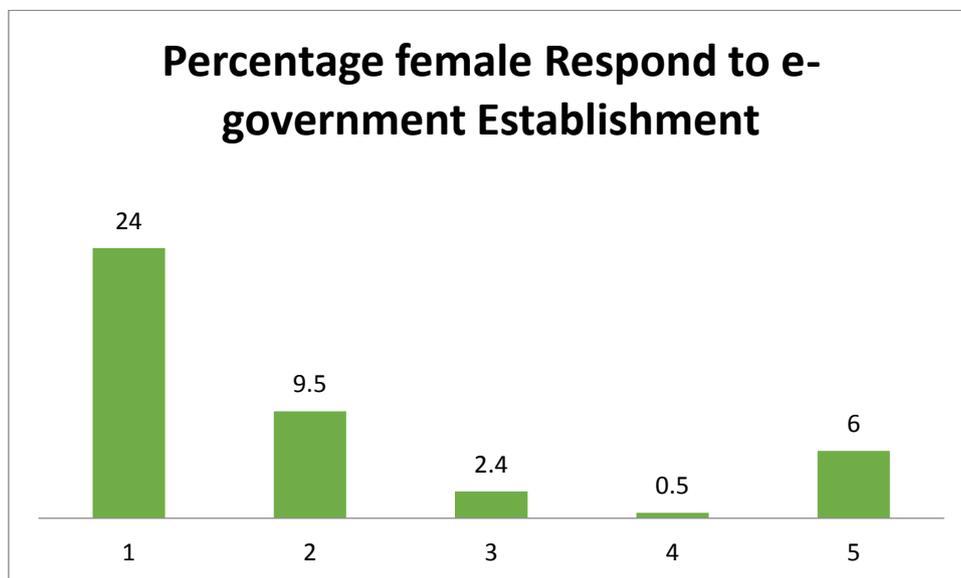


Figure 1: Show the percentage male response to e-government establishment.

The percentage female response to the establishment of e-government in Nigeria with the interest rate is shown in figure 2 below.



Key: 1 Strongly Agree 2 Agree 3 Neutral 4 Strongly Disagree 5 Disagree

Figure 2: Show the percentage female response to the establishment of e-government.

4.0 Discussion of Result

There is no significant difference between the interest of respondents with age range of 25 to 65 for the establishment of e-government in Nigeria, since the chi-square value of 0.238 is greater than significance level value of 0.05, see table4 below

Table4
Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.000 ^a	6	.238
Likelihood Ratio	8.318	6	.216
Linear-by-Linear Association	1.200	1	.273
N of Valid Cases	4		

There is no significant difference between the interest of respondents with age range of 25 to 65 for the establishment of e-government in Nigeria, since the ANOVA value of 0.163 is greater than significance level value of 0.05, see table5 below.

Table 5

ANOVA

There is no significant difference between the interest of male and female for the establishment of e-government in Nigeria, since Asymp. Sig of 0.917 is greater than 0.05, see table6 below.

Table6

Test Statistics ^a	
	Response
Mann-Whitney U	12.000
Wilcoxon W	27.000
Z	-.104
Asymp. Sig. (2-tailed)	.917
Exact Sig. [2*(1-tailed Sig.)]	1.000 ^b

Grouping Variable: Sex

There is no significant difference between the interest of respondents with categories of computer knowledge for the establishment of e-government in Nigeria, since the chi-square value of 0.199 is greater than 0.05, see table7 below

Table 7

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.000 ^a	4	.199
Likelihood Ratio	6.592	4	.159

Linear-by-Linear Association	1.724	1	.189
N of Valid Cases	3		

Conclusion

The total support or agreement to the establishment of e-government was 83.33% between the aged 25 to 68 years in Kaduna Polytechnic, with the rates of 50% and 33.33% in men and women, respectively. While the total disagreement to the establishment of e-government was 13.10% between the above age range, with the rates of 6.67% and 6.43% in men and women, respectively ($P < 0.05$). This indicates that three quarter of population under study supported the introduction of e-government in Nigeria, while half and one third of population of men and women respectively agreed to the establishment of e-government. The agreed rates who are in support of e-government initiation were 22.62%, 21.43%, 28.57% and 10.71% between the ages of 25-35, 36-46, 47-57, 58-68, respectively. While disagreed rates were 3.57%, 2.39%, 3.09%, and 4.05%, for the same age ranges. From our finding of the test performed, There are no significant difference between the interest of respondents with age range of 25 to 65, interest of male and female respondents and the interest of respondents with categories of computer knowledge for the establishment of e-government in Nigeria, since the ANOVA value of 0.163 is greater than significance level value of 0.05, chi-square value of 0.238 is greater than 0.05 and t value of 0.917 is greater than 0.05. There should be very serious awareness campaign and enlightenment before the establishment of e-government since many respondents indicate zero knowledge of e-government in Nigeria.

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