CAPACITY FOR PUBLIC-PRIVATE SECTORS TO IMPLEMENT e-GOVERNANCE (CP-PSIe): ENHANCING INFORMATION AND SERVICE DELIVERY IN NAMIBIA

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ABSTRACT

e-Governance is being used by many governments around the world to improve information and service delivery to their citizens. This is achieved mainly through the use of Information and Communication Technology (ICT) solutions. As a result, the capacity for Public and Private Sectors to implement e-Governance plays a pivotal role in making e-Governance a success.

Through the use of qualitative and quantitative research methods, this study took an in-depth look at the current levels of capacity in Namibia. The study found that the lack of available capacity in the country is a critical barrier in many e-Government initiatives in Namibia causing them to move at a very slow pace. Furthermore, it was also found that the majority of the Namibian citizens do not know what e-Governance is and are not aware of any e-Government projects that are already underway.

It is evident that the development of capacity in the country would impact positively on e-Government projects and would also reduce Namibia's dependence on foreign and usually expensive consultants to pilot them. In this vein, the study proposed ways in which the available capacities could be utilised. It further made suggestions on how the missing capacities could be acquired and also suggested how the Public and Private Sectors could collaborate with each other for the efficient delivery of e-Governance in Namibia. Lastly, but not the least, the study concludes by emphasizing that the Namibian Government urgently needs to prioritise the development of e-Government capacity to ensure that e-Governance implementation becomes a success.

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DEDICATION

To God Almighty, my fiancée Natasha Mweshi Mulenga and my parents Charles Martin Funda and Charity Nanyangwe Funda.

DECLARATION

. I, Semba Funda, declare hereby that this study **"Capacity for Public-Private Sectors to Implement e-Governance (CP-PSIE): Enhancing Information and Service Delivery in Namibia"** is a true reflection of my own research, and that this work, or part thereof has not been submitted for a degree in any other institution of higher education.

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1. INTRODUCTION

This Chapter introduces the study by looking at an overview of the research topic, statement of the problem, research questions, significance of the study, limitations of the study and research methodology. It also provides a brief outline of the thesis.

1.1 Introduction

The advent of e-Governance has seen a radical change in the way Governments around the world provide services to their citizens and businesses. Thus, the importance of Namibia's capacity to implement and deliver e-Governance successfully has risen significantly over the years in their bid to provide such services to the people.

Broadly, e-Government can be defined as the use of Information and Communication Technology (ICT) to transform Government by making it more accessible, effective and accountable to citizens and its stakeholders (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2005).

The Government of Italy's Ministry for Innovation and Technologies together with United Nations Department of Economic and Social Affairs (2002) stated that e-Governance requires a conducive environment to maximize its potential. They further went on to say that before defining an e-Government for development strategy or plan of action, a thorough analysis was required of the existing environment in which e-Government will be implemented.

According to the Namibia Statistics Agency (2012), Namibia had a total population of approximately 2,104,900 of which 1,219,400 persons (58 percent) were

enumerated in rural areas, while 885,500 (42 percent) were enumerated in urban areas in 2011. This poses a huge challenge when rolling out e-Government services as development of ICT infrastructure and literacy levels, which play a critical role in the implementation of e-Governance, remain at low levels in the rural areas. In addition, the population in the deep rural areas is sparsely distributed and as a result this limits the types of services that can be rendered there. Most companies want to set up their operations in places that make economic sense for them to be able to remain sustainable.

In order to be successful with the implementation of e-Governance, the Namibian Government has to critically analyse the capacity levels within the country starting from within the Government itself.

1.2 Statement of the Problem

The capacity of a country to implement and deliver e-Governance plays a critical role in the success of such projects. However, according to the e-Government Readiness Report (GRN, 2011), the majority of the population is not touched by the Information and Communication Technology (ICT) revolution and that there are a number of Internet use problems in Namibia including slow access linked to congestion and high prices for bandwidth. In addition, the report further states that Namibia still has a limited overall capacity in the field of ICTs. Furthermore, the report mentions that a great burden is placed on the Education Sector to address human resource issues that will enable Namibia to accelerate its development as a networked society.

Hafkin (2009) stated that the successful implementation and delivery of e-Governance requires that a country has adequate capacities in: ICT infrastructure including Internet access; availability of trained human resources; capability of local educational institutions to equip candidates with suitable Information Technology (IT) skills; political will and the ability to secure the needed financial resources for e-Government projects.

In contrast to the above, this is not the case in Namibia. In addition, equipment required for users to be able to access the Internet such as computers and mobile devices are also costly hence making it almost impossible for the common man like the cleaner, casual worker and security guard to procure them. The deficiency of highly trained human resources also limits the kind of technology that can be used in the country. In some instances, there are very few people or sometimes none at all who are capable of handling advanced technologies that are necessary in the implementation of e-Government. Furthermore, the low literacy levels, including the lack of basic computer skills also pose a great challenge especially in the rural communities. It is also evident that most of the people in these communities do not understand English, which is the official language in Namibia and hence are not able to benefit from the various services provided.

In view of the above, the main purpose of this study is to determine what can be done with the available capacities, identify which of them need to be improved on, pinpoint the ones that are lacking and to find solutions for them. Failure to ascertain these factors may result in hindered progress in the implementation and delivery of e-Governance in Namibia which may even lead to its eventual collapse.

Furthermore, the study aims to develop a capacity framework that will guide e-Government leaders when making decisions regarding capacity.

1.3 Research Questions

In accordance to the problem statement above, the study answered the following questions:

Question 1: What capacities are essential for e-Governance implementation and delivery?

Question 2: What can be done with the available capacities in the Public and Private Sectors to ensure implementation and delivery of e-Governance in Namibia?

Question 3: How can the Public and Private Sectors build on the various capacities to implement and deliver e-Governance in Namibia?

1.4 Significance of the Study

The research contributed towards helping to determine which capacities need improvement and identifying some of the factors hindering the implementation of e-Governance in Namibia. The study also complemented the existing literature on e-Governance in Namibia. It can further be used by stakeholders and policy makers when making decisions on critical issues relating to e-Governance capacity.

1.5 Limitations of the Study

The study was limited by a number of factors. Firstly, the sample size was a major limitation as it was not a suitable representation of the target population. This was attributed to the lack of finance which affected the coverage of the study. The study was only confined to the Khomas region of the country. This was further compounded by the sampling procedure which was used, Convenience Sampling.

Finally, there is also a lack of readily available literature in the Namibian context on the subject matter which also posed as a major limitation to the study.

1.6 Research Methodology

The study made use of a mixture of both qualitative and quantitative methods. These methods were used in the analysis of data that was collected from the questionnaires. Inferential statistics, namely, Chi-square tests and detailed analysis of graphs were used to explore relationships between the selected variables.

1.7 Outline of Thesis

Chapter 1 introduces the statement of the problem, research questions, significance of the study, limitations to the study and a summary of the methodology used. Chapter 2 looks at the literature relevant to the study. Chapter 3 explains the research methodologies that were used. Chapter 4 presents the analysis of data that was collected by means of questionnaires while Chapter 5 discusses the findings of the data analysis. Chapter 6 presents the proposed architecture. Chapter 7 discusses the conclusions and recommendations.

2. LITERATURE REVIEW

There are a number of different capacities which have been identified by various authors for the successful implementation and delivery of e-Governance. Hafkin (2009) recognised the following capacities as prerequisites for e-Government to be successful: minimum threshold level of technological infrastructure; human capital; Internet access for all; legal frameworks/ enabling environment and political will. According to her, in Africa overall 4:1000 had broadband access where as in Sweden it was 81:100. She further observed that the broadband leaders in Africa were Mauritius, Seychelles, Morocco, Cape Verde and South Africa: ranging from 6:100 to 1:100. In addition, she stated that there were 33 countries that lagged behind without broadband access and five (5) others with 1:1000.

In support of the above, Namibia would greatly have to improve on these figures in order for e-Government implementation to have the desired impact. It would be pointless to implement e-Government if many people in the country did not have the necessary means to access the information and services being offered. As a result, the government would have to ensure that Internet services, for instance, are extended to the rural parts of the country to enable people living in these areas attain adequate access.

According to Schuppan (2008) e-Government had become a global phenomenon and that industrialized and developing countries had been initiating e-Government strategies and projects, the latter typically with support from donor organizations such as the World Bank or bilateral donor organizations. He further stated that under the label “Information and Communication Technologies for Development”

(ICT4D), these organizations were stressing the relevance of Information and Communication Technologies (ICT) in general and e-Government in particular, as a way to promote development and reduce poverty. In addition, he observed that although e-Government was a global phenomenon, simply transferring ICT solutions and related organizational concepts from developed to developing countries seemed inappropriate.

It is evident that many countries, especially those in the developing world, need to secure financial resources from donors to enable them to fund their respective e-Governance projects. These countries also require adequate financial resources for Governments and the Private Sector to be able to procure and keep up with the ever changing and advancing technologies. Furthermore, there is a need to identify countries that have high levels of e-Governance development that have similar conditions as Namibia. This would enable the government to adopt policies and practices that have worked in a similar environments rather than just copying everything from the western world.

Calvin et al. (2008) emphasised on the need to engage users as among one of the key issues raised in e-Government systems implementation. They observed that Information System (IS) implementation failures continued to be rampant with billions of dollars lost annually. Furthermore, they stated that e-Government initiatives were often a result of Public Sector reform where government agencies were increasingly run like private businesses with the emphasis on treating citizens as ‘customers’.

Concurring with the authors, it is evident that end users have to be involved from the inception of e-Government projects failure to which could lead to projects not being implemented or delivered successfully. This could start from the government employees themselves. Simple e-Government project related tasks could be assigned to them in their respective Departments in order to make them feel that they are the custodians of such initiatives. End users, such as businesses and ordinary citizens could also be incorporated through printed or online media. Surveys requesting what they would like to see or how they would like things to be done could also be conducted. In that way, they also would feel as being an important part of the project, hence rejections of such programmes are minimised. There is also a great need for the Namibian Governments’ involvement and support as they are responsible for Public Sector reforms of the country. Adequate laws governing the use and protection of electronic media could be introduced. The Namibian Government could also take the leading role in encouraging the Private Sector to participate more in e-Government development and implementation by giving them incentives to do so. In this regard, lucrative contracts could be drawn to attract the best Private Sector companies to bid for them.

Heeks (2001) stated that for e- Governance to succeed in developing countries, 'e-readiness' had to be built. According to him, this meant that barriers to e-Governance had to be reduced by strengthening infrastructural inadequacies and the drivers also had to be strengthened. He recognised the following six (6) areas as priorities that had to be included in a National e-Governance Plan (NeGP) in order to build e-

readiness. These were: Institutions; Laws; Leadership and Commitment; Human Capacities; Technology and Data systems.

A similar identification process could also be undertaken in Namibia in order to prioritise the areas required for e-Governance implementation. A good place to start would be the e-Government Readiness Report (GRN, 2011). According to the report, there were four major and several smaller Internet Services Providers (ISPs). The major ones were: UUNET Namibia, Africa Online, Mweb and IWAY. UUNET Namibia had a backbone of 4 mbps international capacity via South Africa, but purchased from Telecom Namibia and resold to their clients. The organisation was mainly company network focused and supplied bandwidth and services to about 300 points in the corporate market in Namibia. Africa Online offered dial-up and leased line connectivity. However, their main focus was on non-leased line clients. Mweb were suppliers of dial-up and a few leased line connections to the clients via the Internet; Iway was a result of The United Nations Office for Project Services (UNOPS) to allow for spreading of Internet facilities within the Republic of Namibia.

Telkom South Africa bought Mweb Africa and 75 percent of Mweb Namibia for about N$610 million. The deal came just after Mweb Namibia had taken over the operations of Africa Online in Namibia. The buyout integrated the operations of Mweb Africa and Mweb Namibia under its Internet Service Provider's business unit iWay Africa. This posed the challenge for Mweb Namibia to operate under the iWay Africa name that Telkom uses in other African countries due to the fact that Namibia's fixed line operator, Telecom Namibia, already uses a brand name IWAY

for its Internet service provider business unit in Namibia. As a result, Telkom suggested the use of the Africa Online brand, as the name for the Namibian company. (“Mweb Namibia Changes to Africa Online,” 2011)

In the attempt to increase Internet coverage, the Namibian Government could use some of the mentioned ISPs above to penetrate remote areas with the help of Telecom Namibia. It could further negotiate lower bandwidth rates on behalf of the ISPs willing to establish their presence in these places so that they too could make their services more affordable to the people. Alternatively, subsidies could be introduced by the Government in order to make the services more accessible by the Namibian citizens.

Kitaw (2006) stated that literacy remained a major barrier to the development of e-Governance in African countries. On top of literacy, he said that a well-trained human capital is fundamental for the adoption of e-Government and its scarcity was another challenge in Africa. Furthermore, he pointed out that ICT infrastructure was a key determinant of development in the knowledge era of which Africa had lagged behind in the past century in that regard. He emphasised the need for the trend to be reversed by intensifying heavy investments on infrastructure in this crucial period where Africans needed to catch and capitalize on the opportunities offered by ICTs.

The Namibian Government would also need to address the literacy problem in the country especially in the rural areas. Adult literacy programmes and others such as basic computer classes could be introduced at minimal costs to encourage people to participate. Adding to that, they would also have to invest more in well trained human capital and ICT infrastructure. The budget allocated to this and other major

ICT spending would have to be relooked at to ensure that money is being channelled properly to ventures that will ensure capacity building related to e-Governance.

Calvin et al. (2008) conducted a macro analysis of Singapore’s e-Government initiatives that traced back to the early 1980s and identified four components that led to its successful implementations as: (1) building information content, (2) laying the fundamental ICT infrastructure, (3) establishing e-Government set-up and (4) promoting e-Government services.

Seeing the success of e-Governance in Singapore, Namibia could also adopt the components identified above and make them a priority in its own e-Government implementation plan. Small but competent teams could be set up to lead the different areas identified above. These could engage into further research to see how other successful countries did similar works and adopt processes from those that have comparable environments like Namibia.

Nagi and Hamdan (2009) mentioned that some of the general factors needed to implement e-Government were: prosperity in economy, high education levels, political stability, and acceptance. In addition, one of the most important tools for e-Government implementation that they identified was the readiness and willingness of citizens to accept such a change.

Similarly, the Namibian citizens would have to be prepared and willing to accept changes brought about by e-Government for it to be truly successful. Measures would have to be taken to make the people understand the importance of e-Governance and the benefits that it brings.

Vanka et al. (2007) pointed out that a major job to explore the capacity gaps had to be done and once that was done, identify the skills required. In addition, they stated that even though the Indian Government had worked with the most prominent IT and consulting firms, the required talent with both technical skill domain and knowledge of Government were in very short supply. To them, this implied that there was a pressing need for developing a network of academic institutes. These would have relevant syllabuses to train and produce the required talent pool and provide career roadmaps for such trained persons.

In the same way, a similar identification process could also be undertaken in Namibia in order to establish the missing skills and devise the most suitable means of obtaining them. One way that this could be achieved is to employ foreign experts on contractual basis. A local Namibian citizen could be assigned to them as an understudy whom they could train. Once the contract is completed and management is confident that the necessary skills transfer has taken place, the incumbent understudy could then take over those responsibilities.

According to the United Nations e-Government Survey (2012) the practice of whole-of-government mainly required the establishment of networks and partnerships within Government Agencies, as well as with other key players, such as those in the non-government Sector. The survey went on to say that beyond the engagement of leading e-Government officials and institutions, one-stop Government may require the acquisition of new skills by public employees and customers alike. In addition to that, it mentioned that alongside analysis and interpretation skills, which are necessary at every stage of an e-Government project, skills in information

management could ensure that information was treated as a valuable organizational resource with due regard for content, quality, format, storage, transmission, accessibility, usability, security and preservation. Furthermore, the survey stated that depending on the type of e-Government challenge an organization was facing, higher order technical skills may be required to implement the chosen solution. Additionally, the survey mentioned that communication skills were important because of the need throughout the project to convey goals, progress, issues and results. The survey went on to mention that project management skills were essential to plan, organize, allocate resources, negotiate, track progress and measure results.

In the implementation of e-Governance in Namibia, the high order technical skills available within Government itself could be identified before rushing to outsource from other companies. These skills could be resident in other Offices/Ministries/Agencies (O/M/As) and thus would require a reshuffling of positions in order to align the right skills with the correct projects. In cases where individuals are not interested, incentives such as higher wages could be introduced.

Another important aspect that was observed by the United Nations e-Government Survey (2012) was that there had to be a strong emphasis on a legal framework that embodied elements of trustworthiness, traceability, security and privacy of citizens’ data. In the survey it was mentioned that one-stop government often required the adaptation of laws to make e-Government solutions legally binding. It was further observed in the survey that among the legal issues that had to be investigated for a successful one-stop government were: data protection, access to sensitive data,

networking of authorities and databases, equal opportunities, electronic signature, etc.

In this light, the Government of Namibia would have to pass clear laws governing the use of electronic data and its protection. The law makers would have to familiarise themselves more in this area in order to understand what is really required. Laying this foundation would lead more users into accessing the information and services on offer as they would feel safer doing so knowing that actual laws that protect them exist. In addition, users would be more at ease with doing online transactions knowing that posting their personal data is safe and would not be subjected to theft or abuse.

Kitaw (2006) explained that e-Government applications represented a security challenge as they highly depended on critical ICT systems (both infrastructure and services) that created vulnerabilities in Government Institutions, Businesses and potentially harm citizens. He went on to say that it was imperative for Governments to understand and address security concerns in order to leverage the potentials of ICTs in delivering e-Government applications. In addition, he mentioned that in the deployment of e-Government applications, attention had to be drawn to the prevention of cybercrime (i.e. the use of ICTs by individuals to commit fraud and other crimes against companies and citizens) with the objective of protecting Government Institutions, businesses and citizens and without hampering democratic progresses and protection of human rights.

In the same vein, the Namibian Government should also ensure that all the security concerns are addressed in order to curb the risks and complications brought about by

cybercrime. This could be done by seeking the services of Cyber security experts and incorporating them into e-Government development projects. They would ensure that best practices regarding cyber security are put in place.

Schuppan (2008) stated that many Sub-Saharan countries with low levels of infrastructure and human capital remained at lower levels of e-Government development with serious issues of digital divide. He also observed that the per-capita income was so low in most African countries that the population could not afford Internet access. According to his study, the monthly subscription fee for unlimited access and one email account in Ghana was about U.S. $30 which would amount to 80-90% of average income. He further went on to say that in some remote areas, people had no access at all and that the number of Internet users and available PCs per 100 inhabitants in Ghana equalled 1.72 and 0.52 respectively.

To mitigate these access problems, Schupppan observed that the Ghanaian Government had developed, with the support of the Indian Government, a concept for so-called Community Information Centers (CIC) which were equipped with PCs connected to the Internet, printers, fax machines, photocopiers, phones, televisions and radios. In addition, the CICs also served as libraries which provided other information, like prices of agricultural products for farmers; microloans for potential entrepreneurs and information scholarships for students.

Establishing similar CICs in Namibia would also prove to be very beneficial to citizens especially those residing in the rural areas that cannot afford to have their own Internet connection and other ICT peripherals. These could further serve as access points in places where there is limited Internet connectivity. In addition, the

same CICs could also serve as training centers to equip citizens with the much needed computer skills.

An important requirement that had to be considered when outsourcing and implementing e-Government was the availability of private IT service providers, of which Schuppan (2008) stated that only a few of these were. He also noted that one question which had to be addressed was whether suitable providers for application software were available or whether the capacities to develop services and software had to be built up within government organizations themselves.

In favour of Schuppan (2008), a critical look at the existing software service providers in Namibia would be essential to establish whether they have the required capacities necessary to develop e-Government systems or whether there would be a need to look across the borders in order to find the needed skills. Furthermore, it would also be critical for the Namibian policy makers to decide which capacities should be developed within Government. An exercise could be carried out that would determine what capacities are lacking within Government and which ones were in abundant supply. A critical analysis could also be undertaken to identify the employees that could easily be trained and excel. Upon completion of training, such personnel could then lead and train others.

Among the critical issues responsible for e-Government success that were identified in India at the fifth (5^{th}) International Conference on e-Governance [ICEG] (2007), it was noted that a major job to explore the capacity gaps had to be done and once that was done, identify the skills required. An example was given that went on to say that if there was a need for a core team within a Government Department, the skills that

were required needed to be identified and a plan needed to be drawn up to source them. Furthermore, the following questions two questions had to be answered. Were they going to get the required resources in the Government or were they going to supplement them from outside? They observed that if the latter, the issue of market related salaries had to be addressed. In addition, even though the Government had worked with the most prominent IT and consulting firms, the required talent with both technical skill domain and knowledge of Government were in very short supply and that implied that there was a very pressing need for developing a network of academic institutes and relevant syllabuses to train and produce the required talent pool and provide career roadmaps for such trained persons. In the same way,

Like previously stated, Namibia would also have to go through a similar identification process in order to establish the missing skills and devise the most suitable means of obtaining them. These skills could either be attained from within Government by looking at other O/M/As. If the required skills are not found, then the Government could seek services of reputable recruitment agencies, such as Jobs Unlimited, to source them.

Calvin et al. (2008) observed that the Civil Service Computerization Programme that started in the early 1980s in Singapore helped to set the stage for the subsequent widespread proliferation of ICT utilization by the Government of Singapore. They further informed that the Singaporean Government promptly launched the first e-Government Action Plan in 2000 to supersede the Civil Service Computerization Programme with a total budget that amounted to $1.5 billion. They observed that in the first e-Government Action Plan, the focus was on the employment of ICT to

facilitate the transactions between the Government and its three primary stakeholders i.e., citizens, businesses, and employees. By 2003, with the use of their highly trained manpower and available ICT infrastructure, most of the front-end services catering to the needs of citizens, businesses as well as government employees had already been successfully made available online.

In view of this, more specialised IT personnel would have to be sought and employed in Namibia in order to make similar advancements. Having the necessary experts on-board would mean that projects progress rapidly with minimal delays. Additionally, there would be a need to increase the budget allocation to e-Government projects in order to source highly trained manpower.

Calvin et al. (2008) also noted that as further effort to boost the usage of the e-services, the Government had also been making a broad range of promotional initiatives in encouraging the public to utilize the e-services. To do this, they said that more emphasis was probably deployed in educating the public and making them aware of the e-Government services that were available online.

In the same way, the Namibian Government would need to embark on a rampant program to educate and sensitise the citizens of the existing e-services that would be provided to enable them to get involved and benefit from e-Governance. To do this, they could use the various media such as newspapers, radio and television. For example, call-in programs on various radio stations could be conducted in various languages to answer questions that would be raised by the public. These platforms could also be used to clear up issues surrounding the use of e-Government services.

With reference to the e-Governance Policy for the Public Service of Namibia (2005), the implementation of e-Governance would require significant skills upgrade and recruitment of IT experts in various Government Ministries to realise the e-Governance vision. The policy went on to say that effectiveness of e-Governance would require training of people and that maintaining technological infrastructure requires IT skilled resources. Furthermore, it also stated that the Government of Namibia would need to create mechanisms to acquire the best ICT experts as it would have to compete with the private (commercial) sector to recruit the necessary IT skilled people. An expedition of these initiatives, such as training, would in turn ensure that e-Governance progresses more promptly.

However, with the shortage of skilled IT personnel in Namibia, the Government would also have to develop attractive remuneration packages in order to retain these newly trained employees and other ICT experts. This would reduce losing valuable employees to the companies that may offer higher and more attractive packages in order to lure them.

Mimicopoulos (2004) emphasised that e-Government projects often incurred large upfront expenditures that were difficult to fund as normal operating expenditures. He further stated that treating such expenditures as normal operating expenditures, could result however in poorly financed projects over their life cycle. In addition, he mentioned that successful e-Government would require that Governments treated e-Government projects as capital expenditures. The following were some of the e-Government funding strategies that he suggested:

Issuing bonds

Governments, both sovereigns and sub-sovereigns, could finance e-Government projects by issuing bonds, on either the domestic or international capital markets. According to him, bond financing was cheaper than bank loans and that this mechanism of financing allowed them to obtain all the funds they needed up-front through the bond offering and were not subject to partial repayments, as in the case of bank loans and which repayments are based on a bank's monitoring of their project construction progress. In addition, he said that credit ratings, which were crucial in determining the issuer's borrowing costs, were determined by independent agencies, rather than the banks. He also stated that issuing bonds also allowed for longer maturity debt than bank loans and that longer maturity debt helped to minimize the budget risk and contributed to the financial stability of issuing sub-sovereigns.

Public-Private Partnerships

Once source of public funding had been assessed, Mimicopoulos pointed out that the capital improvement budget process needed to consider potential sources of Private Sector funds. He went on to say that there were potential reasons other than just funds for involving the Private Sector in capital projects. He argued that the Private Sector could: bring skills and know-how; enhance the efficiency of service delivery; insulate upcoming operations from political intervention; make the project more responsive to the public's needs and preferences. He asserted that various methods had been tried in the effort to involve the Private Sector and engender a balanced approach to risk taking in the Public Sector. These included policies such as privatization, Private Finance Initiatives (PFIs) and contracting. More recently, he

added, around the world, cash-strapped Governments were following the UK in turning to Public Private Partnerships (PPPs) to fund projects.

Concurring with Mimicopoulos, the Namibian Government could also use a mix of the two mentioned funding strategies for its e-Government projects. By issuing bonds, they would be able to raise some of the capital needed to run e-Government projects. On the other hand, brining on-board the Private Sector would allow them to reap some of the benefits like high technical skills that they offer, including efficiency.

2.1 Summary

As can be seen from the literature reviewed, it is evident that many of the capacities mentioned are similar in one way or the other. To ensure the successful implementation of e-Governance in Namibia, it is clear that a critical assessment of the various capacities around the country and within Government itself has to be undertaken. The government needs to identify and put together a strong e-Governance capacity building program in order to compliment what is already being done. This may include, among others, investing more in ICT infrastructure, educating the people regarding e-Governance, building on the high order technical skills and know-how and securing the necessary funds that are needed to finance the e-Government projects. Furthermore, the Government of Namibia also needs to build a strong legislation surrounding the laws governing e-Government in the country. It is against this background that this study investigates some of these capacities and the relationships that exist between them.

3. RESEARCH METHODOLOGY

The aim of this Chapter is to outline the research methodology used in this study. It looks at the population, sample, design of the research instruments, procedure and also gives an overview of the data analysis. The Chapter also looks at the ethical considerations used in the study.

3.1 Population

The population comprised of IT staff from the Private and Public Sectors, non-IT staff in the Public and Private Sectors, IT/ICT and non-IT/ICT staff at the higher institutions of learning and Namibian citizens aged between eighteen (18) and sixty (60) years old. This population was chosen due to the fact that it gives a relatively fair representation of the people who are likely to be involved in e-Governance in one way or the other.

3.2 Sample

Due to logistical constraints, convenience sampling method was used. This is a statistical method of drawing representative data by selecting people because of the ease of their volunteering or selecting units because of their availability or easy access. However, in order to have a representative sample, respondents included in the study were selected randomly from different categories of the target population. Thus, the sample consisted of a total of two hundred participants. These included: twenty-one (21) key IT Managers from the Private and Public Sectors. Of these, six (6) were from the Private Sector and the fifteen (15) from the Public Sector. Ten (10) senior non-IT Managers in the Public Sector, seventy-five (75) ordinary government employees and ninety-four (94) Namibian citizens were chosen.

3.3 Design of Research Instruments

Data was collected through a structured questionnaire that consisted of two (2) Sections. The first Section was completed by government employees while the second Sectioned was done by the General Public.

The first Section sought information on different variables such as the respondents’ gender, age group, O/M/A they work for, current position, education level, work experience, possession of project management skills, how official tasks are done, familiarity of e-Governance, most important benefit of e-Governance, involvement in e-Government, role played in e-Government projects, whether they feel actively involved, reasons for non-involvement and their conviction that Government will deliver services better with the implementation of e-Government. Respondents were also provided with space to add any additional comments.

The second Section also sought similar information with a little variation from that of the first one. It collected data on variables such as gender, age group, profession, education level, monthly income, access to Internet connectivity at home, amount paid for such connections, frequency of accessing the Internet, devices owned by respondents, which device used to access the Internet the most, how much they paid for each device, whether respondents know what e-Governance is, the most important benefit and whether respondents felt that the Government was doing enough to sensitise them on e-Government. This Section also had open ended questions which allowed them to give suggestions that the Government could do to improve sensitising them on e-Governance and also to add any contributions and comments they felt like sharing regarding the subject matter.

3.4 Procedure

The questionnaire was administered to the two sets of respondents from the sample, namely, the government employees and the General Public. Data from the questionnaires was first coded and then entered into a Statistical Program for Social Scientists (SPSS) by the researcher. Data entry clerks were recruited to speed up the data entry. A data cleaning process was conducted by the researcher through random selection of particular entries and cross checking with questionnaires so as to maintain the integrity of the data set.

3.5 Data Analysis

Descriptive Statistics such as graphs were used to establish the structure of the data. Pie charts, bar graphs and histograms were used to summarize the demographic information. Chi-square tests and detailed analysis of graphs were used to explore relationships between the selected variables. The findings and analysis of the data collected are presented in Chapter 4 while the discussion is stipulated in Chapter 5.

3.6 Research Ethics

The researcher ensured that confidentiality was observed in order to protect the participants of the research. All questionnaires were anonymous so as not to disclose the identities of the participants. Permission was also sought from the relevant authorities such as designated Heads of Departments and Managers when seeking access to data of a sensitive nature. Appointments with various stakeholders were also made in advance in order for them to schedule time for the researcher to collect the required information. All the data collected was used solely for the intended purpose only.

4. DATA ANALYSIS AND FINDINGS

This Chapter presents the statements of data analysis and results of the study by way of charts, graphs, tables and statistical tests with a view towards answering the research questions. The first Section of the Chapter deals with demographic structure of the data while the second Section deals with a detailed analysis of the data followed by a presentation of results and findings.

Data was grouped into two sets, with the first set, hereinafter referred to as “Government Employees” comprising responses from subjects employed in the various OMAs. These were further broken down into the following three categories:

1. Operational/Support Staff
2. Middle Management
3. Senior Management

The second set, hereinafter referred to as “General Public” was broken down into eight (8) different categories representing the various professions that the respondent’s belonged to. These were:

1. Engineering
2. Management
3. Hospitality
4. Information Technology
5. Health
6. Education
7. Students
8. Other

4.1 Data Structure

4.1.1 Descriptive (Government Employees)

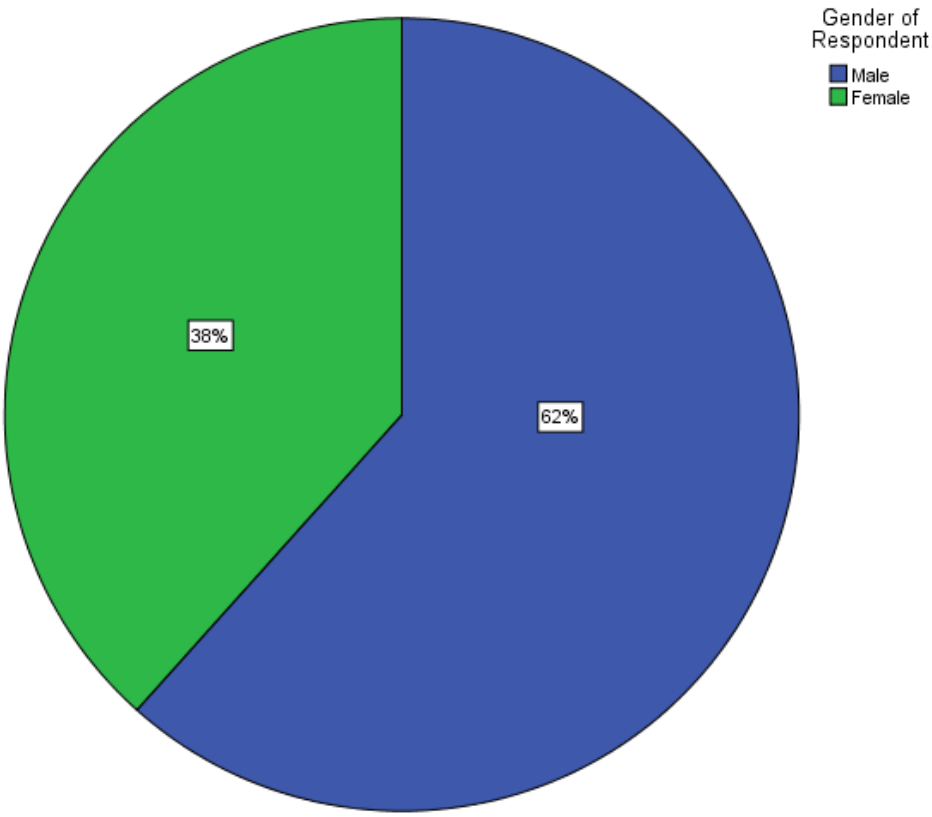

Figure 4.1: Respondents According to Gender

From Figure 4.1 we observe that the majority of the respondents among government employees in this study where male (62%) and the rest female.

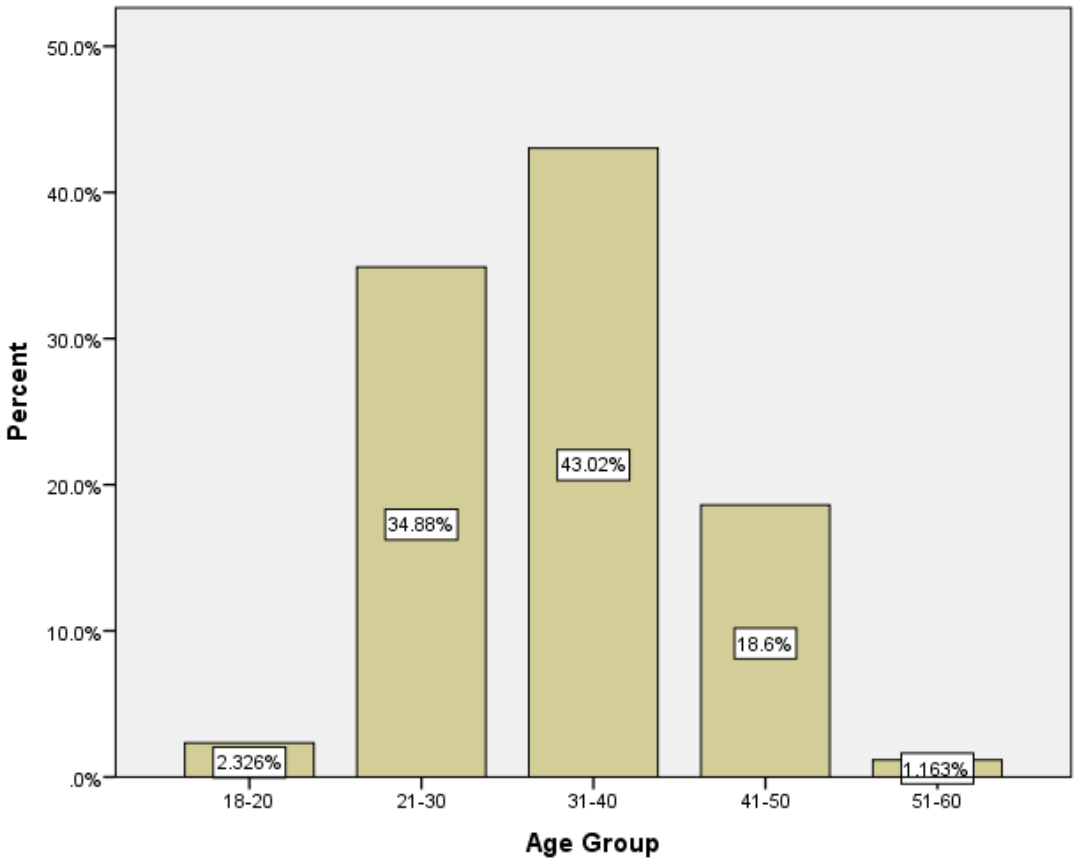

Figure 4.2: Respondents According to Age Group

It is evident from Figure 4.2 that the distribution of the age- group in the sample of government employees is fairly normal as the data is not skewed to either the left or the right and the majority of the observations are located around the center.

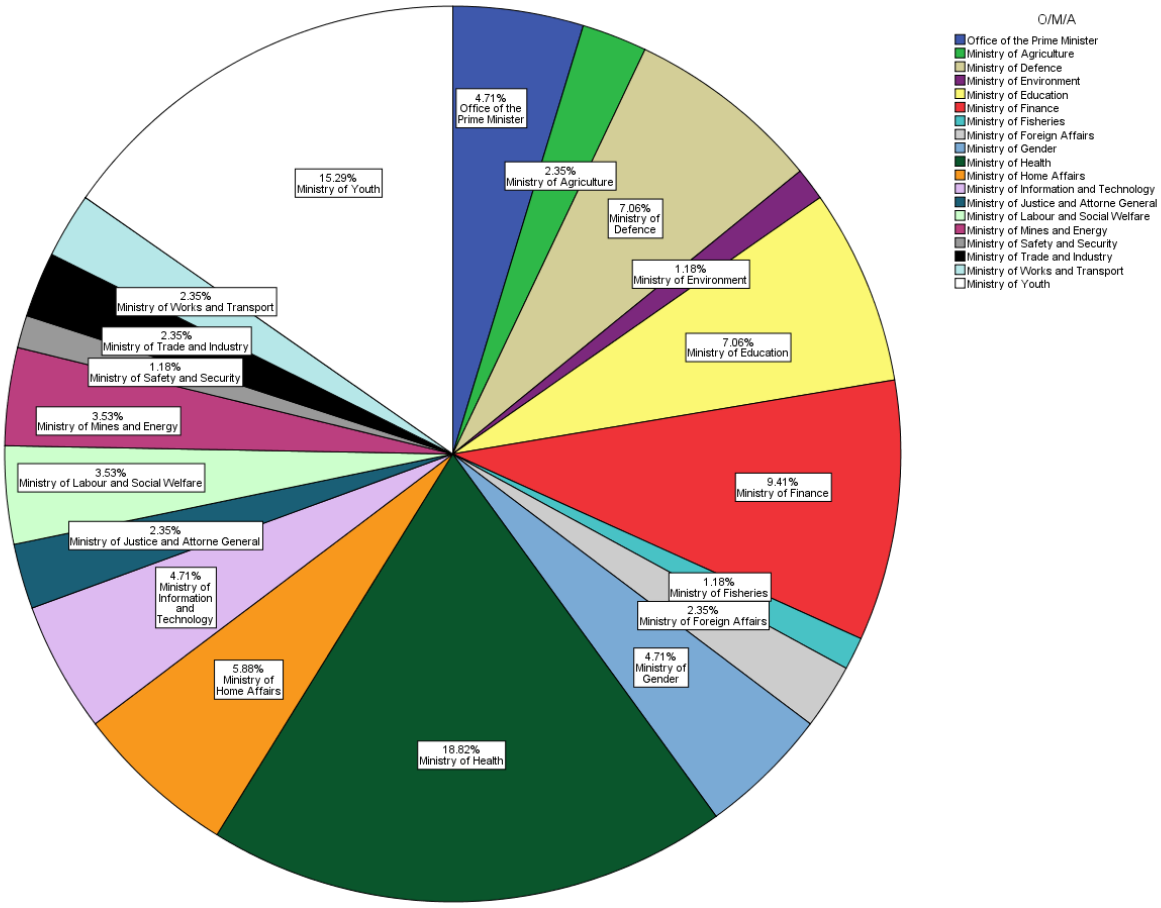

Figure 4.3: Respondents According to Employing O/M/A

From Figure 4.3 we observe that the majority of respondents in the sample of government employees work for the Ministry of Health and Social Services (19%), followed closely by the Ministry of Youth Sport and Culture (15%).

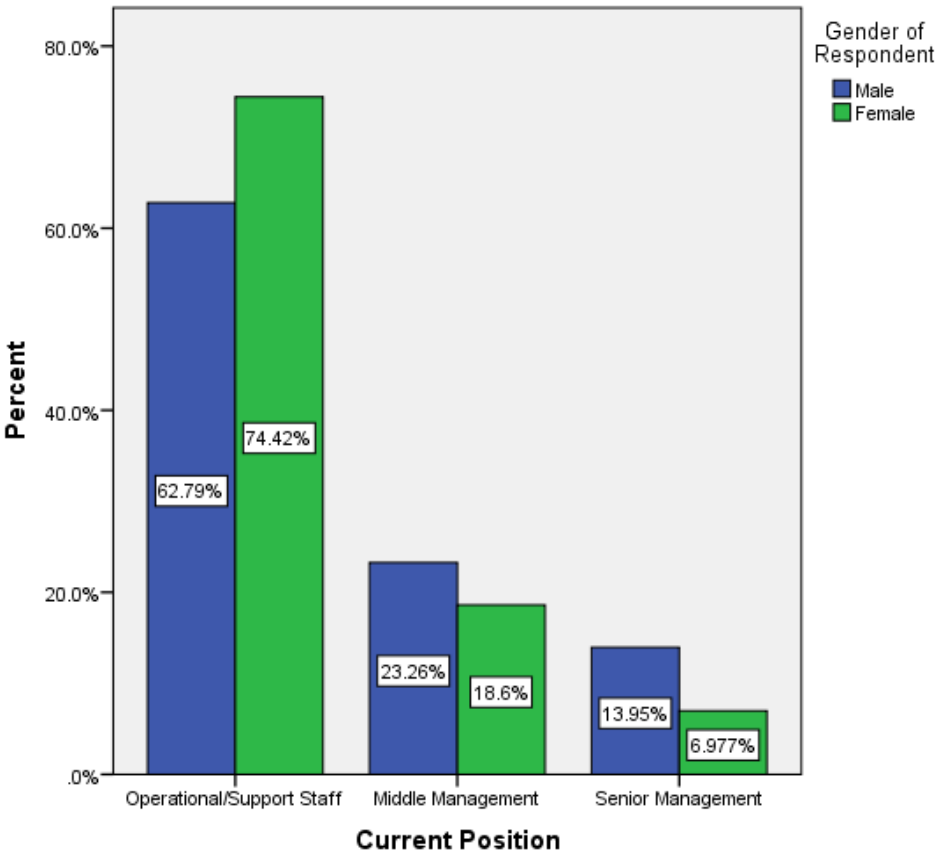

Figure 4.4: Current Position of Respondents

Figure 4.4 illustrates that the majority of respondents in the sample of government employees where operational/support staff, of which the majority where female. We also observe that middle and senior management positions are dominated by males.

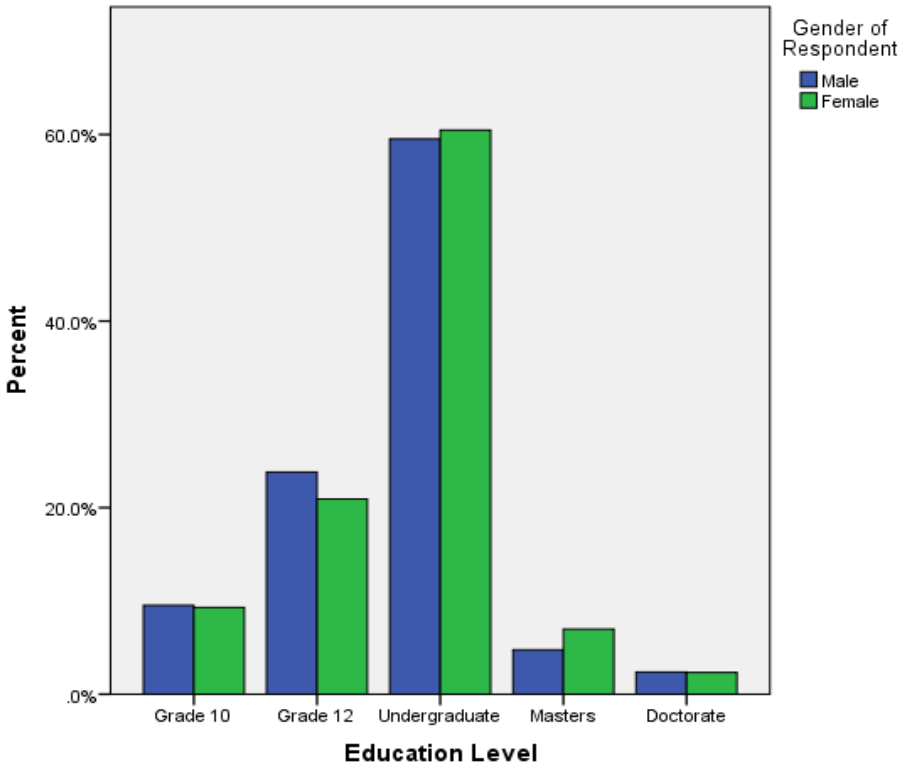

Figure 4.5: Education Level of Respondents

We deduce from Figure 4.5 that the majority of respondents in the sample of government employees where holders of undergraduate degrees closely followed by those with grade 12 school leaving qualification certificates.

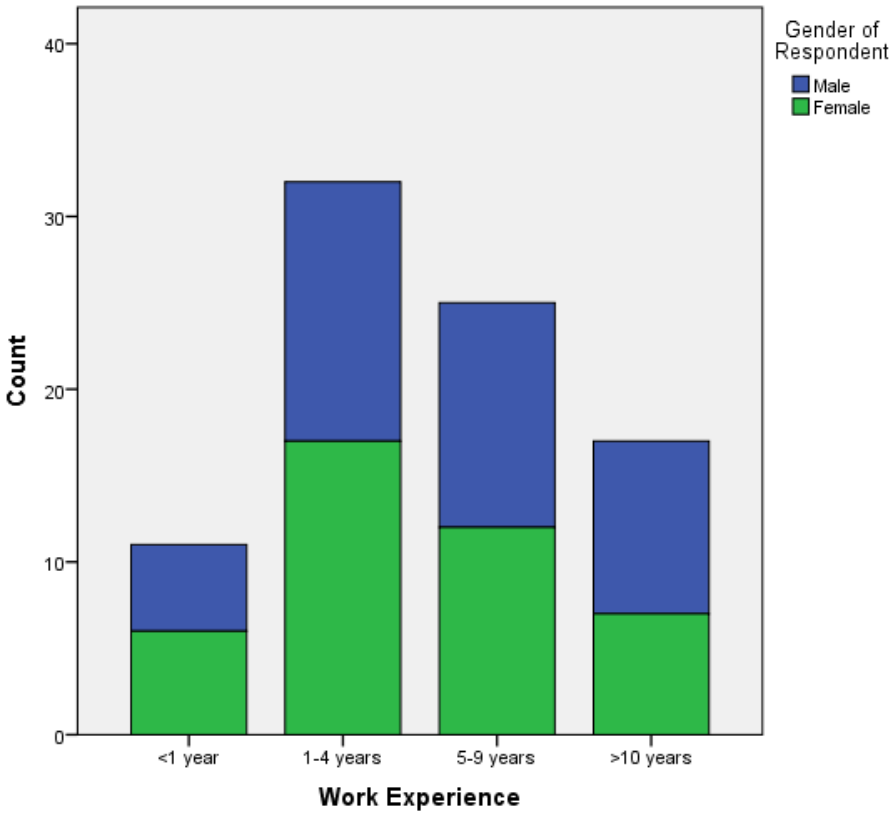

Figure 4.6: Work Experience of Respondents

Figure 4.6 illustrates that the majority of respondents in the sample of government employees had work experience of between 1 and 4 years, with female employees as the majority with this experience. These are followed by those with experience of between 5 and 9 years, of which males are the majority in this category.

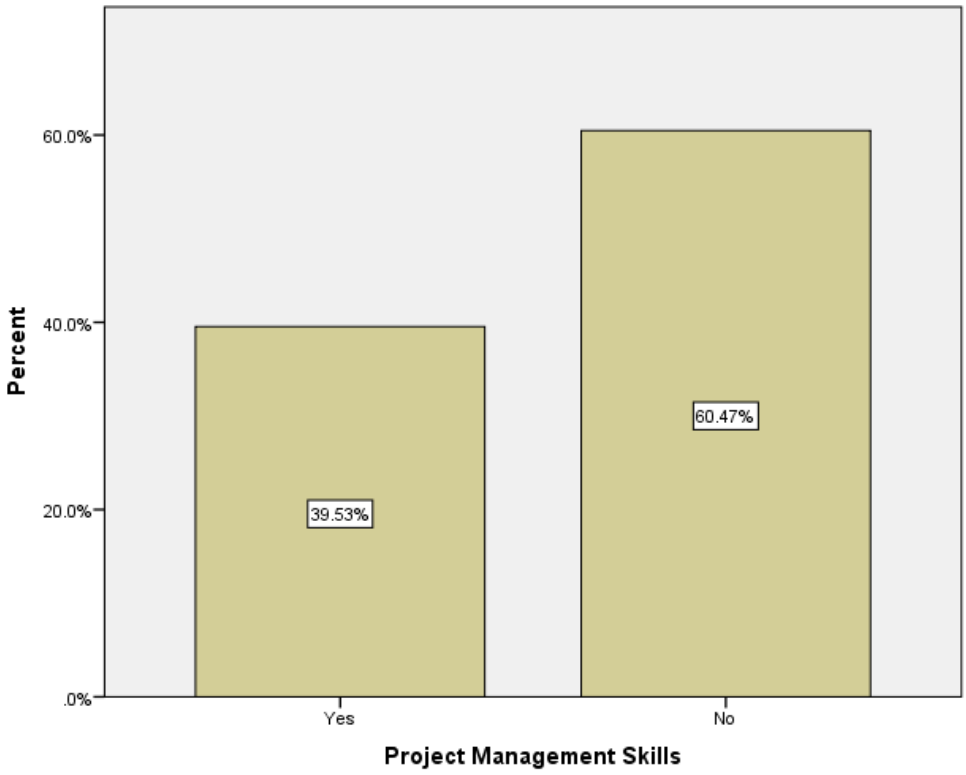

Figure 4.7: Project Management Skills of Respondents

Figure 4.7 shows that the majority of respondents (61%) in the sample of government employees do not have project management skills.

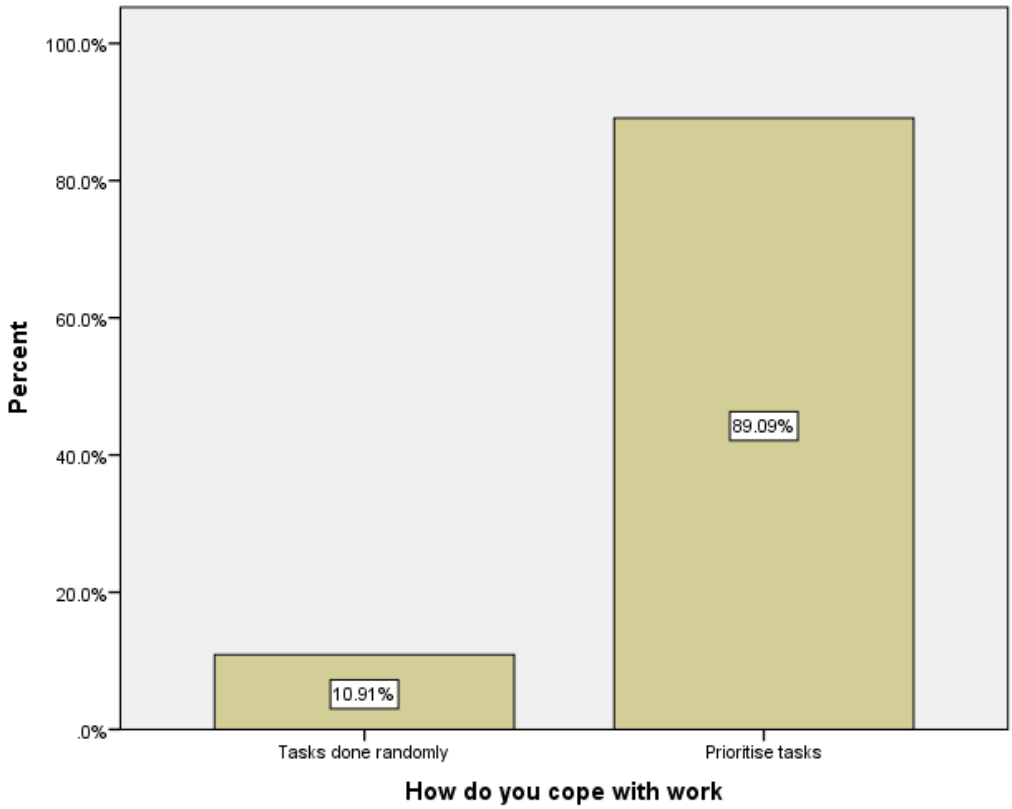

Figure 4.8: Ways of Coping with Tasks

Figure 4.8 shows that 89% of respondents in the sample of government employees that do not possess project management skills cope with work by prioritising tasks.

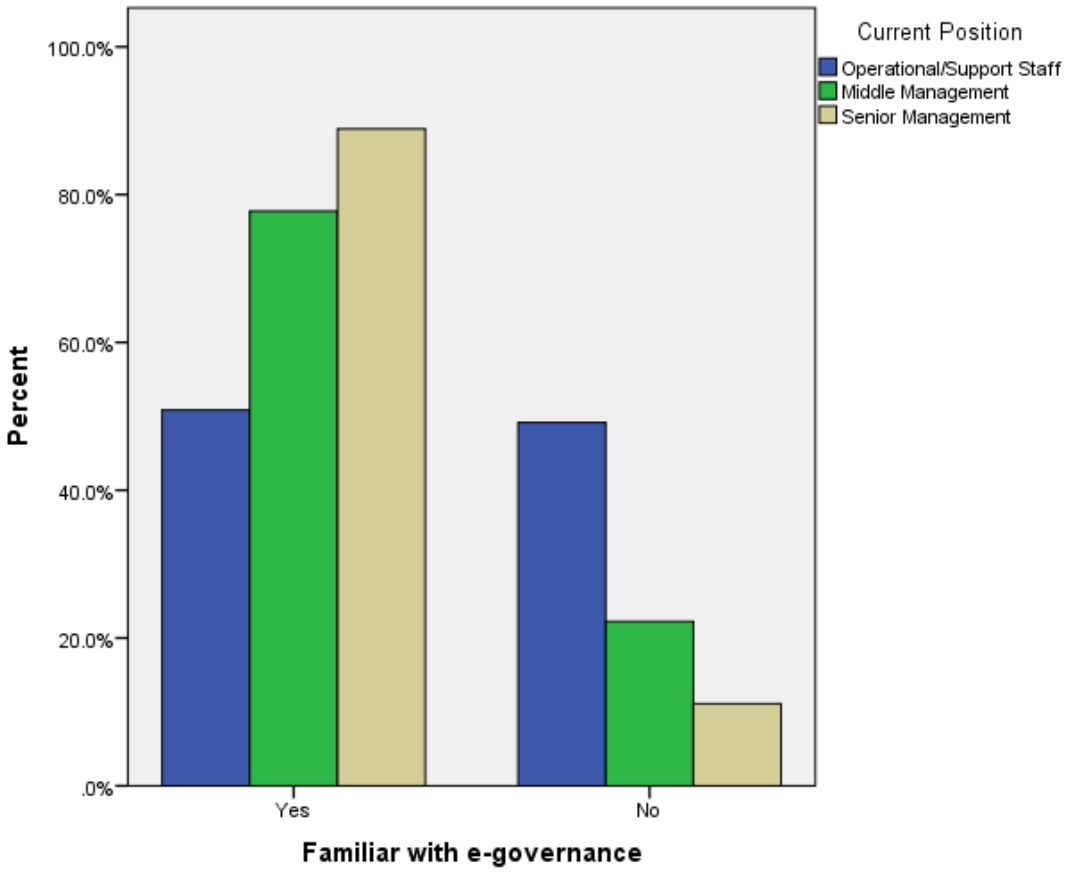

Figure 4.9: Familiarity with e-Governance of Respondents

Figure 4.9 illustrates that the majority of respondents in the sample of government employees are familiar with e-Governance, we also observe that senior management are most familiar.

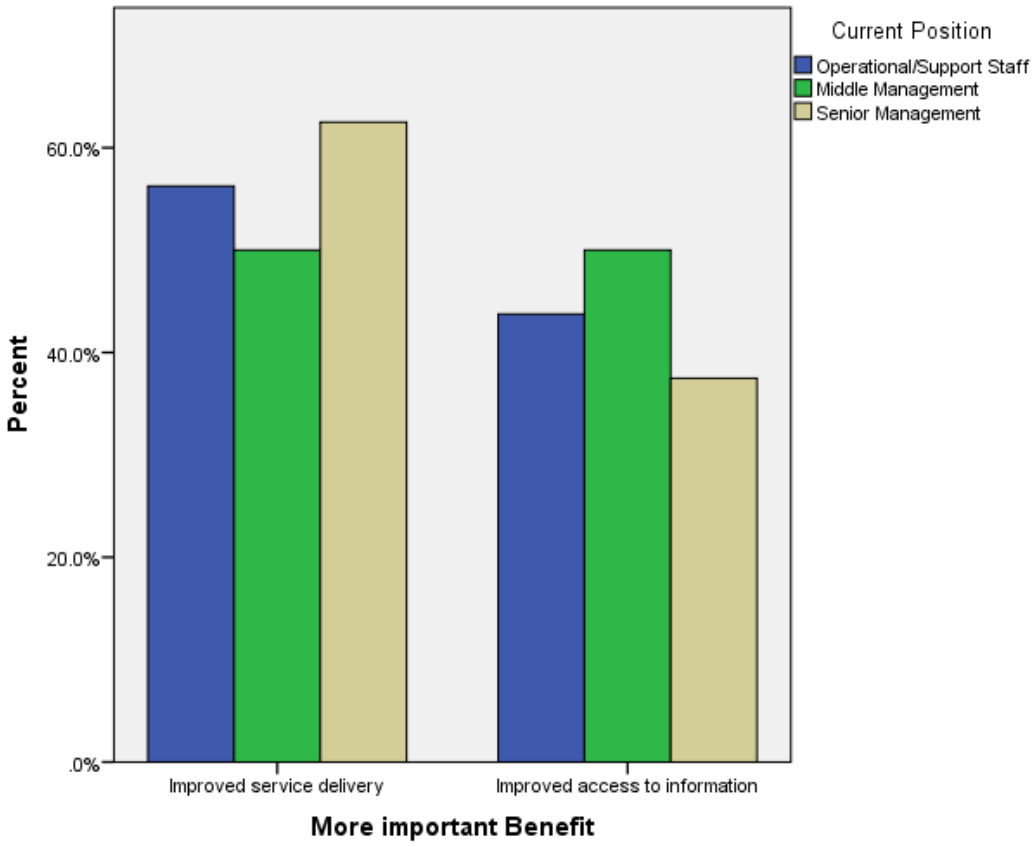

Figure 4.10: Important e-Governance Benefit

From Figure 4.10, we observe that the majority of respondents in the sample of government employees believe the most important benefit of e-Governance is improved service delivery. We also note that employees in middle management dominate the group of respondents that believe the most important benefit of e-Governance is improved access to information.

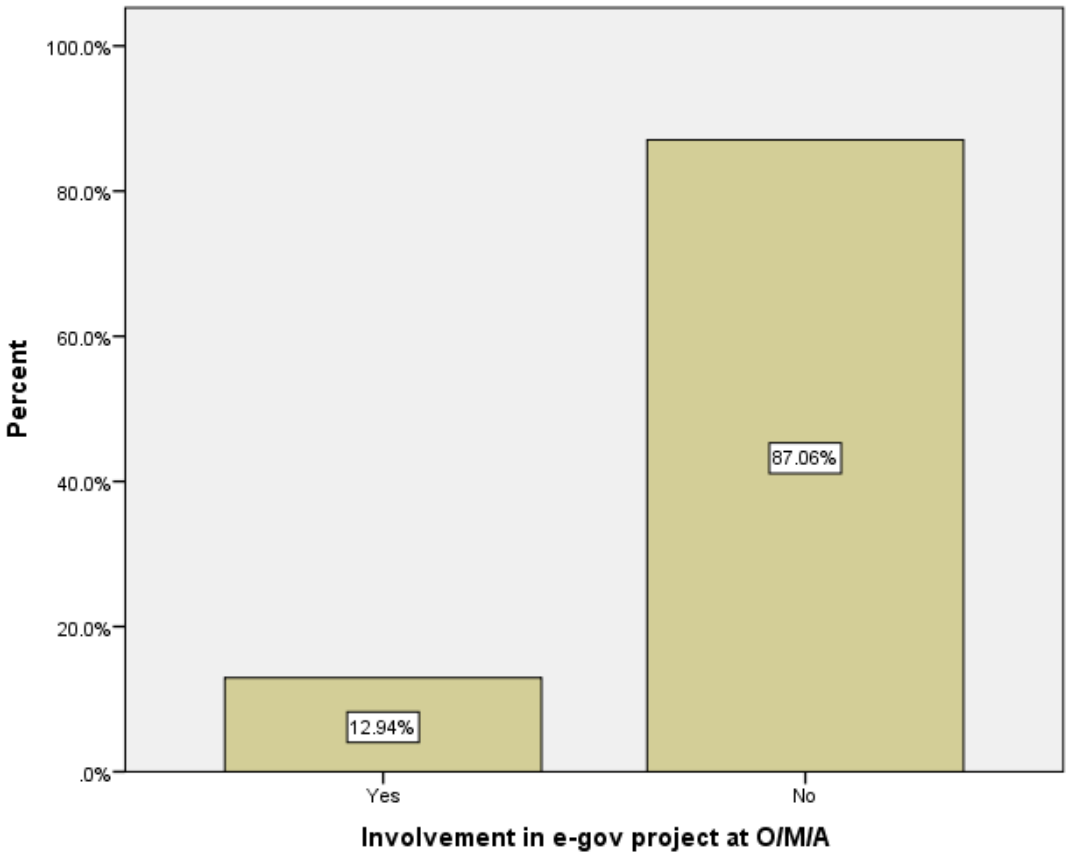

Figure 4.11a: e-Government Project Involvement

It is clear from Figure 4.11a that the majority (87%) of respondents in the sample of government employees are not involved in e-Government projects in their respective O/M/A’s.

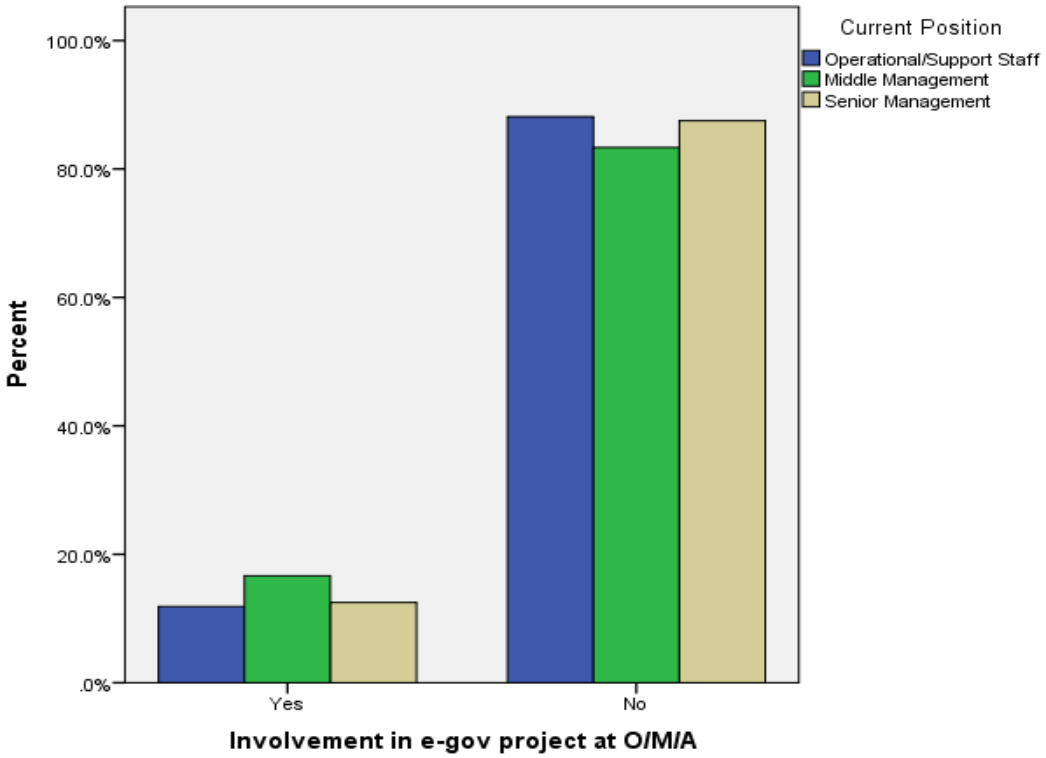

Figure 4.11b: Details of e-Government Project Involvement

Figure 4.11b follows from the simple bar graph in Figure 4.11a. It shows that employees in middle management dominate in terms of e-Government involvement.

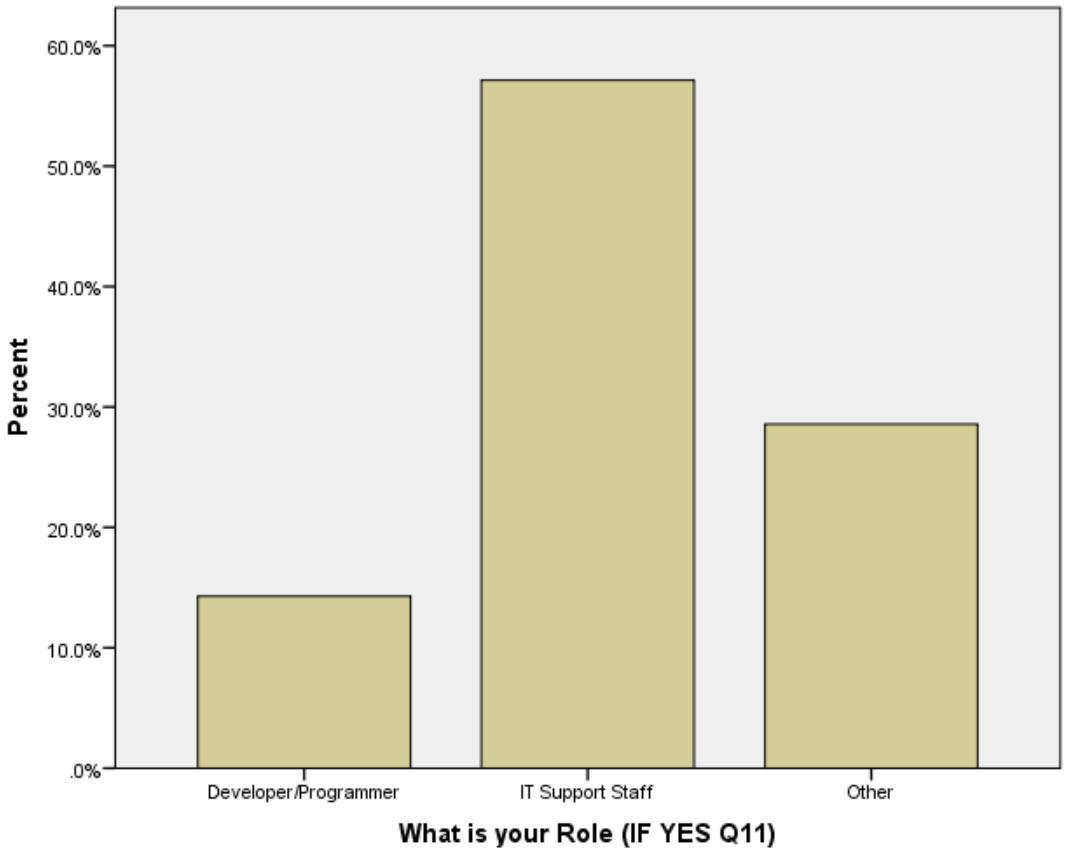

Figure 4.12a: Respondents Role in e-Government Project

Figure 4.12a follows from Figure 4.11b above and it reveals that the majority of those involved in e-Government projects are IT support staff.

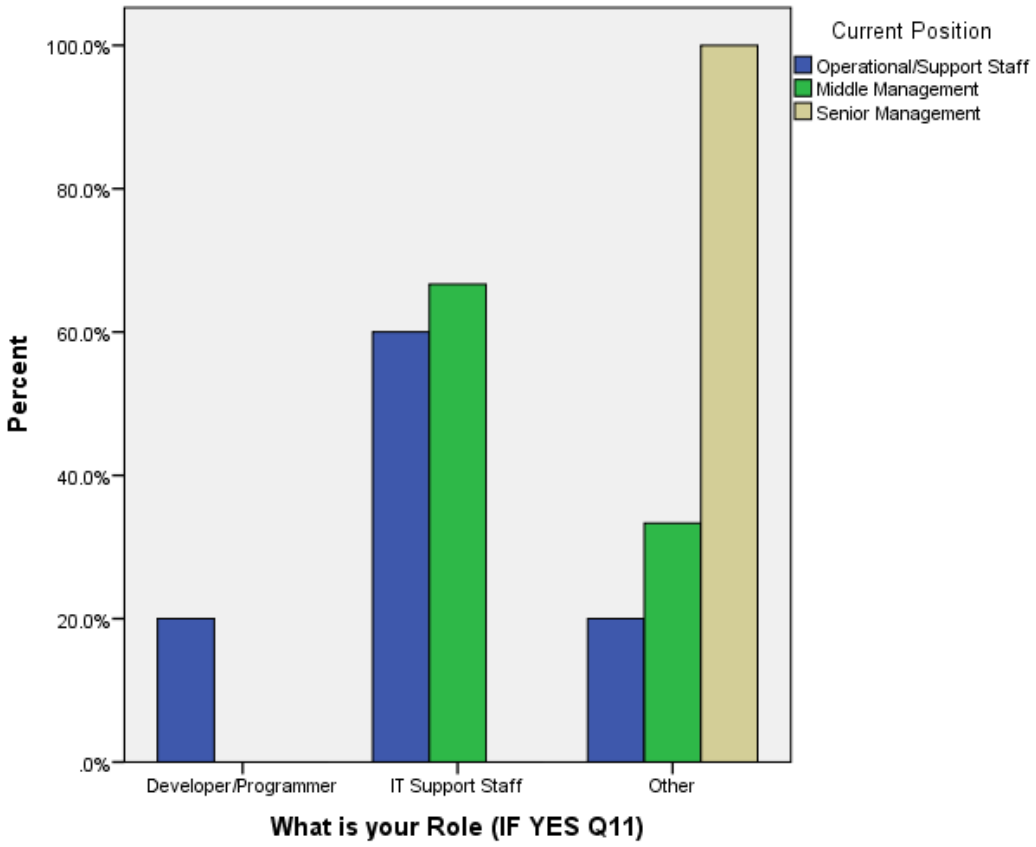

Figure 4.12b: Details of Respondents Role in e-Government Project

Figure 4.12b further illustrates that the majority of IT staff in the sample of government employees are in middle management. We also observe that all the developers/programmers in this sample are operational/support staff in their respective O/M/A's.

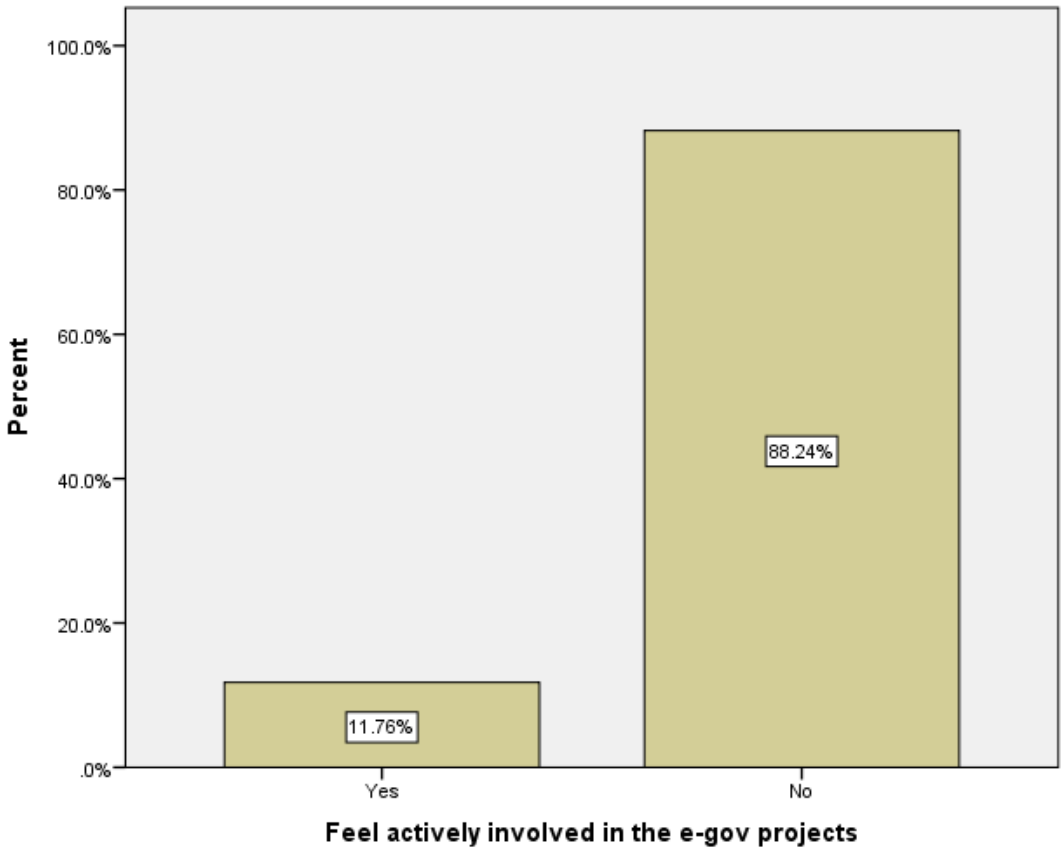

Figure 4.13a: Actively Involved in e-Government Projects

We observe from Figure 4.13a that 88% of the respondents from the sample of government employees feel they are not actively involved in e-Government projects.

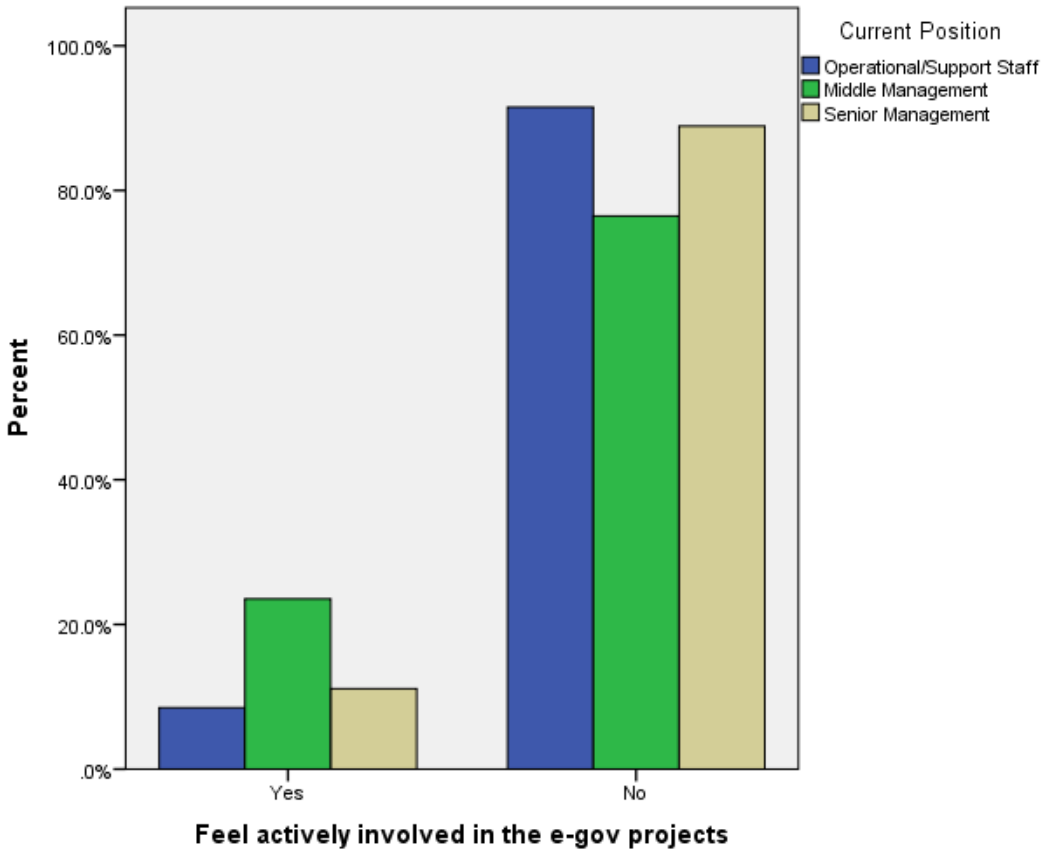

Figure 4.13b: Details of Actively Involved in e-Government Projects

Figure 4.13b follows from Figure 4.13a and illustrates that among the respondents that feel actively involved in e-Government projects, the majority are in Middle Management.

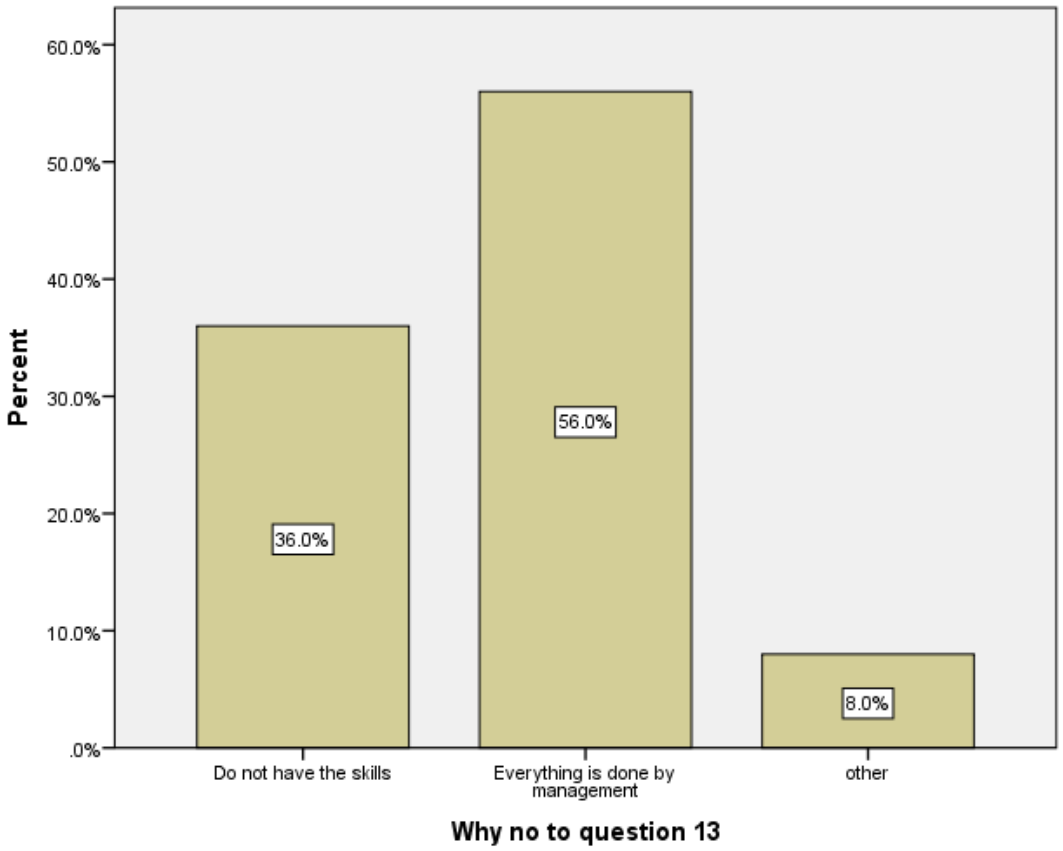

Figure 4.14: Reason for Non-involvement in e-Government Projects

From Figure 4.14 we see that 56% of the respondents in the sample of government employees that felt they are not actively involved in e-Government projects claimed their lack of involvement was on account of “everything being done by management”.

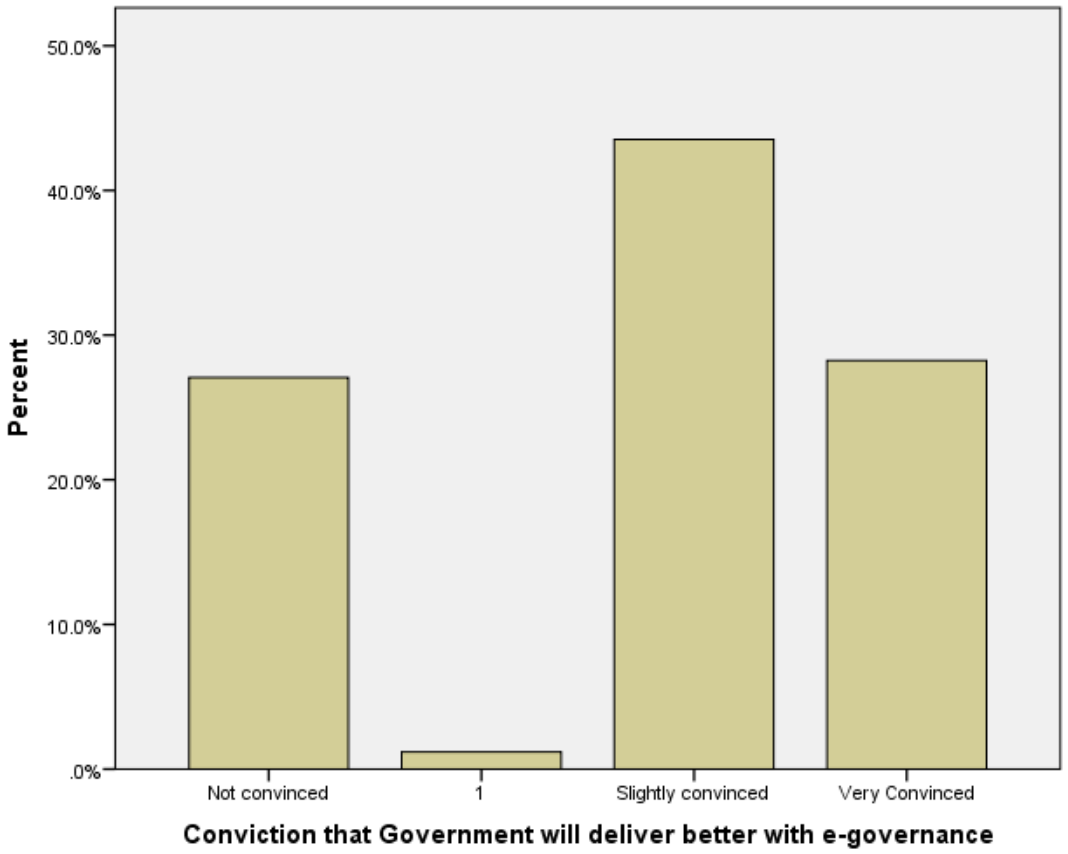

Figure 4.15a: Respondents Conviction of e-Governance Success

Figure 4.15a clearly illustrates that the majority of respondents in the sample of government employees are slightly convinced that the Government will be able to deliver information and services better with the implementation of e-Governance.

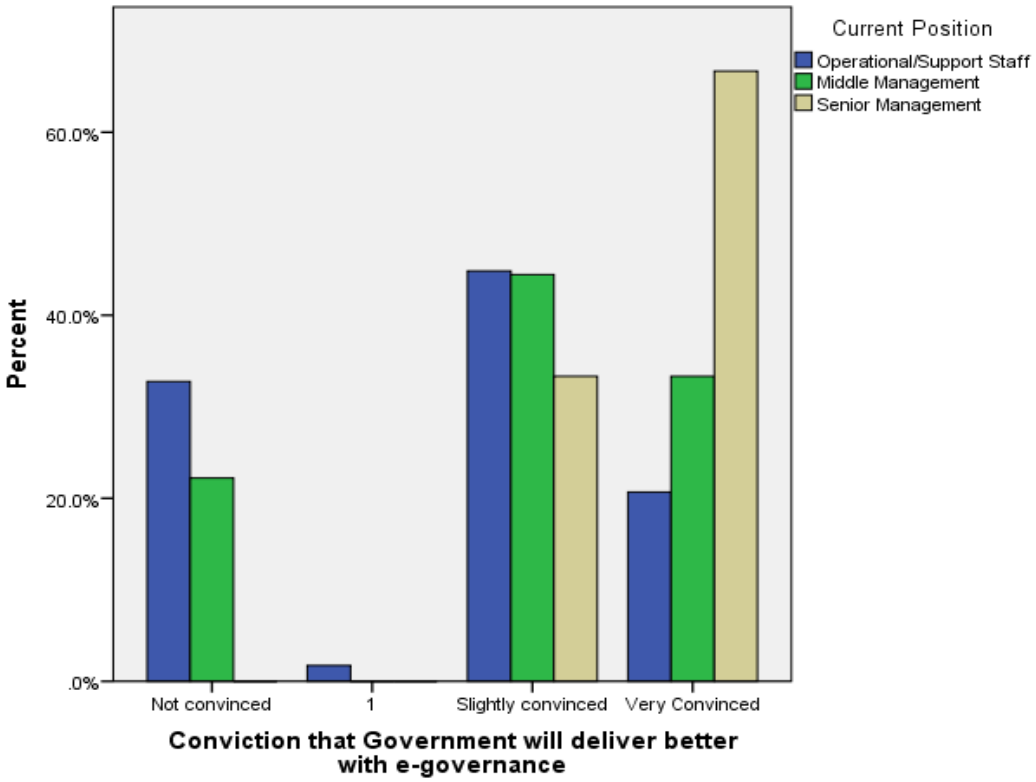

Figure 4.15b: Conviction of e-Governance Success and Current Position

Figure 4.15b follows from Figure 4.15a and shows that the majority of senior management employees in the sample of government employees are very convinced that the Government will be able to deliver information and services better with the implementation of e-Governance. Notably, only government employees at operational and middle management level reported that they are not convinced by Government’s ability to deliver information and services better with the implementation of e-Governance.

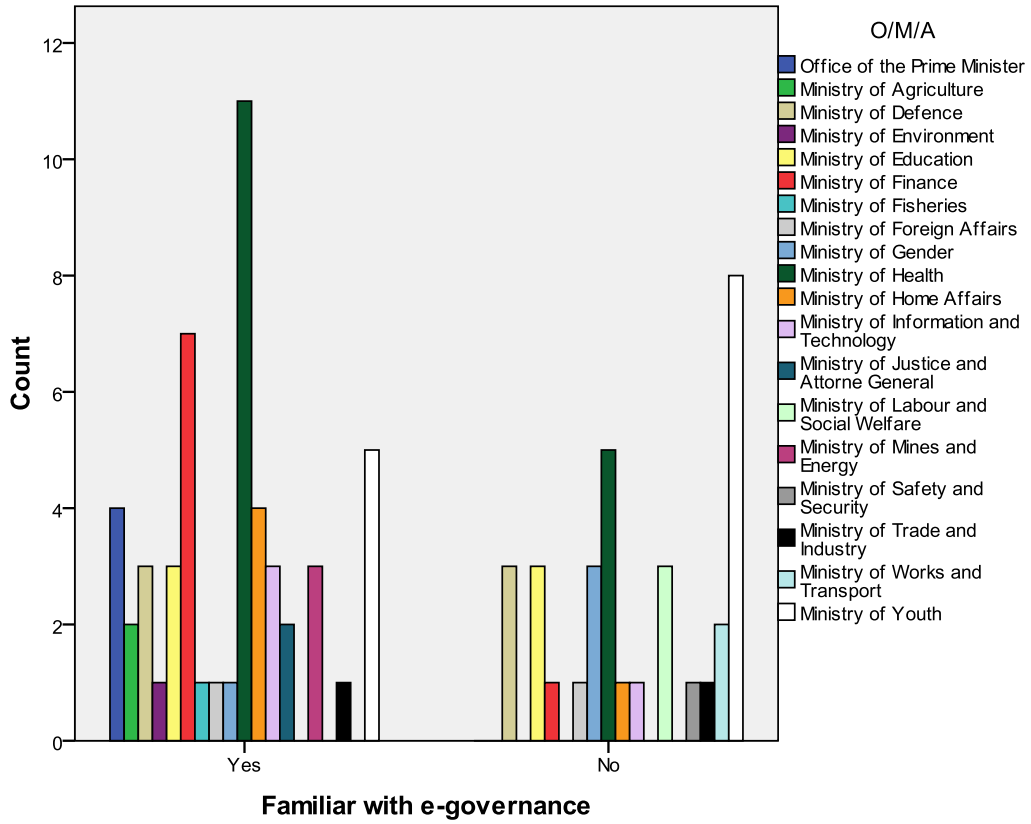

Figure 4.16: Familiarity with e-Governance and O/M/A

From Figure 4.16 we observe that the majority of respondents in the sample who are familiar with e-Governance are from the Ministry of Health while the majority of respondents who are not familiar fall under the Ministry of Youth, National Service, Sport and Culture.

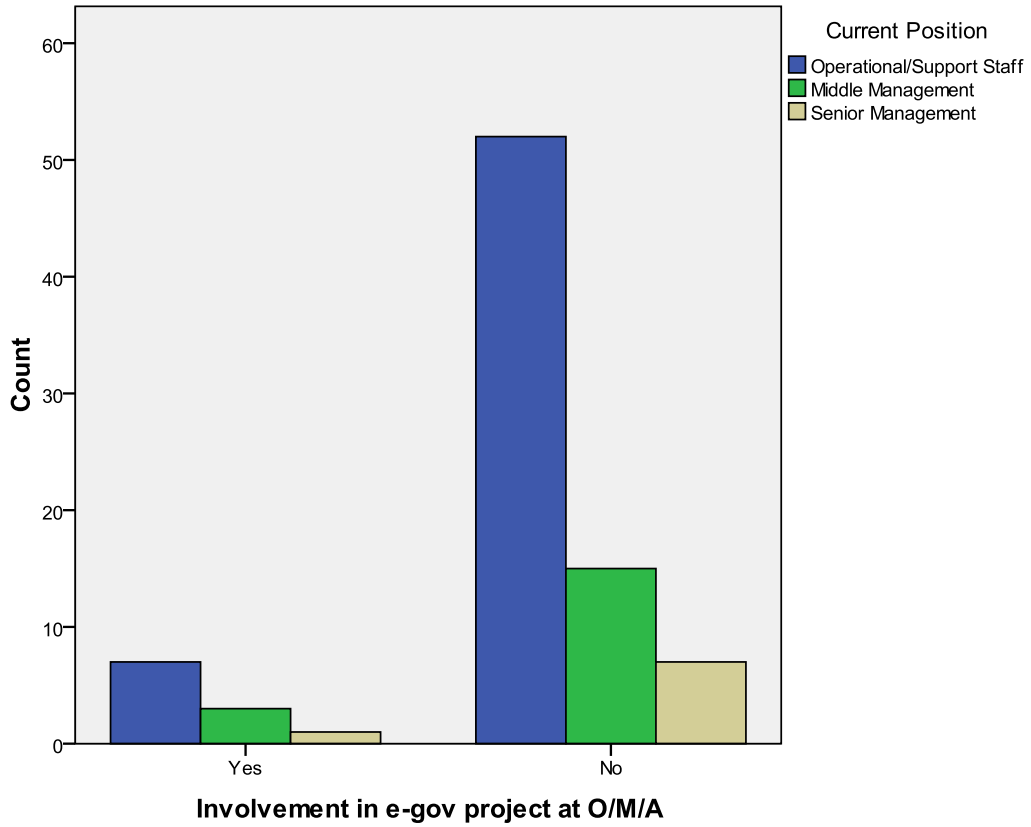

Figure 4.17: Involvement in e-Government Project and Current Position

Figure 4.17 illustrates that the majority of respondents in the sample of government employees from the various O/M/A’s in this study are not involved in e-Government projects. Further, we observe that mostly operational staff are involved in these projects while senior management recorded the least numbers in terms of involvement.

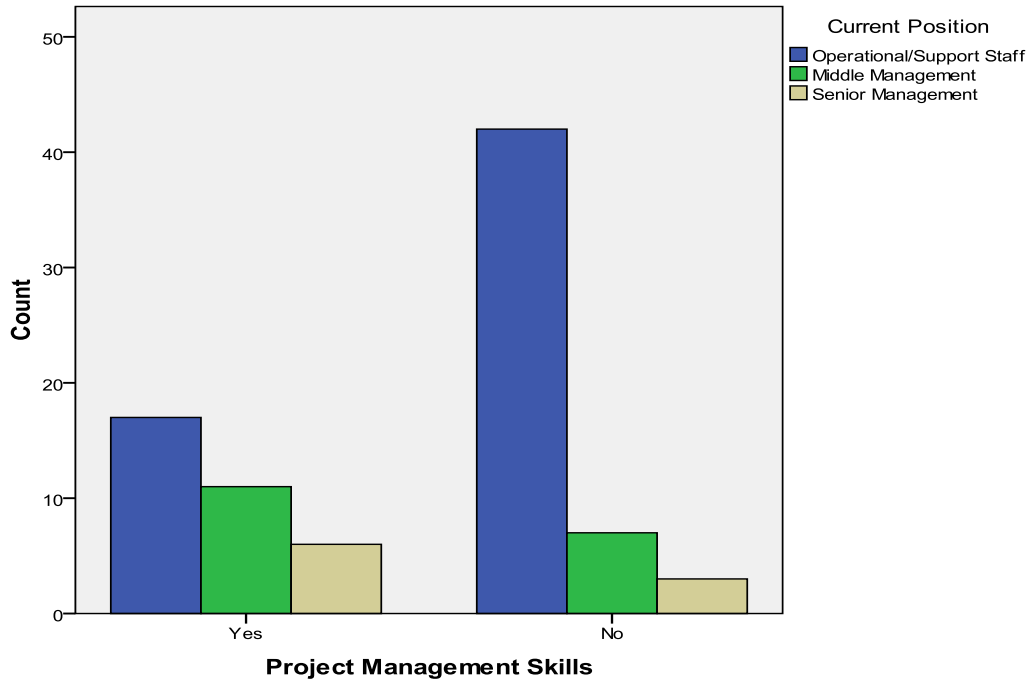

Figure 4.18: Project Management Skills and Current Position

Figure 4.18 depicts that most of the respondents in the sample of government employees do not have project management skills.

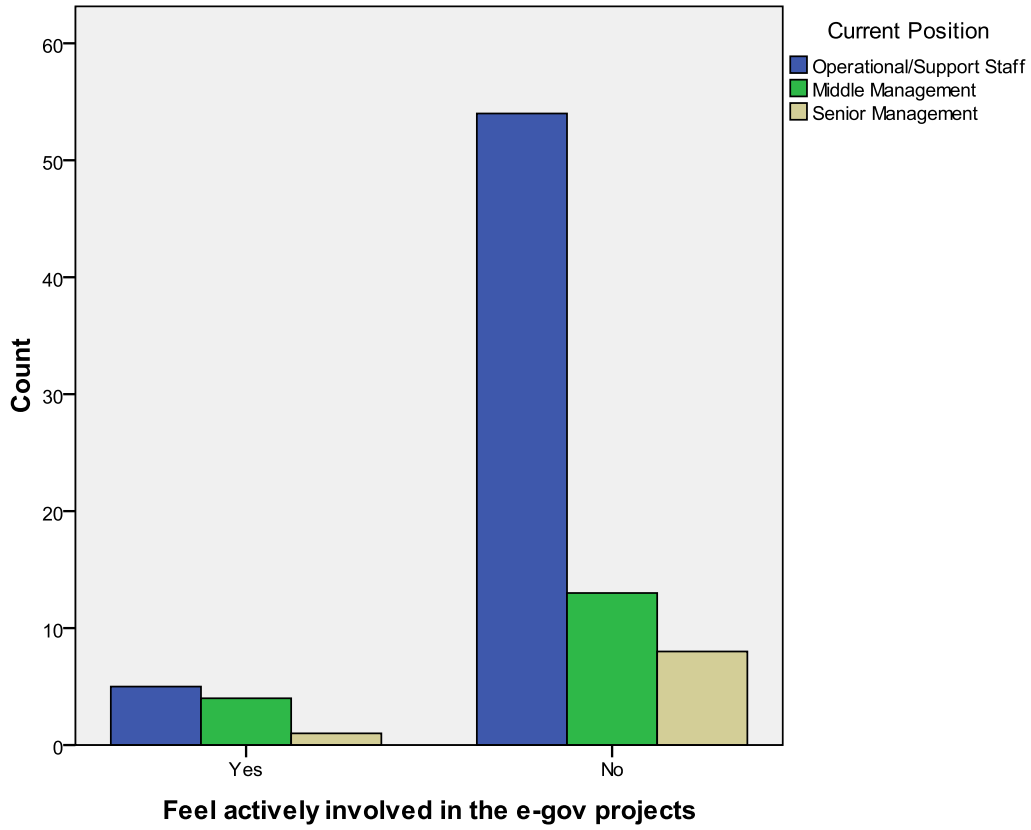

Figure 4.19: Feeling of e-Government Project Involvement and Current Position

We observe from the Figure 4.19 that the majority of respondents in the sample of government employees do not feel actively involved in e-Government projects.

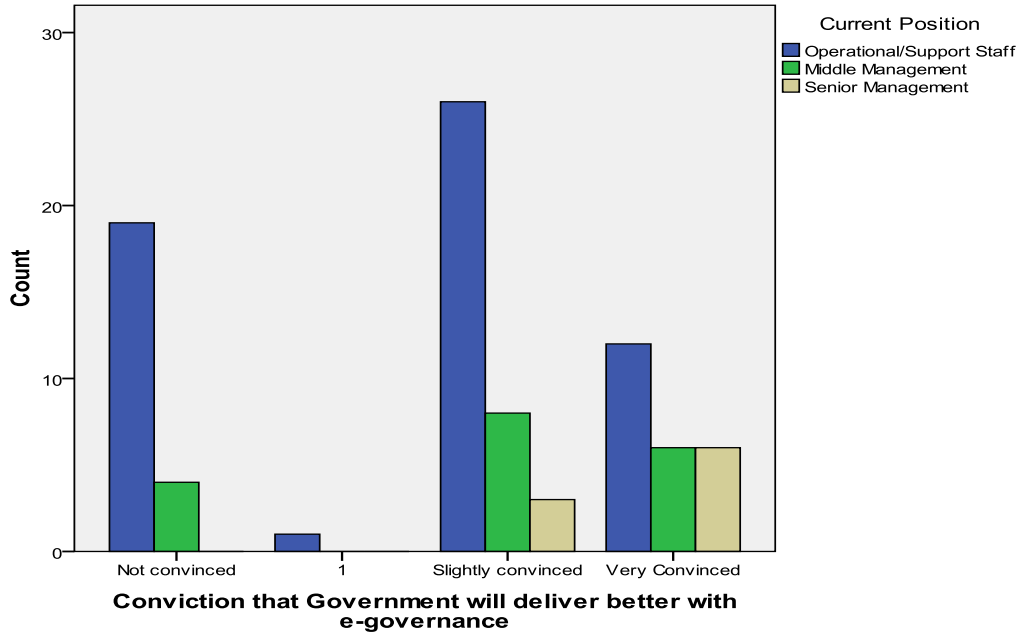

Figure 4.20: Conviction of e-Government Success and Current Position

Figure 4.20 depicts that the majority of respondents in the sample of government employees are only, slightly convinced that Government will deliver information and services better with the implantation of e-governance

4.1.2 Descriptive (General Public)

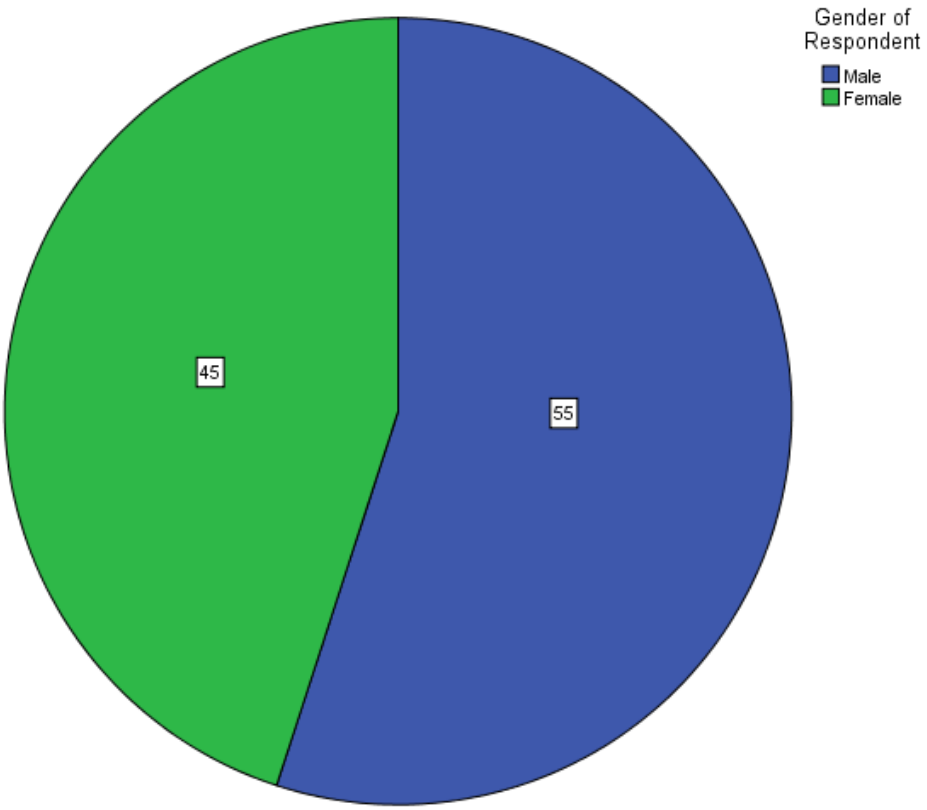

Figure 4.21: Respondents According to Gender

From Figure 4.21 we note that the majority of respondents in the sample of general public were male (55), with 45 female respondents.

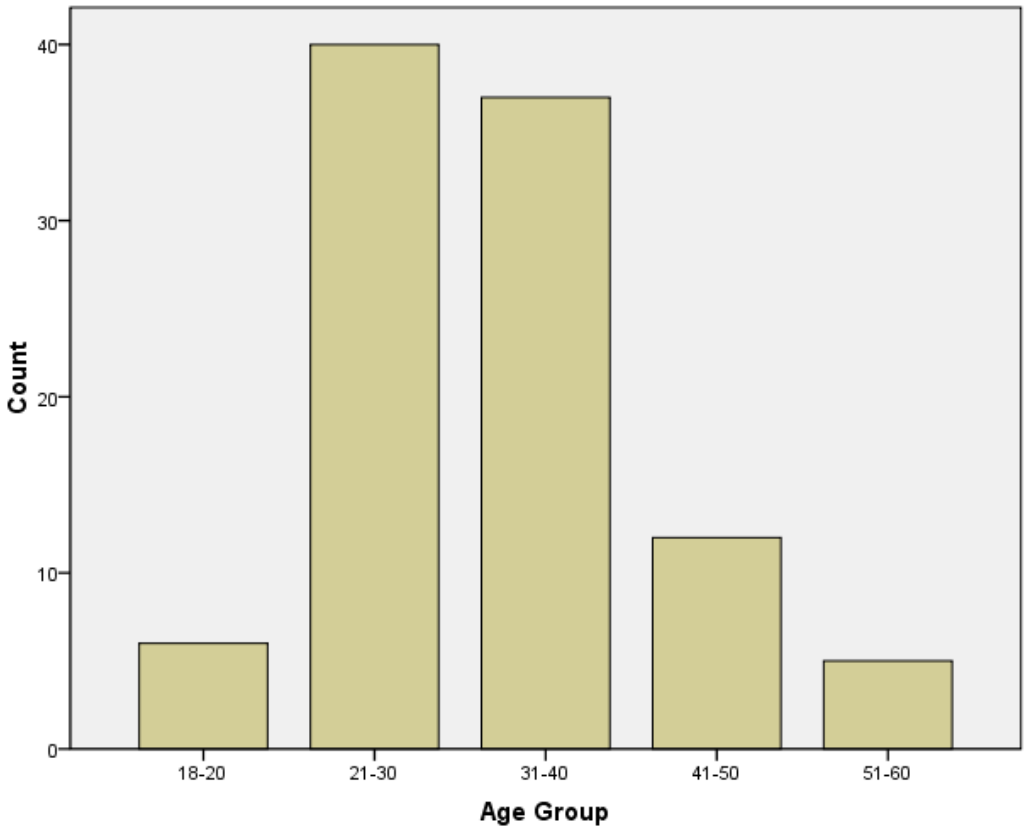

Figure 4.22: Respondents According to Age Group

Figure 4.22 shows that the majority of respondents in the sample of general public where in the age-group 21-30, closely followed by those in the age group 31-40.

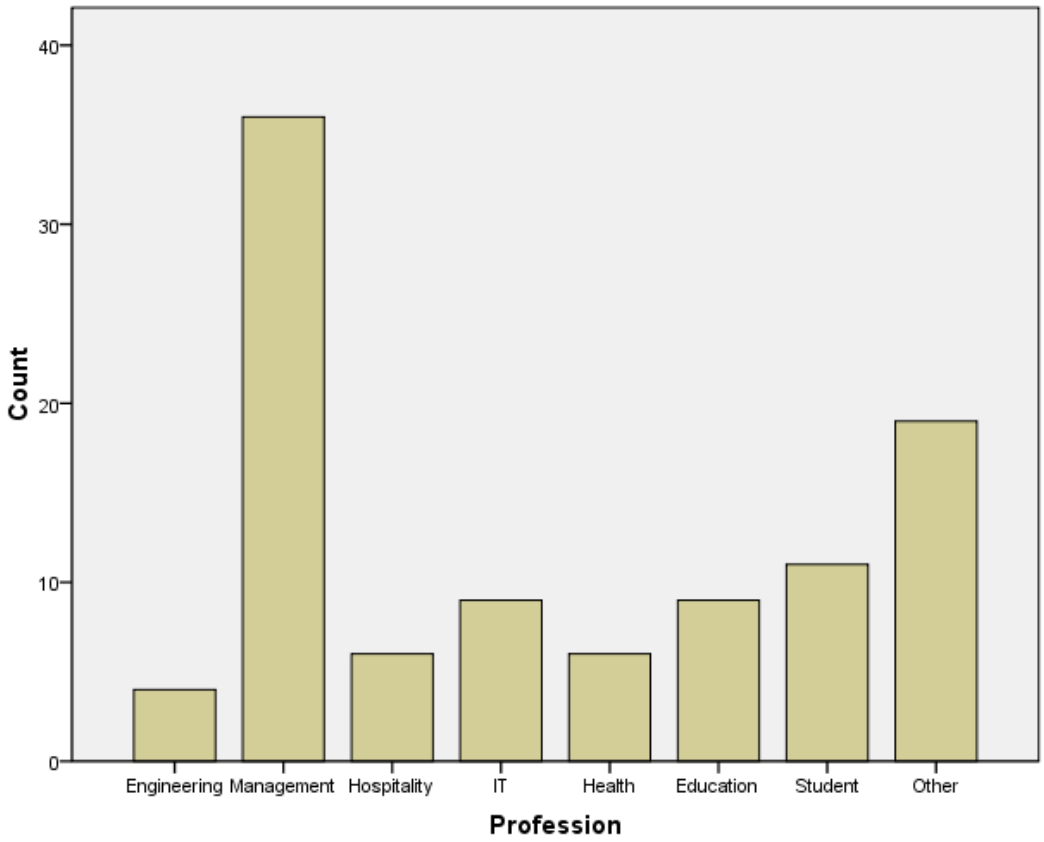

Figure 4.23a: Respondents According to Profession

From Figure 4.23a we note that the majority of respondents in the sample of general public are in the Management profession, which consisted of professions like Accountants, Economists, Secretaries and Administrators.

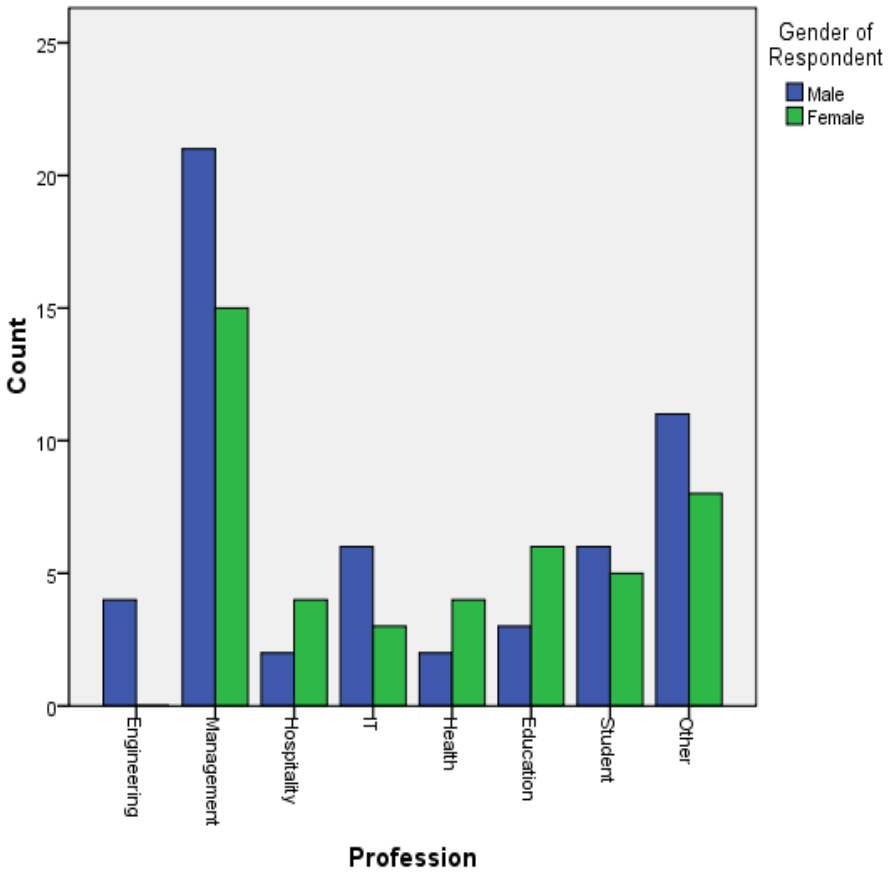

Figure 4.23b: Details of Respondents According to Profession

Figure 4.23b shows that all professions are male dominated except for Health and Education Sectors.

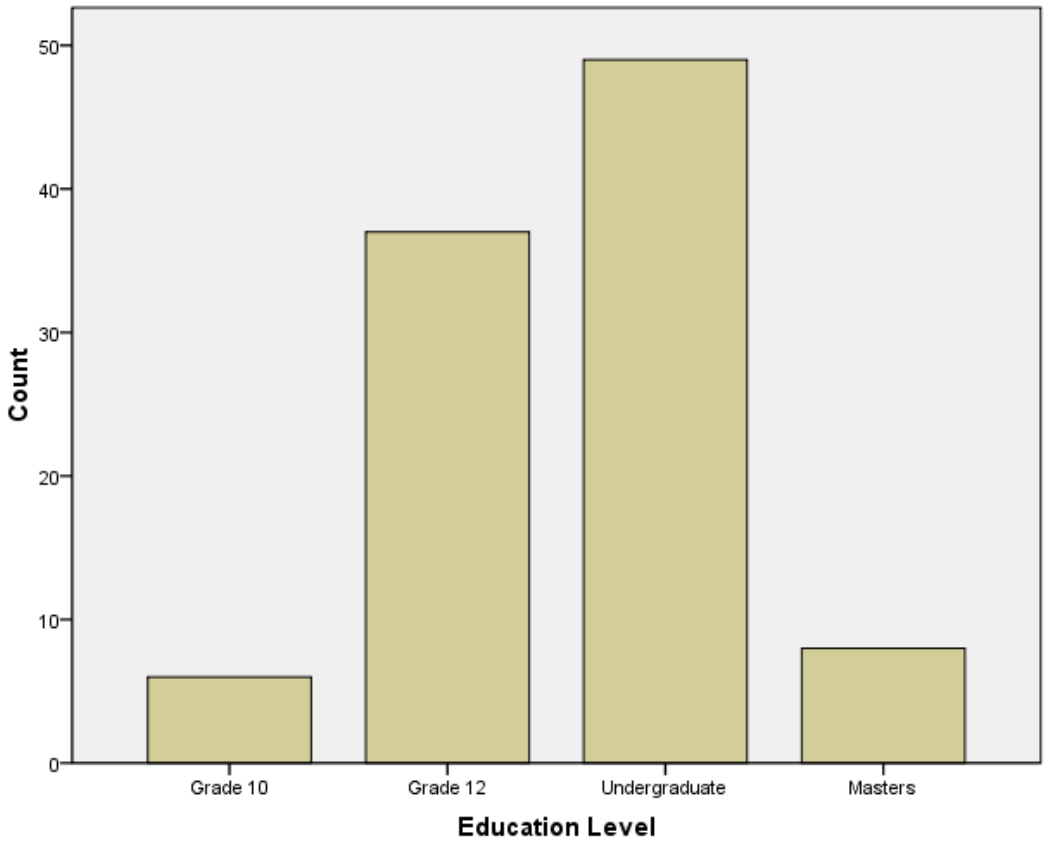

Figure 4.24a Respondents According to Education Level

Figure 4.24a shows that the majority of respondents from the sample of general public have attained an undergraduate qualification closely followed by those whose highest qualification is grade 12 school leaving certificate.

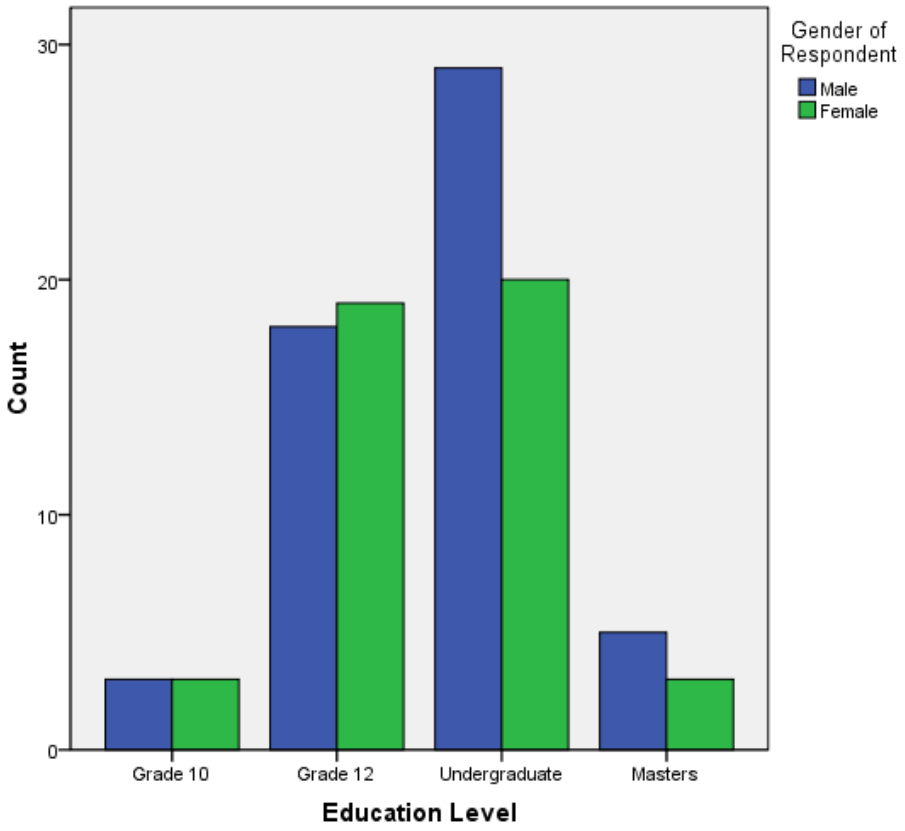

Figure 4.24b Details of Respondents According to Education Level

Figure 4.24b depicts that males in the sample of general public dominated in terms of educational qualifications.

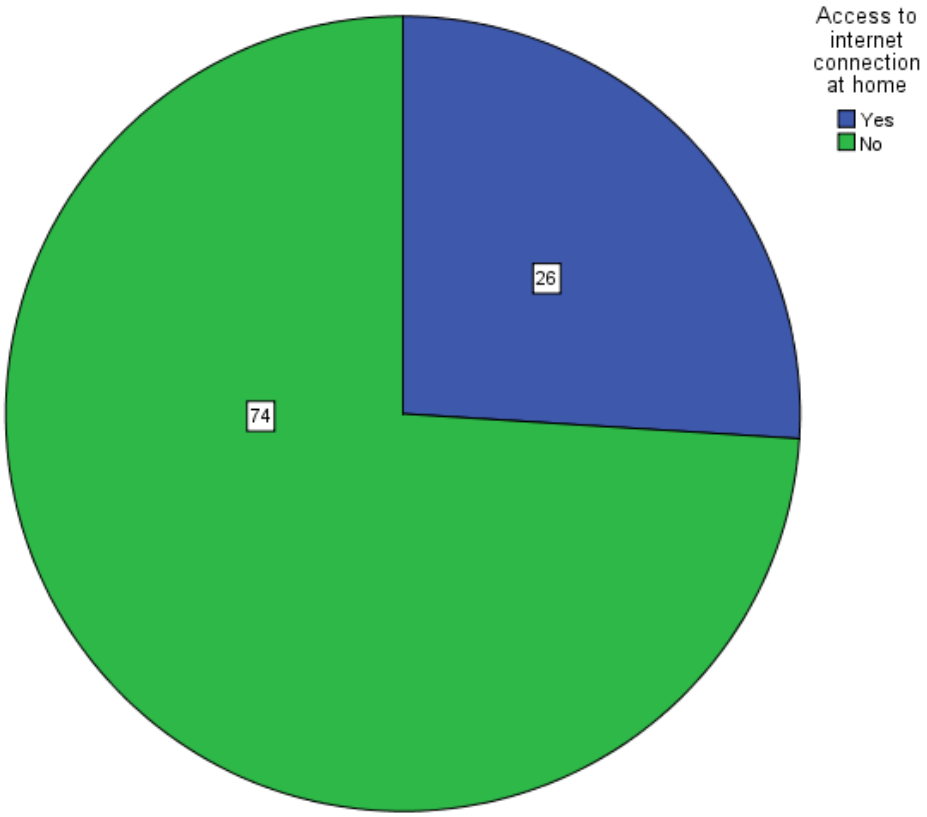

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Figure 4.25: Internet Connection at Home

Figure 4.25 shows that the majority of respondents in the sample do not have access to an Internet connection at home.

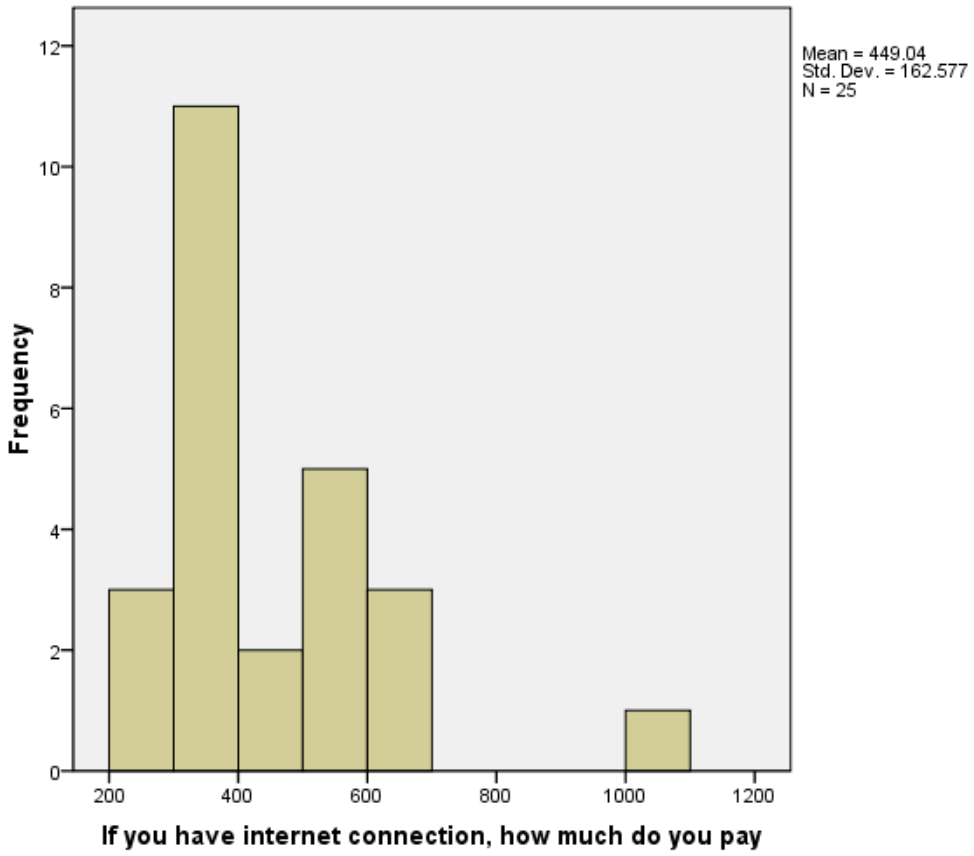

Figure 4.26: Amount Paid for Internet Connection at Home

Figure 4.26 shows that the mean amount spent on household Internet connection is N$449.04 and the data is skewed to the left.

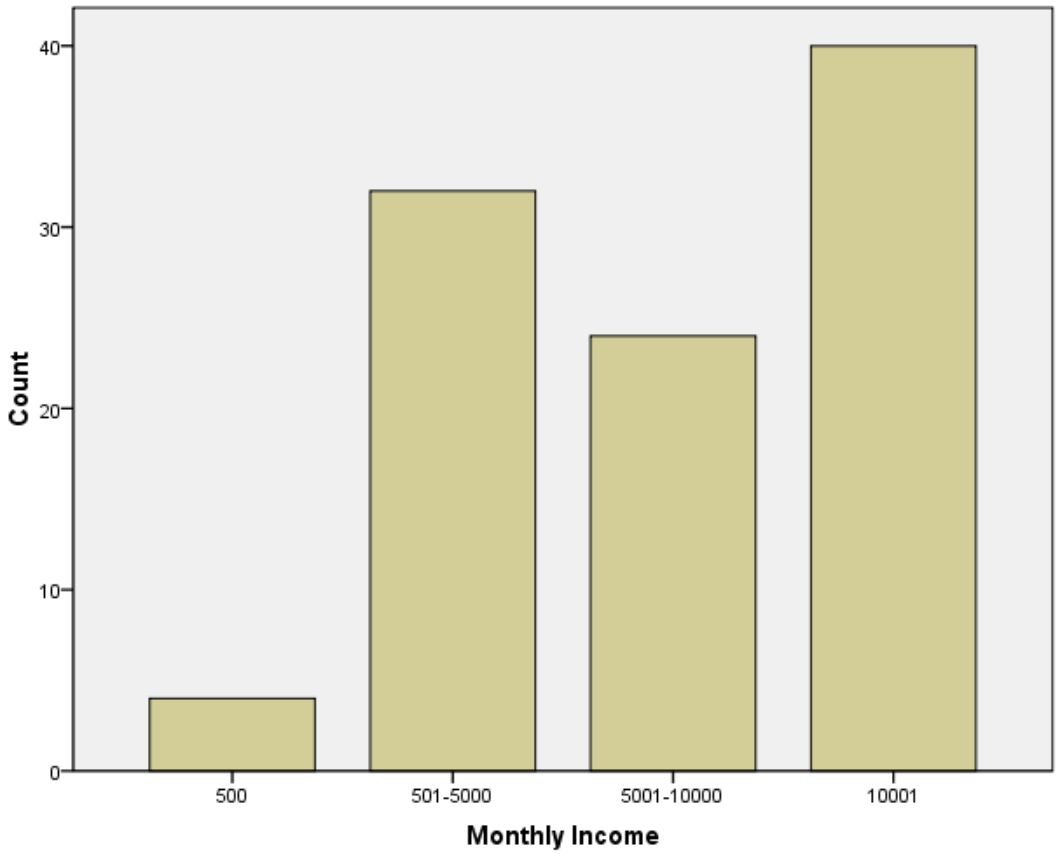

Figure 4.27a: Respondents According to Monthly Income

We observe from Figure 4.27a that the majority of respondents in the sample of general public have monthly incomes greater than or equal to N$10,001.

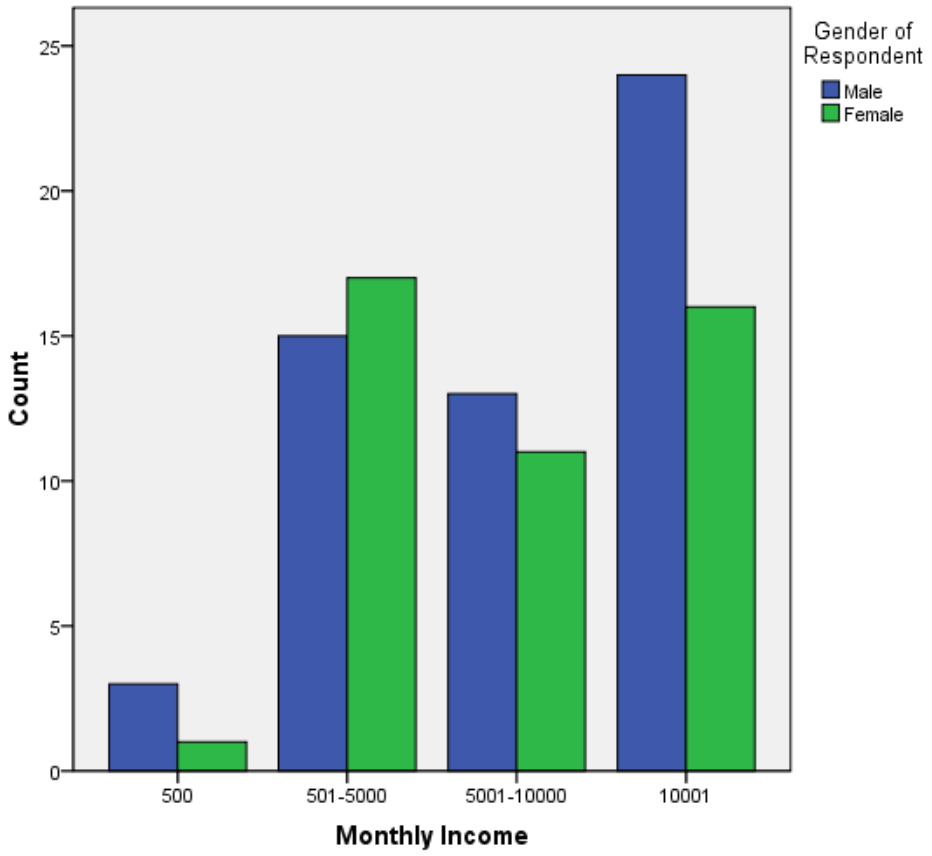

Figure 4.27b: Details of Respondents According Monthly Income

Figure 4.27b follows from the bar graph above and notably, it shows that males dominated the group that had incomes between N$5001-N$10,000 and the group with income greater than or equal to N$10001 while the group with income between N$501 – N$5000 was female dominated.

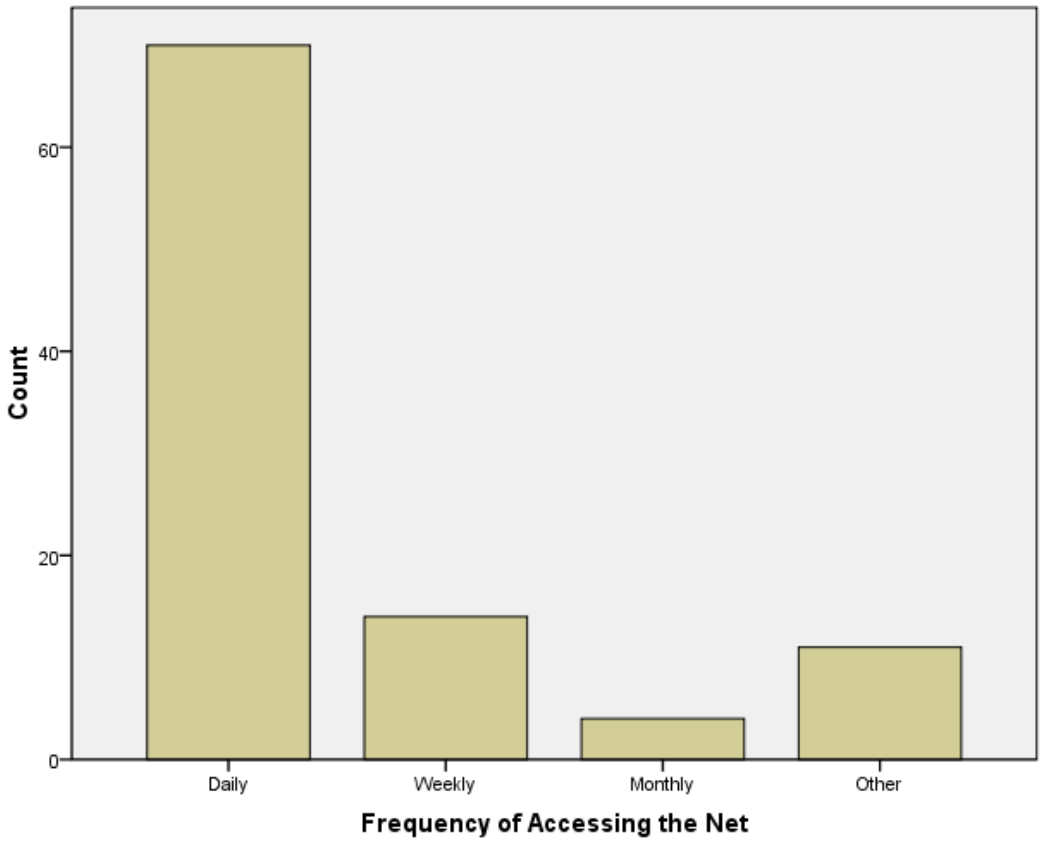

Figure 4.28a: Respondents According to Frequency of Accessing the Internet

Figure 4.28a shows that the majority of respondents in the sample of General public access the Internet daily

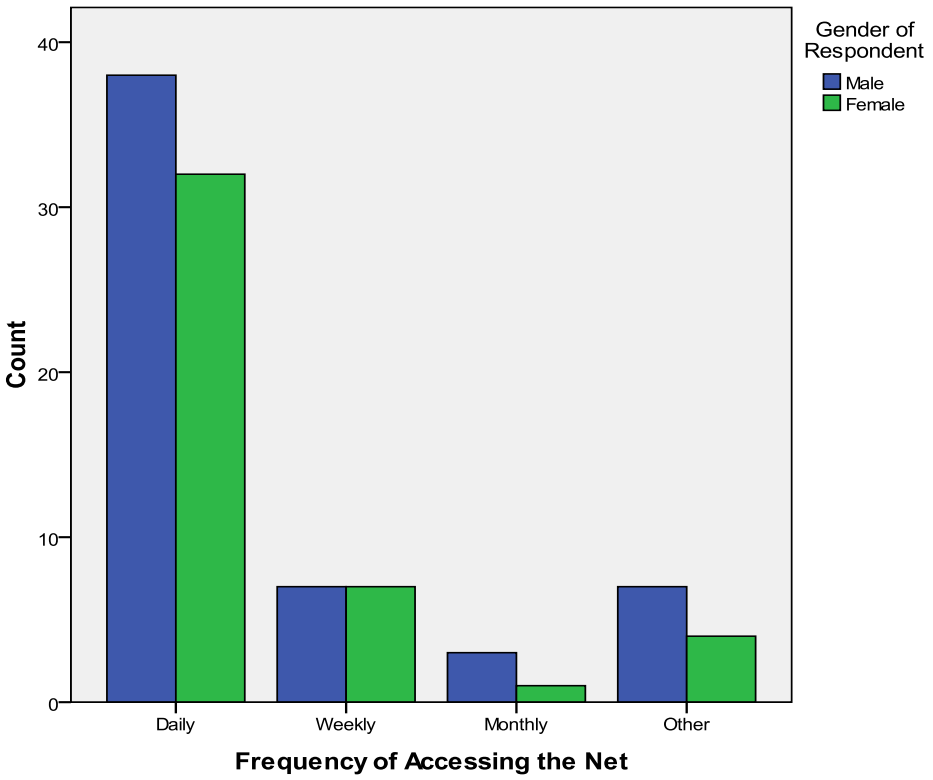

Figure 4.28b: Details Respondents According to Frequency of Accessing the Internet

Figure 4.28b follows from the bar graph in Figure 4.28a above. It shows that more males in the sample of General public access the Internet daily.

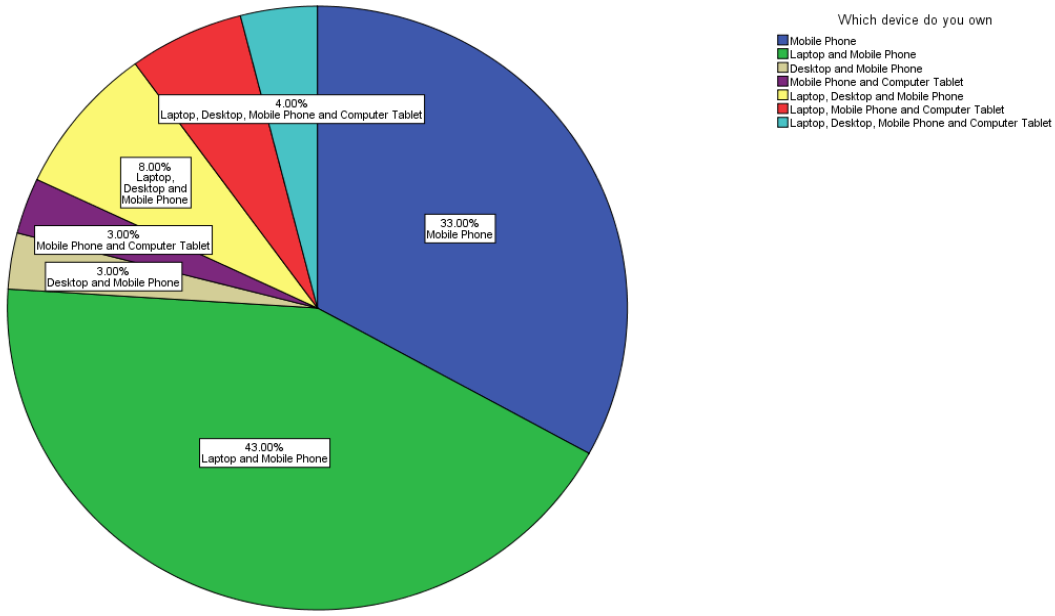

Figure 4.29: Devices Owned by Respondents

Figure 4.29 shows that the most commonly owned devices in the sample of General public are mobile phones and laptop computers.

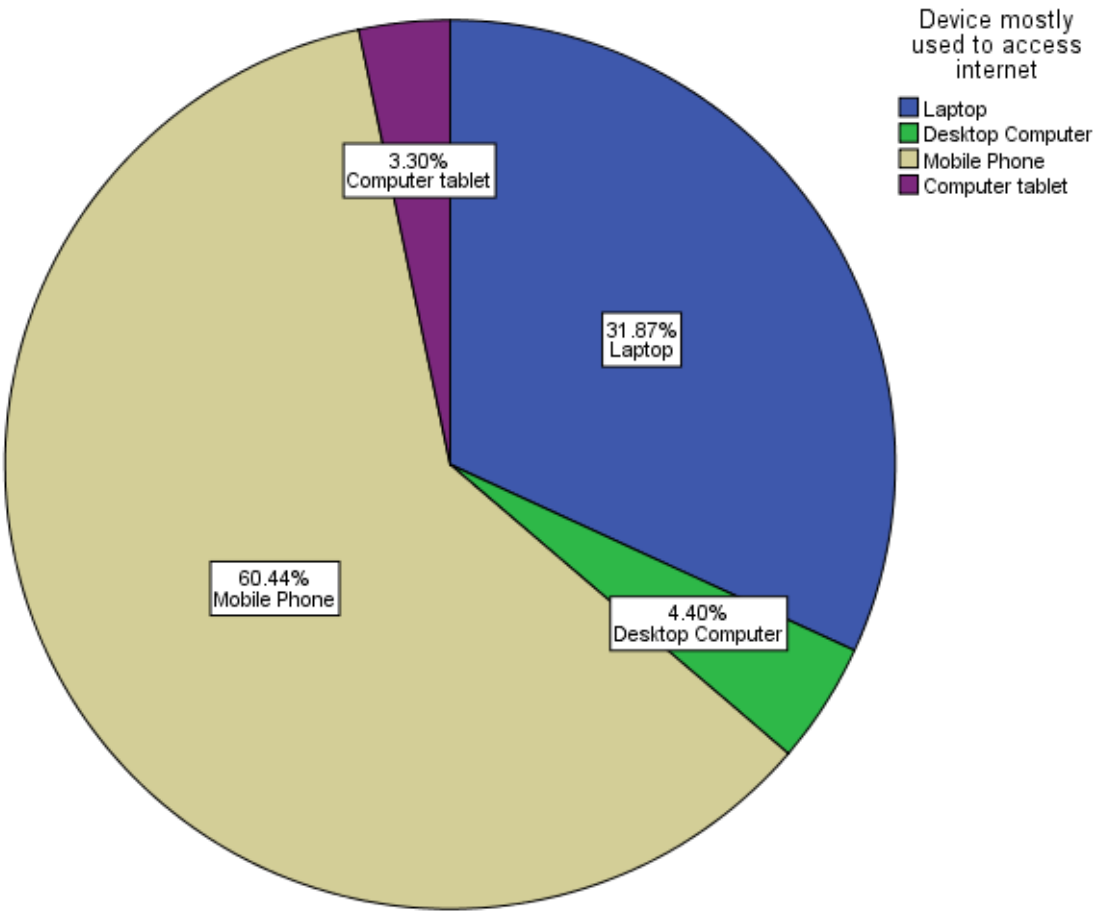

Figure 4.30: Device Mostly Used to Access the Internet

We observe from Figure 4.30 that the device most commonly used to access the Internet by respondents in the sample of General public is a mobile phone, closely followed by laptop computer.

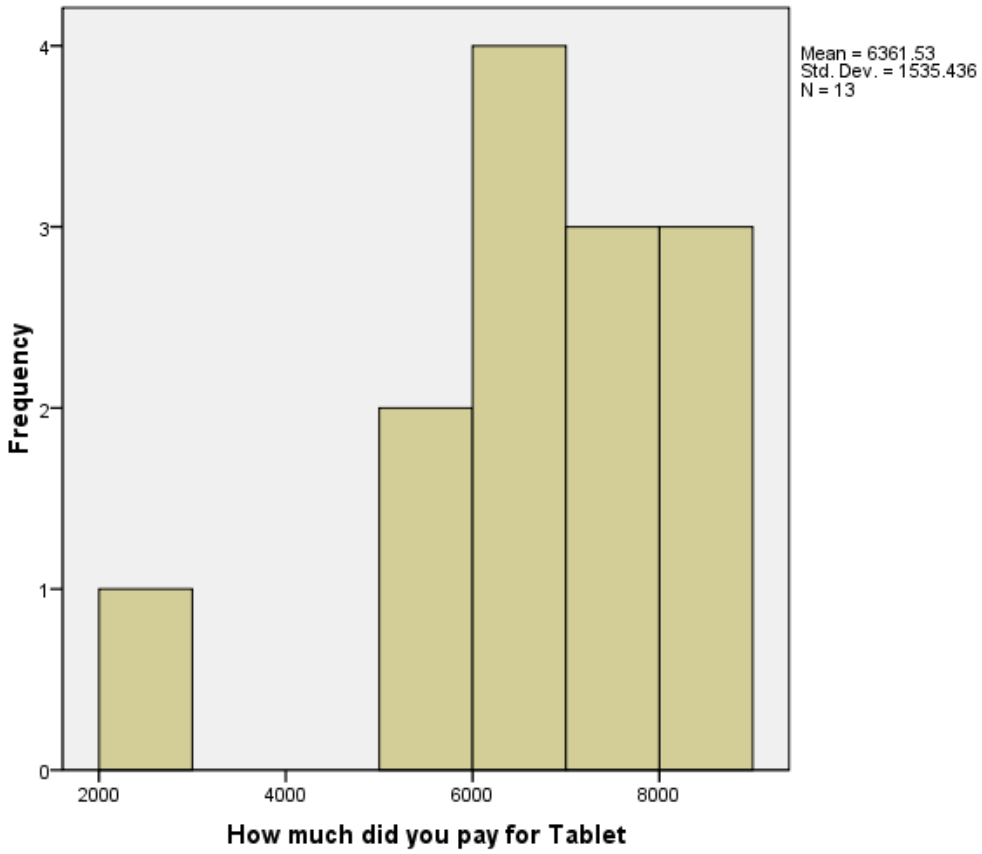

Figure 4.31: Amount Paid for Computer Tablet

From Figure 4.31 we observe that the mean amount spent on purchasing tablet computers by respondents in the sample of General public is N$6361.53. We also note that the histogram is skewed to the right.

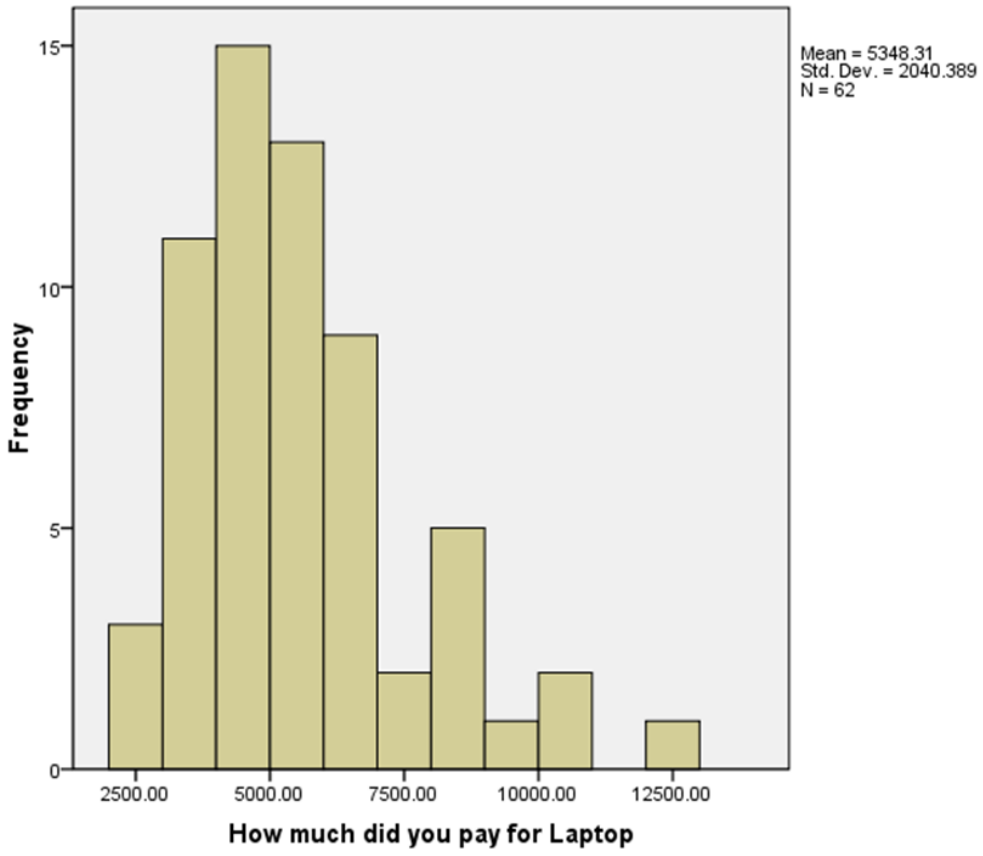

Figure 4.32: Amount Paid for Laptop Computer

From Figure 4.32 we note that the mean amount spent on purchasing laptop computers by respondents in the sample of General public is N$5600. The histogram appears to depict that of a normal distribution.

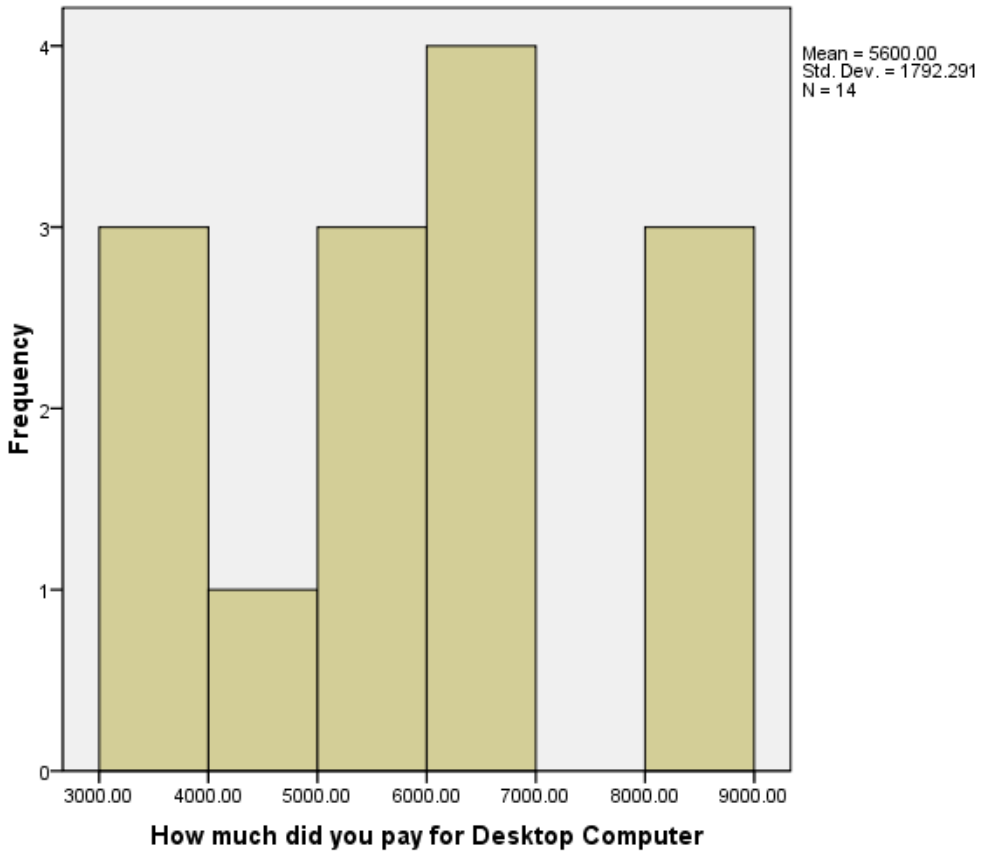

Figure 4.33: Amount Paid for Desktop Computer

In Figure 4.33 we deduce that the mean amount spent on purchasing desktop computers by respondents in the sample of General public is N$5600. The histogram appears to depict that of a normal distribution.

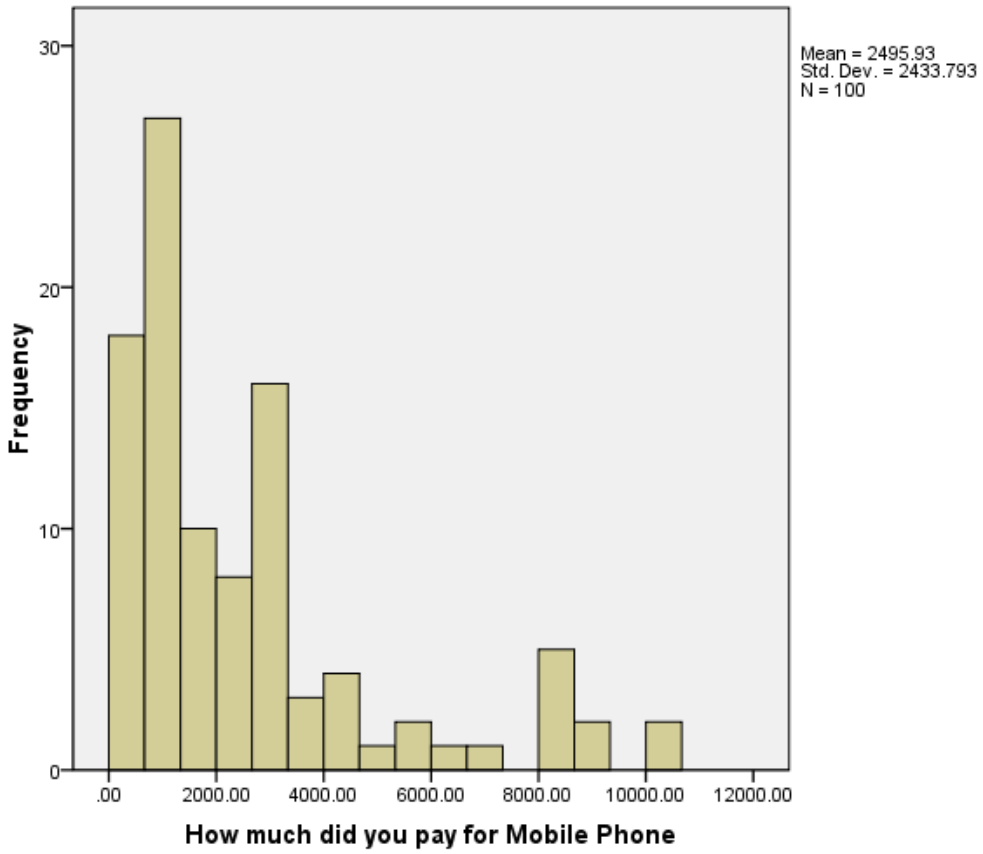

Figure 4.34: Amount Paid for Mobile Phone

Figure 4.34 shows that the mean amount spent on purchasing a mobile phone by the respondents in the sample of General public is N$2495.93. The histogram is skewed to the left.

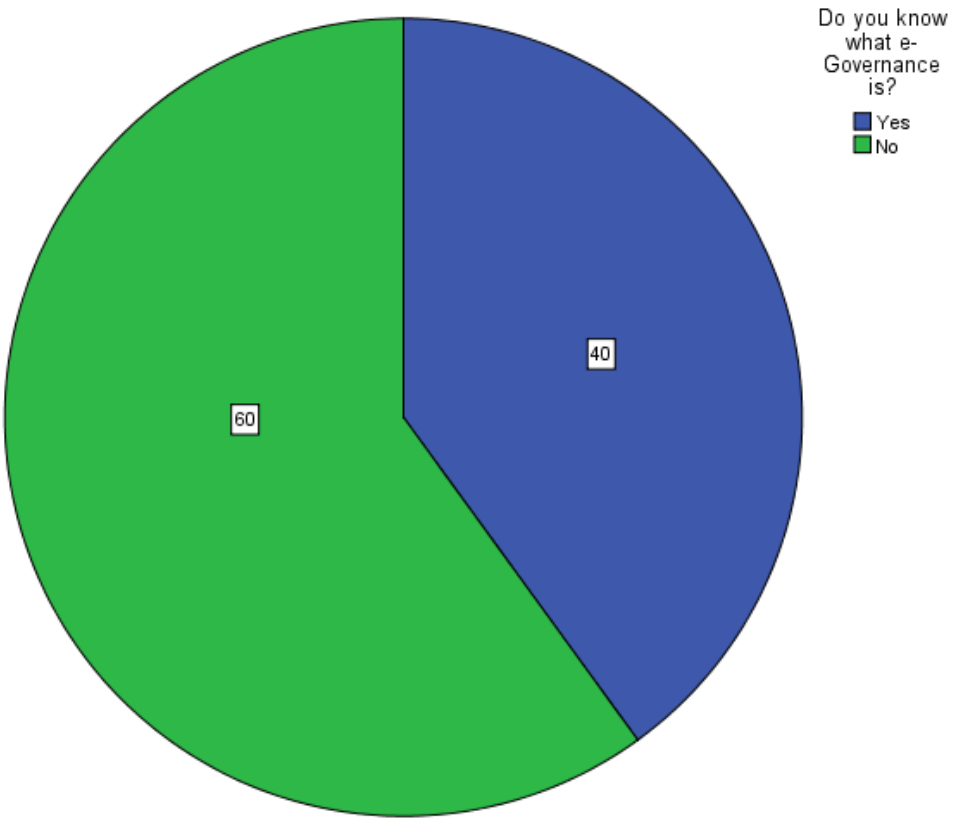

Figure 4.35: Knowledge of e-Governance of Respondents

Figure 4.35 illustrates that the majority of respondents in the sample of General public do not know what e-Governance is.

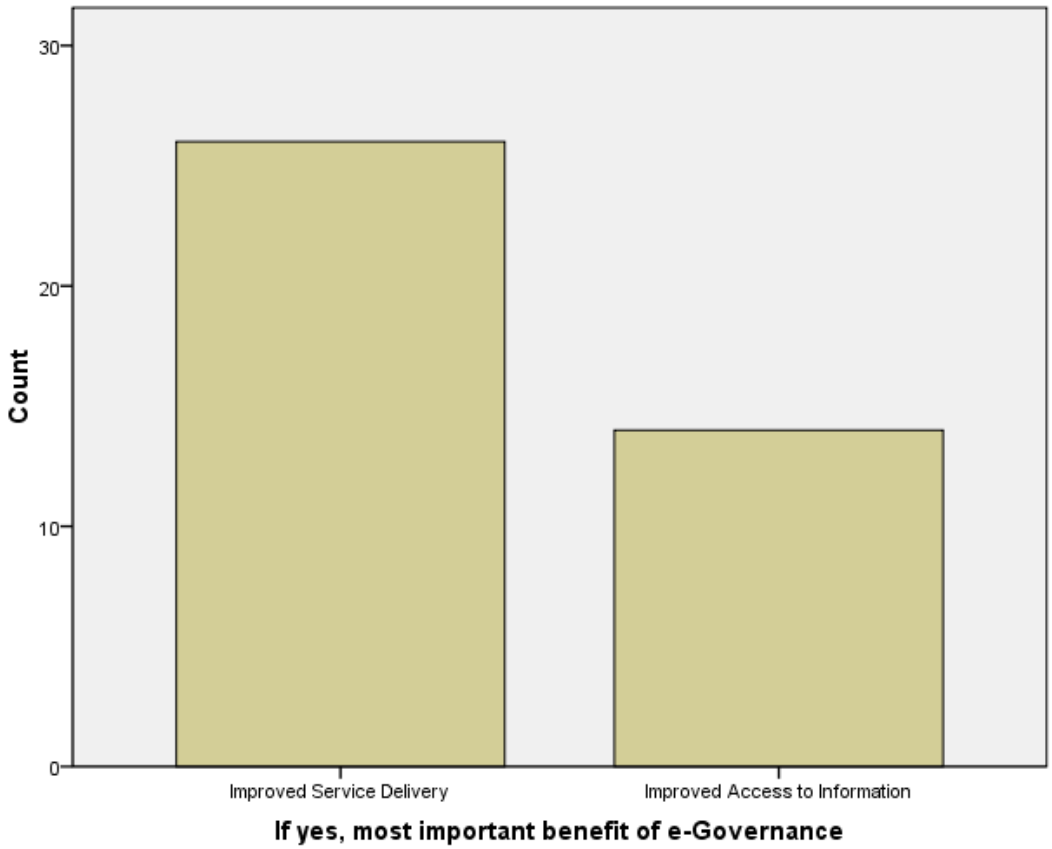

Figure 4.36: Important Benefit of e-Governance According to Respondents

Figure 4.36 shows that the majority of the respondents in the sample of General public who know what e-Governance believe that the most important benefit is improved service delivery.

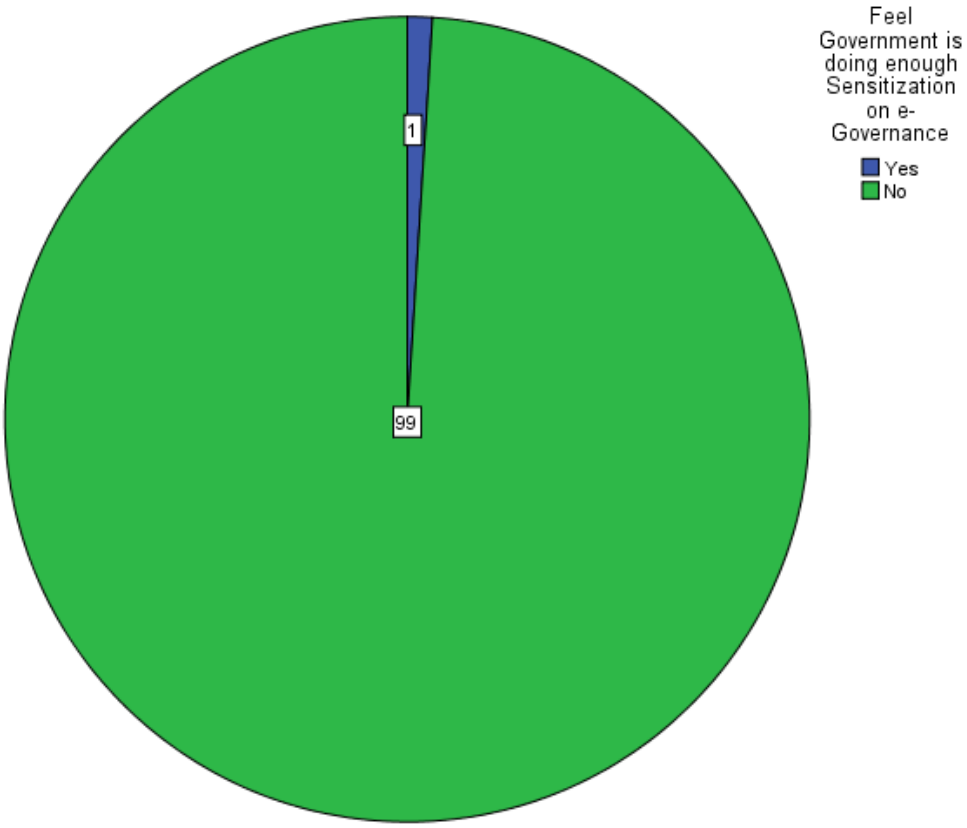

Figure 4.37: Government Sensitization on e-Governance

Figure 4.37 shows that ninety-nine (99) out of one hundred (100) respondents in the sample of General public feel that the Government is not doing enough to sensitise the public on e-Governance.

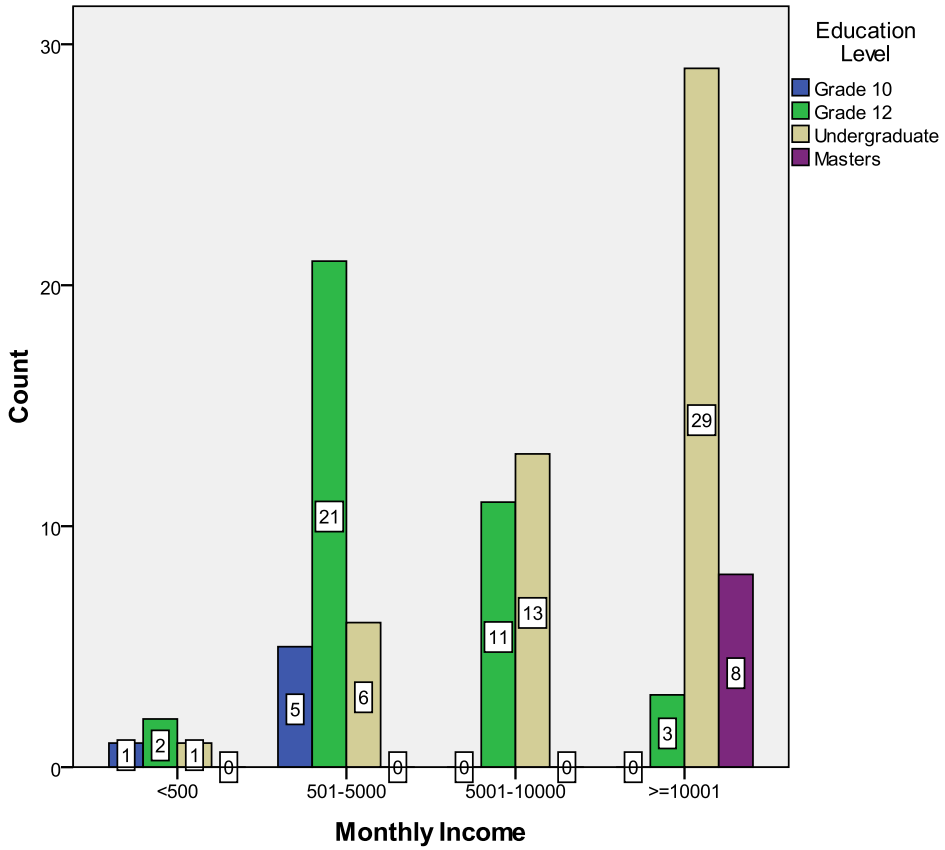

Figure 4.38: Monthly Income and Education Level

Figure 4.38 shows that respondents whose maximum education is grade 12 dominated the income segments, <N$500 and N$501 – N$5000. Those respondents whose level of education is undergraduate/college degree, dominated the income segments N$5001 – N$10000 and >=N$10001.

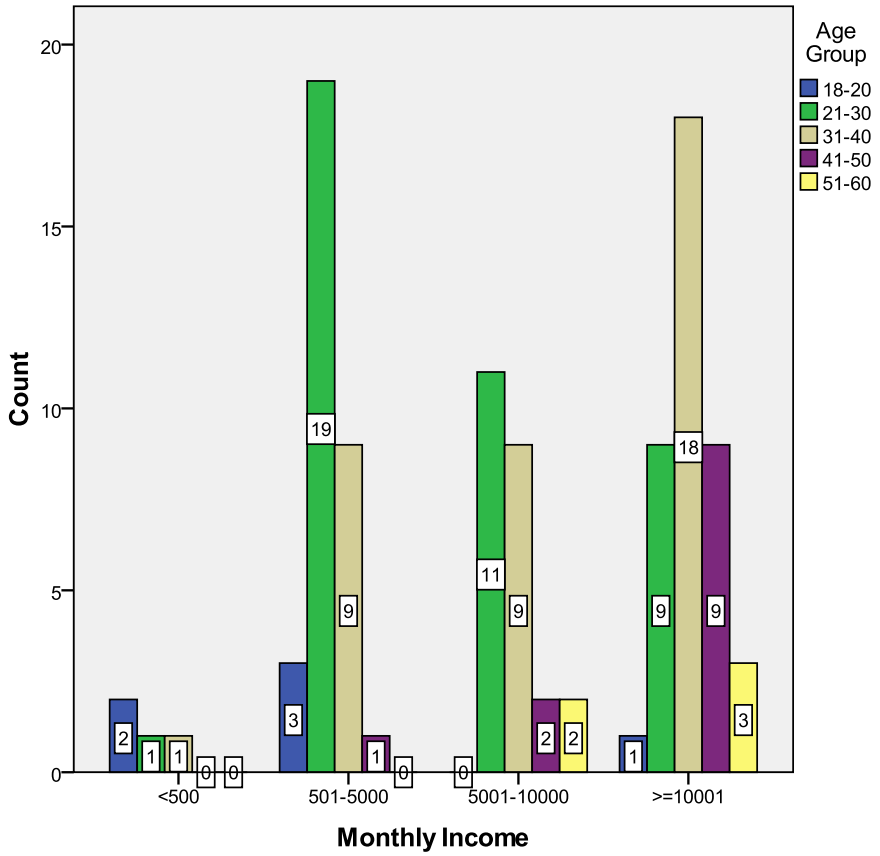

Figure 4.39: Monthly Income and Age Group

Figure 4.39 illustrates that respondents in the age group 18 – 20 dominated the monthly income segment of <500. The age group 21 – 30 dominated the income segments N$501 – N$5000 and N$5001 –N$10000. The income segment =>N$10001 was dominated by respondents in the age group 31 – 40.

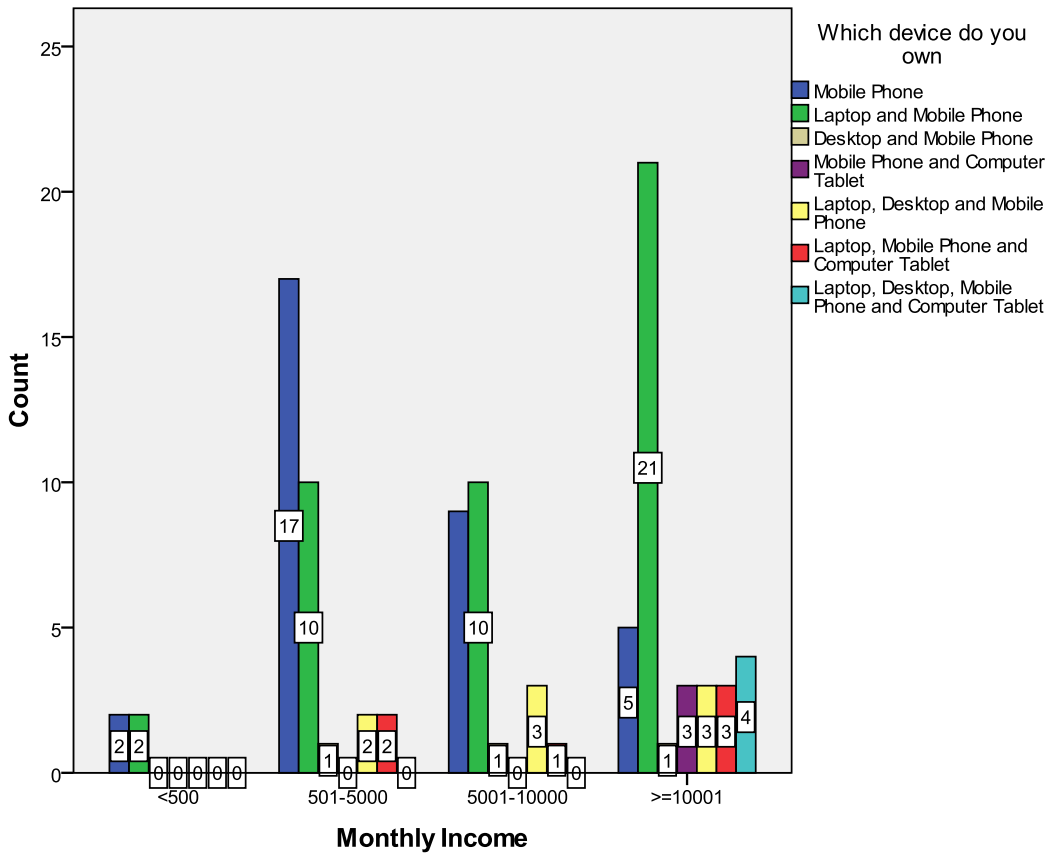

Figure 4.40: Monthly Income and Device/s Owned by Respondents

Figure 4.40 shows that the respondents whose monthly income is < N$500 either owned a mobile phone or a laptop and mobile phone. Respondents whose monthly income was in the region of N$501 to N$5000 mostly owned mobile phones. The majority of the respondents with monthly income N$5001 –N$10000 and >=N$10001 owned both a laptop and mobile phone.

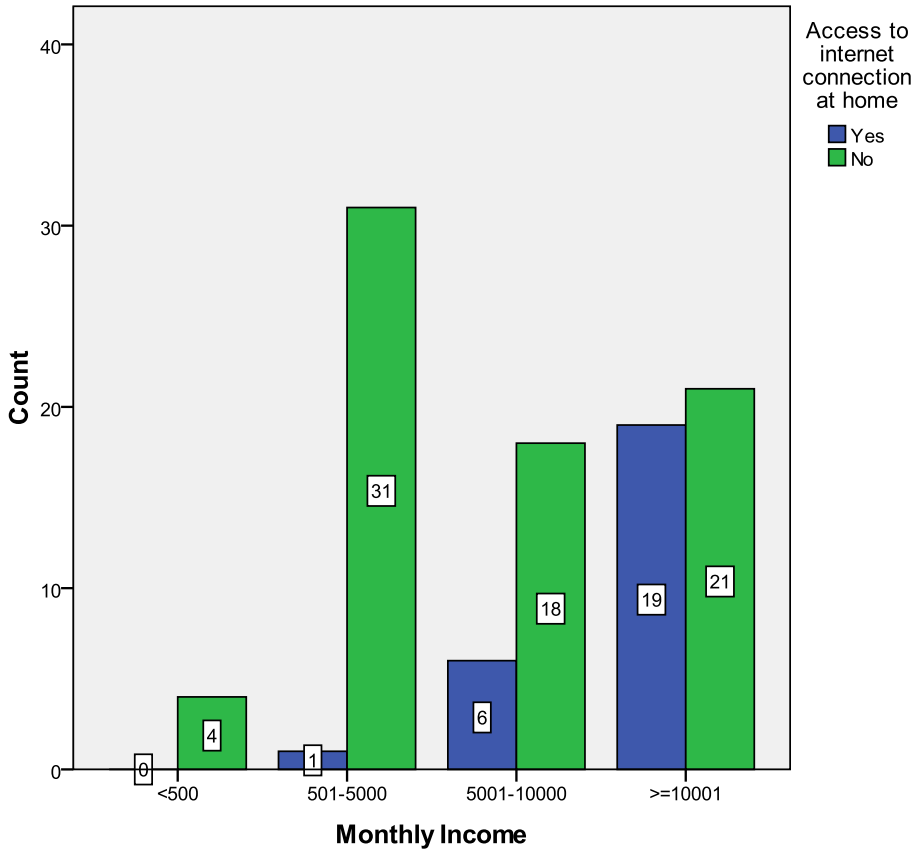

Figure 4.41: Monthly Income and Access to Internet Connection at Home

Figure 4.41 illustrates that the majority of the respondents who have access to Internet connection at home have a monthly income above N$10000.

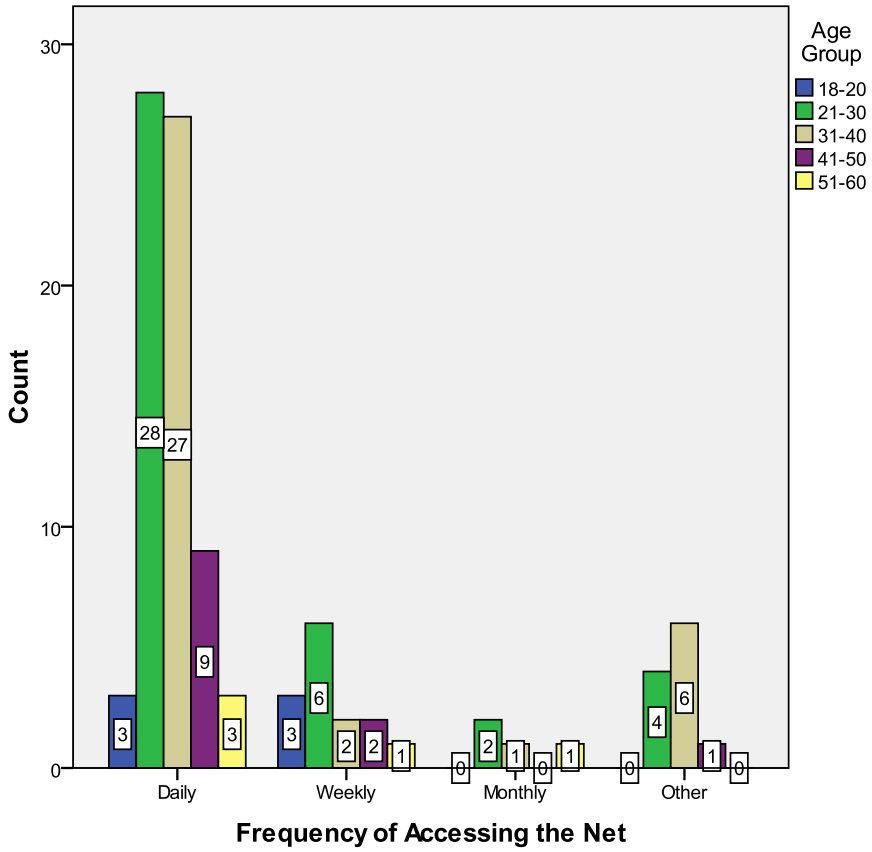

Figure 4.42: Frequency of Accessing the Internet and Age Group

Figure 4.42 shows that the majority of the respondents in the age groups 21 – 30 and 31 – 40 access the Internet daily.

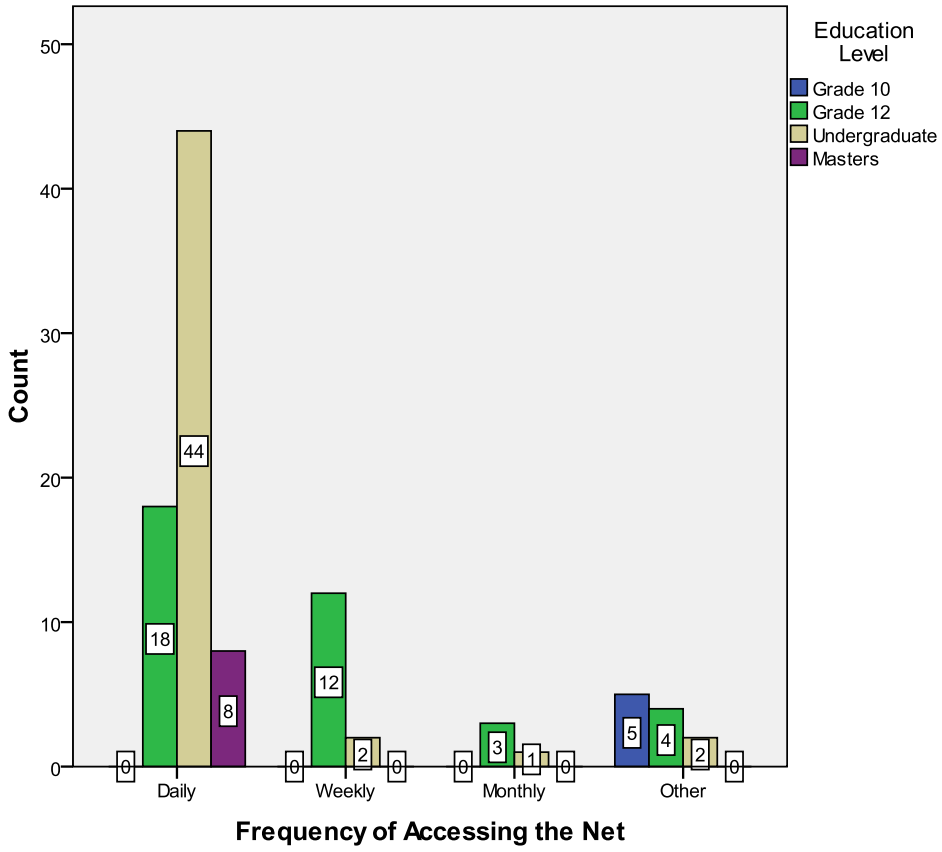

Figure 4.43: Frequency of Accessing the Internet and Education Level

Figure 4.43 illustrates that the majority of the respondents in the sample of General public who access the Internet daily have undergraduate degrees.

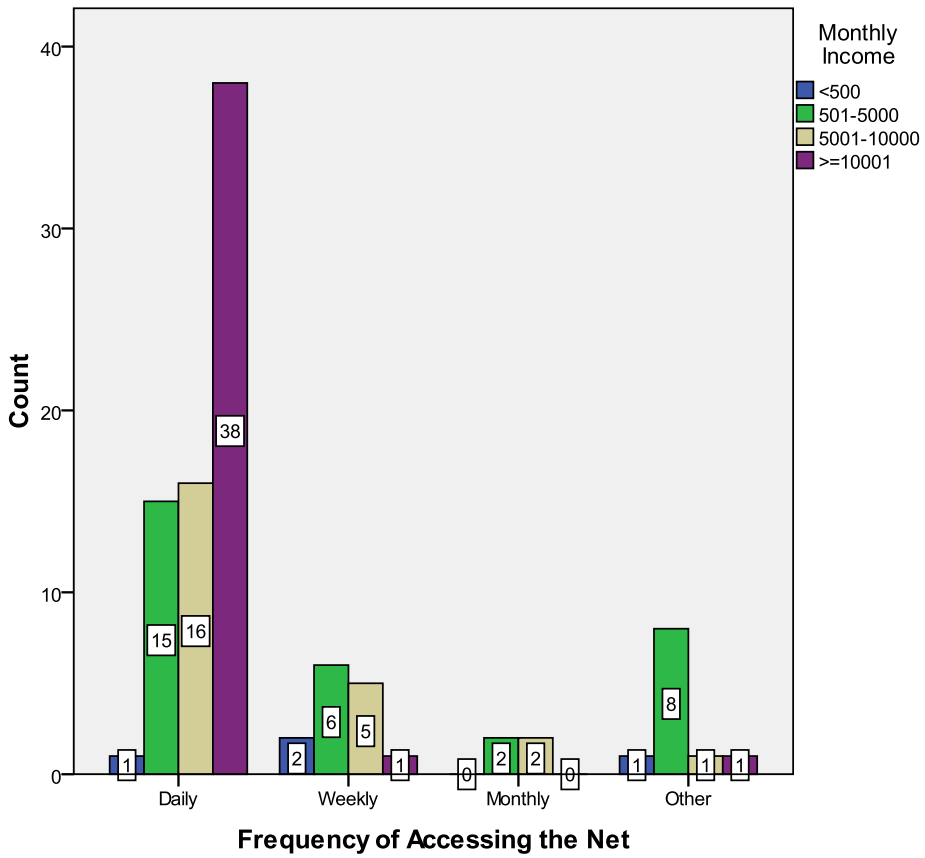

Figure 4.44: Frequency of Accessing the Internet and Monthly Income

Figure 4.44 shows that the majority of respondents in the sample of General public who access the Internet daily have monthly incomes of over N$10000.

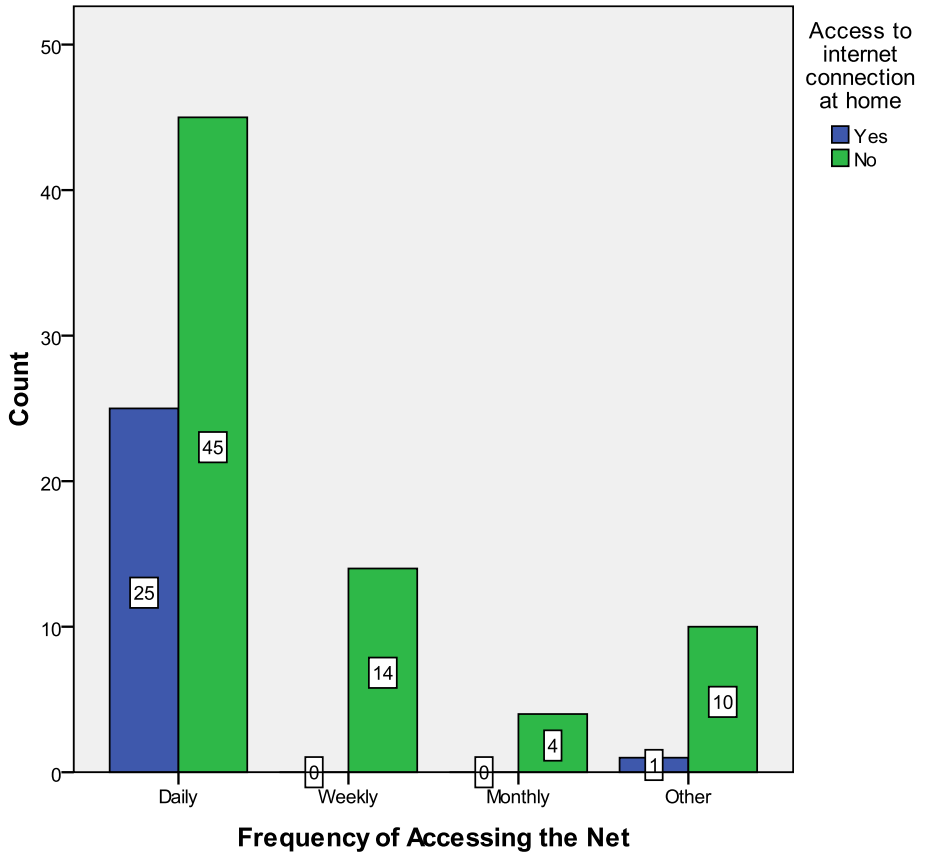

Figure 4.45: Frequency of Accessing the Internet and having a Connection at Home

From Figure 4.45 we deduce that the majority of respondents in the sample of General public who access the Internet daily have a connection at home.

4.3 Statistical Inferences

Inferential statistics, namely, Chi-square tests and detailed analysis of graphs were used to explore relationships between the selected variables.

Chi-square test for independence, also called Pearson's Chi-square test, is used to discover if there is a relationship between two categorical variables (Mendenhall, Beaver, Beaver, 1996).

Two key assumptions when performing the Chi-square test are;

1. The two variables must be measured at an ordinal or nominal level.
2. The two variables should consist of two or more categorical, independent groups.

The Chi-square test is summarized as follows:

Chi-Square Test for Independence of Row and Column Categories

1. Null Hypothesis: H_0 : The row and column categories are independent
2. Alternative Hypothesis: H_A : The row and column categories are dependent
3. Test Statistic:

$$X^2 = \sum_{j=1}^{C} \sum_{i=1}^{r} [(n_{ij} - \hat{E}(n_{ij})]^2 / \hat{E}(n_{ij}) = \sum_{j=1}^{C} \sum_{i=1}^{r} d^2{}_{ij} / \hat{E}(n_{ij})$$

Where,

N_{ij} = Frequency for the cell in row I and column j

$D_{ij} = n_{ij} - \acute{E}(n_{ij})$

R_{ij} = Total for row i

C_{ij} = Total for Column j

N = Total for all observations

$\acute{E}(n_{ij}) = R_I Cj/n$

4. Rejection Region: $X^2 > X^2{}_{\alpha}$, where $X^2{}_{\alpha}$ is based on d.f = (r-1)(c-1) degrees of freedom.

α indicates the level of significance. It is the chosen probability value that determines the boundary between rejecting or not rejecting H_0.

(Mendenhall, Beaver, Beaver, 1996)

4.4 Chi – Square Tests

4.3.1 $H_{0:}$ There is no relationship between familiarity with e-Governance and the O/M/A that the respondent works for.

$H_{A:}$ There is a relationship between familiarity with e-Governance and the O/M/A that the respondent works for.

α: 0.05

Results

X^2=27.362, P≈0.072 (see Table 4.1), therefore we do not reject the null hypothesis and conclude that there is no relationship between familiarity with e-Governance and the O/M/A that the respondent works for. Analysis Figure 4.16 reveals that respondents from the Ministry of Health are more familiar with e-Governance than other respondents, while respondents from the Ministry of Youth where least familiar with e-Governance.

4.3.2 $H_{0:}$ There is no relationship between the respondents' position and their involvement in e-Government projects at the respective O/M/A.

$H_{A:}$ There is a relationship between the respondents' position and their involvement in e-Government projects at the respective O/M/A.

α: 0.05

Results

X^2=0.284, P≈0.868 (see Table 4.2), therefore we do not reject the null hypothesis and conclude that there is no relationship between the respondents' position and their involvement in e-Government projects at the respective O/M/A. Analysis of the clustered bar graph in Figure 4.17, shows that the majority of those involved in e-Governance projects are operational staff, while the majority of those not involved are also operational staff. This could be on account of the fact that operational staff dominated the sample of government employees.

4.3.3 $H_{0:}$ There is no relationship between the respondents' position at their respective O/M/A and their possession of project management skills

$H_{A:}$ There is a relationship between the respondents' current position at their respective O/M/A and their possession of project management skills

α: 0.05

Results

X^2=9.114, P≈0.10 (see Table 4.3), therefore we do not reject the null hypothesis and conclude that there is no relationship between the respondents' current position at their respective O/M/A and their possession of project management skills. Analysis of Figure 4.18 shows that operational staff dominated the group of respondents that have project management skills. They also dominated the group that does not have project management

skills. This can be attributed to the fact that operational staff were the majority in sample of government employees.

4.3.4 $H_{0:}$ There is no relationship between the respondents’ current position at their respective O/M/A and their feeling of involvement in e-Government projects.

$H_{A:}$ There is a relationship between the respondents’ current position at their respective O/M/A and their feeling of involvement in e-Government projects.

α: 0.05

Results

X^2=2.886, P≈0.236 (see Table 4.4), therefore we do not reject the null hypothesis and conclude that there is no relationship between the respondents’ current position at their respective O/M/A and their feeling of involvement in e-Government projects. Analysis of Figure 4.19 shows that operational staff dominated both the group that does not feel actively involved in e-Government projects and the group that feels actively involved. This can be attributed to the composition of the sample of government employees where operational staff dominated the sample.

4.3.5 $H_{0:}$ There is no relationship between the respondents’ current position at their respective O/M/A and their conviction on whether Government will be able to deliver information and services better with the implementation of e-Government.

$H_{A:}$ There is a relationship between the respondents’ current position at their respective O/M/A and their conviction on whether Government will be able to deliver information and services better with the implementation of e-Government.

α: 0.05

Results

X^2=10.037, P≈0.123 (see Table 4.5), therefore we do not reject the null hypothesis and conclude that there is no relationship between the respondents’ current position at their respective O/M/A and their conviction on whether Government will be able to deliver information and services better with the implementation of e-Government. An inquiry into Figure 4.15b reveals that the majority of respondents are slightly convinced that the Government will be able to deliver information and services better with the implantation of e-Governance.

4.2.6 $H_{0:}$ There is no relationship between the respondents’ monthly income and their education level.

$H_{A:}$ There is a relationship between the respondents’ monthly income and their education level.

α: 0.05

Results

X^2=51.456, P≈0.000 (see Table 4.6), therefore we do not accept the null hypothesis and conclude that there is a relationship between the respondents’ monthly income and their education level. Analysis of Figure 4.38 reveals that respondents whose highest level of education was Grade 12 school leaving certificate dominated the income bracket N$501-N$5000, while those whose highest qualification was an undergraduate degree dominated the higher income brackets of N$5001-N$10,000 and N$10,000 +.

4.2.7 $H_{0:}$ There is no relationship between the respondents’ age group and their monthly income.

$H_{A:}$ There is a relationship between the respondents’ age group and their monthly income.

α: 0.05

Results

X^2=33.154, P≈0.001 (see Table 4.7), therefore we do not accept the null hypothesis and conclude that there is a relationship between the respondents’ age group and their monthly income. An inquiry into Figure 4.39 shows that the income segments N$501-N$5000 and N$5001-N$10000 were dominated by respondents in the age group 21-30, while the income segment N$10,000+ was dominated by respondents in the age-group 31-40, followed by respondents in the age group 31-40.

4.2.8 $H_{0:}$ There is no relationship between the respondents’ monthly income and the number of devices they own.

$H_{A:}$ There is a relationship between the respondents’ monthly income and the number of devices they own.

α: 0.05

Results

X^2=23.796, P≈0.162 (see Table 4.8), therefore we do not reject the null hypothesis and conclude that there is no relationship between the respondents’ monthly income and the number of devices they own. An analysis of Figure 4.40 shows that all respondents owned a mobile phone, while the majority had both a mobile phone and a laptop computer. The clustered bar graph also shows that respondents in the highest income segment owned more than two devices.

4.2.9 $H_{0:}$ There is no relationship between the respondents’ monthly income and having an Internet connection at home.

$H_{A:}$ There is a relationship between the respondents’ monthly income and having an Internet connection at home.

α: 0.05

Results

X^2=19.731, P≈0.000 (see Table 4.9), therefore we do not accept the null hypothesis and conclude that there is a relationship between the respondents’ monthly income and having an Internet connection at home. Figure 4.41 shows that respondents who had an Internet connection at home were in the higher

income brackets N$5001-N$10,000 and >=N$10,001, while only one respondent in the income bracket N$501-N$5000 had an Internet connection at home and no one in the bracket >=N$500 had a connection at home.

4.2.10 $H_{0:}$ There is no relationship between the respondents’ age group and the frequency that they access the Internet.

$H_{A:}$ There is a relationship between the respondents’ age group and the frequency that they access the Internet.

α: 0.05

Results

X^2=14.564, P≈0.266 (see Table 4.10), therefore we do not reject the null hypothesis and conclude there is no relationship between the respondents’ age group and the frequency that they access the Internet. A probe into Figure 4.42 reveals that majority of respondents who access the Internet daily are in the age group 21-30 followed by those in the age group 31-40.

4.2.11 $H_{0:}$ There is no relationship between the respondents’ education level and the frequency that they access the Internet.

H_A: There is a relationship between the respondents’ education level and the frequency that they access the Internet.

α: 0.05

Results

X^2=64.828, P≈0.000 (see Table 4.11), therefore we do not accept the null hypothesis and conclude that there is a relationship between the respondents’ education level and the frequency that they access the Internet. An analysis of Figure 4.43 reveals that the majority of respondents in the sample of General public who access the Internet daily have an undergraduate degree followed by those with a grade 12 school leaving certificate as highest level of qualification.

4.2.12 H_0: There is no relationship between the respondents’ monthly income and the frequency that they access the Internet.

H_A: There is a relationship between the respondents’ monthly income and the frequency that they access the Internet.

α: 0.05

Results

X^2=29.335, P≈0.001 (see Table 4.12), therefore we do not accept the null hypothesis and conclude that there is a relationship between the respondents’ monthly income and the frequency that they access the Internet. The clustered bar graph Figure 4.44 shows that the frequency of accessing the Internet increases as the income increases, that is, there is a positive relationship.

4.2.13 H_0: There is no relationship between the respondent having an Internet connection at home and the frequency that they access the Internet.

H_A: There is a relationship between the respondent having an Internet connection at home and the frequency that they access the Internet.

α: 0.05

Results

X^2=11.315, P≈0.010 (see Table 4.13), therefore, we do not accept the null hypothesis and conclude that there is a relationship between the respondent having an Internet connection at home and the frequency that they access the Internet. An analysis of Figure 4.45 shows that all respondents that have an Internet connection at home access the Internet daily.

5. DISCUSSION OF DATA ANALYSIS FINDINGS

This chapter discusses the data analyses findings of the study. It also interprets some of the results and relationships found during Data Analysis.

5.1 Government Employees

It has been observed from the data collected that the majority of government employees are familiar with e-Governance. It was also found that among them, the most familiar were those that were in senior management. The same findings were also iterated by 56% of the Government Employee respondents, who felt like everything relating to e-Governance was done by management. This is can be attributed to the fact that most of the decisions relating to e-Governance are made by people at senior management level and hence they are more likely to know what e-Governance is. The data also showed that the respondents from the Ministry of Health were the most familiar with e-Governance while those from the Ministry of Youth were the least familiar with it. Even though that was the case, results of the Chi-square tests (see Table 4.1) carried out proved that there is actually no relationship between familiarity with e-Governance and the O/M/A that the respondent works for.

In contrast to the above, despite most of the government employees being familiar with e-Governance, over 40% were slightly convinced that the Government will be able to deliver information and services better once it is implemented. A further 28% were not convinced at all, while approximately the same percentage was very convinced of its intended outcome. This gives a total of about 68% of respondents

who are not fully convinced that e-Governance will work as intended. This may have a negative impact on the attitude of individuals towards e-Government initiatives.

It should also be noted that the results show that the majority of government employees are not involved in e-Government projects including some respondents in senior management. In addition, even among those that stated that they are involved in e-Government projects, there were some that felt that they were not actively involved in them. As shown from the collected data, the majority of the respondents that are involved were from the category of middle management. A further probe into the role played in e-Government projects revealed that the majority of them were merely IT support staff. From these findings, it can be deduced that most of them do not have the relevant skills required to develop complex e-Government systems. The Chi-square tests performed (see Table 4.2) confirmed that there is actually no relationship between the respondents’ position and their involvement in e-Government projects at the respective O/M/A.

It is also clear from the results that 61% of the Government Employee respondents do not poses project management skills. Even though 89% stated that they handle tasks by prioritising them, the lack of project management skills limits the magnitude of projects that they can actually handle. This is a worrying factor as most e-Government projects require that participants have adequate skills in project management to be able to complete tasks successfully. A review of the Chi-square tests done (see Table 4.3) showed that there is no relationship between the respondents’ current position at their respective O/M/A and their possession of project management skills.

5.2 General Public

From the data collected, it was found that the average price paid by individuals who have an Internet connection at home was N$449. Looking at the affordability levels deduced from the incomes of the respondents, this amount can be found to be out of range for the majority of them. A further investigation done on the 24% of respondents that were found to have an Internet connection at home, discovered that they had an income of more than N$10000 per month. In addition, the data also showed that those respondents who had an Internet connection at home accessed it on a daily basis. The Chi-square tests done (see Table 4.9 and Table 4.13) confirmed that there is a relationship between the respondents’ monthly income and having an Internet connection at home and also between the respondent having an Internet connection at home and the frequency that they access the Internet.

In the study it was also revealed that the majority of the respondents actually accessed the Internet on a daily basis and that the males dominated in this category. However, it was observed that this was mostly done (55%) through the use of mobile phones. This behaviour can be attributed to the fact that most of the respondents actually find it more affordable to purchase pre-paid Internet bundles for their mobile phones rather than to enter into long-term binding contracts that will make them obliged to pay a higher fixed monthly fee every month. Most of the service providers require that a user enters into a one year contract or more to be able to have access to post-paid Internet facilities at home.

One key finding was that all of the respondents from the sample of General public actually owned a mobile phone. This shows that mobile technologies are now being

widely used among the people. From Figure 4.34 it can be seen that the average amount paid for mobile phones was N$2495.43 with the histogram skewed more to the left. This indicates that most of the respondents paid much less than what the average price of a mobile phone was found to be. It is clear that the lower priced mobile phones are more popular than those costing more than the average price. A closer look at Figure 4.34 may suggest that there could be a mobile phone that is affordable by the respondents from each of the income brackets.

The results showed that the second most owned device was the laptop computer. It is evident from Figure 4.29 that a great number of respondents (43%) actually owned both a mobile phone and a laptop computer. The average price paid for laptop computers was N$5600. This figure may seem to be on the high side in relation to monthly income levels of respondents in the lower income brackets, however, it has to be noted that there is an increase in the demand and supply of second-hand laptops. This could be a possible explanation justifying their popularity.

Tablet computers were found to be the least owned by the respondents. This is probably due to the high prices associated with these devices. Figure 4.31 indicates that the average price paid for a tablet computer was N$6361.53. In relation to the income levels of the respondents in the lower income brackets, this can be seen to be too expensive for them to be able to afford them.

A look at the Figure 4.35 confirms that 60% of respondents in the sample of General public do not know what e-Governance is. Among the 40% that know, the majority of them believe that the most important benefit is improved service delivery as opposed to improved access to information. The study also revealed that 99% of the

respondents feel that the Government is not doing enough to sensitise the public on e-Governance. From these statistics, one can deduce that people do not feel like they are actually involved in e-Governance implementation.

6. PROPOSED ARCHITECTURE FOR e-GOVERNMENT IMPLEMENTATION IN NAMIBIA

The aim of this Chapter is to present the proposed architecture that can be adopted in the implementation of e-Governance in Namibia. Each component of the architecture is explained in full detail below.

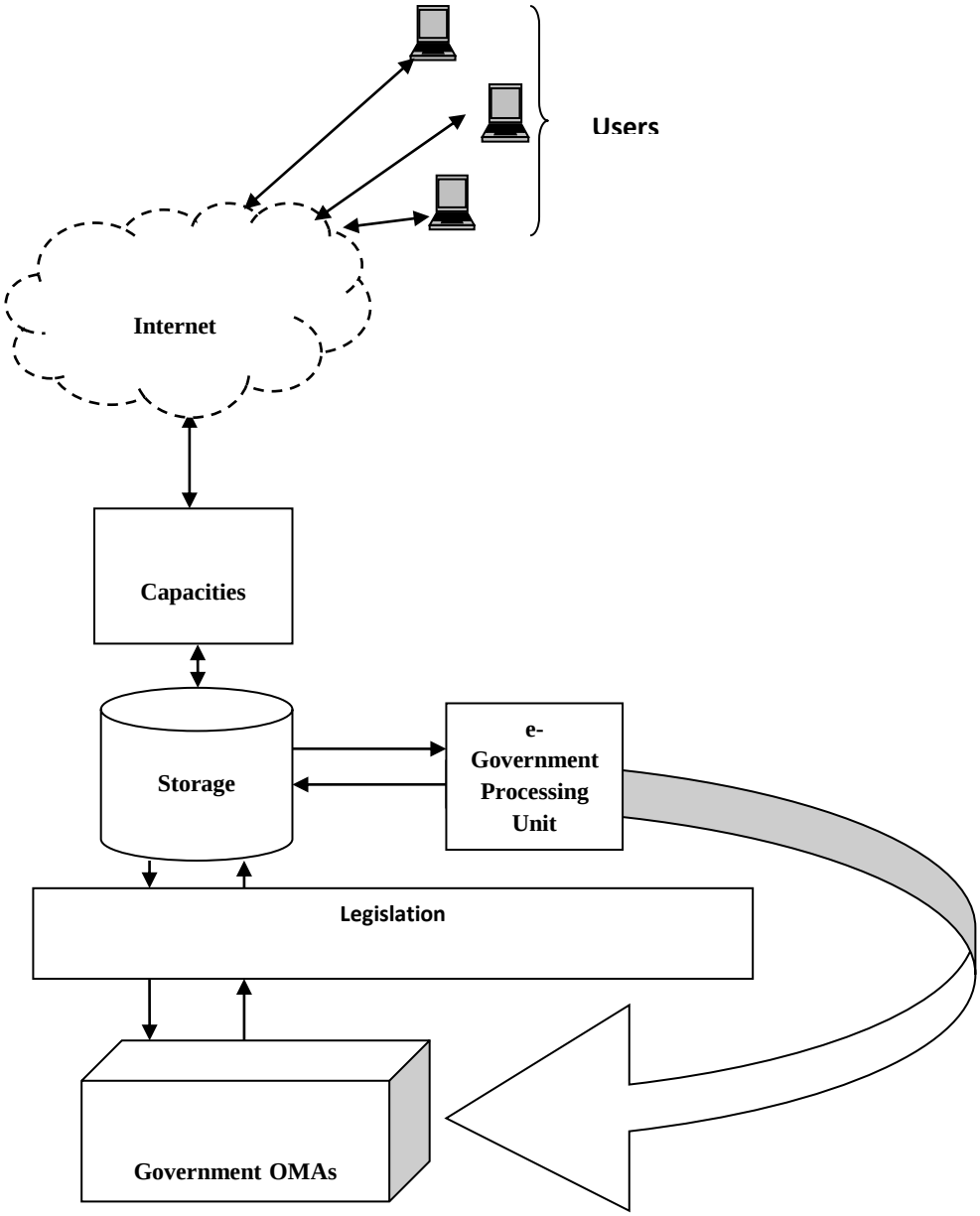

Figure 6.1 System Architecture

6.1 Government Offices Ministries and Agencies (O/M/As)

The Government Offices, Ministries and Agencies (OMAs) each decide what kind of services and information will be offered online to the various citizens and businesses. These decisions are guided by the available legislation that has been laid out by the e-Government leaders. The OMAs should each comprise of a team that is responsible for daily running of e-Government services in that particular OMA. That is, they take care of content to put in the storage and also attend to queries and process tasks requested by the users that are passed on to them by the e-Government Processing Unit.

6.2 Legislation

The legislation component houses all the rules and guidelines that govern e-Government. These are made by the e-Government leaders such as the political leaders who are members of parliament and the top civil servants involved in the e-Government projects. Some of the rules that could be specified here are: Resources that should be channelled towards e-Government development, deployment and maintenance; the content that will be available online to the public; issues surrounding digital signatures: persons responsible for carrying out particular tasks and processes to following when carrying out a task.

6.3 Storage

The Storage is the main medium where e-Government services are stored. It is basically a large central database that houses services and data that is loaded by all the participating OMAs. PostgreSQL could be used to develop the database. It has the same concepts and reliability as Oracle, but it is an open source software and

hence the cost saving could be immense. Other open source software such as MySQL could also be considered when developing the database for the storage. However, as the data for e-Government may be massive, the scalability of the open source Database Management System (DBMS) may need to be investigated thoroughly before making a choice over closed source. One of the likely reasons that PostgreSQL could be chosen over MySQL is that it has the ability to add or remove columns or indexes without locking the table for writes while the latter does not. This would prove invaluable during maintenance as the amount of downtime would be minimised.

6.4 e-Government Processing Unit

The e-Government Processing Unit processes requests made by the users. Once the request is processed it is then passed back to the storage where the user can get the result. Should the service require feedback from the individual O/M/A that provides it, it is then sorted accordingly and passed on to that respective O/M/A that needs to handle that particular request. This can be done in the form of an email notification sent to the O/M/A, alerting the person responsible for the task that something needs to be done. Once the task is completed, it is then uploaded to the storage and the user is also notified of its availability. The results can also be sent directly to the user via e-mail or short message text to improve efficiency. The underlying technologies that could be used could be developed by the in-house Government IT specialists in collaboration with programmers from the Private Sector.

6.5 Capacities

Various capacities are involved at each stage. The Government O/M/As must have the necessary capacity in terms of infrastructure and skilled manpower to be able to implement and maintain the e-Government services. For instance, there is a need to have highly trained Software Engineers that are capable of designing and modifying the necessary platforms to run the services being offered. Programmers/Software Developers may also be required to make changes to the code of the systems should the need arise. Network specialists, System Administrators and Information Technology Technicians must also be available to carry out the maintenance and ensure optimal operation. These should also ensure that the services are always available to the users at all times. In addition, Researchers, whose primary objectives would be to continually investigate and advise Government on additional services on the e-Government platform, could also be integrated.

6.6 Internet

The Internet provides a link between the users and e-Government services. This should be reliable and cost effective to cater for a wide spectrum of people. The Internet could also allow people in deep remote arears to have access to the services offered without them having to travel long distances. The desirable connection would be broadband because of the higher speeds that it offers. This would make access to the services feel seemless and acceptable as the users wouldn’t have to wait too long for a service to load on their device.

6.7 Users

The users are the beneficiaries of the e-Government System. They comprise mainly of citizens and businesses. In addition to having a decent Internet connection they should also have the capacity in terms of skills required for them to access and extract what they need from the e-Government platform. There many different kinds of users and each may have different needs. A user should have the basic computer literacy skills to be able to log on to the system and work their way around it.

7. CONCLUSIONS AND FUTURE RESEARCH

This Chapter presents the conclusions drawn from the findings of the study. The Chapter also provides recommendations that can be done to curb some of the shortcomings that were found. Finally, it gives a guide for further research that could be carried out.

7.1 Conclusions

The conclusions are discussed in relationship to the research questions. The research questions guided the research and data analysis.

7.1.1 Research Question One: “What capacities are essential for e-Governance implementation and delivery?”

The first research question aimed at identifying the capacities that are essential for e-Governance implementation and delivery. The study identified the necessary capacities that directly affect the successful implementation of e-Governance. These are: minimum threshold level of technological infrastructure; human capital; Internet access for all; legal frameworks/ enabling environment, political will and ability to fund the e-Government projects. The research also showed that there is still a vast amount of work that needs to be done before e-Governance can be implemented successfully in Namibia.

7.1.3 Research Question Two: “What can be done with the available capacities in the Public and Private Sectors to ensure implementation and delivery of e-Governance in Namibia?”

The second research question aimed at ascertaining what can be done with the available capacities to ensure the implementation of e-Governance. In the research,

it was found that all of the respondents owned a mobile phone. It was also the device used by the majority of the respondents to access the Internet. In this light the Government could consider developing e-Government platforms that are tailor-made to cater more for the mobile phones than other devices.

Chapter 6 presented a proposed architecture that could be adopted in the implementation of e-Governance in Namibia. The architecture encompasses all the necessary components that were deemed necessary in the implementation of e-Governance as derived from the literature reviewed.

7.1.3 Research Question Three: “How can the Public and Private Sectors build on the various capacities to implement and deliver e-Governance in Namibia?”

The third research question aimed at looking at ways in which the Public and Private Sectors could build on the various capacities to implement and deliver e-Governance. In answering this question, the study found that the Government also needs to put in more effort to try and change the negative mind-sets of the majority of its employees regarding their beliefs on the benefits of e-Governance. This could be done by means of holding more e-Governance related workshops targeting a larger audience than is currently being done. Once a positive mind-set is instilled in the individuals, they could become more willing to get involved in e-Government projects and in turn voluntarily promote it to the citizens.

The study clearly showed that most of the respondents in the General public do not know what e-Governance is. There is a need to address this situation as failure to do so would lead to possible rejection of e-Governance as a whole by the people. Efforts have to be made to sensitise the public about e-Governance and get them

more involved in e-Government projects from inception, right through to implementation. There is a need to educate the Namibian citizens regarding the relevance of e-Governance so that they could willingly embrace it when it is finally implemented.

Furthermore, the high Internet prices were found to be one of the prohibiting factors that prevented a greater number of respondents from having an Internet connection at home. An introduction of cheaper Internet connections could see a significant change as more people would be able to afford such services. This in turn would positively affect the frequency of accessing the Internet. Accomplishing this would also increase the probability of e-Governance success as the citizens would be able to access the information and services offered from the comfort of their own homes.

7.2 Future Research

It is evident that the research was mainly concentrated in the Khomas region as most of the respondents that were involved originated from Windhoek. In this light, it is highly recommended that the same study is replicated in the other regions of Namibia, namely; Erongo, Hardap, Karas, Kavango, Kunene, Ohangwena, Omaheke, Omusati, Oshana, Oshikoto, Otjizonjupa, and Zambezi. A stronger emphasis to find out the ICT penetration, especially in the rural areas, should be prioritised. Means of providing cost effective basic education and computer literacy skills to the people living in the rural areas may also be explored.

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APPENDIX A - RESEARCH QUESTIONAIRE

QUESTIONNAIRE

A study to determine the capacity of the Public and Private Sectors in Namibia to implement and deliver e-Governance

The purpose of this questionnaire is to help collect data for the study. Kindly complete the section that applies to you.

All responses are **ANONYMOUS and CONFIDENTIAL**

Section A: Government Employees

*Please **tick** where appropriate or **write** your responses in the spaces provided*

1. Gender: Male ☐ Female ☐
2. Age group: 18-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 61+ ☐
3. Which O/M/A do you work for? …….....
4. Current position: …….....
5. Education level: Grade 10 ☐ Grade 12 ☐ Undergraduate ☐ Masters ☐ Doctorate ☐
6. Work experience: Less than one year ☐ 1-4 years ☐ 5-9 years ☐ 10 years+ ☐
7. Do you have any project management skills? Yes ☐ No ☐
8. If **No**, how do you cope with your work?
   Tasks done randomly ☐ Prioritise tasks ☐
9. Are you familiar with e-Governance? Yes ☐ No ☐
10. If **Yes**, which benefit is more important to you?
    Improved service delivery ☐ Improved access to information ☐
11. Are you involved in any e-Government project in your O/M/A? Yes ☐ No ☐
12. If **Yes**, what is your role? Developer/Programmer ☐ IT Support staff ☐
    Other (specify)…….....
13. Do you feel like you are actively involved in the e-Government projects?
    Yes ☐ No ☐

14. If **No**, indicate why: Do not have the skills ☐ Everything is done by management ☐

Other (specify)……..

15. How convinced are you that the Government will be able to deliver information and services better with the implementation of e-Governance?

Not convinced ☐ Slightly convinced ☐ Very convinced ☐

16. Any additional comments or contributions: .....

……

……

Section B: General Public

*Please **tick** where appropriate or **write** your responses in the spaces provided*

1. Gender: Male ☐ Female ☐

2. Age group 18-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 61+ ☐

3. Profession: ……

4. Education level: Grade 10 ☐ Grade 12 ☐ Undergraduate ☐ Masters ☐ Doctorate ☐

5. What is your monthly income?

Below N$500 ☐ N$501-N$5000 ☐ N$5001-N$10000 ☐ N$10001+ ☐

6. Access to Internet connection at home? Yes ☐ No ☐

7. If **Yes**, how much do you pay per month? N$.....

8. How frequent do you access the Internet? Daily ☐ Weekly ☐ Monthly ☐

Other…….....

9. Which device/s do you own?

Laptop ☐ Desktop computer ☐ Mobile phone ☐ Computer tablet ☐

10. Which device do you mostly use to access the Internet?

Laptop ☐ Desktop computer ☐ Mobile phone ☐ Computer tablet ☐

11. How much did you pay to acquire your device/s? Computer tablet N$.....

Laptop N$..... Desktop computer N$..... Mobile phone N$.....

12. Do you know what e-Governance is? Yes ☐ No ☐

13. If **Yes,** choose the most important benefit of e-Governance to you:

Improved service delivery ☐ Improved access to information ☐

14. Do you think the Government is doing enough to sensitise you about e-Governance? Yes ☐ No ☐

15. If **No,** give some suggestions they could do to improve on that..……**....**

……

……**.....**

16. Any additional comments or contributions: …….....

……

……..……..

THANK YOU!!!

APPENDIX B: CHI-SQUARE TEST RESULTS

Table 4.1: O/M/A* Familiarity with e-Governance Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.362[a]	18	.072
Likelihood Ratio	34.143	18	.012
Linear-by-Linear Association	6.710	1	.010
N of Valid Cases	85		

a. 34 cells (89.5%) have expected count less than 5. The minimum expected count is .39.

Table 4.2: Current Position * Involvement in e-Government Project Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.284[a]	2	.868
Likelihood Ratio	.270	2	.874
Linear-by-Linear Association	.087	1	.768
N of Valid Cases	85		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.04.

Table 4.3: Current Position * Project Management Skills Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.114[a]	2	.010
Likelihood Ratio	9.056	2	.011
Linear-by-Linear Association	8.164	1	.004
N of Valid Cases	86		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.56.

Table 4.4: Current Position * Feel Actively in e-Government Projects Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.886[a]	2	.236
Likelihood Ratio	2.502	2	.286
Linear-by-Linear Association	.874	1	.350
N of Valid Cases	85		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.06.

Table 4.5: Current Position * Conviction that Government will Deliver Better with e-Governance Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.037[a]	6	.123
Likelihood Ratio	11.551	6	.073
Linear-by-Linear Association	8.832	1	.003
N of Valid Cases	85		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .11.

Table 4.6: Education Level * Monthly Income Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	51.456[a]	9	.000
Likelihood Ratio	59.947	9	.000
Linear-by-Linear Association	41.732	1	.000
N of Valid Cases	100		

a. 10 cells (62.5%) have expected count less than 5. The minimum expected count is .24.

Table 4.7: Age Group * Monthly Income Crosstabulation

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	33.154[a]	12	.001
Likelihood Ratio	29.325	12	.004
Linear-by-Linear Association	18.672	1	.000
N of Valid Cases	100		

a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .20.

Table 4.8: Monthly Income * Which Device Owned Crosstabulation

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.796[a]	18	.162
Likelihood Ratio	27.695	18	.067
Linear-by-Linear Association	10.723	1	.001
N of Valid Cases	100		

a. 22 cells (78.6%) have expected count less than 5. The minimum expected count is .12.

Table 4.9: Monthly Income * Access to Internet Connection at Home Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.731[a]	3	.000
Likelihood Ratio	23.368	3	.000
Linear-by-Linear Association	18.945	1	.000
N of Valid Cases	100		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.04.

Table 4.10: Age Group * Frequency of Accessing the Internet Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.564[a]	12	.266
Likelihood Ratio	13.264	12	.350
Linear-by-Linear Association	.001	1	.972
N of Valid Cases	99		

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .20.

Table 4.11: Education Level ***** Frequency of Accessing the Internet Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	64.828[a]	9	.000
Likelihood Ratio	48.627	9	.000
Linear-by-Linear Association	29.471	1	.000
N of Valid Cases	99		

a. 10 cells (62.5%) have expected count less than 5. The minimum expected count is .20.

Table 4.12: Monthly Income ***** Frequency of Accessing the Internet Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.335[a]	9	.001
Likelihood Ratio	31.257	9	.000
Linear-by-Linear Association	18.822	1	.000
N of Valid Cases	99		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .16.

Table 4.13: Access to Internet Connection at Home * Frequency of Accessing the Internet Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.315[a]	3	.010
Likelihood Ratio	16.058	3	.001
Linear-by-Linear Association	6.801	1	.009
N of Valid Cases	99		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.05.