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THE MEDIATING EFFECT OF PERCEIVED USEFULNESS AND PERCEIVED EASE OF USE IN THE ACCEPTANCE OF E-TRAINING IN THE NIGERIAN CIVIL SERVICE

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ABSTRACT

This study examined the mediating effects of perceived usefulness (PU) and perceived ease of use (PEOU) in the acceptance of e-training in the Nigerian civil service. Modified Technology Acceptance Model (TAM) for developing countries was used to examine the influence of perceived cost, computer self-efficacy, technological infrastructures, internet facilities, power supply, organisational support, technical support and government support in the acceptance of e-training. Cross-sectional research design was utilized and data was collected from 450 heads of department in the federal ministries in North Central and North Western zones in Nigeria. Partial Least Square (PLS) of the Structural Equation modelling method was used for analysis where both the measurement model and structural model of the research framework were tested. Results of the measurement model analysis indicated reliability and validity of the study constructs. The structural model results indicated that out of the 26 relationships hypothesized, only 13 were supported: 9 for direct relationships and 4 for mediating relationships. It was found that PU, PEOU, perceived cost and technological infrastructure were significantly related to e-training acceptance. Likewise, computer self-efficacy, technological infrastructure, power supply and technical support were significantly related to PEOU. Furthermore, it was found that PU partially mediated the relationship between PEOU and e-training acceptance. PEOU also partially mediated the relationship between technological infrastructures but fully mediated the relationship between power supply, technical support and e-training acceptance. These findings showed the importance of these factors in encouraging e-training acceptance in various departments and agencies in the Nigeria civil service. This study will be beneficial for policy makers in the public service in developing policies regarding e-training. Limitations encountered were the inability to include other sections of the public service as well as other zones in the country.

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Keywords: E-training acceptance, perceived cost, computer self-efficacy, availability of resource, perceived support.

ABSTRAK

Kajian ini mengkaji kesan pengantaraan tanggapan kebergunaan (PU) dan tanggapan kemudahan penggunaan (PEOU) dalam penerimaan e-latihan dalam perkhidmatan awam Nigeria. Model penerimaan Teknologi (TAM) yang dimodifikasi untuk Negara membangun telah digunakan untuk menguji pengaruh tanggapan kos, efikasiken diri tentang komputer, infrastruktur teknologi, kemudahan internet, bekalan tenaga elektrik, sokongan organisasi, sokongan teknikal dan sokongan kerajaan dalam penerimaan e-latihan. Reka bentuk kajian keratan rentas telah digunakan dan data telah dikumpulkan daripada 450 orang ketua-ketuaJabatanKementerianPersekutuan di zon Utara Tengah dan Utara Barat Nigeria.Kaedah*Partial Least Square* (PLS) *Structural Equation Modelling* telah digunakan untuk menganalisis data, dan kedua-dua model iaitu model pengukur dan struktur untuk kerangka kajian telah diuji.Dapatan daripada analisis model pengukur menunjukkan kesahan dan kebolehpercayaan konstruk kajian. Hasil daripada model struktur pula menunjukkan bahawa daripada 26 hipotesis yang diuji, hanya 13 disokong, iaitu 9 untuk hubungan terus dan 4 untuk hubungan pengantaraan. Kajian mendapati bahawa PU, PEOU, tanggapan kos dan infrastruktur teknologi mempunyai hubungan yang signifikan dengan penerimaan e-latihan. Begitu juga efikasi kendiri tentang komputer, infrastruktur teknologi, bekalan tenaga elektrik dan sokongan teknikal mempunyai hubungan yang signifikan dengan PEOU. Selain itu, PU adalah pengantara separa kepada hubungan antara PEOU dan penerimaan e-latihan. PEOU juga mengantara secara separa kepada hubungan antara infrasturktur teknologi dan penerimaan e-latihan, tetapi mengantara secara penuh hubungan antara bekalan tenaga elektrik, sokongan teknikal, dan penerimaan e-latihan. Dapatan kajian menunjukkan kepentingan faktor-faktor ini dalam menggalakkan penerimaan e-latihan dalam pelbagai jabatan dan agensi perknidmatan awam di Nigeria. Kajian ini adalah bermanfaat kepada pembuat dasar dalam membentuk dasar berkaitan e-latihan dalam perkhidmatan awam. Kekangan yang ditemui adalah ketidakmampuan untuk memasukkan seksyen lain dalam perkhidmatan awam dan juga zon-zon lain di Negara ini.

Kata kunci: E-latihan Penerimaan, tanggapankos, efikasi kendiri tentang komputer, ketersediaan sumber, tanggapan sokongan.

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LIST OF ABBREVIATION

AVE	Average Variance Extracted
FCT	Federal Capital Territory
GOF	Goodness-of-Fit
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
PLS	Partial Least Square
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model
VIF	Variance Inflated Factor
Q^2	Predictive Relevance

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

In any economy, knowledgeable human capital is regarded crucial to attaining set goals for organizations. This has made organizations commit huge resources for the training and growth of their work force (Obi-Anike & Ekwe, 2014). There has been an observed upsurge in the acceptance of technology in the operations of most organisations (Mckay & Vilela, 2011). This is as a result of the changes and advancement in the use of technology in carrying out operations including training in most organisations (Hong, 2008).

Technological advancement and awareness has altered the manner in which people do things (Ramayah, Ahmed & Hong, 2012). This has necessitated organizations to look for means which are effective in the provision of training to their personnel (Hong, 2008). This is because different ways of doing things are emerging with accelerating speed and information has to be dealt with in a smaller timeframe by workers (Ramayah et al., 2012). This includes training related issues (Mohsin & Sulaiman, 2013). Training executives feel the necessity to provide knowledge and skills more speedily and competently each and every time it is needed (Mohsin & Sulaiman, 2013). In the era of just-in-time technology, just-in-time training turns out to be a critical part for success in organizations (Weggen, 2000). This has made training to expand beyond what is available in the traditional class room**.** Training could be seen as the planned process in which knowledge or skills are acquired or changed in order to derive better performance in certain activity (Backley & Caple, 2009). The importance of training workers in organisations has been emphasized

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(Abba & Dawha, 2009) and they suggest it as a way of improving and optimizing the employee‘s performance. Training is one of the key strategic tools for organizations to get competitive advantage over others with intellectual human capital in the global village (Nwokocha & Iheriohanma, 2012). Therefore, training methods should be effective to yield better and sustainable performance (Rao & Krishen, 2012). The training method could either be conventional or e-training.

In the conventional (traditional) training method, the trainee and trainer have to be physically present in the same venue for the training to take place. Examples of this according to Ajidahun (2009) are on-the-job training, job rotation, coaching, modelling and apprenticeship, or learning in which certificates are obtained like off-the-job conferences, seminars, workshops and lectures (Eze, 2012). However, with the conventional training methods some studies have identified issues that stand as limitations to trainees which includes issues like distance to training centres, time of training, training content, cost, work schedules and family responsibilities (Alrawashdeh & Huda, 2010; Barroca, 2006; Mashhour, 2007; Matsumoto, 2006). Even though traditional training cannot be totally replaced, the pressures of growing workforce, diminishing budgets for traditional training and the constraints of schedule makes e-training an attractive alternative (Alrawashdeh & Huda, 2010).

Additionally, while attracting and retaining the right people is a challenge in itself, the additional task of providing company-specific training can create further demands upon time and resources. This is especially true where constant change in the business environment requires continuous training. In this context, traditional training method is no longer capable of satisfying the organizational demand for

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continuous manpower training (Asirvatham, 2000; Little, 2001). Thus, organisations engage in providing online training facilities and therefore turn to electronic training for their workforce for the acquisition of knowledge and skills (Mohsin & Sulaiman, 2013).

E-training could be seen as a web based educational system which utilizes computer network and information technology (Hsbollah & Idris, 2009). It can be referred to as using technology and other educational material to train (Colin, 2003). Basically, e-training are activities that are conducted via the internet (Al-Ammari & Hamad, 2008) and appears to be much faster and cheaper, convenient, available 24/7, and flexible (Bardach, 1997; Boscai, Danaiata & Abrudan, 2012; Hong, 2008; Taylor, 2002).

E-training method could be asynchronous or synchronous. Synchronous training takes place instantaneous, allowing on the spot interactions of participants. This includes virtual coaching and feedback, in which all participants are online and interacting instantly like Skype. Asynchronous coaching is self-paced which permits partakers to give or receive information devoid of the reliance of other partakers′ contribution at that point in time. Examples are email, blogs, and discussion boards, as well as web-supported textbooks, hypertext documents, audio, video courses, and social networking. The virtual training setting facilitates interactions between participants that are physically and geographically divided, offers common training material as well as permits discussion between partakers. The technical strategy and setup influences how the participants can interact. For instance chat rooms as well as multimedia tasks permit learners to effortlessly operate websites (Lim, Lee & Nam,

2007). It has been debated that participant‘s curiosity and drive can be stirred with the use of excellence graphic and multimedia system that offers suitable melody and sound in training (Long, DuBois & Faley, 2008).

E-training with all its palpable advantages seems to be the solution to meet the new and dynamic demands for training (UNESCO, 2002). For instance e-training has more forms of conveying information and accumulating knowledge than the traditional training as stated earlier. In e-training, trainees get access to information fast, have more time to digest information and respond with no time constraints. Furthermore, quality and urgency in communication among trainees is much enhanced. Trainees also have more equal standing when open discussions are conducted, making them more involved in the training process.

In recent years, e-training has been considered one of the most promising fields in Human Resource (HR) educational technologies (Amara & Atia, 2016). It has become a standard in most organization and corporate arenas (Amara & Atia, 2016). Dalton (2000) showed that Forrester who is independent researchers in the assessment of technology change in the operations of organizations found that almost all the 2500 organizations they assessed already had in place online training initiatives. E-training has developed as a fresh way of skill preparation and information attainment (Amara & Atia, 2016). It has increased in popularity as organizations strive to provide flexible, reliable and fast learning environment in a cost saving manner (Lorenzetti, 2005). This goes to show that e-training is proven to be more effective and interactive than traditional training (Mohsin & Sulaiman, 2013). It has also been argued that owing to fast advancement of technology and

communication infrastructure, e-training has become the innovative approach of training in most organizations (Amara & Atia, 2016; Ramayah, et al., 2012). Adjusting to the e-training trend has been easy for organisations in developed countries due to the fact that, environment and mind set revolves around technology (Ramayah, et al., 2012).

Developing countries are also hopping on the e-training bandwagon in the hope of getting the benefits of the trend (Ramayah et al., 2012). In the African continent, some countries have started using technology to train. This advancement is evident in the report of the Commonwealth which showed type of information and communication technologies being use in Africa (Nneka, 2010). However, Africa is still in the infancy stage of e-training. This is shown in the African database survey conducted with 70 per cent low connectivity (Unwin, 2008). Nevertheless, there is interest in the usage of information technology (Nneka, 2010).

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Developing countries like Nigeria particularly the civil service has not joined the technological trend in general and the e-training in particular with observed in-availability of technological infrastructures (El-Rufia, 2011). This is surprising as Nigeria is a country with technological presence (Uwaifo & Uddin, 2009). Proper awareness of the benefits of joining the technological world has been attributed to this drawback in the Nigerian civil service (Okifo & Igbunu, 2015). When there is no awareness of the benefits of e-training, it would lead to the employees in the Nigerian civil service rejecting the system (Okifo & Igbunu, 2015). It is therefore necessary to examine the perceived attitude of the employees in the Nigerian civil service with respect to acceptance of e-training. This will help to assess what will

influence them to accept e-training (Davies 1989). In this assessment, the perceive usefulness (PU) and perceived ease of use (PEOU) of e-training will help to determine the acceptance of the system (Davies, 1989). Additionally, since e-training acceptance requires the assessment of the level of the employee‘s awareness based on their attitude and belief, then there is need to examine the factors that will encourage the acceptance of the system (Buabeng, 2012) by the employees in the Nigerian civil service.

1.2 Nigerian Civil Service

Nigeria is a country in West Africa with 36 states and Abuja as the federal capital. The country is blessed with many natural resources. In 2014 her population has been estimated as 178 million, placing the country in the rank of 7th in the world (World Population Review, 2014). Nigeria‘s large population has also given rise to a large work force especially in her civil service.

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The Nigerian Civil Service originated from the organizations the British established before the country‘s independence. Civil service is government institutions which are neither political nor judicial with the function of designing, formulating and implementing public policies (Anazodo, Okoye & Chukwuemeka, 2012). The Nigerian Civil service comprises ministries, departments and agencies (MDAs). These MDAs employees are referred to as civil servants. These civil servants are either in the federal, state or local government services. This means that the civil service is in three category: federal, state and local government civil service. Each category has different conditions of service for their employees and different commission that deals with staff related matters. The number of people employed

under these three categories is estimated as at 2011 around 2,145,000 (El-Rufia, 2011) which has increased to above nine million in 2015 (National Bureau of Statistics, 2015). These employees are career civil servants that help to ensure the implementations of government that result in the provision of services for the populace (Anazodo et al., 2012).

The civil service is mainly made up of the ministries and all other departments and agencies come under these ministries. There are 27 federal ministries in Nigeria. These ministries are also in each state. A minister appointed by the country‘s president and confirmed by the senate heads each ministry. Each ministry has a senior civil servant known as a permanent secretary. All civil servants are responsible to the Head of Civil Service (Nigeria Public Service Rules and Regulations, 2009).

The Nigerian civil service has witness several reforms in an effort to improve it. These included the 1963 Margan Commission, the 1971 Adebo Commission and the 1972 to 1974 Udoji Commission. In 1979, the structure of United States civil service was adopted and in 1985 the Dotun Philips Panel further tried to reorganise the civil service. Furthermore, the civil service witnessed other reforms with the Civil Service Reorganization Decree in 1988 and the Allison Ayida Committee of 1995 but it was the 1988 reorganisation decree that significantly turned around the Nigerian Civil Service in structure and efficiency. In 1999 another reform and restructuring took place. However, in spite of all this, the Nigerian civil service is still considered inefficient (El-Rufia, 2011).

Despite the huge budget and personnel cost for each ministry, department and agencies (MDAs), the Nigerian civil service is plagued with poor infrastructure and untrained manpower which has been attributed to inefficiency (El-Rufia, 2011, Obi-Anike & Ekwe, 2014). It has been argued that the monetary benefit attached to training is of more concern to employees in the civil service and not the actual training (Bamidele, 2016; Dada, 2006). This manpower requires training that can be assessed to ensure work activities are carried out effectively and efficiently (Ambrose & Victor, 2012). As such, recently the head of the service has been embarking on measures which include the initiatives of sending civil servants to workshops and conferences in which they can be assessed to promote efficiency in the ministries in order to be responsive to the needs of the public (Bamidele, 2016; Chris, 2015; Habeeb, 2009). Furthermore, the civil service has been argued to be backwards in the provision of services due to obsolete facilities which has contributed to inefficiency (El_Rufia, 2011). Therefore, the Nigerian civil service need to keep in tune with the rest of the world technology wise and particularly in training issues (Bamidele, 2016). The drawback of traditional training which includes distance to training centres, time of training, training content, the pressures of growing workforce, logistics and diminishing budgets for traditional training and the constraints of schedules has made e-training an attractive alternative (Alrawashdeh & Huda, 2010; Loh, Lo, Wang & Mohd-Nor, 2013).

This will require the employees to be aware of the benefits of e-training which will go a long in encouraging them to accept the trend in the Nigerian civil service (Okifo & Igbunu, 2015). Despite the efforts of the Nigerian government in encouraging the use of e-training with the implementation of programmes such as National

Telecommunication policy, Education Trust Fund, Science and Technology Policy, National Information Technology Development Agency and National Satellite Systems Programme, e-training has not been accepted in the Nigerian civil service (Eze et al., 2013).

This has been stated that government has not made adequate effort in terms of sufficient financial backing, management support, and appropriate training to make the benefit of accepting e-training known to the Nigerian civil service (Eze et al., 2013). The focus of the government has been observed to be more on the financial, and communication sectors (Eze et al., 2013). This shows the awareness of e-training is very much present in Nigeria but not in the civil service (Eze et al., 2013). This is an issue that is desired to be investigated since it has been stated that the acceptance of e-training based on awareness is much faster with large organisations (Harfoushi & Obiedat, 2011). Therefore, this study considers it appropriate and important to examine the awareness of e-training that will encourage its acceptance in the Nigerian civil service. This is through the investigation of the belief and attitude of the employees of the Nigerian civil service which will make them to accept e-training.

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1.3 Problem Statement

E-training is considered much faster and cheaper, convenient, with-out time constraint, and flexible (Boscai et al., 2012). The benefit of e-training has increased the interest in e-training practices in both developed and developing countries (Ramayah et al., 2012). This has made e-training to be considered the new way of training in most organisations (Ramayah et al., 2012). However, in spite of this

transformation and immense benefits, the acceptance of e-training has constituted a challenge in developing countries like Nigeria particularly the civil service due to factors such as lack of awareness, the ease of use of technology and resources, (Heeks, 2003; Obijiofor, Inayatullah & Stevenson, 2005).

With regards to resources, the Nigerian government has been spending 90 per cent of her resources as reoccurring expenditure on the civil service which is around 2 per cent of the country's population (Fasola, 2016). This expenditure is mostly on personnel cost and training is part of this cost (Fasola, 2016). On training alone for the ministries, government has spent ₦7, 630,743,110.00 in the last three years (Budget Office, 2013 to 2015). Therefore, the current financial situation in the country has made the Nigerian government to re-assess her spending and to take measures to correct these spending. One of which is cut local training and to place embargo on international training (Sylvester, 2015).

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However, since there are remarkable deficiencies in knowledge, skills, and ability among public personnel, training is still very much needed to ensure staff are competent in handling specific task (El Rufia, 2011; Obi-Aneke & Ekwe, 2014). Therefore, to care for the training needs of the civil servants taking all the above into consideration and to keep in line with the rest of the world technology wise, the head of service in 2015 announced the consideration of adopting an e-training programme: Structured Mandatory Assessment – Based Training Programme (SMAT_P) (Chris, 2015).

This is a welcome initiative but how prepared is the employees of Nigerian civil service in terms of awareness and attitude to accept this new method of training since it has been stated that the civil service is still backward in infrastructure (El-Rufia, 2011). This is surprising as Nigeria has been stated to have a strong presence of technology (Uwaifo & Uddin, 2009). This may be attributed to fact that even though there is a strong technological presence in some section of the economy as discussed previously, the usage of technology in other section of the public sector is still in the infancy stage (Ajiferuke & Olatokun, 2005; Salawudeen, 2010). Most acceptance and usage have been observed to be on private sectors and in financial management in the public sector (Ajiferuke & Olatokun, 2005). Personal usage of technology like internet usage with smartphone has increased to around 15.5 million people in 2015, an increase of around 39 per cent (Poushter, 2016).

With the strong presence of the acceptance of using technology to operate in the private sector and by individuals, it is a great concern that the Nigerian civil service which is a government institution is still behind in the acceptance of using technology in its operations including training (El- Rufia, 2011; Ajiferuke & Olatokun, 2005). Since the federal government is now considering the implementation of SMAT-P, an e-training incline programme, there is need to assess the awareness of the employees of the civil service, their believes and attitude with regard to accepting e-training. If the employees are aware of the benefits of e-training, there is high possibility of acceptance and implementation; otherwise it may be rejected (Uwaifo & Uddin, 2009). The acceptance will require knowing the employees perceived belief about e-training usefulness and ease of use (Davies, 1989).

The assessment of the employee perceived belief and attitude requires examining factors that will aid this acceptance (Davies, 1989). Literature has shown that these factors are perceived cost, computer self- efficacy, availability of resources and perceived support (Folorunso, ogunseye & Sharma, 2006; Park Kim & Kim, 2014; Ramayah et al., 2012). Furthermore, to capture the scenario in the Nigerian environment particularly the civil service there is need to examined comprehensive factors necessary for e-training acceptance (Buabeng, 2012). Therefore, this study examines availability of resources with dimension of technological infrastructure, internet facilities and power supply (Park, Kim & Kim, 2014; Ukpe, 2013). Furthermore, the factor of perceived support is examined with the dimension of organisational support, technical support and government support (Eze et al., 2013; Ndubisi & Jantan, 2003; Selim, 2007). Additionally, literature showed inconsistencies in the results of these variables which require further investigation (Aggorowati , Iriawan & Gautama, 2012: Chong, Ooi, Lin & Tan, 2010; Tan & Teo, 2000; Thompson, 2010; Purnomo and Lee, 2013).

Studies have examined two or three of these factors in acceptance of using technology to train with focus on individual employees (Harfoushi & Obiedat, 2011; Loh et al., 2013; Ramayah et al., 2012). However, since top management have the knowledge and skills to use e-training system, it is important to focus on the perspective of management.

These factors are as well considered in the present study due to inconsistencies in results from previous studies as mentioned above. Furthermore, since this study is

examining the perceived usefulness and perceived ease of use of e-training as a base (mediators) to determine the acceptance of the system, it is necessary to have an in-depth view of acceptance attitude (Buabeng, 2012). Perceived ease of use and perceived usefulness being the two key constructs of Technology Acceptance Model, more variables need to be incorporated into Technology Acceptance Model for e-training acceptance (Buabeng, 2012; Lee, Hsiao & Purnomo, 2014; Ramayah & ignatus, 2005). Therefore, these mentioned factors are examined as an extension of TAM in order to capture the scenario in the Nigerian environment (Akpodiete, 2012; Awa, Okoye, Emecheta & Anazodo, 2013; Bamidele, 2016; Emeka, 2014; Eze, 2012; Haliso, 2011; Lawwyy, 2013; Okonmah, 2014; Ukpe, 2013).

The choice of examine the acceptance of e-training in the Nigerian civil service is due to the fact that the civil service being a large organisation in an environment in which technological acceptance is present has still not accepted e-training (Akpodiete, 2012;Uwaifo & Uddin, 2009). Furthermore, it is necessary to examine e-training acceptance before it can be implemented in any organisation (Harfoushi & Obiedat, 2011). To the best of our knowledge studies of e-training acceptance in Nigerian civil service with focus on management are lacking. Additionally, not much research work exists with regards to e-training that is designed to help employees carry out their task efficiently (Hardman & Robertson, 2012) particularly in the Nigerian civil service. Therefore, this present research fill this gap by examining the influence of perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organizational support, technical support and government support the acceptance of e-training in the Nigerian civil service with the mediation of PEOU and PU.

1.4 Research Questions

Based on the arguments and observations made in the previous section concerning e-training acceptance, these questions are addressed:

1 Is there a significant relationship between perceived cost and e-training acceptance?

2 Is there a significant relationship between computer self-efficacy and e-training acceptance?

3 Is there a significant relationship between availability of resources (technological infrastructure, internet facilities, power supply) and e-training acceptance?

4 Is there a significant relationship between perceived support (organisational support, technical support, government support) and e-training acceptance?

5 Is there a significant relationship between computer self-efficacy and PEOU?

6 Is there a significant relationship between availability of resources (technological infrastructure, internet facilities, power supply) and PEOU?

7 Is there a significant relationship between perceived support (organisational support, technical support, government support) and PEOU?

8 Does PEOU mediate the relationship between, computer self-efficacy, availability of resources (technological infrastructure, internet facilities, power supply) and perceived support (organisational support, technical support, government support) and e-training acceptance?

9 Does PU mediate the relationship between PEOU and e-training acceptance?

1.5 Research Objectives

Based on the research questions, the following are the objectives of this study:

1 To examine the relationship between perceived cost and e-training acceptance.

2 To investigate the relationship between computer self-efficacy and e-training acceptance.

3 To examine the relationship between availability of resources (technological infrastructure, internet facilities, power supply) and e-training acceptance.

4 To investigate the relationship between perceived support (organisational support, technical support, government support) and e-training acceptance.

5 To evaluate the relationship between computer self-efficacy and PEOU.

6 To examine the relationship between availability of resources (technological infrastructure, internet facilities, power supply) and PEOU.

7 To assess the relationship between perceived support (organisational support, technical support, government support) and PEOU.

8 To examine the mediating effect of PEOU on the relationship between computer self-efficacy, availability of resource (technological infrastructure, internet facilities, power supply) and perceived support (organisational support, technical support, government support) and e-training acceptance.

9 To assess the mediating effect of PU on the relationship between PEOU and e-training acceptance.

1.6 Scope of the Study

The public sector in Nigeria is quite large and the civil service is pillar of the sector. According to recent statistics from National Bureau of Statistics (NBS), 52% of Nigeria GDP is from the public sector (CBN, 2013). The Nigerian civil service consist of federal, state, local government civil services, agencies which include

ministries, agencies and departments (MDAs). Due to the large nature of the Nigerian civil service this study focus is on the ministries. There are 27 federal ministries in the country with headquarters located in the federal capital territory, Abuja. Nigeria has 36 states including the federal capital and these ministries are in each of these states. This makes the civil service the sector with the highest manpower strength in the country. 514 questionnaires were distributed to heads of departments in the Nigerian ministries for the duration of two months. Since the purpose of this study is to assess the influence of computer self-efficacy, availability of resources, perceived support, perceived cost, PU and PEOU play in e-training acceptance as well as determining the mediating effect of PEOU and PU on the relationships between the above stated factors and e-training acceptance in the Nigerian civil service, the unit of analysis is individual as managers. This study chooses the head of departments in the federal ministries as the respondents of this study. This is because they have the knowledge and skill, therefore in a better position to use the e-training system.

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1.7 Significance of the Study

This study looked into factors that can influence the acceptance of e-training in the civil service in Nigerian using the TAM theory. Therefore, the study is going to help improve TAM for developing particularly the Nigerian civil service. This study will help to establish factors that will help motivate the acceptance of e-training in the Nigeria civil service. Furthermore, this study will help in establishing factors that could help boost the acceptance e-training which would encourage the use of e-training in various department or government agencies. It will be beneficial for policy makers as well as government agencies in developing policies regarding e-

training. Findings of this study will provide more understanding and awareness of the benefits of accepting e-training in the public sector which will lead to better performance and efficiency.

1.8 Definition of Terms

E-training Acceptance: It refers to acceptance of educational system that is web based which enable employees the use of network of computers and information technology in training. This study looks at the level of awareness of e-training benefits by the civil servant which encourage the acceptance of e-training.

Perceived ease of use (PEOU): This refers to the level of belief employees have that e-training system will be easy to use for them. The awareness of the benefits of e-training can psychologically influence the attitude of employees to belief that accepting e-training system will be effortless.

Perceived usefulness (PU): This refers to the level of belief employees have that e-training system will improve their performance. Psychologically, the awareness of the benefits of e-training can stimulate the attitude of employees to belief that accepting e-training system will enhance their performance.

Computer self-efficacy: This refers to an individual‘s assessment of their capabilities to use computers to complete task when they accept e-training. This study looked at the computer literacy of employees in Nigerian civil service to assess their ability to use computers when e-training is accepted.

Perceived Cost: This refers to the expenses that are incurred in the process of e-training acceptance. This study assessed the cost of e-training acceptance

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which includes acquiring infrastructure and ensuring that experts are available to guide in the acceptance.

Technological Infrastructure: This refers to the technological systems which are required for e-training acceptance in the Nigerian civil service. This study assesses the availability of infrastructure in the Nigerian civil service that will encourage the acceptance of e-training.

Internet facilities: This refers to the availability of set of systems that enables two or more computers to send and receive information from one another to aid e-training acceptance. This study assesses the availability, access and bandwidth strength of internet that is necessary for acceptance of e-training.

Power supply: This refers to the availability of generated electrical energy from power plants to technological appliances for them to function properly to aid e-training acceptance. This study assessed the availability of power supply which is needed for any of the infrastructures to function properly in the acceptance of e-training.

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Organisational support: This refers to the level of belief that an employee have that the management of the Nigerian civil service will support e-training by their encouragement and allocation of resources, policies, practices and reward system to boost e-training acceptance.

Technical support: This refers to the expert technical guidance that will be available in solving technological related issues. This study assessed the need for the availability of experts that can handle and solve any technological issue when it arise which will aid e-training acceptance.

Government support: This refers to the regulations, financial backing and encouragement that the Nigerian government will give to support and aid e-

training acceptance in the Nigerian civil service. This study assess the perceived believes of the level of encouragement that the Nigerian government will give through the provision of finance, support and making of policies that will be favourable for the acceptance of e-training in the Nigerian civil service.

Technology Acceptance Model: An information system theory that models individual acceptance of e-training. It states that an individual‘s acceptance of information technology dependents on the perceived ease of use (PEOU) and perceived usefulness (PU) of the system under consideration. This model for this study is mostly concern with the belief and attitude of individual with regards to acceptance of e-training

1.9 Summary of Chapter One

In chapter one, issues of e-training acceptance in general and in the Nigerian civil service in particular were discussed in the background of the study. The problem statement carried discussions about different types of training: traditional and e-training, problems with traditional training, importance of e-training in the Nigerian civil service and the problem relating to e-training awareness in the Nigerian civil service. Furthermore, the factors that can improve e-training awareness and help encourage e-training acceptance were also discussed in the problem statement, highlighting the methodological, theoretical and practical gaps. Operational definitions of the factors based on the study framework were given. The objective and research questions were formed based on the focus of the study and from the problem statement. The area, sample, unit of analysis, respondents and justifications for focusing on the area, using the sample and choosing the respondents were

discussed in scope of the study. The benefits of the study highlighting the methodological, theoretical and practical significance were discussed in significance of the study.

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1.10 Organisation of the Chapters

This is a five chapter research work. The first chapter deals with the introduction of this research, its background, the problem statement, the objectives of this research and the research questions. The scope and significance of this research is also

explained in chapter one. Chapter two reviews literature on the variables of this study from previous studies which provided the opportunity for this study to derive its research framework and formulate its hypotheses. Methodology, sampling design, data collection; the procedures and techniques of analysis techniques were discussed in chapter three. In chapter four, the analysed data and findings of the study were discussed. Chapter five contained the conclusion, summary of the study findings, practical, theoretical and methodological contributions as well as the recommendations and future research suggestions of the study.

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section aimed to provide literature review about e-training acceptance in the organizations. The review is divided into two sections. The first section is concerned with the empirical literature concerning factors that affect the acceptance of e-training. These include perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organisational support, technical support and government support. Furthermore, PEOU and PU influence in relation to e-training acceptance were also reviewed. The second section deals with the review of Technology Acceptance Model which is the underpinning theory for this study.

2.1 Literature Review on the Relevant Empirical Studies

In this section, the review of literature covers previous empirical studies on the e-training acceptance, perceived ease of use (PEOU) and perceived usefulness (PU), perceived cost and e-training, computer self-efficacy and PEOU, technological infrastructure and PEOU, internet facilities and PEOU, power supply and PEOU, organisational support and PEOU, technical support and PEOU, government support and PEOU.

2.1.1 E-training Acceptance

E-training acceptance is agreeing to use e-training system based on the awareness of e-training benefits (Harfoushi & Obiedat, 2011). Since Programmed Logic for Automatic Teaching Operations (PLATO) was developed in the 1960s, more interactions can be done online today (McKay & Vilela, 2011). Globally, online

training environment has become part of most organisations (Athey, 2012). Traditional way of training is nearly phased out with the advancement in information and communication technologies which have made training more flexible (Salawudeen, 2010). Due to the drawbacks of traditional training (Bonk & Wisher, 2002) more organisations have accepted e-training (Loh et al., 2013). Although acceptance of e-training system has not reached some countries, there is an increase of around 40 per cent in organisations and individuals using the e-training system (McKay & Vilela, 2011).

E-training is the term that is used when training involves using technology to educate, be it face to face, distance mediated or pure online (Kanuka, 2006). E-training has been defined as the process of delivering skills and knowledge with the use of technology that is being mediated by internet from an instructor to employee (Mohsin & Sulaiman, 2013). Furthermore, e-training has also been said to be training experience that is technologically mediated and carried out to economically improve performance in work place in order to achieved personal or organisational gaols (Loh, Lo, Wang & Mohd-Nor, 2013). This study considers e-training an educational system that is web based and enables trainees the use of network of computers and information technology in training (Hsbollah & Idris, 2009).

In order for e-training to be accepted there is need for the employees in an organisation to have adequate knowledge of e-training, how it differs from traditional training. Furthermore, they need to know how e-training system is designed, its characteristics and the benefit of accepting e-training (Amara & Atia, 2016; Harfoushi & Obiedat,).

Therefore, when employees accept e-training, there will be an interactive two way information flow, training will be collaborative in which the trainees learn through practice and self-research (Amara & Atia, 2016). Furthermore, search and investigations will be done over the internet which permits trainees time to digest and interpret information. Additionally, individual difference on abilities to handle training and system related issues are taken into considerations (Amar & Atia, 2016; Harfoushi & Obiedat, 2011).

With e-training acceptance, organisations can have speedy growth in innovations, and absorb these innovations with education, ICT, and the digital knowledge (Amar & Atia, 2016). Accepting e-training will present large number of trainees with equal opportunities for training at different levels bringing about savings in time and training cost (Amar & Atia, 2016). E-training acceptance builds interactive relationship between trainers and trainees, improves the trainee‘s skill in the use of computers as well the internet, which is very helpful career wise (Harfoushi & Obiedat, 2011).

Furthermore, it has been stated that the acceptance of e-training enables the provision of several sources of information which will permit assessment, scrutiny and discussions (Ramayah et al., 2012). Additionally, trainee‘s skills and information are updated in line with current trends; experiences will be shared through e-training medias; training atmosphere will be shared through fresh methods and different information experience and sources which will enable meeting the needs for qualified staff on certain jobs and disseminate the culture of information technology

to create a community that can be in tune with the global village (Amara & Atia, 2016).

Studies have suggested framework for e-training acceptance in particular to answer the question of how to go about e-training acceptance (Harfoushi & Obiedat, 2011; Mohsin & Sulaiman, 2013). This includes awareness, issue of bandwidth, computer self-efficacy, and language barrier (Mushin & Sulaiman, 2013).

Furthermore, it has also been suggested that the acceptance of e-training in an organisation be assessed in form of readiness factors of the organisation in terms of system functionality, human capabilities and financial resources (Harfoushi & Obiedat, 2011).

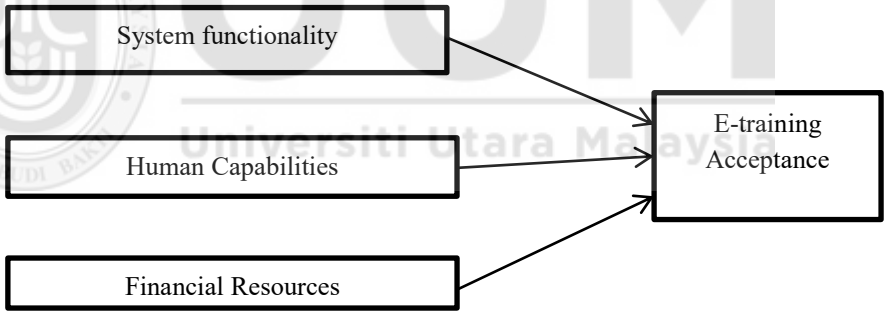

Figure 2.1
E-training Acceptance Model
Harfoushi & Obiedat (2011)

Additionally, it has been stated that there is need to consider the availability of infrastructures, human capability, technical staff, support and cost if e-training is to accepted and implemented successfully (Harfoushi & Obiedat, 2011). In the assessment of these mentioned factors, it is also necessary to assess the attitude and belief of the employees, their perceived believes about the usefulness and ease of use

of the e-training system which will influence the acceptance of the system (Davies et al. 1989; Harfoushi & Obiedat, 2011).

Based on the peculiar nature of the Nigerian civil service which has been discussed previously, this study examines the variable of perceived cost, computer self-efficacy (to assess the human capability), availability of resource with technological infrastructure, internet facilities and power supply as dimensions. Furthermore, perceived support is included to be examined with the dimensions of organisational support, technical support and government support. These factors are discussed in subsequent sections.

2.1.2 Perceived Ease of Use and E-training Acceptance

Perceived ease of use (PEOU) refers to the level an individual believes the use of a certain system would be effortless (Davies 1989). PEOU is one of the key construct of Technology Acceptance Model that has effect on individual attitude in relation to acceptance of information system (Davies, 1989). In carry out any activity, an individual usually tries to assess the effort that will be required for that activity (Bugembe 2010). Therefore, when a system is perceived to be easy to use in comparison to other system, users are more likely to accept it (Davies, 1989).

In TAM, acceptance is the product of a rational assessment of the system which guides the decision to accept that system (Davis, 1989). PEOU serves as basis in TAM and the construct is used to determine the connections between acceptance and the external variables of a study (Han, 2003). Furthermore, the construct has shown significant close connections either in current or future system acceptance (Davies et

al., 1989, Han, 2003). This is because user assesses their effort based on their opinion of the system, if it can be used with less effort which that contributes to PEOU being the level in which an individual feels that they can use e-training system effortlessly (Davis, 1989; Eke, 2011; Lee et al., 2011)

It has been found that when e-training acceptance is perceived by users to be laden with effort in usage, individual will not accept it ((Harfoushi &Obiedat, 2011). However, PEOU plays an important role by helping to lessen the doubts that come with the acceptance of any new system (Elliott & Frank, 2008). Therefore, PEOU is important in determining user‘s acceptance of e-training system (Davies, et al 1989). Applied in the perspective of this study, PEOU is the belief that using e-training will be effortless.

Ong et al. (2004) found PEOU to be significant predictor of acceptance of system which is concur by Lee et al. (2011). These studies indicated that in the acceptance of new system, PEOU has positive and direct effect. Their findings are in line with the findings of Venkatesh and Davis (2000) which suggested that PEOU has direct and strong effect on acceptance which further strengthens the originally work of Davis et al. (1989). Employees will perceive e-training system useful if they perceived the system to be easy to use.

2. 1.3 Perceived Usefulness and E-training Acceptance

Perceived usefulness (PU) refers to an individual‘s perception that the use of a particular system can advance performance in their job (Davies, 1989, Lederer, Maupin, Sena, & Zhuang, 2000). PU is one of the key construct of TAM that has

effect on individual attitude in relation to acceptance of information system (Davies, 1989). When a user believes that a system can help in being rewarded with bonuses, raise or promotion that system is said to be high in PU (Davies, 1989). In carry out any activity, an individual usually tries to assess the effort that will be required for that activity (Bugembe 2010). Therefore, when a system is perceived to be useful in comparison to other system, users are more likely to accept it (Davies, 1989).

Davies (1989) stated that acceptance is the product of a rational assessment of the system which guided the decision to accept. PU serves as basis in TAM and the construct is used to determine the connections between acceptance and the external variables of a study (Han, 2003). Furthermore, PU has shown significant close connections in system acceptance (Davies et al., 1989, Han, 2003). This is because user assesses their performance based on their opinion of how that system can help in their performance. Therefore, that contributes to PU being the belief that information system will lead to quality work activity (Davis, 1989; Ong et al., 2004; Purnomo & Lee, 2013).

It has been argued that due to the worth of outcomes, individual acceptance of system is affected by PU (Davies, 1989). This is because e-training will be accepted if users have belief that the relationship between e-training and performance is a positive one (Harfoushi &Obiedat, 2011). Therefore, PU is important in determining user‘s acceptance of e-training (Davies et al., 1989). Applied in the perspective of this study, PU is the belief relating to e-training outcome.

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Ong et al. (2004) found that when the objective is acceptance of system, PU effect is direct and most significant as long as the system provides contents that are useful and attractive to the user. Employees may perceive e-training system useful if they perceived e-training system to be useful.

2.1.4 Perceived Ease of Use and Perceived Usefulness

Perceived ease of use and perceived usefulness has been defined in this study previously. In the utilization of these two construct to assess e-training acceptance, there is need to examine the relation between perceived ease of use and perceived usefulness (Daivies et al., 1989).

PEOU has been found to have indirect effect on acceptance of information system through PU (Purnomo & Lee, 2013). This finding on this relationship is similar with findings of others researchers (Chau & Hu, 2001; Selim 2003; Wu & Wang 2005). It has been observed that previously conducted research work on the relationship between PEOU and PU highlights positive effect of PEOU on PU (Saade & Bahli, 2005). The results of their analysis also confirm there is positive relationship between PEOU and PU. This shows that for e-training to be accepted, the relationship between PEOU and PU is important.

Most of the studies on system acceptance using TAM have concentrated on the predictive strength of PEOU and PU (Chatzoglou et al., 2009; Cheng, 2011; Lee, 2006; Ong et al., 2004; Liu et al., 2009; Stoel & Lee, 2003). Furthermore, these studies have been conducted in developed countries (Alshare & Alkhateeb, 2008; Anandarajan et al., 2002). These countries are different from developing countries in

terms of system acceptance (Bell & Pavitt, 1997; Fuentes & Mies, 2011). This is due to the fact that environment can affect acceptance of any new system (Anandarajan et al., 2002; Chen, Chen & Kazman, 2007; Lippert & Volkmar, 2007; Rouibah, 2008).

Therefore, it has then been stated that such findings may not hold true in developing countries (Thompson, 2010). Thus, Brown (2002) stated that TAM can be simplified for developing countries. Brown (2002) used the variable of ease of finding, ease of understanding, self-efficacy and computer anxiety as the model external variables and found no relationship between PU and system acceptance. However, PEOU was found to be a stronger determinant of acceptance of web centred learning in a developing country. Additionally, Chong et al. (2010) did not find significance influence of PEOU on system acceptance in Vietnam. Considering the above discussions, it is necessary to examine the mediating effects of PU and PEOU in e-training acceptance.

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2.1.5 Perceived Cost and E-training Acceptance

Cost is a very crucial issue when considering e-training acceptance. Perceived cost could be referred to cost that are incurred which have influence on behaviour in the process of system acceptance (Kurnia, Smith & Lee, 2006). This study assessed the cost of e-training acceptance which includes acquiring infrastructure and ensuring that experts are available to guide in the acceptance.

It has been stated that cost influences the quality of electronic training programmes that will be provided by an organisation (Folorunso, Ogunseye & Sharma, 2006). In broader terms cost includes the quality of infrastructure, types and quality of e-

training services that is provided in the organisation. Perceived cost are the resources required for e-training acceptance which includes cost of hardware resources, the cost of ensuring continuity of the program, cost of stable power supply taking onto consideration the poor state of electricity supply in Nigeria, cost of employing and retaining experts in information technology and cost of software (Folorunso et al., 2006).

Several studies have argued that perceived cost is usually considered as barriers to system usage and acceptance (Dahlberg, Mallat, Ondrus & Zmijewska, 2008; Kleijnen et al., 2004; Machogu, 2012). The Nigerian civil service complain of the budget allocation received from the government as not adequate (El-Rufia, 2011). This budgetary allocation has to be considered against all the facilitating conditions that are required for the acceptance of e-training.

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The cost of e-training acceptance can be direct or indirect (Gerald & Dennis, 2006). The explanation is that direct cost is as significant as the indirect cost. Cost can arise from the new way of operation which includes organisational cost spent in planning, organising and putting of the new system into practice (Gerald & Dennis, 2006). This was further buttress by Machogu (2012) when he stated that perceived cost involves the cost of technology acquisitions as well as savings that will be derived from system usage by the organisations. The attractions of returns on investments can make organisations to invest in new system (Hall & Khan, 2002).

Therefore, if e-training system is perceived to be beneficial, it is very likely that the Nigerian civil service will accept it. Apart from quantifiable cost of acceptance, there

are also ranges of relative cost. For instance the forfeiting of daily travelling allowances for the benefit of being with family. These relative costs are likely to influence the acceptance of e-training (Hung et al., 2003; Wu & Wang, 2005).

Furthermore, the competitiveness of technological products has gradually resulted in the cost of system to decline over time, making acceptance to use e-training easier in developed countries (Middleton, 2011). However, this cannot be said to be same for emerging countries like Nigeria (Adika, 2003). The cost of both hardware and software is getting more expensive with inflation making the acquisition of technological product a major project (Aduwa-Ogiegbaen & Iyamu, 2005).

Folorunso et al. (2006) stated that cost is one of the critical elements that influences system acceptance, a finding that was agreed on by Kurnia, et al. (2006). Furthermore, Ozbek et al., (2015) found that perceived cost had positive effects on acceptance. This finding could be as a result of the perception of the tourists on convenient of the site in reduction of accommodation cost making the sites useful and acceptable for usage. However, AlSoufi and Ali (2014) Fonchamnyo (2013) found perceived cost not significant with intention of customers to accept a new system in Bahrain and Cameroon respectively.

The variable of perceived cost is included in this study due to the fact that e-training acceptance will involve cost related issues. Since cost, be it hard or software cost, direct or indirect cost, is an important factor to be considered in e-training acceptance (Harfoushi & Obiedat, 2011) especially in developing countries. Additionally, with

the inconsistency in findings in previous studies it is necessary to include the construct of cost in this current study.

2.1.6 Computer Self-Efficacy and PEOU in E-training Acceptance

Self-efficacy is referred to as the perceived belief of being able to carry out action that is required to handle a particular situation (Bandura, 1982). Self-efficacy is a person‘s confidence on their ability in using computers to do certain work as well as being able to deal with any issue that may arise in the course of usage. Self-efficacy theory developed by Bandura is stated to act as a determining factor of behaviour with the view that behaviour is linked to self-efficacy and outcome belief. In the setting of teaching, the concept of self-efficacy has been observed to be an important element (Compeau & Huff, 1999; Lent et al., 1984) and when used has led to improved outcomes (Hassan & Ali, 2004; Yi & Im, 2004).

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Therefore, computer self-efficacy is about the confidence and comfort felt in relation to using computer. This goes a long way in the perception of the usefulness and ease of use of new system usage (Thompson, 2010; Venkatesh & Davis, 1996). Computer self-efficacy can then be defined as the level in which users believes they are able to carry out certain job by using the computer (Compeau & Higgins, 1995). Cheng (2011) defined the term as user‘s assessment of their ability to complete certain task by applying their computer knowledge.

Agarwal and Stair (2000) found that computer self-efficacy has significant positive relationship with PEOU. The argument here is that users will have positive belief on ease of use of any system when their level of computer self-efficacy is high. The

importance of the computer self-efficacy relationship with PEOU was emphasized by Ong et al. (2004) with computer self-efficacy relating positively to PEOU Additionally, studies (Agarwal et al., 2000; Lee, 2006) proved that computer self-efficacy has significant effect on e-learning acceptance.

However, Ramayah et al., (2012) showed that computer self-efficacy does not have impact on user satisfaction in e-training acceptance. This could be attributed to the continuous experience of the respondents with e-training, thus computer self-efficacy was no longer a concern and therefore have no effect on user‘s satisfaction. Additionally, Purnomo and Lee (2013) indicated that computer self-efficacy did not relate with PEOU. These results were inconsistent with previous studies on system acceptance. It is observed that this is due to diversity of sample selected and study settings. Some of the respondents for the study were observed to be good in computer and Internet usage. In the Nigerian civil service, computer literacy is an issue (Akpodiete, 2012). It has been stated that the Nigerian civil service are still very much novice in information technology literacy (Akpodiete, 2012).

As discussed earlier that e-training involved the use of computer to train, this study includes the variable of computer self-efficacy. This is because firstly, there is the need for employees to be computer literate before they can be involved in e-training process. Secondly, there is need to assess the computer literacy level of employees in the Nigerian civil service as this was discussed early as being an issue. Finally, there is need to re-examine the variable as inconsistency has been found in the results of studies on the relationship between the variable and perceived ease of use (Purnomo

& Lee, 2013). Therefore, this research examines the effect of this factor in a different scenario which is the Nigerian civil service.

2.1.7 Availability of Resource and E-training Acceptance

Availability of resources in this study refers to facilities that will assist the smooth operation of e-training programme. Eke (2011) argued that e-training acceptance will face problems in the absence of adequate resources. For successful acceptance of e-training programme, Harfoushi and Obiedat (2011) argued that organisation should ensure the availability of the necessary resources. Taking Nigeria environment into consideration, this study used TAM constructs to examine the role of technological infrastructure, internet facilities and power supply in relations to acceptance of e-training in the civil service in Nigeria. Availability of resources in this study has dimension of technological infrastructure, internet facilities and power supply. The Nigerian civil service is ridden with obsolete technological infrastructure, internet and power supply are facilities that are of great worry to the Nigerian populace (Oduwale, 2004; Adomi & Kpangban, 2010). Therefore, there is need to assess the effect of these variables in e-training acceptance in the Nigerian civil service.

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2.1.7.1 Technological Infrastructure and PEOU in E-training Acceptance

Information technological infrastructure could be referred to as the technological backbone of communications, data, computers and basic systems (Earl, 1989). He viewed infrastructure as framework which guides organisations in satisfying their needs. McKay and Brockway (1989) gave their definition of technological infrastructure as the enabling foundation that organisation depend on which is the shared capabilities of information technology. The variable is considered as part of

technological architecture (Nchunge, Sakwa & Mwangi, 2013). Furthermore, Duncan (1995) defined technological infrastructure as that part of technological resources that makes it possible for innovations as well as continuous improvement in technological systems. Furthermore, Bhattacherjee and Hikmet (2008) referred to technological system as system which is required for the implementation of technology in organisations. This study looks at technological infrastructure as the physical technological resources that can aid e-training acceptance.

The operations of organisations have been greatly influenced by the developments in technological infrastructure. This can be seen in emergence and strengthening of the world economy which has been transformed into information and knowledge based economies (Nchunge et al., 2013). This has made many organisations particularly in the developed countries to use technology to stay in operation. Studies (Bharadwaj, 2000; Ross, Beath & Goodhue, 1996) have stated that technological infrastructure is an important organisational capability that should be considered as an effective source of value.

According to Macpherson, Elliot, Harris and Homan (2004) the availability of technological capacity is an important factor to be considered when introducing new system in an organisation. To have successful e-training acceptance in an organisation, there is need for appropriate technological medium and channels to allow for sharing of information and communication (Folorunso et al., 2006; Poon et al., 2004; Selim, 2007). It is necessary to ensure that the infrastructures are reliable, up to date and of good quality. With reliable technological infrastructure e-training will be accepted (Yiong, Sam & Wah, 2008).

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In the Nigeria civil service, infrastructure is one of the major challenges facing the sector. The country like many developing countries is still suffering from the digital divide (Akpodiete, 2012). Furthermore, it is also believed that infrastructure and ICT literacy are combinations that are necessary in the usage of technology and communications tools to create, manage, evaluate as well as integrate information in order to have an enabling e-training environment in the Nigerian civil service. This is why speakers at Nigeria Computer Society (NCS), 2013 conference advocated a robust infrastructure deployment for the country. The forum had noted Infrastructures are needed to create, manage, implemented appropriately for services that involves technology to work out successfully.

Studies have found infrastructure to be important in usage as well as it relate significantly to acceptance of systems (Bhattacherjee & Hikmet, 2008; Folorunso et al., 2006; Maughan, 2005; Özgen, 2012). Yiong et al. (2008) stated that infrastructure has important role in the acceptance of electronic learning in educational institutions. However, Thompson (2010) reported a contradicting result; there was no statistical prove in his study that infrastructure support had influence on system acceptance. Considering the above, this study therefore finds it necessary to examine this variable in this study‘s setting.

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2.1.7.2 Internet Facilities and PEOU in E-training Acceptance

Studies have stated that instructions done over the internet is significant in training (Keeney, 1999; LaRose, Gregg & Eastin, 1998). Forsyth (1998) defined internet in its simplest form as *"an electronic mail system and library access facility*". Martin

(2003) gave his definition of internet as a set of systems that enables two or more computers to send and receive information from one another. For this study Internet facility refers to the availability of open standard network connectivity to aid e-training acceptance (Jebakumar & Govindaraju, 2009). The availability of internet facilities has been stated to provide greater convenience thereby enhancing the acceptance of technology (Jebakumar & Govindaraju, 2009). Passmore (2000) included internet as one of the resources that aids web based course delivery. It has been stated that in technology acceptance internet facilities is a critical factor (Martins & Kellermanns, 2004) because in e-training, effective communication between trainers and trainees is done mostly via the internet.

Furthermore, studies have argued that less stress and dissatisfaction on access and connectivity will further enhance the acceptance of e-training as well as its success (Hara & Kling, 2000; Jebakumar & Govindaraju, 2009; Martins & Kallermanns, 2004). The availability of internet facilities helps in facilitating smooth information exchange (Webster & Hackly, 1997). It has been argued that internet facilities allows trainees to receive from trainers innovations that helps in stimulating as well as enhancing learning (Brown, 2002). Manipulations, creativity and initiatives from both trainees and trainers are very much supported with the presence of internet facilities (Mioduser, Nachmias, Lahav & Oren, 2000).

Jebakumar and Govindaraju (2009) found availability of internet facilities to relate significantly with PEOU. Their result showed that availability of internet facilities is an important factor to be considered in the acceptance of electronic training. Adika (2003) found people access to internet will make them to use technology more. In

addition, Ehikhamenor (2003) argued that although 50.4 per cent of Nigerian scientists had access to internet but this was through commercial means. He concluded that availability of infrastructure, cost of services and issue with ease of use are the constraints faced by the respondents of his study. Some studies results agreed with Ehikhamenor's findings (Oduwole, 2004; Luambano & Nawe, 2004). Additionally, Oduwole (2004) in his study added slow connection speed to these constraints.

In the Nigerian civil service, there is great worry about the state of facilities that aid work performance which includes internet service (Adomi & Kpangban, 2010; Oduwale, 2004). Considering the above discussions, it is neccessary to assess the effect of this variable on e-training acceptance in the Nigerian civil service.

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2.1.7.3 Power Supply and PEOU in E-training Acceptance

In spite of the relevance of power supply to technology, literature on power supply influence on the acceptance of e-training appears to be scarce. Power supply could be referred to as the generation of electrical energy from power plant system which connects electric networks from the plant to consumer's appliances (Ijewere, 2013). This study assessed the availability of power supply which is needed for any of the infrastructures to function properly in the acceptance of e-training. It is an undeniable fact that having access to power supply in any economy is an asset worth having. In the current era, power supply is needed in almost all aspect of human living, survival and growth. The standard of living and the level of a nation's industrialization can be measured by her electricity supply and consumption (Mahammed, 2005). Power supply is so necessary for technological and socio economic development of every

nation, that without it, an economy can come to a halt. Therefore, power supply that is widely available, affordable and reliable is needed in any economy for meaningful growth.

Power supply in developed countries is available as long as payment is made. However, in most African countries like Nigeria, power supply provided by government is a thing of luxury that even if an individual can pay there is still no guarantee of its supply. Yet daily and economic activities still have to go on. Therefore, it is a common sight to see houses, business environment and even government premises operating on ―generators" to stay relevant. This has made the Nigerian populace to give the country the nick name of ―generator economy" (Ekpo, 2009). This situation was officially confirmed when the result of current poll on power supply issue showed that 81 per cent of the Nigerian population use alternative source to generate electricity (Okonmah, 2014). This situation has added to the cost of things in which electricity is needed to produce; which is almost everything. The issue of power supply is so bad that Nigeria is among the African countries (Kenya, Ethiopia, Liberia, Tanzania & Ghana) included to benefit in the president Obama ―Power Africa" initiative announced in Cape Town in June 2013 (Clayton, 2014).

In Nigeria, the demand for electricity increases every day and this has outstripped the supply which is mentioned above as epileptic in nature (Sambo, 2008). Nigeria's electricity generation is at 3800 megawatts while the usage per capita is 136 kilowatt per hour (Joseph, 2014). This put Nigeria among the countries with the lowest per capita power consumption (Abiodun, 2014). Experts have estimated that Nigeria

requires a minimum of 40,000 megawatt (MW) generated power quarterly for the economy to be driven properly (Joseph, 2014; Editor, 23 April 2014). If this low generation rate continues, the Nigerian government estimates a yearly loss of $130 billion. It is thus so obvious that electricity problem is hindering the country‘s development despite many power plants put in place to tab her vast natural resources.

One of the resources that Nigeria has in abundance is her human resources due to her large population. A significant number of this population make up the civil service. For reliable and efficient human capital, it is necessary to have a properly trained populace and in this day and era technology plays a significant role in this training. Technology requires stable supply of power for it to be contributory to development be it personal, national or global. Indicating the influence power supply has on development (Alawiye, 2011). However, using technology to educate people in Nigeria is being faced with the issue of inadequate power supply. Erratic power supply does not allow flexibility in training time (Akintola, Aderounmu & Owolarafe, 2002). Inadequate power supply has been considered as one of the obstacles of the acceptance of technology in education in developing countries (Clayton, 2014).

Several studies have found epileptic power supply as a hindering factor to acceptance of system to learn (Adomi & Kpangban, 2010; Azubuike & Offordile, 2011; Eke, 2011; Eze et al., 2013; Ololube, Ubogu & Egbezor, 2007). Additionally, studies found power supply among the problems in the acceptance of new system in Nigeria (Azubike & Offordile, 2011; Nwankwo & Orji, 2013). It has been stated that the

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frequent power supply interruption contributes to the low level of technology usage in Nigeria in the range of 57 per cent (Adomi & Kpangban, 2010).

Park, Kim and Kim (2014) found perceived power supply reliability to relate significantly with PEOU in South Korea, emphasizing on the predictive strength of PEOU on system acceptance. The above discussed studies stressed the ease of use of technology with adequate power supply. Looking at the conclusion of these studies, it could be said that the future of accepting technology to teach is very bleak in Nigeria.

However, with the current reform and privatization of the power sector in Nigeria, there is hope on improved power supply. This could probably warrant the consideration of using electronic training. Furthermore, this hope is likely to remove the fear of the huge financial burden of providing alternative power supply for e-training. Therefore, in the light of above argument, it is necessary to assess the effect of power supply on e-training acceptance in the Nigerian civil service.

2.1.8 Perceived Support and E-training Acceptance

Ali and Magalhaes (2008) described perceive support as the belief by users that they will get adequate support for online training. Ndubisi and Jantan (2003) reported perceived support as significant predictor of technology acceptance by including PU and PEOU in their model. Perceive support is included as a variable in this study due to the fact that accepting e-training is a major project and as such will require all the necessary support. The variable of organisational support, technical support and government support are included as dimensions of perceive support. Considering

that Nigeria is the setting for this study, there is need to examine the influence of these variables in e-training acceptance in the Nigerian civil service.

2.1.8.1 Organisational Support and PEOU in E-training Acceptance

Organisational support is endorsement, encouragement and positive attitude of the organisation in the provision of information, system development, operations and reward system to meet organisational goals (Anandarajan et al., 2002, DeLone & Mclean, 1992). This study looks at organisational support as the support organisation gives in the usage of IT system for training (Lee, Hsieh & Chen, 2013).

Organisational Support Theory (OST) was advanced by Eisenberger, Huntington, Hutchison and Sowa (1986). They opined that Organisation Support theory is the assurance organisations give to their employees regarding economic and emotion support taking into consideration the concept and reward principle of social exchange. According to this theory, employees work for and are dedicated to organisations based on that organisation‘s concern for them. On this premise Likert (1967) stated that a mutual support relationship based on the need for self-fulfilment should be formed by members and leaders in an organisation. He further stated that followers will respond positively to leader‘s decision when they perceived that they are valued, cared for and supported and vice versa. The implication of organisational Support Theory is that expectations of the organisations are improved. This increases the obligation to help in the achievements of set objectives. Organisational Support Theory also offers to enhance the emotional commitment to the organisation as well as reducing turnover and strengthening the cohesion of the organisation (Wu, 2012). Therefore, effective use of technology is seriously affected by lack of organisational

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support (Anandarajan Igbaria and Anakwe, 2002; Davies, 1989). Davies (1989) found that lack of organisational support is a critical barrier to technology usage. Studies have also argued that organisational support and technology acceptance have strong association (Igbaria, 1990; 1993; Fuerst & Cheney, 1992).

In many organisations e-training acceptance among other issues is given high priority so as to make training and development easy within work environments. Many organisations changed from the traditional training method to e-training for the economic factor of it being considered as cheaper (Strother, 2002). According to Selim (2007) for new system to be successfully implemented in organisations, there is certainly the need for support. This support is to be inclusive of e-training platforms, policies, incentives, making available information and technical assistance.

Even though many organisations are accepting the use of information and communication technology in their training and development programmes, some organisations have not supported the e-training platform. This is evident in the non-expansion of significant resources to support electronic training (Black et al., 2007; Sawang, Newton & Jamieson, 2013). This leads to problems for users that are new to the system of electronic training (Sawang et al., 2013). However, studies have greatly highlighted the issues of organisational support in system acceptance literature (Agarwal & Karahanna, 2000; Neufelf et al., 2007). With sufficient support users are bound to be comfortable with using information and communication technology to train. Nelson (1990) argued that since electronic learning is often introduced at a very fast rate, users require extensive support and guide on how the

system is to be used. Sawang et al. (2013) further stressed that lack of organisational support can affect usage of electronic system negatively. Support displayed by organisation is received well by users as society values harmony in the organisation.

Anandarajan et al., (2002) Lee et al. (2013) found that organisational support has a positive effect on perceived ease of use concluding that organisational support is a motivating factor for users to accept new system. Furthermore, Anakwe, Igbaria and Anandarajan (2000) Kim, Park and Lee (2006) Sawang et al. (2013) also found the same result. However, Aggorowati Iriawan and Gautama (2012) Kok et al. (2011) found organisational support insignificant to PEOU.

In the literature of TAM organisational support construct has been added as one of the external factors of the model. This is because of the control that organisation have in technology acceptance issues (Thompson, 2010). It was proven by Walker (2005) that use of information and communication technology is greatly influenced by the support the organisation gives. Bhattacherjee and Hikmet (2008) supported this argument by stating that if users perceived that they will get the necessary and required resources and support from the organisation, they can be motivated to accept information and communication to train.

From the review of literature, the construct of organisational support has not been consistent. It was used as a two component construct consisting of management support and technical support by Walker and Johnson (2008) in a study to analyse the effect of the construct on technology acceptance. Likewise Bhattacherjee and Hikmet (2008) used organisational support also as two component construct

consisting of infrastructure support and technical support. Therefore, organisational support can be studied as a construct that consist of two or three components comprising of technical support, management support and infrastructure support However, some studies have used organisational support as a single construct (Aggorowati et al., 2012; Anandarajan et al., 2002; Kim et al., 2006; Lee, et al., 2013; Sawang et al., 2013). These studies showed organisational support as antecedent of perceived ease of use.

These studies that used organisational support as determinant of PEOU were carried in developed countries their findings may not be applicable in developing countries (Anandarajan et al., 2002). Since external validity is an important aspect of research (Anandarajan et al., 2002) and according to Stumpf, Brief and Hartman (1987 p 28) ~~–a~~ key dimension of external validity is international" as cited by Anandarajan et al. (2002). Furthermore, Liebenau and Smithson (1991) stated that cultural and social characteristics of developed countries organisations are distinct and contrast to organisations in developing countries.

Additionally, since the civil service is made up of ministries, departments and agencies (MDAs), there is need to have organisations support in convincing employees the need to accept e-training. Considering the above discussions and the inconsistencies found in the results of the variable, this current study therefore, examined the variable in the stated dimension in determining its influence in the acceptance of e-training in the Nigerian civil service.

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2.1.8.2 Technical Support and PEOU in E-training Acceptance

Technical support means the availability of personnel that are experts in information technology to assist in technology acceptance (Bhattacherjee & Hikmet, 2008). This refers to the expert technical guidance that will be available in solving technological related issues which includes answering of questions, solving of problems that may emerge during usage. This study assessed the need for the availability of experts that can handle and solve any technological issue when it arise which will aid e-training acceptance.

These experts are expected to also provide instructions and support to users before as well as during usage of e-training system. Technical support is considered a facilitating determinant in the acceptance technology (Rym et al., 2013). Ngai et al. (2007) in their study of acceptance of webCT, technical support was added as a factor in TAM extension. William (2002) argued that one of the things that can help in the acceptance of a new technology is the availability of technical support.

According to Venkatesh (1999) facilitating factors such as technical support give users the sense of safety in technology usage. Abba et al. (2009) found that the availability of technical support is very necessary in the technology acceptance for technical support being a facilitating factor is considered to be a significant determinant for perceived ease of use which concurred with other studies result that the lack of technical support can lead to unsuccessful technology acceptance (Alexander & McKenzie, 1998; Soong, Chan, Chua & Loh, 2001).

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Ndubisi and Jantan (2003) reported that in system usage, PU and PEOU are affected positively by technical support. Rym et al. (2013) reported positive relations between technical assistance and PEOU in technology acceptance. They argued that technical assistance is one of the factors that can help instil positive attitude towards technology acceptance. Furthermore, Gazinoory and Afshari-Mofrad (2011) found that lack of technical support make learners to drop out of electronic learning programme. Kim et al. (2006) concurred with this finding. However, Tan and Teo (2000) found no significant influence of technological support on technology acceptance. This is due to the fact that necessary support was available to users and therefore taken for granted making users indifferent to technical support as a determining factor to accepting the system. Lack of technical support has been found to be one of the barriers in electronic learning acceptance (Muilenburg & Berge, 2005).

Over the years, researchers have studied the variable of technical support as either a sub construct of other variable (Bhattacherejee and Hikmet, 2008; Yiong, Sam & Wah, 2008) or as a construct on its own (Abba et al., 2009; Gazinoory & Afshari-Mofrad, 2011). Although technical support construct in the study conducted by Bhattacherjee and Hikmet (2008) was a sub construct of organisational support, it was explicitly shown to reflect the assistance and support needed for technology acceptance.

In whatever form technical support is studied, it is important to note the crucial role this factor plays in technology acceptance. Kidd (2010) suggested that in order to prevent technology barrier, decision makers should provide necessary technical

support. In addition, everything involving technology requires the support of experts for smooth and continuous operation. As previously discussed that there is low rate of computer literacy in the Nigerian civil service (Akpodiete, 2012), thus, there is need to have technical experts available in consideration of e-training that involves computer usage. Based on the above discussions and the inconsistency in findings of previous studies, this current study includes technical support as a dimension of perceived support to examine its role in e-training acceptance in the civil service in Nigeria.

2.1.8.3 Government Support and PEOU in E-training Acceptance

Literature has shown that in the acceptance and usage of technology, some factors that are either internal or external have to be considered. Some of these factors could actually be out of the control of the organisations (Al Haderi, 2014). One of such factor is government support which refers to the regulations, financial backing and encouragement that are received from government in relation to technology acceptance (Al Haderi, 2014). This support can be in form of investment in infrastructure (Chong & Ooi, 2008; 2010).

In developing countries where most technological innovations/acceptance is predominantly public sector affairs, government support is a strong influence to be considered (Jaruwachirathanakul & Fink, 2005; Tornatzky & Klein, 1982). It has been observed that in countries like Japan, Malaysia and Singapore, technology acceptance rate is high due to government investment in technology (Chong, Ooi, Lin & Tan, 2010). This has given support to the argument that government support has influence on technology acceptance. When an economy is centrally driven and

planned by the government, there is need for them to play the crucial role of encouraging the citizenry in technology acceptance (Chong et al., 2010). This can be achieved by making policies, finance, investment and infrastructure available to ease smooth implementation (Chong et al., 2010).

Therefore, when the necessary requirement is available, technology acceptance will be more feasible (Goh, 1995). The Organisation for Economic Co-operation and Development (OECD) has stated that government support in new system acceptance increases returns from investments in research and development thereby enhancing industrial strength (Macharia & Nyakwende, 2009). The civil service being the backbone of the public sector in Nigeria can go a long way in contributing to the economic growth of the country with government investment in the appropriate infrastructure.

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Furthermore, when government is the driving force in technology acceptance, employees may view compliance as mandatory therefore they are very likely to accept the trend (Tan & Teo, 2000). For instance in countries like Malaysia where government has encouraged technology acceptance with the promotion of services such as e-government web sites which are accessible easily, users accept by using these technology for their needs like renewing of road tax etc. If the Nigerian government make policies that are supportive of e-training, employees would comply.

Eze, Awa, Okoye, Emecheta and Anazodo (2013) Tan and Teo (2000) found no significant relation between government support and acceptance in Nigeria and

Singapore respectively. However, studies have found government support to have significant relationship with PEOU (Chong et al., 2010; Daniel & Jonathan, 2013; Macharia & Nyakwende, 2009)

The civil service is an institution owned by the government so that their policies will be implemented to benefit the populace. As such, there is the need to get government support for projects that involves the civil service. This is because government will be the one to provide the finance as well as make policies that will aid smooth e-training acceptance. In countries where the role of government in encouraging technology and innovation acceptance is very noticeable, the variable of government support is thus important. It is important to state that all the above stated studies examined the variables of government support as a single construct (Chong et al., 2010; Daniel, & Jonathan, 2013; Macharia & Nyakwende, 2009) or dimension of a variable (Tan & Teo, 2000) without using the mediating construct of PEOU or PU. Since Chong et al. (2010) found PEOU to be insignificant to technology acceptance which is contrary to other studies, therefore this current study examined the role of government support on e-training acceptance being mediated by PEOU.

2.2 Review of Underpinning Theory

Over the years a number of technology acceptance studies have been conducted using Technology Acceptance Model (TAM) theory. This information system acceptance theory is discussed in the following section, giving the justifications for using it in this current study.

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2.2.1 Technology Acceptance Model (TAM)

This theory adapted from TRA was developed by Davies (1989) to assess factors that can make people to either reject or accept technology. The theoretical base of TAM is the theory of reason action which is done to postulate the fundamental linkage between PEOU and PU, individual attitudes, behavioural intentions and technology usage. The determinants of attitude in TRA are substituted with PU and PEOU in TAM. According to Davies et al. (1989), in explaining behaviour, subjective norms are not significant. This removal further helped in the prediction as well as explanation of the use and acceptance of information technology in the work place.

According to the premise of TAM, the determinants of technology acceptance are two: PU and PEOU. PU according to Davis is the degree that individuals expect that acceptance of technology will enhance their job performance and PEOU is the degree that individuals believe that using a particular system is effortless (Davies et al., 1989). The attention of TAM is mostly on acceptance and technology usage.

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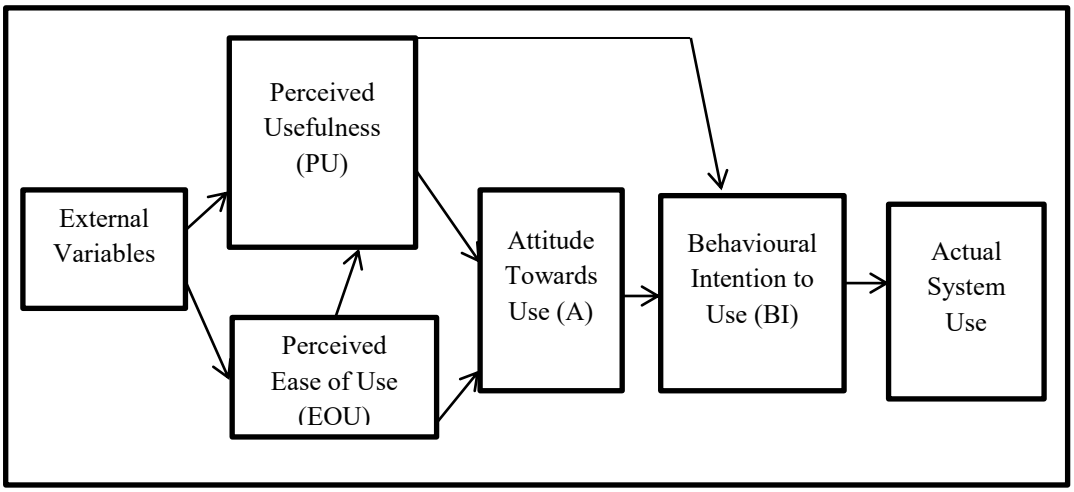

Figure 2.2
Technology acceptance model
Source: Davies et al. (1989)

TAM posits that individual outlook in the use of equipment is affected by PU and PEOU. Furthermore, the behavioural intention (BI) of an individual to use technology is predicted by PU and attitude. Likewise, PEOU influences PU. PEOU affects technology acceptance indirectly through PU. In TAM, behavioural intention (BI) is linked to acceptance behaviour. TAM theory also opined that PU and PEOU can be affected indirectly by variables that are external to them. In subsequent model of TAM (Ventakesh & Davies, 1996) the construct of attitude was removed due to the fact that it had weak correlation with behavioural intentions (BI) and perceived usefulness (PU). The model they derived is shown in Figure 2.3.

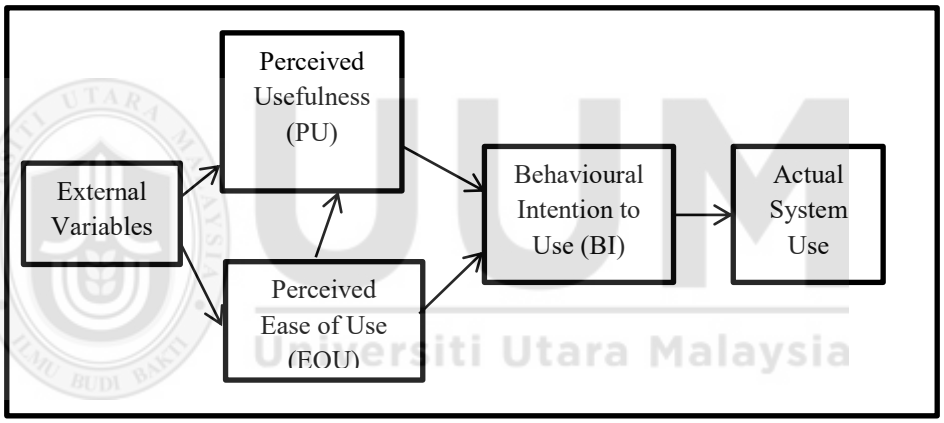

Figure 2.3
Modify TAM
Source: Ventakesh and Davies (1996)

The framework for this study was developed after review of literature. The resultant framework is based on Davies (1989) TAM following Brown (2002) modification of the model for developing countries. Brown‘s modification is shown in Figure 2.4

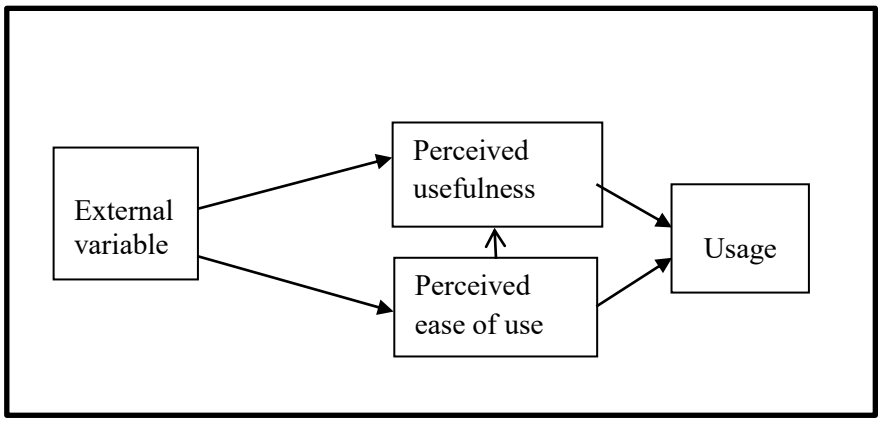

Figure 2.4
TAM for developing countries
Source: Brown (2002)

Davies (1989) original TAM consists of external variables, PU, PEOU, attitude towards using behavioural intentions and actual use. In this study PEOU mediates the link between the independent variables and e-training acceptance while PU mediates the link between PEOU and e-training acceptance. The theoretical framework of this study is an extension of the TAM based on review of past literatures. In the model PEOU and PU are directly linked to usage instead of through Behavioural Intention (BI). This is to simplify TAM, examining acceptance as the dependent variable instead of Behavioural Intentions (Adams et al., 1992; Brown, 2002; Straub et al., 1997). This can be done for developing countries based on principles of human computer interaction (Brown, 2002). The model was tested in South African with external variables of ease of finding, ease of understanding, self-efficacy and computer anxiety (Brown, 2002). He found that PU did not affect acceptance in developing countries. Brown result was further confirmed by El-Kasheir, Ashour and Yacout, (2009). This therefore increases the predictive strength of PEOU on acceptance for developing countries.

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TAM has been faulted as failing to supply meaningful information on the technology acceptance to issues such as internet banking services due to its generality (Mathieson, Peacock & Chin, 2001; Yen, 2010). Their argument is that it also does not consider obstacles that would restrict technology acceptance such as insufficient knowledge and time in internet banking. However, internationally, numerous studies have been carried out using the TAM model to predict success of technology acceptance (Davis & Venkatesh, 2000). TAM had been validated and is believed to be the very influential and robust model to examine technology acceptance (Horton, Buck, Waterson & Clegg, 2001; Igbaria et al., 1995; Lee, 2006; Liu et al., 2009; Purnomo & Lee, 2013; Taylor & Todd, 1995; Venkatesh & Morris, 2000).

TAM is considered appropriate to use in this study because it explains how people behave in relation to acceptance of technology in an organisational setting. Although there are other models that have been advanced in the quest to understand causes that influences acceptance of technology in organisation, TAM has been widely used and accepted as the appropriate model when it concerns user‘s acceptance of technology.

It has been argued that the usage of TAM is better in an obligatory situation (Davies, 1989; Venkatesh et al., 2002; Zhu et al., 2010). The fact that TAM is parsimonious in nature has made many studies on user acceptance to embrace the model (Zhu et al., 2010). Furthermore, amongst technology acceptance models, TAM has been proven to be effective in predicting user‘s behaviour (Al-Ammari & Hamad, 2008; Jebakumar & Govindaraju, 2009; Purnomo & Lee, 2013).

Furthermore, TAM has been used as an instrument in many empirical studies. This is because in comparison to other model, it has better explanatory ability on attitude of technology usage (Mathieson, 1991). This is further confirmed by King and He (2006) after carrying out a statistical meta-analysis of TAM from 88 research work as it was applied in many fields. Their result confirmed that although there is other models used in technology acceptance studies, TAM is a much reliable, predictive and valid model that can be used in different contexts of technology usage.

Many studies findings have concurred TAM argument on technology acceptance (Davis et al., 1992; Hsu, & Lu, 2000; Igbaria et al., 1997; Liu et al 2009; Ong et al., 2004; Park et al., 2009; Venkatesh, 2000; Venkatesh & Davis, 2000). They have argued that TAM can be broaden in various ways in it applicability. This has resulted in the TAM instruments being extensively used in research to study issues that has to do with user acceptance of technology (Jebakumar & Govindaraju, 2009).

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Since the development and validation of the original TAM by Davies (1989) studies have replicated it (Matheson, 199; Purnomo & Lee, 2013). This has made studies to suggest that TAM can be applicable in various ways (Hsu & Lu, 2004; Igbaria et al., 1997; Ong et al., 2004; Venkatesh & Davis, 2000). Some studies have opined that TAM can be extended in the quest to further investigate user behaviour. This has led to TAM being extended by many studies (Abbad, Morris & De Nahlik, 2009; Igbaria et al., 1997; Lee, 2006; Mun & Hwang, 2003; Ong et al., 2004; Purnomo & Lee, 2013). These studies that have used the concept of TAM, have confirmed that the perception by the user on ease of use and usefulness of technology are necessary determinants in the acceptance of technology (Al-Ammari & Hamad, 2008; Hashim,

2008; Lee, 2006; Purnomo & Lee, 2013). Therefore, in order to improve on TAM predictive power, studies (Davies, 1989; Davies et al., 1993; Fonchamnyo, 2013; Muniruddeen, 2007) have suggests the addition of external variables.

Purnomo and Lee (2013) reported that studies have extended the TAM model in other to examine the intervening consequence of external variables on PEOU and PU in technology usage. Furthermore, they also reported that studies like Igbaria et al. (1995) and Mun and Hwang (2003) suggested that TAM can be extended with organisational support and computer background. These studies argued that these variables (organizational support and computer background) have immense effect on employee‘s belief on acceptance of technology. They continued by saying that this effect is based on the availability or scarcity of resources opportunities and skills to use the technology. In addition, Gazinoory and Afshari-Mofrad (2011) used extended TAM to examine content, expert, culture, technical support, computer self-efficacy, reliability and cultural variables in Iran.

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Some studies (Fonchamnyo, 2013; Williams. 2002) extended TAM to include the variables of perceived cost. Others (Purnomo & Lee, 2013; Gazinoory & Afshari-Mofrad, 2011; Al-Ammari & Hamad, 2008; Lee, 2006; Ong et al., 2004) have extended TAM to include computer self-efficacy. Similarly, Yiong et al. (2008) extended TAM to include the variable of infrastructure as technology and system. Jebakumar and Govindaraju (2009) carried out a research using TAM. Availability of internet facilities was among the variables of their study. Furthermore, Lee et al. (2013) extended TAM to included organisation support. Abbad, Morris and De Nahlik (2009) included technical support as part of their extension of TAM.

Likewise government support was included as an extension of TAM by Chong, Ooi, Lin and Tan (2010). These studies have shown how an Individual's decision process is affected by external variables. These studies have been carried out mostly in developed countries.

Sabrina (2007) argued that there is a need to test TAM in different cultural setting due to the fact that individual's behaviour may be different between developed and developing countries. Jebakumar and Govindaraju (2009) argued that all the variables of TAM are not correlated which indicates that TAM varies from culture to culture. The applicability testing of behavioural models in different cultural setting is important (Durvasula, Andrews, Lysonski & Netemeyer, 1993). Theory testing importance was stressed by Petty and Cacioppo (1996) who advised researchers not to relent on the testing of theories with the hinge sight of understanding factors that can be the success or failure of such theory (as cited by Sabrina, 2007).

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Furthermore, Cheron and Propeck (1997) agreed with this assertion when they argued that replication of model is also necessary by stating that external validation of theory can be achieved when models are replicated in different countries and populations. This was concord by Sabrina (2007) and Salim (2005). Replication was also buttressed with the argument that through it theories can be empirically tested and interpreted (Kerlinger & Lee, 2000). This can be in situations that are either similar or otherwise. This point earlier had previously been strengthened when it was stated that in the process of research, the application of replicability rule is very important (Hubbard, Vetter, Little, 1998; Hunter, 2001; Kerlinger & Lee, 2000). Hubbard et al. (1998) crowned this all when they hailed replicability principles as the

hallmark of science. According to Aharoni and Burton (1994) there is no universally accepted language, definitions or underpinned theories that can stand as a base for management theory which can be applied worldwide (as cited by Anandarajan et al., 2002).

Finally, studies have suggested that more variables that can assist the acceptance of technology usage particularly technological, individual, organisational, institutional, and support variables should be investigated and validated in different countries (Buabeng-Andoh, 2012). Therefore, this study has replicated TAM with an extension of perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organisational support, technical support and government support based on the review of literature on the variables discussed previously.

Consequently, from the review of literature for this study, all these variables that have been mentioned above have not been studies together and the focus was not on top management. Some studies have extended TAM with computer self-efficacy (Gazinoory & Afshari-Mofrad, 2011) or combinations that includes two or three of the mentioned variables (Abbad et al., 2009; Purnomo & Lee 2013; Y-H Lee et al., 2013) but as per our knowledge none have been found to extend TAM with the combinations of perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organisational support, technical support and government support in the Nigerian context.

Since TAM is parsimonious, it should be extended with variables that are relevant to the issue under investigation (Schierz, Schilke & Wirtz, 2010). Furthermore, studies

have recommended the continual refining of PU and PEOU determinants so as to assess these determinants‘ strength in technology acceptance (Lee, 2006). Therefore, based on the inconsistencies in the results of the variables discussed previously and the above discussions, this study used TAM by combining the above mentioned variables and also focusing on management. These combinations of variables are believed to be important for the study of e-training acceptance in the Nigerian civil service due to uniqueness of Nigerian environment as discussed previously. Therefore, based on the review of the literature of the variable and TAM above, the study research framework is formed

2.3 Summary of Chapter

In this chapter, a review of literature was carried out on, e-training acceptance, perceived cost, computer self- efficacy, technological infrastructure, internet facilities, organisational support, technical support and government support. It was observed that there are inconsistencies in the results of the studies reviewed as regarding the variables of this study. Furthermore, the variable of power supply was added to be examined in a different research setting to test the predictive strength of TAM constructs of PEOU and PU as mediators. Additionally, TAM as the underpinning theory of this study was reviewed with justifications for using it in this current study as a base of the research framework.

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CHAPTER THREE

METHODOLOGY

3.1 Introduction

In this chapter, detailed description and explanation of the procedures and methods in which data was gathered and analysed on e-training acceptance in civil service sector in Nigeria were presented. The sections in this chapter includes research design, population, unit of analysis, sample of the study, sampling frame, and technique for data analysis, hypothesis development, testing and operational definition of variables, questionnaire design, and the research framework. Furthermore, the statistical test that was used to evaluate the research hypothesis is also discussed in this chapter.

3.2 Research Framework

The framework for this study is based on the study hypotheses after review of literature. The framework is based on Davies (1989) TAM following Brown (2002) modification of the model for developing countries, a simplified model of TAM with different external variable of perceived cost, computer self-efficacy, technological infrastructure, internet facilities power supply, organisational support, technical support and government support. These variables are selected based on review of literature (Eke, 2011; Hashim, 2008; Lee, 2006; Lee et al., 2013; okiki, 2011; Purnomo & Lee, 2013; Ramayah et al., 2012) and because of the difference between Nigeria and South Africa on technology and individual characteristics (Omoigui, 2006).

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By combining these variables, this study examined the role they play in e-training acceptance in the Nigerian civil service as well as the mediating influences of PEOU and PU between these mentioned variables and the study dependent variable.

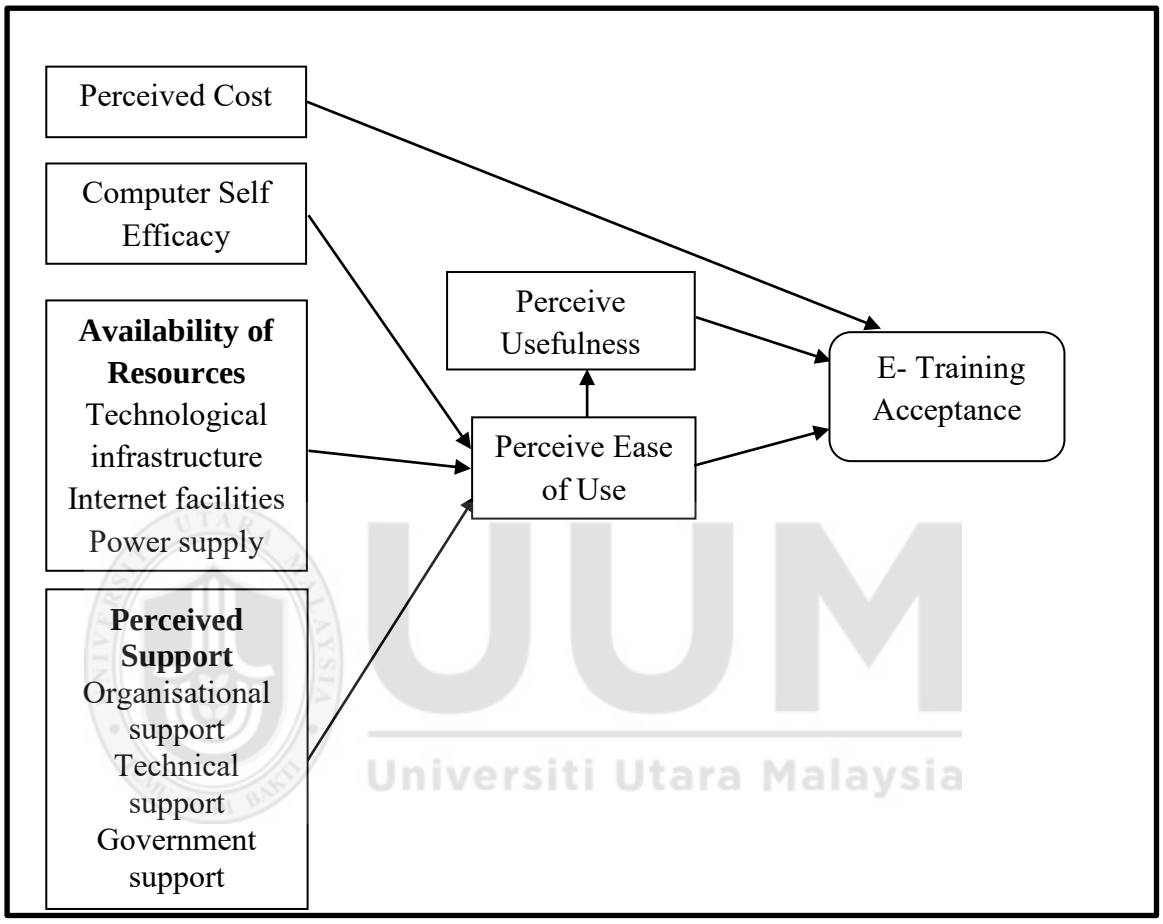

Figure 3.1
Research framework for E-training Acceptance

The research model as shown in Figure 3.1 has independent variables of perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organisational support, technical support and government support. PEOU mediates the relationship between the independent variables and e-training acceptance, while PU mediates the relationship between PEOU and e-training acceptance. Perceived cost has direct relationship with e-training acceptance.

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This framework has TAM as base with PEOU mediating the relationships between the above mentioned independent variables and e-training acceptance while PU mediates the relationship between PEOU and e-training acceptance. This is to assess the predictive influence of these TAM key constructs with regards to e-training acceptance in the Nigerian civil service. Each of the independent variable for this study has been predicted to influence e-training acceptance. However, as discussed earlier regarding the Nigerian environment her civil service, there is a need for the acceptance of e-training to be seen as useful and easy to use by the civil servant as such this study need to assess the predictive strength of PEOU and PU as mediators between the independent variables and e-training acceptance with the civil service in Nigeria.

3.3 Hypotheses Development

The hypotheses of this study are developed to test the relationship amongst the variables in this study model as well as the extent these constructs will influences e-training acceptance in the Nigerian civil service. This will be in line with the study research question.

3.3.1 Relationship between PU and E-training Acceptance

Perceived usefulness is the assumption that accepting system will lead to quality work activity (Davis 1989). Brown (2002) found no significant effect of perceived usefulness on behaviour. However, Ong et al. (2004) found that PU effect is direct and most significant as long as the system provides contents that are useful and attractive to the user. Studies (Lee et al., 2005; Lee et al., 2011; Park 2009; Purnomo

& Lee, 2013) have shown that PU has direct significant effect on acceptance. Therefore, this study hypothesized that:

H1: Perceived usefulness has significant relationship with e-training acceptance.

3.3.2 Relationship between PEOU and E-training Acceptance

The review of literature has shown that PEOU is the level in which an individual feel that he or she can use a particular system with less effort (Davis, 1989). Employees may perceive e-training system useful if they perceived the system to be easy to use. Many studies have shown that PEOU has significant effect on acceptance directly (Brown, 2002; Eke, 2011; Lee et al., 2011; Ong et al., 2004). PEOU have however been found have in significant effect on acceptance (Chong et al., 2010). Therefore, this study hypothesized that:

H2: PEOU has significant relationship with e-training acceptance.

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3.3.3 Relationship between PEOU and PU

Lee et al. (2011) found that PU and PEOU have positive and direct effect on usage behaviour. Their findings are in line with Venkatesh and Davis (2000) who suggested that PU mediates the relationship between PEOU in system acceptance. Furthermore, Purnomo and Lee (2013) found that in acceptance of system, PU is an important antecedent and have more predictive power than PEOU. They opined that PEOU can have indirect effect on acceptance through PU. The findings of their study on PU and PEOU relationship are similar with findings of others researchers (Chau & Hu, 2001; Selim, 2003; Wu & Wang, 2005). Furthermore, Saade and Bahli (2005) noted that previously conducted research work on the relationship between PU and PEOU on behaviour highlights positive effect of PU on PEOU. The results of their

analysis also confirm there is positive relationship between PEOU and PU. Consequently, over the years findings of the effect of PU on the relationships between PEOU has been contradictory. Brown (2002) found no significant effect of PU in system acceptance. Furthermore, studies have also shown that PEOU have no significant effect on acceptance (Chong et al., 2010; Rose & Fogarty, 2006). However, many studies have shown that PEOU through PU has significant effect on acceptance (Agarwal & Prasad, 1999; Davis, 1999; Legris, et al., 2003; Ong et al., 2004; Rym et al., 2013; Venkatesh, 1999). Furthermore, studies have revealed that PU mediates PEOU influence towards usage (Chen, 2011; Legris, et al., 2003; Lie et al., 2009). These studies have shown that PEOU can affect attitude indirectly via PU depending on the study factors which are external to TAM. Therefore, this study hypothesis is that:

H3a: PEOU has significant relationship with PU.

H3b: PU mediates the relationship between PEOU and e-training acceptance.

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3.3.4 Relationship between Perceived Cost and E-training Acceptance

The implementation of e-training in the Nigerian civil service is capital intensive project that requires a lot of consideration. There are costs that are recurring, while others are competing for capital due to insufficient fund that ministries have to operate with. According to Folorunso et al. (2006) one of the major factors that is a problem in electronic training in the Nigerian setting as to do with cost. Studies have found perceived cost have significant relationship with acceptance (Folorunso et al., 2006; Kurnia at al., 2006). However, these studies (AlSoufi & Ali, 2014; Fonchamnyo, 2013) showed that perceived cost had no significant relationship with system acceptance. Therefore, this study hypothesis that:

H4: Perceived cost has significant relationship with e-training acceptance

3.3.5 Relationship between Computer self-efficacy and PEOU

Lee (2006) emphasized the importance of the computer self-efficacy on PEOU which showed the significant effects of the construct on PEOU. Along with other variables studied, the results of their analysis reported computer self-efficacy to be a stronger predictor of perceived ease of use. Grounded on theoretical arguments, studies have suggested computer self-efficacy related positively with PEOU in system usage (Agarwal & Stair, 2000; Methieson, 1991; Vankatesh & Davis, 1996). This indicated that PEOU mediates the relationship between computer self-efficacy and acceptance in technology related issues. Their argument is that users will have positive belief on ease of use and usefulness of technology when their level of computer self-efficacy is high. Additionally, previous studies (Hong et al., 2001; Lee, 2006) proved that computer self-efficacy has significant effect on acceptance. However, Purnomo and Lee (2013) Thompson (2010) and Ramayah et al., (2012) reported insignificant effect of computer self-efficacy on PEOU. Therefore, this study hypothesis that:

H5a: Computer self-efficacy has significant relationship with e-training acceptance.

H5b: Computer self-efficacy has significant relationship with PEOU.

H5c: PEOU mediates the relationship between computer self-efficacy and e-training acceptance.

3.3.6 Relationship between Technological Infrastructure and PEOU

When technological infrastructure is well designed and available in an organisation, it helps to give the organisation the ability of implementing technological solutions more successfully. Infrastructure give rise to economies of scale and scope

(Armstrong & Sambamurthy, 1999; Boynton, Zmud & Jacobs, 1994). This involves many implementation initiatives which reduce overall cost both for system implementation and learner's cost that is connected with new systems (Weill & Broadbent, 1998). Lack of technological infrastructure reduces employee's positive perception on the practicability of electronic training thus hindering acceptance. The availability of technological infrastructure shows the organisations commitment to electronic training acceptance which promotes positive perception from the employees. Studies have found technological infrastructure to be affected by PEOU (Poon et al., 2004; Selim, 2007; Yiong et al., 2008). These studies reported positive relationship between the two constructs. However, Thompson (2010) found no significant effect of technological infrastructure on system acceptance. Since infrastructure has effect on acceptance of new system indirectly through PEOU, it can then be said that PEOU mediates the relationship between technological infrastructure and e-training acceptance. Therefore, this study hypothesis that:

H6a: Technological infrastructure has significant relationship with e-training acceptance.

H6b: Technological infrastructure has significant relationship with PEOU.

H6c: PEOU mediates the relationship between technological infrastructure and e-training acceptance.

3.3.7 Relationship between Internet Facilities and PEOU

Ahiakwo (1998) stated that in the role of internet connectivity in Nigeria, internet helps in accelerating information exchange between nations, organisations and individuals. He further stated that the availability of internet services helps in facilitating the search for solution to many national problems such as health,

education and the environment. This he said helps in stimulating challenges that are developmental in nature to developing countries. The review of literature shows that the acceptance of e-training by the Nigerian civil service can be a developmental step. Adika (2003) Ehikhamenor (2003) Hara and Kling (2000) Jebakumar and Govindaraju (2009) Martins and Kallermanns (2004) all showed the usefulness and ease that the availability of internet facilities has on electronic learning. Therefore, this study hypothesis that:

H7a: Internet facility has significant relationship with e-training acceptance.

H7b: Internet facility has significant relationship with PEOU.

H7c**:** PEOU mediates the relationship between internet facilities and e-training acceptance.

3.3.8 Relationship between Power Supply and PEOU

The availability of reliable power supply is an important requirement for the acceptance of e-training. In Nigeria the issue of power supply is a disturbing. There are so many areas that are not connected to the power grid; even those connected do not get stable power supply. Even with the recent privatization of the power sector in Nigeria, the country is still facing the problem of intermittent electricity supply, frequent outages and rationing. In other to have successful e-training acceptance in the Nigerian civil service, there is the need for stable power supply.

Park et al (2014) Nwankwo and Orji (2013) Oyadonghan and Eke (2011) Eke (2011) Adomi and Kpangban (2010) Folorunso et al. (2008) Aduwa-Ogiegbaen and Iyamu (2005) studies found that electricity supply was among significant factors that influence the acceptance of new system. This showed that when power supply is

available and stable, it would be easy to accept e-training and vice versa. Therefore, this study hypothesizes that:

H8a: Power supply has significant relationship with e-training acceptance.

H8b: Power supply has significant relationship with PEOU.

H8c: PEOU mediates the relationship between power supply and e-training acceptance.

3.3.9 Relationship between Organisational Support and PEOU

It is appreciated when organisation shows supportive attitude, concern, acceptance and consideration for needs of employees (Anandarajan et al., 2002). Organisational support helps to enhance favourable attitudes within the organisation. This will also help in changing employee‘s perception towards acceptance, ease of use and usefulness of new systems (Davies et al., 1989; Fulk et al., 1990; Sharma & Yetton, 2003). Although Kok et al. (2011) found organisational support insignificant in internet acceptance and Aggorowati et al. (2012) findings indicated that organisational support did not relate with PEOU, Fishbein and Ajzen (1975) documented the positive relationship that is between system usage and organisational support. Likewise, Anandarajan et al. (2002) Anakwe et al. (2000) Kim et al. (2006) Lee et al. (2013) also concluded that organisational support related positively with PEOU. Igbaria and Livari (1995) found that system usage is affected negatively when there is no organisational support. Studies have proven that organisational support is related with PEOU (Kim et al., 2006; McFarland & Hamilton, 2006). Therefore, organisational support increases trust for the organisation which employees believe that the organisation can provide all that is required for system

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acceptance. With organisational support employees will belief that e-training will be easy to accept. Therefore, this study hypothesizes that:

H9a: Organisational support has significant relationship with e-training acceptance.

H9b: Organisational support has significant relationship with PEOU.

H9c PEOU mediates the relationship between organisational support and e-training acceptance.

3.3.10 Relationship between Technical Support and PEOU

As seen from the literature, technical support has been shown to be among the facilitating factors in e-training acceptance. That is the level of specialised staff that organisations provide is important in e-training acceptance. This is due to the fact that acceptance can be easy and promoted when the level of technical support is high (Bhethecharjee & Hikmet, 2008; Thompson, 2010). The reverse effect is what is happens when there is low level of technical support. When this negative effect happens, it shows lack of commitment from the organisation. It has been proven that the availability of technical support has positive effect on electronic learning (Alhomod & Shafi, 2013; Masie, 2001). Tan and Teo (2000) did not find technical support to influence acceptance. However, some studies found technical support to have significant relationship with acceptance of new system (Rym et al., 2013; Bhethecharjee & Hikmet, 2008; Ndubis & Jantan, 2003; Yiong et al., 2008). Therefore, this study hypothesis that:

H10a: Technical support has significant relationship with e-training acceptance.

H10b: Technical support has significant relationship with PEOU.

H10c: PEOU mediates the relationship between technical support and e-training acceptance.

3.3.11 Relationship between Government Support and PEOU

It has been proven that government support is an important factor in technology acceptance (Chong et al., 2010; Daniel & Jonathan, 2013; Macharia & Nyakwende, 2009; Tan, 1998; Tan & Teo, 2000). These studies found that government support to be significant in new system acceptance. However, Eze et al (2013) reported that government support did not relate to acceptance. Chong and Ooi (2008) found that the support of government could help the acceptance of new system through grants and exemptions from tax. It has been highlighted in the literature review that internet, technological infrastructure and power supply are facilities that are necessary for smooth acceptance and continuity of e-training. These facilities require serious attention. With government support these issues can be resolved to make e-training acceptance easy. Furthermore, it has been discussed previously that majority of the Nigerian civil servants are not computer literate and cost has been attributed to this. With government support computers can be made easily available to civil servant. This will make the workers perceive usage to be easy and also motivating them to learn the skill which is going to be helpful for them to accept e-training. Therefore, this study hypothesis that:

H11a: Government support has significant relationship with e-training acceptance.

H11b: Government support has significant relationship with PEOU.

H11c: PEOU mediates the relationship between government support and e-training acceptance.

3.4 Research Design

Researches are carried out in order to achieve certain set objectives and goals. The arrangement of the research activities to achieve these objectives is referred to as

research framework or design. A research design shows the roadmap of that particular research (Easterby-Smith, Thorpe & Jackson, 2008). According to Sekaran and Bougie (2013), a research design includes the type, time horizon, and location of the research as well as the level of the researcher‘s interference.

A holistic picture of this research was built through analyses of words, reported views of respondents gathered through the distribution of survey questionnaires. Statistical reliability and validity was made to justify data analysed and the test of the research hypothesis which was developed based on review of literature on the relationship between the constructs of this study. Therefore, this study is quantitative and cross sectional in nature.

3.5 Population

Population in research refers to the whole unit of analysis that is investigated within defined time frame. In Nigeria there are 36 states including the Federal Capital Territory, Abuja which are spread across 6 geo-political zones. This is presented in Table 3.1

Table 3.1
The 36 states in Nigeria and her six geopolitical zones

	Geopolitical Zones	States
1.	North East	Taraba, Adamawa, Borno, Yobe, Bauchi , Gombe.
2.	North West	Sokoto, Zamfara, Kebbi, Kaduna, Kastina, Kano, Jigawa.
3.	North Central	Kwara, Kogi, Plateau, Nassarawa, Benue, Niger, Federal Capital Territory (FCT).

Table 3.1(Continue)
The 36 states in Nigeria and her six geopolitical zones

	Geopolitical Zones	States
4.	South West	Lagos, Ogun, Oyo, Osun, Ondo and Ekiti.
5.	South East	Anambra, Enugu, Ebonyi, Imo and Abia
6.	South South	Edo, Delta, Rivers, Bayelsa and Cross-River.

Source: *Nigerian National Population Commission (2012)*

There are 27 federal ministries in Nigeria. In each state with the exception of the federal capital territory there are 238 departments which give the total of 8330 departments. The Federal Capital Territory (FCT), Abuja has 257 departments. This is because the Federal Capital Territory (FCT), Abuja has the addition of three more federal ministries (Federal Ministry of Defence, Federal Ministry of Police Affairs and Federal Ministry of Federal Capital Territory (FCT)). Therefore, the population for this is 8,587 departments (238 x 35 = 8330 + 257= 8587). This study sample frame is presented in Table 3.2

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The population for this study is the heads of departments in the federal ministries in Nigeria who are the respondents of this study. This study chooses the head of departments as the respondents of this study because they have the knowledge and skill to use the e-training system. Therefore, the unit of analysis for this study is individual as managers.

Table 3.2
Selected Sampled States, ministries and departments

S/No	Name of Ministry	Departments	Federal Capital Territory (FCT) Abuja	Kaduna State
1	Federal Ministry of Agriculture And Natural Resources	Federal department of Agriculture. Fisheries and aquaculture. Finance and Accounts. Food and strategic reserve. Cooperative and farmers organisation. Farm and input support services. Planning and policy coordination. Animal production and husbandry services. Agriculture land and climate change management services. Reform coordination Procurement. Veterinary services. Human resource management. Rural development. General services. Agriculture business and market development. National quarantine. Extension services.	18	18
2	Federal Ministry of Aviation	Finance and Accounts. Human Resources Management. Planning, Procurement Analysis and Research. Safety and Technical Policy. Air Transport Management.	5	5
3	Federal Ministry of Culture, Tourism and National Orientation	Finance and Administration. Planning, Research and Statistics. Domestic Cultural Operations. External Cultural Relations. Domestic Tourism Services and Control. International Tourism Promotion and Cooperation. National orientation.	7	7
4	Federal Ministry of Communications Technology	Legal Unit. Finance & Accounts. Spectrum Management. Telecoms Postal Services. E-Government. Planning, Research & Statistics. Human Resource Management.	7	7

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Table 3.2 (Continue)
Selected Sampled States, ministries and departments

S/No	Name of Ministry	Departments	Federal Capital Territory (FCT) Abuja	Kaduna State
5	Federal Ministry of Defence	Joint Services. Army Affairs. Navy Affairs. Air Force Affairs. Human Resources Management. Finance and Accounts.	6	NIL
6	Federal Ministry of Education	Administration. Primary and Secondary. Higher Education. Planning, Research and Statistics. Technology and Science. Educational Support Service. Accounting and Finance.	7	7
7	Federal Ministry of Environment	Drought and desertification amelioration. Environmental assessment. Erosion and flood and coastal zone management. Finance and account. Human resource management. Policy analysis, monitory and inspectorate. Pollution control and environmental health. Procurement Unit.	7	7
8	Federal Ministry of Federal Capital Territory	Procurement Finance and Administration Public Building Engineering Services Urban and Regional Planning Survey and Mapping	6	NIL
9	Federal Ministry of Finance	Economic Research and Policy Management. Finance and Accounts. Home Finance. Human Resources Management. International Economic Relations. Anti-Corruption. ICT. Information and Protocol. Internal Audit. Legal. Press. Procurement. Servicom. Stock Verification.	14	14

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Table 3.2 (Continue)
Selected Sampled States, ministries and departments

S/No	Name of Ministry	Departments	Federal Capital Territory (FCT) Abuja	Kaduna State
10	Federal Ministry of Foreign Affairs	Public relation service. ICT unit. African Union. European Union. APEDD. IOD. Protocol. Trade and investment. Consular. Western European.	10	10
11	Federal Ministry of Health	Health Planning Research and Statistics. Public Health. Family Health. Human Resources. Finance and Account. Hospital Services. Food and Drugs Services. Procurement.	8	8
12	Federal Ministry of Trade and Investment	Trade. Commercial Law. Industrial Development. Weights and Measures. Investment Promotion. Finance and Accounts. Policy, Planning, Research and Statistics	7	7
13	Federal Ministry of Information	Human Resource Management Public Communication Information Technology Research & Production Federal Government Press National Archives Finance & Accounts Procurement Internal Audit Legal Servicom Transparency Monitoring Public Relations and protocol Stock Verification	14	

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Table 3.2 (Continue)
Selected Sampled States, ministries and departments

S/No	Name of Ministry	Departments	Federal Capital Territory (FCT) Abuja	Kaduna State
14	Federal Ministry of Interior Affairs	Paramilitary Citizenship & Business Human Resources Management Planning, Research and Statistics Finance and Accounting Procurement Legal Internal Press Servicom	10	10
15	Federal Ministry of Justice	Citizens' Rights Civil Litigation and Public Law Finance & Accounts Human Resource Management International and Comparative Law Law Reporting Legal Drafting Planning Research & Statistics Public Prosecution Solicitors	10	10
16	Federal Ministry of Labour And Productivity	Employment and Wages Finance and Accounts Human Resources Inspectorate Policy Analysis, Research and Statistics Trade Union Services and Industrial Relations Productivity measures and standards Social security Skills development and certification Special duties General services Reform coordination and service improvement	12	12
17	Federal Ministry of Petroleum Resources	Petroleum resources Planning, programme, research analysis Finance and account Human resource management	4	

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Table 3.2 (Continue)
Selected Sampled States, ministries and departments

S/No	Name of Ministry	Departments	Federal Capital Territory (FCT) Abuja	Kaduna State
18	Federal Ministry of Power	Electrical and Inspectorate Services Power Human Resources Management Investment and Sector Development Planning, Research and Statistics Finance and Accounts Legal Internal Audit Press and Public Relations Protocol Servicom	11	11
19	Federal Ministry of Science and Technology	Technology Acquisition and Assessment Chemical Technology and Energy Research Physical and Life Sciences Information and Communication Technology Human Resources Management Planning, Research and Policy Analysis Finance and Accounts Press and Protocols Internal Audit Servicom Legal	11	11
20	Federal Ministry of Mines and Steel	Aluminum Artisanal & Small Scale Mining Directorate, Office Of The Permanent Secretary Finance And Administration Legal Unit Metallurgical And Raw Material Development Mines Environmental Compliance Mines Inspectorate Mining Cadastre Servicom Unit Steel	11	11
21	Federal Ministry of Special Duties And Inter-Governmental Affairs	National merit award Refugees, migrants and internally displaced persons Lottery regulation Human resource management Finance and account General service	6	6

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Table 3.2 (Continue)

Selected Sampled States, ministries and departments

S/No	Name of Ministry	Departments	Federal Capital Territory (FCT) Abuja	Kaduna State
22	Federal Ministry of Transport	Rail and Mass Transit Maritime Services Human Resources Management; Transport Planning and Coordination Finance and Accounts Internal Audit Legal Press and Public Relations Servicom Anti-corruption and Transparency	10	10
23	Federal Ministry of Water Resources	Audit Unit Dams and reservoir Hydrogeology unit Finance and account Human resource management Irrigation and drainage Planning and research Press and Public relation unit Procurement River basin operations Servicom unit Legal unit Water quality control and sanitation unit Water supply unit	14	14
24	Federal Ministry of Women Affairs And Social Development	Women affairs Child development Social welfare Rehabilitation Planning, research and statistics Finance and accounts Human resource management Procurement unit Stores unit Internal audit unit Legal unit	11	11

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Table 3.2 (Continue)

Selected Sampled States, ministries and departments

S/No	Name of Ministry	Departments	Federal Capital Territory (FCT) Abuja	Kaduna State
25	Federal Ministry of Lands, Housing And Urban Development	Architectural services Building and quality survey Engineering services Lands and Housing Urban and regional services Human resource management Planning, research and statistics Legal unit Internal audit Servicom Procurement Press and public relations Anti-corruption unit Stock verification Cadastral survey Public private partnership Millennium development goals Finance and accounts	18	18
26	Federal Ministry of Youth Development	Network and Social Mobilization Enterprise Development and Promotion Education and Youth Development Human Resources and Management Finance and Accounts Planning, Monitoring and Information Management	6	6
27	Federal Ministry of Police Affairs	Finance and Accounts Human Resources Management Planning Research and Statistics Police Inspectorate Police Services Special Duties Procurement	7	NIL
		Total by States	257	238
		Overall Total		495

Source: *Adapted from Nigerian Federal Civil Service Commission Organisational Charts for federal ministries (2014).*

3.6 Sampling

Sampling is done in research to make inferences due to the inability to study the entire population. The sampling design that is used in this study is cluster sampling

from probability sampling design. This method was chosen due to the large population which are spread in six geo-political zones. This study considers these geo-political zones as clusters. Furthermore, cluster sampling is the appropriate sampling method for this study because of the heterogeneous nature of the ministries under observation, in terms of functions and size as well as the ministry‘s homogeneity in terms of structure, funding and purpose. The cluster sampling made it easy to have access to more subjects and every element within the selected cluster was sampled.

Given the criteria for cluster sampling, two geopolitical zones out of five geopolitical zones were selected at random. One geopolitical zone (the North-east) was exempted to stand a chance of been selected from the zones because of high rate of insecurity in the region, making the area highly risky to reach by the researcher. The two randomly selected zones are North-central and North-west. The North-central has seven states including the Federal Capital Territory (FCT), Abuja and the North-west consist of seven states. The study sampling frame was derived from the lists of all departments in all the ministries in all states including the Federal Capital Territory (FCT), Abuja, from the Federal Civil Service Commission‘s (FCSC) headquarters in Abuja It was from this sampling frame that the population of the study was determined to be 8,587 departments. Therefore, the sample size for this study given the population of 8,587 as presented in the Krejcie and Morgan (1970) table of population and sample size is 367. However, to minimize low response rate from Heads of the departments of federal ministries as a result of their busy schedule, the sample size was increased by 40% as suggested by Salkind (1997). Therefore, 40%

of 367 = 147 + 367 = 514 which becomes the total determined sample size for this study.

Considering the determined sample size of 514 and the number of Federal ministries in each state as well as the heads of departments of the ministries, one state was selected at random from each of the two selected zones. Therefore, the Federal Capital Territory (FCT), Abuja was picked from the North-central while Kaduna state was picked from the North-west. The Federal Capital Territory (FCT), Abuja has 27 Federal ministries with 257 heads of department while Kaduna state has 24 Federal ministries with 238 heads of departments, making the total heads of departments from the ministries of the two selected samples to be 495. Table 3.2 presents the names of the federal ministries, their departments and number of heads of the departments for the federal capital, Abuja and Kaduna state.

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3.7 Questionnaire Design

The objective of questionnaire is to make its design very important. In research, questionnaires have the objective of capturing the determined number of the targeted sample. Furthermore, it also has the objective of avoiding as well as reducing errors of scale used in the research (Clark, 1989) Questionnaire content and how they are presented is very significant in questionnaire design. The questions should be in relation with the research questions and objectives. Furthermore, questionnaire content and the format it is presented should reflect issues of the research in sequence, give clear instructions on response and be written in clear and understandable language (Synodinos, 2003).

The questionnaire of this study is structured with 68 questions. A cover letter is in front of the questionnaire which explains the purpose of the research and introduces the researcher with assurance to respondents of confidentiality. This was done with a view to increase participation in completing the questionnaire. The questions are divided into two sections in the questionnaire. Section one A-K contains the constructs of the study, with questions to measure each constructs underneath. 5-point Likert scale of strongly disagrees to strongly agree was used to get responses of respondents. Questions about respondent demography were in the second section of the questionnaire (Appendix A). Both sections contained instructs on how to complete the questionnaire.

Demographic information is at the second section of the questionnaire. Incorporated in the study questionnaire are the demographic variables like age, gender, job position, years of service, educational qualifications and the ministry the respondents are currently working. Years of service and age were measured as continuous variable while gender was treated as a nominal variable. The value –1" was used to code male and –2" for female in gender. Respondents were required to indicate their age. Age was coded using value of –1"for = 25 to 30 years, –2" = 31 to 40 years, –3" = 41 to 50 years, –4" = 51 years and above. Job position was coded using value of –1" for head of department and –2" for others. Years of service was coded using value of –1" for = 1 to 5 years, –2" = 6 to 10 years, –3" = 11 to 15 years, –4" = 16 to 20 years, –5" = 21 years and above. Respondent were also required to indicate the ministry they were currently serving. This was coded with the value of –1" for = ministry of education, –2" = ministry of finance, –3" = ministry of health and social service, –4" = ministry of science and technology, –5" = ministry of information, –6"

= other ministry. Finally, educational qualification was coded with the value of ~~–1~~" for = other qualifications, ~~–2~~" = Degree/Higher National Diploma (HND), ~~–3~~" master degree and ~~–4~~" = PhD.

3.8 Instrumentation

Table 3.3 presents the summary of this study measurement scale. As discussed earlier, the variables of this study are perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organisational support, technical support, government support, perceived usefulness, perceived ease of use and e-training acceptance. The instruments for this research were adapted from validated items derived from previous research work. The most relevant of these previous research works items were selected and modified to suit the purpose of this study. This is because Luarn and Lin (2005) argued that it is preferable to use adapted scales from previous research in order to ensure validity of such scale. These selected items have the required Cronbach Alpha results of above .5 (Hair et al, 2013). With regards to the construct of perceived cost, five (5) items from Kurnia, Lee and Smith (2006) with cronbach alpha of 0.850 was adapted. For the construct of perceived usefulness (PU) and perceived ease of use (PEOU) this study adapted the measurement from Rym et al. (2013) with the cronbach alpha of 0.849 and 0.822 respectively. E-training construct items were adapted from Yiong, et al. (2008) with 0.782 as the cronbach alpha. On computer self-efficacy, this study adapted the instruments from Ong et al. (2004) with cronbach alpha 0.540. Furthermore, for the construct of technological infrastructure the scale used by Bhattacherjee and Hikmet (2008) with cronbach alpha of 0.927 was adapted. Internet facilities construct was measured with the scale from Jebakumar and Govindaraju (2009) with 0.792 as the

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cronbach alpha. The items for the construct of power supply were adapted from Ijewere (2013) with the cronbach alpha of 0.750. For the construct of organisational support this study adapted the measurement from Lee et al. (2013) with the cronbach alpha of 0.905. Technical support was measured with the scale from Bhattacherjee and Hikmet (2008) with 0.949 as the cronbach alpha. Government support construct was measured with the scale from Chong, et al. (2010) with the cronbach alpha of 0.831.

In order to collect data that are relevant to the study variables, the stated items from the mentioned authors were adapted to measure these variables. Furthermore, this was also done to ensure that data collected answers the research questions as well as test the hypothesis of the research with the aim of attaining the goals of the research.

Table 3.3
Summary of Constructs showing source and Cronbach Alpha

Variables	**Number of Items**	**Cronbach Alpha**	**Source**
Perceived Cost	5	.850	Kurnia et al. (2006)
Computer Self-Efficacy	5	.540	Ong et al.(2004)
Technological Infrastructure	5	.927	Bhattacherjee and Hikmet (2008)
Internet Facilities	5	.792	Jebakumar and Govindaraju (2009)
Power Supply	7	.750	Ijewere (2013)
Organisational Support	6	.905	Lee et al. (2013)
Technical Support	5	.945	Bhattacherjee and Hikmet (2008)
Government Support	5	.831	Chong et al. (2010)
Perceived usefulness	5	.849	Rym et al. (2013)
Perceived Ease of Use	5	.822	Rym et al. (2013
E-training Acceptance	7	.782	Yiong et al. (2008)

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3.9 Measurements

This section presents the measurement scale for each of the study variables.

3.9.1 E-training Acceptance

E-training is the dependent variable for this study. It refers to educational system that is web based which enable trainees the use of network of computers and information technology in training (Yiong et al., 2008). This construct refers to the belief and attitude of employees in the use of information and communication technologies in training. This variable was measured using a 5-point Likert scale with 7 survey questions. This is presented in Table 3.4. On the questionnaire, question 40 to 45 was used to measure this construct.

Table 3.4
E-training Acceptance Scale

Code	Items
	E-training Acceptance
ETA 1	I belief in my capability to interact with technology
ETA 2	I will be cognitively engaged in doing the e-training activities
ETA 3	I am willing to participate in e-training activities
ETA 4	I have the initiative to learn the system.
ETA 5	I have self confidence in using the electronic training system.
ETA 6	I think I will be satisfied with flexibility of the system
ETA 7	I have the motivation to use the system

Note: ETA stands for E-training Acceptance

3.9.2 Perceived Ease of Use

Perceived ease of use of e-training acceptance in this study is a mediating variable which refers to the level of belief employees have that e-training system will be easy

to use (Rym et al., 2013). The awareness of the benefits of e-training can psychologically influence the attitude of employees to belief that accepting e-training system will be effortless. A 5 point Likert scale with 5 questions was used to measure this construct. Question 49 to 53 on the questionnaire was used to measure this construct.

Table 3.5
Perceived ease of use Scale

Code	Items
	Perceived ease of use
PEOU 1	I think interacting with the e-training system will not require a lot of mental work.
PEOU 2	I think the e-training system will be easy to use
PEOU3	In my opinion, my interaction with the e-training system is clear.
PEOU 4	I think interaction with the e-training system will be understandable
PEOU 5	I think the instructions for using e-training system will not be difficult to follow.

Note: PEOU stands for Perceived Ease of Use

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3.9.3 Perceived Usefulness

Perceived usefulness is a mediating variable in this study which relates to employee‘s the belief that e-training system will improve their performance. Psychologically, the awareness of the benefits of e-training can stimulate the attitude of employees to belief that accepting e-training system will enhance their performance (Rym et al., 2013). This variable was measured using a 5-point Likert scale with 5 survey questions. On the questionnaire, question 44 to 48 was used to measure this construct.

Table 3.6
Perceived Usefulness Scale

Code	Items
	Perceived Usefulness
PU 1	Using the e-training system will improve my job performance
PU 2	Using the e-training system will enhance my work effectiveness.
PU 3	Using the e-training will system give me greater control over learning
PU 4	Using e-training will save a lot of time.
PU 5	The e-training system will be useful to my job.

Note: PU stands for Perceived Usefulness

3.9.4 Perceived Cost

Perceived cost in this study is the independent variable and refers to the expenses that are incurred in the process of system acceptance (Kurnia et al., 2006). This study assessed the cost of e-training acceptance which includes acquiring infrastructure and ensuring that experts are available to guide in the acceptance of e-training. A 5-point Likert scale with 5 survey questions was used to measure this variable. On the questionnaire, questions 1 to 3 was used to measure this construct. The items are presented in the table below.

Table 3.7
Perceived Cost Scale

Code	Items
	Perceived Cost
PC 1	I think the cost of using e-training system will be reasonable
PC 2	I think e-training will offer value for money.
PC3	I think e-training will allow for reduced cost in training
PC 4	I think forgoing daily travelling allowance to be with my family is reasonable
PC 5	I think e-training is a waste of resources

Note: PC stands for Perceived Cost

3.9.5 Computer Self-Efficacy

Computer self-efficacy is an independent variable in this study which refers to the judgment an individual has on their abilities to use computers in different situations to complete certain task (Ong et al., 2004). This study looked at the computer literacy of employees in Nigerian civil service to assess their ability to use computers when e-training is accepted. It was measured using a 5-point Likert scale with 5 survey questions. On the questionnaire, questions 6 to 10 was used to measure this construct. Below are the items.

Table 3.8
Computer Self-Efficacy Scale

Code	Items
	Computer Self-Efficacy
I could complete my training activities using computer,	
CSE 1	If I had never used a system like it before.
CSE 2	If I had only the system manuals for reference.
CSE 3	If I had seen someone using it before trying it myself
CSE 4	If I have just the built-in-help facility for assistance
CSE 5	Because I am confident in my ability to use computers.

Note: CSE stands for Computer Self-efficacy

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3.9.6 Technological Infrastructure

Technological infrastructure refers to the technological systems which are required for the implementation of information and technology in organisations (Bhattacherjee & Hikmet, 2008). This study assesses the availability of infrastructure in the Nigerian civil service that will encourage the acceptance of e-training. Technological infrastructure is an independent variable in this study and 5 point

Likert scale with 5 questions was used to measure this construct. Questions 8 to 10 on the questionnaire was used to measure this construct. Below are the items.

Table 3.9
Technological Infrastructure Scale

Code	Items
	Technological infrastructure
TECHINF 1	I think technological infrastructure should be adequately provided in this organisation to enable engagement in electronic training
TECHINF 2	I think technological infrastructure can improve the quality of my work
TECHINF 3	I think there should be sufficient Infrastructural facilities to access on line learning environment
TECHINF 4	I think infrastructures necessary for electronic training are available
TECHINF 5	I think It is necessary to have access to infrastructures for e-training

Note: TECHINF stands for Technological Infrastructure

3.9.7 Internet facility

Internet facility in this study refers to the availability of set of systems that enables two or more computers to send and receive information from one another to aid acceptance (Jebakumar, & Govindaraju, 2009). This study assesses the availability, access and bandwidth strength of internet that is necessary for acceptance of e-training. Internet facility is an independent variable in this study and was measured using a 5-point Likert scale with 5 survey questions. Question 16 to 20 on the questionnaire was used to measure this construct. Below are the items.

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Table 3.10
Internet Facility Scale

Code	Items
	Internet facility
INTFAC1	It is easy for everyone in this organisation to access internet facilities.
INTFAC 2	The internet service providers in this organisation give high bandwidth
INTFAC 3	Internet facilities are readily available to everyone in this organisation
INTFAC 4	I mostly access internet resources at a browsing centre
INTFAC 5	I think the availability of internet facilities will increase interest in e-training program

Note: INTFAC stands for Internet Facilities

3.9.8 Power supply

Power supply is an independent variable in this study and it refers to the generation of electrical energy from power plant system which connects electric network from the plant to consumer's appliances (Ijewere, 2013). This study assessed the availability of power supply which is needed for any of the infrastructures to function properly in the acceptance of e-training. With a 5 point Likert scale, six (6) survey questions were used to measure this construct. This construct was measured with questions 21 to 26 on the questionnaire. Below are the items.

Table 3.11
Power Supply Scale

Code	Items
	Power supply
PWWS 1	Power supply in this organisation is effective
PWWS 2	There is no problem with power supply in this organisation
PWWS 3	The frequent power outages in this organisation can affect technology usage

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Table 3.11(Continue)
Power Supply Scale

Code	Items
	Power supply
PWWS 4	The epileptic power supply in this organisation affects computer literacy
PWWS 5	There is prompt replacement of defective power supply facilities in this organisation
PWWS 6	There is back up power supply in this organisation

Note: PWSS stands for Power Supply

3.9.9 Organizational Support

Organisational support is an independent variable which refers to the level of belief that an organization will support e-training by their encouragement and allocation of resources, policies, practices and reward system which is expected to show importance of effort made on training and development (Lee et al., 2013). Using a 5 point Likert scale, 6 survey questions was used to measure this variable. Question 27 to 32 on the questionnaire was used to measure this construct. Below are the items.

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Table 3.12
Organizational Support Scale

Code	Items
	Organizational Support
ORGSP1	My organisation understands the benefits to be achieved by using e-training system
ORGSP2	I should be supported by my organisation to use e-training system
ORGSP3	I should be encouraged by my organisation to use e-training system
ORGSP4	I am convinced that my colleagues are aware of the benefits of the e-training system
ORGSP5	I think the organisation can make policies that will help me get use to the e-training system quickly
ORGSP6	The administration can provide the necessary resources to enable me get use to the e-training system quickly.

3.9.10 Technical support

Technical support is an independent variable in this study which refers to the expert technical guidance that will be available in solving technological related issues (Bhattacherjee & Hikmet, 2008). This study assessed the need for the availability of experts that can handle and solve any technological issue when it arise which will aid e-training acceptance. Using a 5 point Likert scale with 5 survey questions, below are the items that were used to measure this variable. Question 33 to 37 on the questionnaire was used to measure this construct.

Table 3.13
Technical Support Scale

Code	Items
	Technical support
TECHSP 1	In this organisation information technology (IT) support staffs should be available for my needs
TECHSP 2	The IT support staffs should be competent in providing their services
TECHSP 3	I should be able to easily interact effectively with the IT support staff concerning IT problems
TECHSP 4	IT support staffs should be responsive to my needs.
TECHSP 5	I think instructions for the proper use of e-training system should be made available

Note: TECHSP stands for Technical Support

3.9.11 Government support

Government support is an independent variable in this study referring to the regulations, financial backing and encouragement given by the government in relation to system acceptance (Chong et al., 2010). This study assess the perceived believes of the level of encouragement that the Nigerian government will give through the provision of finance, support and making of policies that will be favourable for the acceptance of e-training. Using a 5 point Likert scale, 5 survey

questions was used to measure this variable. Below are the items. Question 38 to 42 on the questionnaire was used to measure this construct.

Table 3.14
Government Support Scale

Code	Items
	Government support
GOVSP 1	I think government encourages the usage of electronic training.
GOVSP 2	I think government promotes the usage of electronic training
GOVSP 3	I think the government is active in setting up facilities to enable e- training
GOVSP 4	I think the government endorses online training in Nigeria
GOVSP 5	I think the government has put in place good regulations for online training

Note: GOVSP stands for Government Support

3.10 Instrument Pretesting

A copy of the questionnaire was given to experts to check for mistakes and ambiguities. This was done before carrying out the actual data collection. Three experts were used for this purpose. Firstly, an expert (Dr Ram Aljaffri Saad) in questionnaire construction was also asked to check the draft questionnaire. Secondly, a head of department (Dr Victoria Karatu) from Ministry of education in Kebbi State Nigeria was asked to go through the draft questionnaire to assess the appropriateness of the questionnaire for head of departments especially the demographic section (Bryman & Bell, 2003). Finally, an English expert in the language centre in Universiti Utara Malaysia was asked to check for grammatical errors in the questionnaire. All three experts gave valuable inputs and corrections with regards to ambiguity, format, wording, simplicity and clarity of the items in the questionnaire (Yaghmale, 2009). These experts‘ evaluation, corrections and suggestions were then

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reflected in the study questionnaire before administering it to the respondents. This was done in order to ensure content validity and reliability of the questionnaire.

Furthermore, a pilot test was conducted by distribution of 130 questionnaires. This was done for the purpose of getting further comments and feedback on the questionnaire. The feedbacks were noted and affected on the questionnaire before it was used for data collection.

3.10.1 Pilot Study

In order to verify the validity and reliability of the research instruments, a pilot study was carried out. This is because the scales adapted in this study were developed in different settings.

A total number of 130 questionnaires were distributed for the pilot study. However, only 100 questionnaires were completed and returned. The pilot study respondents were not included in the actual study survey. The discriminant validity and internal consistency reliability for the pilot study was derived with the use of Partial Least Square (PLS) path modelling analysis (Wold, 1974;1985) with the use of the SmartPLS 2.0 M3 software (Ringle, Wende & Will, 2005). Furthermore, the average variance extracted (AVE) and the composite reliability coefficients were calculated with PLS algorithm (Geladi & Kowaslski, 1986). The appropriate AVE and composite reliability coefficient is suggested to be in range of .5 (Fornell & Larcker, 1981) and .70 (Hair et al., 2011) or more respectively. It has also been suggested that the AVE square root should be more than the correlations among latent variables in order to derive appropriate discriminant validity (Fornell & Larcker, 1981). The

AVE and composite reliability coefficients for the pilot study are presented in Table 3.15.

Table 3.15
Summary of constructs Reliability and validity from pilot study (N=100)

Latent Variables	No of indicators	AV E	Composite Reliability
Computer Self-efficacy	5	0.52	0.83
E-Training Acceptance	7	0.62	0.92
Government Support	5	0.66	0.90
Internet Facilities	5	0.79	0.95
Organisational Support	6	0.68	0.92
Perceived Cost	4	0.54	0.82
Perceived Ease of Use	5	0.62	0.89
Perceived Usefulness	5	0.66	0.90
Power supply	4	0.53	0.82
Technological Infrastructure	5	0.62	0.89
Technical Support	5	0.70	0.92

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Table 3.15 shows the composite reliability of each latent variable from the range of .82 to .95, which is more than the .70 acceptable minimum levels. This shows that the internal consistency reliability of the items of the pilot study is adequate. Table 3.15 also shows AVE to be in the range of .52 to .79, indicating that the values are acceptable. The discriminant validity of the pilot study is explained in table 3.16. The Table shows comparison of the square root of AVE with the correlations between the latent variables.

Table 3.16

Square Root of Average Variance Extracted (AVE) and Latent Variable Correlations

Construct	1	2	3	4	5	6	7	8	9	10	11
CSE	**0.7236**										
ETA	0.4199	**0.7905**									
GOVSP	0.3931	0.5842	**0.8122**								
INTFAC	0.2385	0.2005	0.3565	**0.8906**							
ORGSP	0.3725	0.6711	0.597	0.2068	**0.8243**						
PC	0.474	0.7581	0.6652	0.2023	0.7359	**0.7707**					
PEOU	0.3603	0.629	0.463	0.3035	0.4769	0.5998	**0.792**				
PU	0.2594	0.6886	0.4635	0.0531	0.5548	0.5813	0.6497	**0.8171**			
PWWS	0.3044	0.3058	0.3793	0.4899	0.3885	0.2983	0.3428	0.1878	**0.7476**		
TECHINF	0.3906	0.7704	0.5309	0.1667	0.6978	0.6751	0.5684	0.6191	0.2731	**0.7917**	
TECHSP	0.2556	0.6559	0.5788	0.1377	0.7582	0.6896	0.5268	0.5714	0.3697	0.7631	**0.842**

The bold is the square root of AVE across the diagonal and off diagonal is the correlation among variables

The bold figures in Table 3.16 above show the square root of AVE being compared with the correlations between the latent variables. It is indicated in Table 3.16 that the square root of AVEs is higher in comparison to the correlations between the latent variables. This indicates that the discriminant validity of the pilot study is adequate (Fornell & Larker, 1981).

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3.9 Data Collection Procedure

The process in which information is collected in order to answer the questions of a research and achieve the research objectives is known as data collection. Selecting the method of data collection largely depends on factors such as cost that would be involved to carry out the research, expertise, skills and preferences of the researcher as well as legal and ethical factors. The source of collecting data can be through either primary or secondary. Primary data are first hand data collected by the researcher just for the research. This is done in consideration of the study sample and variables. Questionnaires, focus groups, video conferencing, interviews, Delphi

techniques, and observations are ways in which primary data can be collected (Sakaran & Bougie, 2009).

The questionnaire instrument of the primary data was used as the method for collecting data making the methodology for this study to be quantitative in nature. The Data collection for this study started with the collection of introductory letter from School of Business and Management introducing the researcher and soliciting the cooperation and assistance of respondents in the research. After which the researcher travelled to Nigeria to collect data which lasted for a period of two months.

As discussed above 514 was determined as this study sample size, hence 514 questionnaires were distributed to the head of departments in all the federal ministries in Federal Capital Territory (FCT), Abuja and Kaduna state that were selected as the study sample. Some of the questionnaires were administered personally by the researcher; others were administered to the respondents through the help of assistants. In order to ensure that the assistants used were able to respond to questions or enquires regarding the research, they were properly briefed on the research topic with explanations on the items in the questionnaire. Furthermore, they were provided with photocopies of cover letter, the researcher‘s school identification card and contact number. A pen with Universiti Utara Malaysia logo and researcher‘s name was attached to each questionnaire. This was done to motivate participation in the completing the questionnaire. There were follow ups to retrieve the questionnaires from the respondents in FCT, Abuja and Kaduna state. These yielded favourable results as there was high response rate. A total of 472

questionnaires were retrieved out of the 514 questionnaires sent out to the targeted respondents. However, 22 questionnaires were incomplete and therefore not useable. Only 450 questionnaires were fully completed and used for this study analysis.

3.10 Technique of Data Analysis

After data was collected, the statistical package for social science (SPSS –version 20) was used to key in and clean the data. The SPSS programme was used to check respondent‘s profiles, descriptive statistics of the study variables items and outliers. All these were done in accordance with procedures stated by Pallant (2013). The data screening was done to ensure that it was suitable to run the Partial Least Square (PLS) analysis which is this study method of analysis. The validity and reliability of the study constructs were determined using SmartPLS 2.0 M3 software of Partial Least Square (PLS) path modelling analysis method (Ringle et al., 2005).

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Recent studies have suggested that model validation is not suitable through goodness of fit index (Henseler & Sarstedt, 2013) due to its inability to separate models that are valid from those that are not valid (Hair et al., 2013). Therefore, this study used a two-step process in reporting and evaluating the PLS-SEM path results (Hair et al, 2012). This is to determine items quality as well as getting an estimation of the models relationship (Hair et al, 2012). This two-step process is measurement model assessment and structural model assessment (Henseler, Ringle & Sinkovics, 2009; Hair et al., 2012).

3.10.1 Measurement Model

The assessment of the study measurement model comprises examining individual item reliability, ascertaining internal consistency reliability of variables, convergent validity and discriminant validity (Hair et al., 2011). Furthermore, measurement model assessment is derived with the use of PLS algorithm (Geladi & Kowalski, 1986).

3.10.1.1 Individual Item Reliability

This is the examination of each variables outer loading in order to assess individual item reliability (Hair et al., 2012). It is required that items should have loading between .50 and .70 (Hair et al., 2012). If item loadings fall below the required values Hair et al (2012) suggested that it should be deleted to improve the quality of the data.

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3.10.1.2 Internal Consistency Reliability

The degree in which similar concepts are being measured by items of particular scale is referred to as internal consistency reliability (Sun et al., 2007). The estimators that are commonly used for internal consistency reliability in social science research are the coefficients of composite reliability and cronbach alpha. The internal consistency reliability can also be determined with the use of the coefficients of composite reliability and AVE. This is because the coefficient from composite reliability gives estimates that are less biased in comparison to that of cronbach alpha. Actual individual loading contributions are not considered in cronbach alpha due to the assumption that all items give the same degree to the construct (Gotz, Liehr-Gobbers, & Krafft, 2010). Furthermore, cronbach alpha can sometimes give estimates of

reliability scale that are either over or under the expected range. At least .70 or more are the suggested range for coefficients of composite reliability (Hair et al., 2011).

3.10.1.3 Convergent Validity

When other items of the same variable correlates and the level these items expressed the variable under observation is referred to as convergent validity (Hair et al., 2006). Average variance extracted (AVE) is use to assess the convergent validity (Fornell & Larcker, 1981). AVE has been suggested to be in the range of 0.50 or more in order to be considered adequate (Chin, 1988).

3.10.1.4 Discriminant Validity

The degree in which variables are different in comparison to other variables is referred to as discriminant validity (Duarte & Raposo, 2010). The AVE of constructs is also used in determining discriminant validity. The AVE square roots are usually compared with the correlations that exist between the study‘s variables (Fornell & Larcker, 1981). Furthermore, indictor loadings are compared with other indicators that are reflective to also determine discriminant validity (Chin, 1998). The AVE is suggested to be .50 or more while AVE square root is acceptable if it is more than the correlations existing between the variables discriminant validity (Fornell & Larcker, 1981).

3.10.2 Structural Model

Assessing the structural model is the next step after assessing the measurement model. This model as explained by Hair et al. (2006) is concern with the effect of the relationships in the model. The model assesses the relationship among variables,

their path coefficient as well as their t-values. Argawal and Karahanna (2000) stated that path coefficient is more like beta coefficient when carrying out regression analysis. The objective in the structural model is to test the relationships between variables that had been hypothesized. The structure model is evaluated through bootstrapping procedure with 5000 bootstrap sample and certain number of cases depending of the study (Hair et al., 2011). This enabled the assessment of the path coefficients, variance explained in the endogenous latent variable, effect size and predictive relevance of the model (Hair et al., 2013). Furthermore, a researcher can use Cohen (1988) effect size formula to determine the strength of a study mediator.

3.10.2.1 Path Coefficient

Path coefficient is assessed in order to evaluate the hypothesized relationships between constructs in a study. The coefficients of the significant path, t- values, and standard error are assessed through bootstrapping procedure. The bootstrapping technique ensures that measures are calculated better (Mooney, 1996). This is done by repetitively calculating re samples of 5000 and cases using bootstrapping (Hair et al., 2012). The 5000 bootstrapping samples used are to ensure that a proxy is given to the distribution of the empirical standard error of the model (Hair et al., 2012).

The path coefficients were determined using t-statistics from the bootstrapping standard error procedure (Hair et al., 2013). The t-value significance level is calculated by either a one tail or a two- tailed estimation (Hair et al., 2013). This study is using two tail directions. In a two tail test situation, t-value significance level of 10% is equal to or greater than 1.65, at 5%, the significance level equal to or greater than 1.96 and at 1%, the significance level equal to or greater than 2.57.

Therefore, t-values that are below these stated values are considered not significant (Hair et al., 2013).

3.10.2.2 Variance Explained in the Endogenous Latent Variable

This refers to the *R*-square which is another value of importance in PLS structural model assessment (Hair et al., 2010). When the value of one or more independent variables explains the variation proportion in a dependent variable those values are referred to as the *R*-square (Hair et al., 2010). Furthermore, the context of research determines the level of *R*-square that is considered accepted (Hair et al., 2010). The acceptable level of *R*-square has been categorized to be 0.67 for substantial, 0.33 for moderate and 0.19 for week (Chin, 1998).

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3.10.2.3 Effect Size

It is necessary to assess the extent each of the exogenous variables has effect on the endogenous variable (Cohen, 1988). Since effect size of the study cannot be derived from the estimations of the path coefficient. This determines the effect size (f^2). According to Cohen (1988) the formula for determining effect size (f^2) is as follows:

$$f^2 = \frac{R^2 \text{ included} - R^2 \text{ excluded}}{1 - R^2 \text{ included}}$$

The changes that occur in the *R*-square shows the effect size (Chin, 1998). When effect size value are 0.02 it is considered week, 0.15 is considered moderate and 0.35 is considered strong effect. It has been argued that all effect size each have their individual uniqueness in affecting the dependent variable and as such effect size of the smallest effect should be taken into consideration (Chen et al., 2003).

3.10.2.4 Predictive Relevance

In order to assess goodness of fit for this study, blindfolding procedure was carried out using predictive relevance test of Stone-Geisser (Geisser, 1974; Stone, 1974). The test is to show that the study model has predictive capacity. Blindfolding procedure can be used when the variables in the measurement model can cause variation in the endogenous variable which is regarded as reflective in nature (Sattler, Völckner, Riediger & Ringle, 2010; McMillan & Conner, 2003). This study applied blindfolding procedure since the three endogenous variables in this study have reflective nature. Furthermore, Hair et al (2012) argued that Q^2 stands for predictive relevance of a study. Q^2 measures the parameter assessment as well as the values which surrounds the model. Therefore, blindfolding was used to calculate Q^2 and the study extracted the cross validated redundancy from the variable scores derived from the result (Chin, 2010). The model quality is determined by how well the endogenous variables can be predicted by the model. It has been suggested that there is predictive relevance when the Q^2 of a research model is more than zero (Henseler et al*.,* 2009). Therefore, the more positive and higher the Q^2 values the more the predictive relevance.

3.10.2.5 Mediation Test Technique

Mediation is the transmission of the effect of an independent variable on a dependent variable through another variable referred to as a mediator. The process is of carrying this out is known as mediation analysis. Mediation analysis tries to explain the way in which one variable influences another and is perhaps among the required skills when carrying out social science research.

Mediation test criteria for establishing mediation suggested by Baron and Kenny (1986) has been the most used process when carrying out a mediation analysis. However, studies has suggested the reconsideration of this method due to its draw backs of ensuring that all paths in the analysis most have a basic significant effect before mediation can be established and the change in findings of the total effect (X to Y) from significant to non-significant that may occur when a mediator is added (Zhao, Lynch, & Chen, 2010; Preacher & Hayes, 2004).

Furthermore, the Sobel test recommended by Baron and Kenny (1986) for the calculation of mediation has been observed to be low in power in most situations (Mackinnon et al., 2002; Preacher & Hayes, 2004). Therefore, in the current trend in mediation calculations, bootstrapping test is popularized as it is regarded as having more power in comparison to the Sobel test as well as offers ways for control of measurement errors (Mackinnon et al., 2002; Preacher & Hayes, 2004; Zhao et al., 2010). Therefore, bootstrapping method of calculating mediation for the establishment of mediation is used for this study

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In this approach bootstrapping and path coefficients uses standard errors for estimation (Hayes, 2009: Preacher & Hayes, 2004). Furthermore, the first step is to find the values from mediator to dependent variable as well as the values from the independent variables to mediator by running the PLS algorithm to get the t-values and path coefficient. The independent variable path to the mediator (X-M) was represented with ***a,*** the mediator to the independent variable (M-Y) link is represented by ***b.*** The values of **a** of all the independent variables and value of **b** for

mediators to dependent variable are inserted in a template used for calculating mediation for PLS. This was repeated for the second mediator since this study has two mediators. **a*b** give the indirect effect of the mediation (β). Then effects of the mediators were then tested with SmartPLS 2.0 M3. This was done by running a bootstrap of 5000 re samples. The study model then showed the t-values for the study. In the default report, values of the path coefficients are copied and put in another excel sheet. This is done to calculate the standard error (SE). Thus, the product of **a*b** is used to calculate SE. This is done by getting the standard deviation {=STDEV(a*b)}. Furthermore, the SE is then copied and paste in the mediation template. When this is done, the t-value, lower level (95% LL) and upper level (95% UL) bootstrap confidence interval are automatically calculated. The lack of involvement of standard errors in the Baron and Kenny (1986) approach (Hayes & Preacher, 2010) makes this study to use this technique.

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This study considered PLS path modelling to be the appropriate method of analysis due to several reasons. First, in PLS, the relationships between variables (structural Model) and the relationship of latent variables (Measurement model) and their indicators can be simultaneously estimated (Duarte & Raposo, 2010).

Secondly, since this study is explorative with the application of technology acceptance model (TAM) theory, the approach of path modelling is required. This is because studies have suggested that when existing theories are being extended or the research is prediction-oriented, the appropriate approach to use should be the path modelling in PLS (Hair et al., 2013; Henseler, Ringle & Sinkovics, 2009).

Thirdly, PLS has graphical interface that is user friendly when compared to other software like Analysis of Moment Structure (AMOS). This enables the creation of mediating effects by users for models that has interacting effects (Temme, Kreis & Hildebrandt, 2010).

Fourthly, PLS is more appropriate to estimate model that are large and complex (Akter et al., 2011). This study examined the relationship between 11 constructs, thus PLS path technique was considered appropriate. Furthermore, since this study had to examine mediating effects of perceived usefulness and perceived Ease of Use, PLS was considered appropriate as the technique can account for measurement error and can give estimates of mediating effects accurately.

Non normal data are treated well with PLS. Data in social science tend to have the problem of normality (Osborne, 2010), in PLS analysis data do not necessary need to be normal (Chin, 1998a). Therefore, to avoid problem of normality that might occur during analysis of data PLS was considered for this study.

PLS is vulnerable to multicollinearity which is one of its features. With multiple regression PLS can estimate both structural and measurement models. Finally, in both formative measurement model as well as reflective models, PLS technique can be utilized.

3.11 Technique for Goodness of Fit (GoF)

Studies goodness of fit are based on the study‘s AVE, bootstrapping, R^2 and Q^2 (Chin, 1998; Fornell & Larcker, 1981). However, Tenenhaus, Amato, Esposito and

Vinzi (2004) and Hair et al. (2012) arguments of pointing out the necessity of ensuring the GoF in SmartPLS was followed in this study. When the study latent variables are certified as valid then the GoF criteria are considered as satisfied (Chow & Chan, 2008).

In SmartPLS GoF is the result derived from the two R^2 values mean: average communality mean and endogenous variables mean. GoF objective is to ensure that both the structural and measurement model are in harmony in their assessment and performance. In order to precisely ascertain the suitability of PLS model, Wetzels, Odekerken-Schrder and Van Oppen (2009) have given standard tenets as: .1 equivalents to small, 0.25 equivalents to medium and 0.36 equivalents to large.

This formula is used in the calculation of the GoF:

GoF = $\sqrt{R^2 \text{ x Average of communality (AVE)}}$

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3.12 Summary of chapter

In this chapter the research design, hypotheses, operationalization of constructs, measurement, population of study, the process of data collection, sampling method and was discussed. Furthermore, this chapter also discussed the technique of data analysis and the reason for choosing the method. The results of the data analysed are presented in next chapter.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.1 Introduction

In this chapter, there is further elaboration on the data collected and methodology that was discussed in chapter three. These include explanation of how SPSS was used to screen and treat the data, the response rate of the survey carried out, error detected, missing value analysis and outlier assessed. Furthermore, respondent‘s descriptive statistics as well as the latent construct descriptive analysis were also reported. This was followed by the explanation of the analysis of the result using PLS path modelling. This was done in two sections. Section one contains the explanation of how the reliability of the individual item, internal consistency, discriminant and convergent validity were determined using the assessment of measurement model. The path coefficient significance, R-square values, effect size and the structural model predictive relevance were reported in section two. The mediating effects of perceived ease of use and perceived usefulness on the model are also reported.

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4.2 Response rate

Table 4.1 shows the response rate of the distributed questionnaires. Conforming to the procedures of data collection, 514 questionnaires were distributed to heads of departments in federal ministries of two geo- political zones: Federal Capital Territory (FCT), Abuja for North-central zone and Kaduna state for North-west zone, which were randomly selected. In order to get adequate response rate, follow ups were done in form of SMS and phone calls (Sekaran, 2003). These follow ups yield returns of 472 questionnaires from the 514 administered to respondents. This gives

more than 70% response rate (Babbie & Mouton, 2001). The collected data was examined to ensure eligibility, completeness, consistency and accuracy (Cooper & Schindler, 2007). Based on this examination it was discovered that out of 472 questionnaires returned 22 questionnaires were considered unusable because there were missing data of about 15% (Hair, Black, Babin & Anderson, 2010). The remaining 450 questionnaires were considered usable to be analysed for this study.

Table 4.1
Summary of Questionnaire Response Rate

ITEMS	REMARKS	% OF QUESTIONNAIRES
Sample size	514	
Questionnaires distributed	514	
Unreturned questionnaires	42	8.17
Returned questionnaires	472	91.82
Usable questionnaires	450	87.54
Unusable questionnaires	22	4.28

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A period of two months was used to collect data. In order to have the data fit for analyse, Microsoft excels 2010 and version 10 of SPSS was used to key in the collected data. This was later transferred to SmartPLS 2.0 M3 which was used to analyse the data further (Ringle et al., 2005). The data screening preliminaries were done using SPSS. SmartPLS 2.0 M3 was used to test validity and reliability, analysis of the measurement, structural model as well as the mediation test (Ringle et al., 2005).

4.3 Data screening and preliminary analysis

The codes for each variables of this are presented in Table 4.2. In addition to the fact that screening of data enables the researcher to understand the data to be used for analysis, it also helps to avoid violations with regards to the assumptions of data analysis in multivariate technique analysis (Hair et al., 2007). Furthermore, when data are screened, it gives good grounds in attaining results that are significant.

After the questionnaires were collected, the researcher numbered the returned questionnaire. Basic descriptive statistics was done and coding of the returned questionnaires were carried out and entered into SPSS for data screening. This helps in detecting values that were not properly coded. Coding of constructs was suggested so that constructs can be easily identified during analysis (Churchill, 1979). This is done by assigning letters to every construct that conforms to the variables in the study. Therefore, the argument of Churchill (1979) was adhered to in this study and the variables were coded accordingly.

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Table 4.2
Variable Coding

Variables	Code
E-training Acceptance	**ETA**
Perceived Cost	**PC**
Computer Self Efficacy	**CSE**
Technological Infrastructure	**TECHINF**
Internet Facilities	**INTFAC**
Power Supply	**PWSS**
Organisational Support	**ORGSP**
Technical Support	**TECHSP**
Government Support	**GOVTSP**
Perceived Usefulness	**PU**
Perceived Ease of Use	**PEOU**

The coding was followed by preliminary analysis. Preliminary analysis is the detailed explanations of the tests carried out using SPSS. This includes discussions on Error detection, missing value, outliers (Hair, et al, 2010).

4.3.1 Error Detection

In the process of entering data in SPSS errors can occur when data is large. Errors are said to be invalid values because they are not in the same range of values for items being investigated. According to Pallant (2013) errors are source of outliers and there is need to correct these errors so that the results of the analysis will not be distorted. In order to detect errors and correct them, there is need to check frequencies of each construct to see the values that are not valid.

This study used analyse-descriptive-frequency (Pallant, 2013) to check for errors. It was observed that some errors had occurred in inputting the data: case 52 had no value under the construct computer self-efficacy item 1. Furthermore, case 55 under the variable computer self-efficacy item 5 had no value inputted. Others are case 290 under the variable organisational support item 3 had 22 inputted as value; case 297 also under organisational support item 6 had no value inputted; case 376, item 4 in technological infrastructure had 22 as value and lastly, 432 under government support item 5 had no value inputted.

The descending code procedure (Pallant, 2013) was used to correct these errors by simply checking the numbered questionnaires and getting the correct values against each stated error that is mentioned above.

4.3.2 Missing Data

Table 4.3 shows the analysis of missing value for this study and appendix B shows the missing value result. Missing data is an occurrence that is unavoidable in the research of social science (Pallant, 2013). This occurs when valid values are not available to be used in further analysis (Hair et al., 2010). Sometimes, the occurrence of missing data could be either under control of the researcher or beyond the researcher‘s control. When missing data is based on the design of the researcher then it is under the researcher‘s control and such situation is ignorable but missing data situation is not ignorable if it beyond the researcher‘s control (Byrne, 2010).

The cases of missing data happens because of factors such as respondents refusal to answer certain questions, questions not being understood, or respondents not willing to continue in the survey participation and respondents not having adequate knowledge about the research (Tabachnick & Fidell, 2014). Therefore, for proper analysis a researcher needs to know the nature, extent, impact of missing data. The systematic pattern or randomness of the missing data helps the researcher to know the nature of the missing data; whether it was missing at random; missing completely at random; or not missing at random which is considered systematic. Furthermore, the researcher can only find remedy to issues of missing data when it is possible to assess the impact of such missing data. Missing data below 1% is not considered as problematic. If the impact of missing data is below 5%, it is considered as manageable. However, it stated that a more sophisticated technique in comparison to the technique used in resolving those below 1% and 5% should be used in resolving it if missing data is up to 15% (Acuna & Rodriguez, 2004).

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Mean or median substitution has been suggested as the easiest method to replace missing values. This method is preferable if the value to be replaced is 5% or less (Tabachnick & Fidell, 2007). This is because the rate of 5% or less of missing values is considered as insignificant (Tabachnick & Fidell, 2007).

Table 4.3
Analysis of Missing Values

Variables	Missing Values
ETA	0
PC	0
CSE	2
TECHINF	1
INTFAC	0
PWSS	0
ORGSP	2
TECHSP	0
GOVSP	1
PU	0
PEOU	0

Note: ETA= E-training Acceptance, PC= Perceived Cost, CSE=Computer self-efficacy, TECHINF=Technological Infrastructure, INTFAC=Internet Facilities, PWSS=Power Supply, ORGSP=Organisational Support, TECHSP=Technical support, GOVSP= government Support, PU=Perceived Usefulness, PEOU=Perceived Ease of Use

The analysis in Table 4.3 shows the rate of the missing data for this study to be insignificant. Therefore, median substitution was used to replace the missing values since they occurred randomly.

4.3.3 Assessment of Outliers and Treatment

Table 4.4a shows the possible influence of outliers on the construct of e-training acceptance from the output of descriptive statistic carried out for normality test on the total score of the construct. After missing values were replaced the next step was to treat outliers, which is another feature of data screening. Outliers are observations

that are inconsistent with the rest of the data and can distort result of analysis (Hair et al., 2010). Outliers are normal occurrence when carrying out analyses that are statistical in nature. This is due to the fact that it is usual to find values that are unusual due to wrong entry. Outliers occur due to errors in the entry of data or mistake in coding the data.

The perfect skewness and kurtosis value is 0 which is very uncommon in social science research (Pallant, 2011). According to Hair et al. (2010) variable with normal data distribution should have their skewness and kurtosis value around ± 2.58. However, Field (2009) stated that when the study sample is large in thee rang of 200 and above, skewness and kurtosis values will not make much difference. Therefore, it has been suggested that the graphical method or the descriptive statistics analysis of each construct should be used to determine the normality of study constructs (Field, 2009; Pallant, 2011).

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This study chose the descriptive statistic method of detecting and treating outliers based on the simplicity of the method. Descriptive statistic for assessing normality can be used to detect and treat outliers (Pallant, 2011) by simply checking the difference between two mean: original and 5% trimmed mean after running the test for normality to assess the outliers‘ influence on the observed construct. If the difference between the two mean is not significant, this shows that the influence of the outliers is week and therefore the outliers need not to be deleted. But if the difference between the two mean is significant it shows that the influence of the outliers is strong thus there is need to delete such outliers.

Table 4.4a

Descriptive Statistics on Total Score of E-training Acceptance showing original and 5% trimmed mean

		Statistic	Std. Error
Mean		28.4889	.20173
95% Confidence Interval for Mean	Lower Bound	28.0924	
	Upper Bound	28.8853	
5% Trimmed Mean		28.8235	
Median		29.0000	
Variance		18.313	
Std. Deviation		4.27935	
Minimum		7.00	
Maximum		35.00	
Range		28.00	
Interquartile Range		4.00	
Skewness		-1.927	.115
Kurtosis		6.994	.230

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The above table shows that the mean score and the 5% trimmed mean are very similar. This shows that in the result of analysis that followed the outliers were not problematic (Appendix C). Therefore, there is no need to delete the outliers. The kurtosis value showed non normal data distribution but since this study sample is above 200 and the analysis method to be used is PLS-SEM, this kurtosis value does not make much difference. Table 4.4b presents the result of descriptive statistic carried out for normality test on the total score of the variable perceived cost.

Table 4.4b

Descriptive Statistics on Total Score of Perceived Cost showing original and 5% trimmed mean

		Statistic	Std. Error
Mean		18.9756	.15427
95% Confidence Interval for Mean	Lower Bound	18.6724	
	Upper Bound	19.2787	
5% Trimmed Mean		19.0963	
Median		19.0000	
Variance		10.710	
Std. Deviation		3.27259	
Minimum		6.00	
Maximum		25.00	
Range		19.00	
Interquartile Range		4.00	
Skewness		-.627	.115
Kurtosis		.921	.230

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The mean score in Table 4.4b is 18.9756 while the 5% trimmed mean is 19.0963. The similarity in the mean score indicates that the outliers did not cause any problem in the result for the scale of perceived cost (Appendic D). Appendices E to J shows the influence of outliers on the constructs of computer self-efficacy, technological infrastructure, organisational support, technical support, perceived usefulness and perceived ease of use accordingly. This is from the output of descriptive statistic carried out for normality test on the total score for each of the constructs just mentioned above. The appendixes shows the mean and 5% trimmed mean for computer self-efficacy, technological infrastructure, organisational support, technical support, perceived usefulness and perceived ease of use respectively were similar. Therefore, it was not necessary to delete the outliers.

The similarity of the mean and 5% trimmed mean indicated that further analysis could be carried out without fear of encountering problem even with the outliers. Furthermore, the outliers were not deleted since this study is using SmartPLS for further analysis which has capability of giving results that are reasonable irrespective of few outliers (Hair et al, 2011). Therefore, the analysis indicates that this study data is cleaned and ready to be used for analysis.

4.4 Demographic Profile of Respondents

Table 4.5 gives the result of the analysis carried out. Section II of this study survey instrument gives a description of the respondent‘s demographic information. This information includes the respondent‘s gender, age, position/rank, years of service, their educational qualification and the ministry they are working in.

Table 4.5
Respondent’s Demographic Analysis showing frequency and percentage

	Frequency	Percentage
Gender:		
Male	343	76.2
Female	107	23.8
Age:		
25-30 years	76	16.9
31-40 years	135	30.0
41-50 years	167	37.1
51 years and above	68	15.1
Position/Rank:		
Head of department	249	55.3
Others	200	44.4
Years of Service		
1-5 years	84	18.7
6-10 years	65	14.4
11-15 years	93	20.7

Table 4.5 (Continue)
Respondent's Demographic Analysis showing frequency and percentage

Years of Service	Frequency	Percentage
16-20 years	59	13.1
21 years and above	149	33.1
Ministry:		
Ministry of Education	154	34.2
Ministry of Finance	45	10.0
Ministry of Health	44	9.8
Ministry of Science and Technology	32	7.1
Ministry of Information	23	5.1
Other Ministries	152	33.8
Educational Qualification:		
Other Qualifications	47	10.4
Degree/HND	280	62.2
Master Degree	120	26.7
PhD	3	.7

Table 4.5 shows male to be the majority: 76.2%. While females respondents are 23.8% of the total sample. In the age section, 16.9% respondents were age 25-30 years. Age 31-40 years follows with 135 respondents which is 30% of the total sample. The largest number of respondents was from those in the age group of 41-50 years, they represented 37.1% of the sample. The smallest number respondents came from those in the age group 51 years and above: 15.1%. Furthermore, Table 4.5 shows statistics as follows: head of department were 249 respondents which gives 55.3% while sectional heads (others) were 44.4% of the sample.

Regarding years of service, Table 4.5 shows the highest to be 33.1% for those respondents that have served for 21 years and above. Those that have served between 16-20 years were 59 (13.1%) giving the lowest number respondents in the sample. Respondents with service years of 1-5 years were 84 (18.7%) and those with 6-10

years were 65 (14.4%). Finally for the section for years of service were those in the category of 11-15 years with 93 respondents which is 20.7% of the sample.

Table 4.5 also indicated a high proportion of respondents were from ministry of education (34.2%) and other ministries (33.8%). Respondents from ministry of finance were 10%, ministry of health were 9.5% while ministry of science and technology and ministry of information were 7.1% and 5.1% respectively. Furthermore, table 4.5 also shows that majority of the respondents (62.2%) had Degree/HND educational qualification which is followed by those with master degree (26.7%). Those with other qualifications were 10.4% and approximately .7% was those with PhD qualification.

4.5 Descriptive analysis of latent Construct

The computation of the standard deviation and mean of this study variables are discussed in this section. 5 point scale from 1= strongly disagree to 5 = strongly agree was used to measure the variables in this study. The category of high, moderate and low were assigned to the 5 point scale interpretation. Scores of 3 with 4-3/3 as values were regarded as high; scores that were less than 2 with 3/3 plus lowest value 1 were regarded as low. Furthermore, moderate scores are those scores that were between high and low (Sassenberg, Matschke & Scholl, 2011). Table 4.6 shows the result of the descriptive analysis carried out.

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Table 4.6
Descriptive Analysis of study Variables showing Number of items, Mean and Standard Deviation

Variables	**Items**	**Mean**	**Standard Deviation**
ETA	7	4.081	.609
PC	5	3.872	.684
CSE	5	3.205	.803
TECHINF	5	4.114	.672
INTFAC	5	2.976	1.101
PWSS	6	2.771	1.007
ORGSP	6	3.940	.774
TECHSP	5	3.993	.745
GOVSP	5	3.293	.872
PU	5	4.187	.719
PEOU	5	3.734	.667

Note: ETA= E-training Acceptance, PC= Perceived Cost, CSE=Computer self-efficacy, TECHINF=Technological Infrastructure, INTFAC=Internet Facilities, PWSS=Power Supply, ORGSP=Organisational Support, TECHSP=Technical support, GOVSP= government Support, PU=Perceived Usefulness, PEOU=Perceived Ease of Use

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The variables overall mean as shown in Table 4.8 above are from 2.771 to 4.187. While the standard deviation ranged from .609 to 1.101. The descriptive statistics above indicates that the respondents have high perception for e-training acceptance.

4.5 Assessment of PLS-SEM Path Model Results

Recent studies have suggested that model validation is not suitable through goodness of fit index (Henseler & Sarstedt, 2013) due to its inability to separate models that are valid from those that are not valid (Hair et al., 2013). Therefore, this study used a two-step process in reporting and evaluating the PLS-SEM path results (Hair et al,

2012). This is to determine items quality as well as getting an estimation of the models relationship (Hair et al, 2012). This two-step process of assessing PLS Path modelling results as discussed in chapter three are measurement model assessment and structural model assessment (Henseler, Ringle & Sinkovics, 2009; Hair et al., 2012). These models evaluations are discussed in detail in subsequent sections.

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4.5.1 Assessment of Measurement Model

Figure 4.1 shows the measurement model of the study

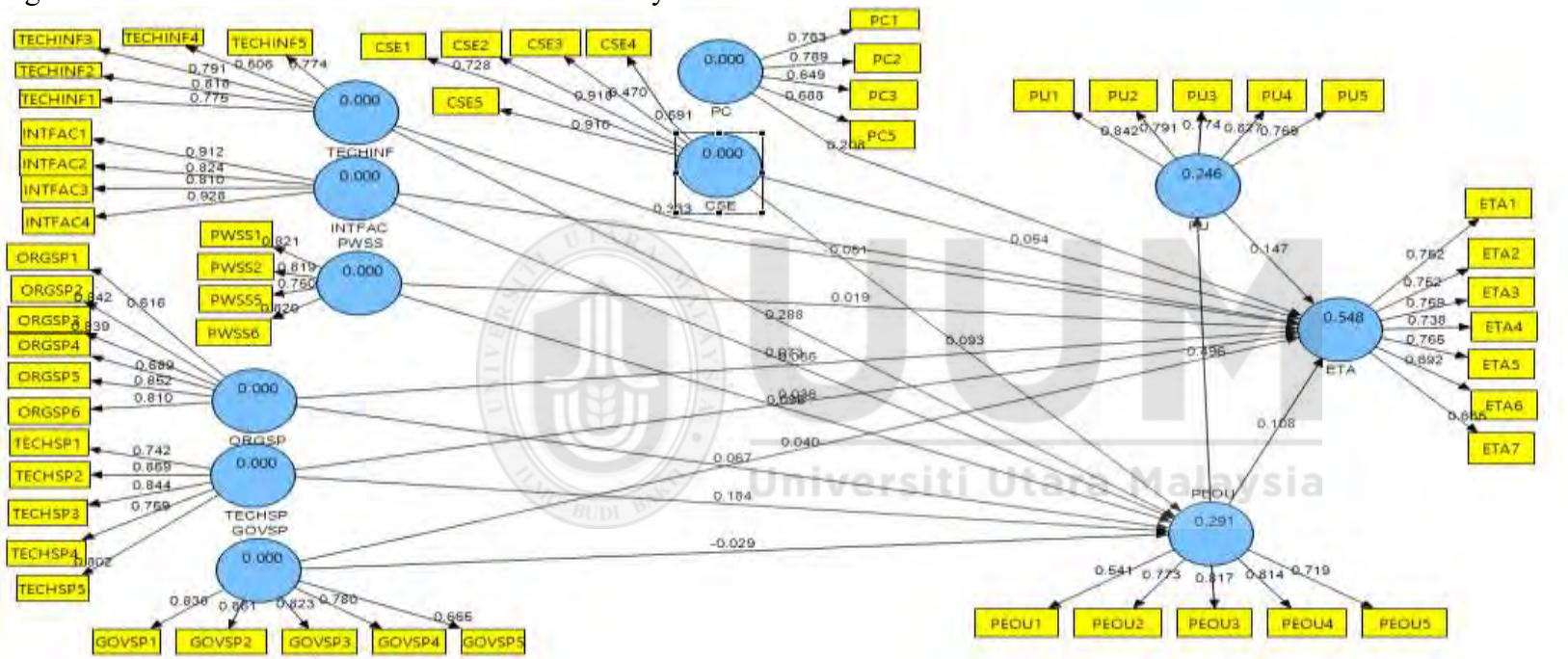

Figure 4.1
Study Measurement Model

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4.5.1.1 Individual Item Reliability

This is presented in table 4.7. Examination of each variables measure outer loading was used to assess individual item reliability (Hair et al., 2012). Four items from the 59 items were deleted when it was observed that they had loading below the required loading of .40. Items deleted were PC 4 from perceived cost, INTFACT 5 from internet facilities, PWSS 3 and PWSS 4 from power supply. The loading of the 55 items retained were between 0.470 and 0.928.

4.5.1.2 Internal Consistency Reliability

Item loadings, AVE and composite reliability of variables are presented in Table 4.7. The internal consistency reliability of this study was determined with the use of the coefficients of composite reliability and AVE.

Table 4.7
Variables Items loadings, AVE, composite Reliability and showing where items were deleted

Variables	Items	Loading	AVE	Deleted items	Composite Reliability
CSE	CSE1	0.728	.554	None	.854
	CSE2	0.918			
	CSE3	0.500			
	CSE4	0.591			
	CSE5	0.910			
ETA	ETA1	0.752	.537	None	.890
	ETA2	0.752			
	ETA3	0.759			
	ETA4	0.738			
	ETA5	0.765			
	ETA6	0.692			
	ETA7	0.665			

Table 4.7 (Continue)

Variables Items loadings, AVE, composite Reliability and showing where items were deleted

GOVSP	GOVSP1	0.838	.635	None	.896
	GOVSP2	0.861			
	GOVSP3	0.823			
	GOVSP4	0.780			
	GOVSP5	0.665			
INTFAC	INTFAC1	0.912	.757	One	.925
	INTFAC2	0.824			
	INTFAC3	0.810			
	INTFAC4	0.928			
ORGSP	ORGSP1	0.616	.608	None	.902
	ORGSP2	0.842			
	ORGSP3	0.839			
	ORGSP4	0.689			
	ORGSP5	0.852			
	ORGSP6	0.810			
PC	PC1	0.763	.525	One	.815
	PC2	0.789			
	PC3	0.649			
	PC5	0.688			
PEOU	PEOU1	0.541	.548	None	.856
	PEOU2	0.773			
	PEOU3	0.817			
	PEOU4	0.814			
	PEOU5	0.719			
PU	PU1	0.842	.642	None	.899
	PU2	0.791			
	PU3	0.774			

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Table 4.7 (Continue)
Variables Items loadings, AVE, composite Reliability and showing where items were deleted

Variables	Items	Loading	AVE	Deleted items	Composite Reliability
	PU4	0.827			
	PU5	0.769			
PWSS	PWSS1	0.821	.645	One	.879
	PWSS2	0.819			
	PWSS5	0.750			
	PWSS6	0.820			
TECHINF	TECHINF1	0.775	.550	None	.857
	TECHINF2	0.818			
	TECHINF3	0.791			
	TECHINF4	0.506			
	TECHINF5	0.774			
TECHSP	TECHSP1	0.742	.644	None	.900
	TECHSP2	0.859			
	TECHSP3	0.844			
	TECHSP4	0.759			
	TECHSP5	0.802			

Note: *Composite reliability > 0.70 and AVE > 0.50*

The coefficients of composite reliability of variables as presented in Table 4.7 are from the range of 0.815 to 0.925. All above the least accepted range of .70. This shows that measures used have internal consistency reliability that are adequate (Hair et al., 2011).

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4.5.1.3 Convergent Validity

Table 4.7 shows the AVE of each variable was more than .50, indicating that convergent validity of this study is adequate.

4.5.1.4 Discriminant Validity

The AVEs in Table 4.7 are between 0.525 and 0.757, which is acceptable. Table 4.8 shows the correlations of variables as compared to AVE square roots. The AVE square roots were higher than the correlations between variables. This also shows the adequacy of the discriminant validity (Fornell & Larcker, 1981).

Table 4.8
Discriminant Validity indicating validity and correlations among variables

Constructs	CSE	ETA	GOVSP	INTFAC	ORGSP	PC	PEOU	PU	PWSS	TECHINF	TECHSP
CSE	**.749**										
ETA	.194	**.733**									
GOVSP	.275	.332	**.797**								
INTFAC	.198	.118	.384	**.879**							
ORGSP	.164	.547	.439	.252	**.778**						
PC	.177	.590	.341	.130	.671	**.725**					
PEOU	.201	.495	.252	.212	.407	.482	**.740**				
PU	.091	.531	.268	.056	.457	.440	.496	**.801**			
PWSS	.196	.119	.346	.444	.247	.167	.197	.020	**.803**		
TECHINF	.160	.650	.343	.180	.566	.549	.477	.529	.075	**.741**	
TECHSP	.136	.546	.355	.146	.668	.513	.447	.516	.134	.659	**.802**

Note: *The bold is the square root of AVE across the diagonal and off diagonal is the correlation among variables*

As shown in Table 4.8, the results indicates that the values of all the variable such as computer self-efficacy (CSE), e-training acceptance(ETA), government support (GOVESP), internet facilities (INTFAC), organisational support (ORGSP), perceived cost (PC), perceived ease of use (PEOU), perceived usefulness (PU), power supply (PWSS), technological infrastructure (TECHINF), technical support

(TECHSP) denote the accurate values of their individual variables as shown in their statistical values.

Table 4.9 presents the study discriminant validity. In order to determine discriminant validity, the cross loadings have to be compared with the indicator loading. Table 4.9 shows indicator loading higher than the cross loading. This indicates that discriminant validity is adequate.

Table 4.9
Result of cross loadings showing indicator loading higher than cross loadings of variables

Construct	1	2	3	4	5	6	7	8	9	10	11
CSE1	**0.728**	0.191	0.302	0.249	0.178	0.158	0.136	0.038	0.214	0.124	0.097
CSE2	**0.918**	0.164	0.212	0.140	0.127	0.149	0.202	0.077	0.195	0.125	0.121
CSE3	**0.500**	0.019	0.145	0.160	0.018	-0.028	0.050	0.033	0.122	0.019	-0.039
CSE4	**0.591**	0.113	0.191	0.162	0.139	0.164	0.109	0.121	0.062	0.166	0.123
CSE5	**0.910**	0.190	0.196	0.106	0.135	0.153	0.191	0.093	0.130	0.137	0.132
ETA1	0.170	**0.752**	0.278	0.104	0.444	0.489	0.418	0.403	0.184	0.546	0.443
ETA2	0.226	**0.752**	0.295	0.133	0.355	0.458	0.395	0.372	0.157	0.472	0.393
ETA3	0.134	**0.759**	0.226	0.041	0.373	0.418	0.414	0.437	0.088	0.531	0.426
ETA4	0.106	**0.738**	0.219	0.045	0.399	0.448	0.289	0.369	0.027	0.430	0.382
ETA5	0.153	**0.765**	0.223	0.058	0.396	0.413	0.393	0.405	0.051	0.416	0.362
ETA6	0.111	**0.692**	0.196	0.066	0.411	0.398	0.362	0.415	0.024	0.485	0.416
ETA7	0.147	**0.665**	0.273	0.148	0.435	0.399	0.241	0.308	0.092	0.448	0.378
GOVSP1	0.148	0.342	**0.838**	0.289	0.406	0.269	0.244	0.289	0.237	0.347	0.361
GOVSP2	0.222	0.289	**0.861**	0.334	0.395	0.263	0.199	0.262	0.269	0.333	0.327
GOVSP3	0.274	0.247	**0.823**	0.340	0.363	0.337	0.229	0.160	0.338	0.210	0.259
GOVSP4	0.279	0.254	**0.780**	0.254	0.323	0.287	0.182	0.199	0.211	0.286	0.278
GOVSP5	0.238	0.139	**0.665**	0.411	0.244	0.165	0.104	0.116	0.369	0.089	0.125
INTFAC1	0.178	0.111	0.311	**0.912**	0.209	0.096	0.176	0.053	0.363	0.160	0.131
INTFAC2	0.158	0.077	0.342	**0.824**	0.204	0.107	0.194	0.074	0.373	0.157	0.146
INTFAC3	0.182	0.081	0.363	**0.810**	0.165	0.116	0.174	0.010	0.436	0.043	0.043
INTFAC4	0.182	0.129	0.347	**0.928**	0.252	0.122	0.189	0.055	0.379	0.188	0.161
ORGSP1	0.124	0.283	0.441	0.264	**0.616**	0.398	0.138	0.202	0.350	0.254	0.284
ORGSP2	0.191	0.455	0.381	0.128	**0.842**	0.688	0.277	0.342	0.170	0.458	0.553
ORGSP3	0.127	0.481	0.394	0.132	**0.839**	0.576	0.336	0.369	0.150	0.503	0.621
ORGSP4	0.073	0.376	0.317	0.245	**0.689**	0.427	0.373	0.407	0.279	0.381	0.441

Table 4.9 (Continued)

Result of cross loadings showing indicator loading higher than cross loadings of variables

Construct	1	2	3	4	5	6	7	8	9	10	11
ORGSP5	0.139	0.495	0.302	0.196	**0.852**	0.543	0.331	0.399	0.166	0.530	0.585
ORGSP6	0.171	0.430	0.311	0.209	**0.810**	0.511	0.350	0.344	0.133	0.458	0.553
PC1	0.152	0.445	0.248	0.122	0.424	**0.763**	0.398	0.306	0.153	0.412	0.340
PC2	0.082	0.441	0.208	0.043	0.397	**0.789**	0.361	0.281	0.091	0.407	0.311
PC3	0.115	0.360	0.118	0.069	0.248	**0.649**	0.368	0.355	0.064	0.294	0.254
PC5	0.191	0.455	0.381	0.128	0.842	**0.688**	0.277	0.342	0.170	0.458	0.553
PEOU1	0.298	0.276	0.253	0.269	0.204	0.253	**0.541**	0.166	0.314	0.243	0.210
PEOU2	0.209	0.348	0.215	0.157	0.237	0.371	**0.773**	0.346	0.164	0.319	0.274
PEOU3	0.178	0.427	0.280	0.200	0.336	0.351	**0.817**	0.448	0.186	0.431	0.391
PEOU4	0.068	0.421	0.130	0.094	0.370	0.407	**0.814**	0.451	0.022	0.404	0.423
PEOU5	0.054	0.333	0.065	0.099	0.295	0.389	**0.719**	0.360	0.110	0.314	0.309
PU1	0.075	0.468	0.293	0.063	0.451	0.382	0.387	**0.842**	0.070	0.473	0.459
PU2	0.037	0.374	0.199	-0.006	0.302	0.299	0.360	**0.791**	-0.037	0.448	0.435
PU3	0.001	0.399	0.144	0.077	0.308	0.299	0.365	**0.774**	0.004	0.360	0.408
PU4	0.101	0.427	0.199	0.064	0.340	0.320	0.444	**0.827**	0.036	0.379	0.376
PU5	0.154	0.447	0.239	0.024	0.389	0.449	0.420	**0.769**	0.021	0.461	0.396
PWSS1	0.178	0.086	0.295	0.447	0.227	0.129	0.169	-0.030	**0.821**	0.035	0.091
PWSS2	0.187	0.066	0.329	0.406	0.208	0.143	0.181	-0.012	**0.819**	0.059	0.126
PWSS5	0.094	0.053	0.211	0.330	0.127	0.071	0.081	0.018	**0.750**	-0.033	0.067
PWSS6	0.145	0.164	0.240	0.264	0.203	0.166	0.168	0.092	**0.820**	0.109	0.129
TECHINF1	0.067	0.508	0.257	0.091	0.554	0.443	0.311	0.422	0.030	**0.775**	0.588
TECHINF2	0.165	0.565	0.218	0.020	0.427	0.445	0.453	0.462	0.032	**0.818**	0.544
TECHINF3	0.116	0.503	0.201	0.008	0.352	0.383	0.337	0.433	-0.023	**0.791**	0.492
TECHINF4	0.130	0.304	0.402	0.364	0.313	0.315	0.289	0.230	0.250	**0.506**	0.323
TECHINF5	0.129	0.497	0.249	0.215	0.447	0.436	0.342	0.379	0.038	**0.774**	0.476
TECHSP1	0.146	0.393	0.301	0.170	0.551	0.391	0.337	0.340	0.181	0.487	**0.742**
TECHSP2	0.142	0.473	0.320	0.128	0.605	0.450	0.377	0.441	0.104	0.574	**0.859**
TECHSP3	0.139	0.482	0.326	0.100	0.555	0.419	0.352	0.456	0.155	0.559	**0.844**
TECHSP4	0.104	0.390	0.242	0.068	0.469	0.440	0.372	0.385	0.080	0.473	**0.759**
TECHSP5	0.043	0.454	0.246	0.103	0.492	0.353	0.353	0.442	0.028	0.557	**0.802**

Note: *Bolded items have loadings higher > 0.5 compared to others in the same column that belong to same construct*

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4. 5.2 Assessment of the Structural Model

Assessing the structural model is the next step after assessing the measurement model.

Figure 4.2 shows the structural model of this study

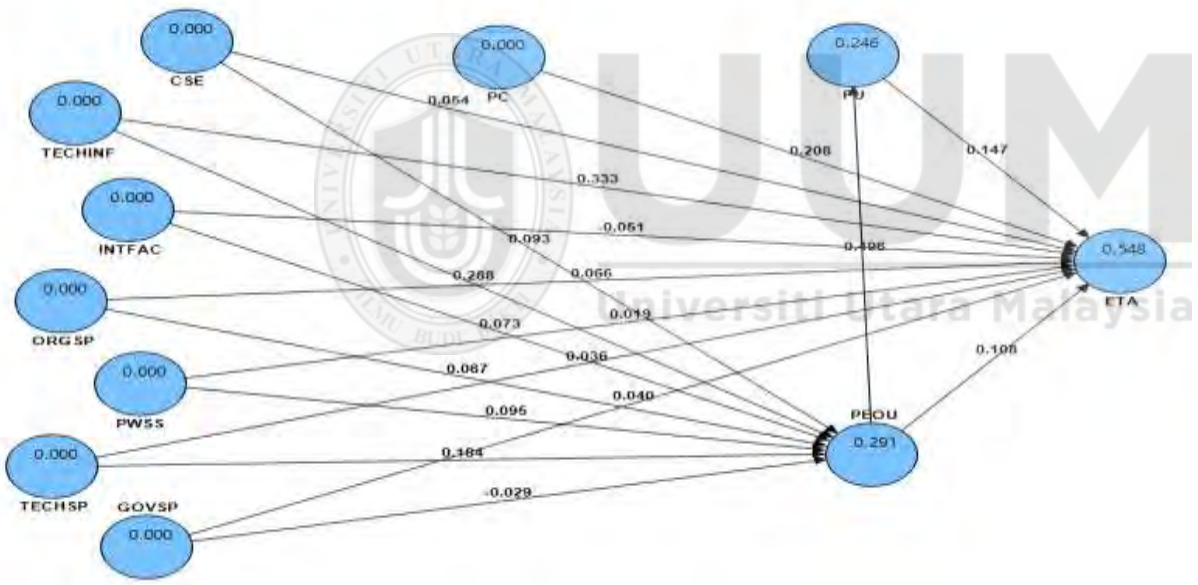

Figure 4.2
Structural Model

4.5.2.1 Significance of path coefficients assessment

In the previous discussion in chapter three, hypotheses were made about relations between constructs. There are hypotheses for direct relations between construct and hypotheses for mediating relationships. The direct relationships of the study are discussed here. This study used the previously discussed t-value rule of thumb to interpret the result of the t-value since the hypotheses were stated in a two tail nature.

Table 4.10 explains direct effect which presents the path coefficients assessment for all the direct relationships. Presented in the table are the direct relationship estimated results of path coefficients, t-values, standard error and P-values to show the supported and non-supported hypotheses of the study based on the t-value.

From the presentation in Table 4.10, the bootstrapping results showed that PU has positive and significant association with e-training acceptance (β = 0.380; S.E= 0.049; T =7.803; P = 0.000). This fully supports Hypothesis 1 which states that PU has significant relationship with e-training acceptance. This is to say that e-training will be accepted when it is perceived to be useful. Hypothesis 2 states that PEOU has significant relationship with e-training acceptance. The bootstrapping results showed that PEOU has positive and significant relationship with e-training acceptance (β = 0.311; S. E = 0.052; T = 7.803; p = 0.000). Therefore, Hypothesis 2 was fully supported by the results. This hypothesis being supported indicates that e-training can be accepted when it is perceived to be easy to use.

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Table 4.10

Hypotheses result for direct relationship

Hypotheses	Relationship	Beta Value	Std Error	T Value	P-Value	Decision
1	**PU -> ETA**	0.380	0.049	7.803***	0.000	Supported
2	**PEOU -> ETA**	0.311	0.052	5.935***	0.000	Supported
3a	**PEOU -> PU**	0.497	0.061	8.204***	0.000	Supported
4	**PC -> ETA**	0.262	0.048	5.424***	0.000	Supported
5a	**CSE -> ETA**	0.054	0.035	1.538	0.125	Not Supported
5b	**CSE -> PEOU**	0.093	0.042	2.202**	0.028	Supported
6a	**TECHINF -> ETA**	0.395	0.060	6.623***	0.000	Supported
6b	**TECHINF -> PEOU**	0.292	0.069	4.241***	0.000	Supported
7a	**INTFAC -> ETA**	-0.046	0.036	1.286	0.199	Not Supported
7b	**INTFAC -> PEOU**	0.069	0.050	1.389	0.166	Not Supported
8a	**PWSS -> ETA**	0.030	0.038	0.800	0.424	Not Supported
8b	**PWSS -> PEOU**	0.092	0.047	1.935*	0.054	Supported
9a	**ORGSP -> ETA**	0.057	0.054	1.046	0.296	Not Supported
9b	**ORGSP -> PEOU**	0.085	0.060	1.410	0.159	Not Supported
10a	**TECHSP -> ETA**	0.092	0.057	1.618	0.106	Not Supported
10b	**TECHSP -> PEOU**	0.175	0.066	2.640***	0.009	Supported
11a	**GOVSP -> ETA**	0.046	0.042	1.083	0.280	Not Supported
11b	**GOVSP -> PEOU**	-0.032	0.046	0.693	0.489	Not Supported

Note: ** at 10% significant level. **at 5% significant level ***at 1% significant level*

Furthermore, Hypotheses 3a stated that PEOU has significant relationship with PU. The results from the bootstrapping showed this relationship to be fully supported (β = 0.497; S. E = 0.061; T = 8.204; p = 0.000). This supported hypothesis indicates that when e-training is perceived to be easy to use, the acceptance can be perceived as useful.

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The results from Table 4.10 shows the relationship between perceived cost and e-training acceptance to be fully supported (β = 0.262; S. E = 0.048; T = 5.424; p = 0.000). This supports Hypothesis 4 which stated that perceived cost has significant relationship with e-training acceptance. This result shows that cost has a strong role in e-training acceptance.

Furthermore, Hypothesis 5a states that computer self-efficacy has significant relationship with e-training acceptance. This relationship is not supported from the bootstrapping results (β = 0.054; S. E = 0.035; T = 1.538; p = 0.125). This result shows that computer literacy alone cannot influence e-training acceptance in the Nigerian civil service. Hypothesis 5b which state that computer self-efficacy has significant relationship with PEOU is fully supported with result of β = 0.093; S. E = 0.042; T = 2.202; p = 0.028. This shows that e-training acceptance is possible when computer knowledge and use is perceived to be easy.

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Furthermore, Hypothesis 6a which states that technological infrastructure has significant relationship with e-training acceptance is also supported from the bootstrapping results (β = 0.395; S. E = 0.060; T = 6.623; p = 0.000). Likewise Hypothesis 6b is supported (β = 0.292; S. E = 0.069; T = 4.241; p = 0.000). This hypothesis state that technological infrastructure has significant relationship with PEOU. Both Hypothesis 6a and 6b being supported shows the strong effect availability of technological infrastructures is to e-training acceptance in the Nigerian civil service.

The bootstrapping result for the relationship between internet facility and e-training acceptance was not supported (β = 0.046; S. E = 0.036; T = 1.286; p = 0.199). The hypothesis for this relationship states that Internet facility has significant relationship with e-training acceptance. Likewise Hypothesis 7b: Internet facility has significant relationship with PEOU, was not also supported with the following estimate results: β = 0.069; S. E = 0.050; T = 1.389; p = 0.166. This result shows that the respondents are sceptic concerning the provision of adequate internet for e-training acceptance. This result supports other results of previous studies on system acceptance in Nigeria (Adomi, & Kpangban, 2010; Bankole, 2013; Oduwale, 2004).

Hypothesis 8a and 8b are also about direct relationship and they are stated thus; H8a: power supply has significant relationship with e-training acceptance and H8b: power supply has significant relationship with PEOU respectively. Hypothesis 8a was not support from the result presented in Table 4.10 (β = 0.030; S. E = 0.038; T = 0.800; p = 0.424). However, Hypothesis 8b was supported (β = 0.092; S. E = 0.047; T = 1.935; p = 0.054). This result for Hypothesis 8a and 8b shows that e-training acceptance is perceived easy to use when there is availability of power supply. Furthermore, the bootstrapping results for Hypothesis 9a (β = 0.057; S. E = 0.054; T = 1.046; p = 0.296) and Hypothesis 9b (β = 0.085; S. E = 0.060; T = 1.410; p = 0.159) are not supported.

Hypothesis 9a states that organisational support has significant relationship with e-training acceptance while Hypothesis 9b states that organisational support has

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significant relationship with PEOU. Both hypothesis not supported is in line the situation in Nigeria. This shall be discussed further in chapter five.

Hypothesis 10a and 10b is about technical support. Hypothesis 10a states that technical support has significant relationship with e-training acceptance. This hypothesis is not supported (β = 0.092; S. E = 0.052; T = 1.618; p = 0.106). This shows that technical support alone does not have strong effect in the acceptance of e-training. However, Hypothesis 10b which states that technical support has significant relationship with PEOU is supported 9(β = 0.175; S. E = 0.066; T = 2.640; p = 0.009). This result is in line with the literature in this study. Respondents perceived that the availability of technical support make it easy to accept e-training in the Nigerian civil service.

Finally on direct relationship is on government support. Table 4.10 shows Hypothesis 11a and 11b not to be supported (β = 0.046; S. E = 0.042; T = 1.083; p = 0.280 and β = 0.032; S. E = 0.046; T = 0.693; p = 0.489). This result shows the perception of the respondents concerning the support of government in e-training acceptance.

In summary, Table 4.10 shows that the hypotheses accepted all have t-value above the 1.65, 1.96 and 2.57 for 10% , 5% and 1% significance level (two-tail test) respectively. Those hypothesis not accepted had lesser t-value than the stated values for significance. Therefore, Hypotheses 1, 2, 3a, 4, 5b, 6a, 6b, 8b and 10b were accepted because there are evidences in this study to support them. However,

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Hypotheses 5a, 7a, 7b, 8a, 9a, 9b, 10a, 11a and 11b were not accepted because there were no statistical evidences in the study to support them. The results showed that nine (9) hypothesized relationships were supported while nine (9) were not supported out of the eighteen (18) direct relationships. The result presented on Table 4.1o is a reflection of the general scenario in Nigeria concerning technology acceptance. This will be discussed further in chapter five.

4.5.2.2 Assessment of Variance Explained in the Endogenous Latent Variables

This study has three endogenous variables and their *R*-square is presented in appendix K and Table 4.11.

Table 4.11
Variance Explained in the Endogenous Latent Variables (R^2)

Variable	R Square
ETA	54%
PEOU	29%
PU	24%

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Table 4.11 shows that computer self-efficacy, technological infrastructure, internet facility, power supply, organisational support, technical support, and government support explain 29% variance of PEOU while PEOU explains 24% of PU. 54% of e-training acceptance variance is being explained by computer self-efficacy, technological infrastructure, internet facility, power supply, organisational support, technical support, and government support, PEOU, PU and perceived cost. Based on the accepted level of R square discussed in chapter three, these are moderate level of *R*-square shown by the three endogenous variables (Falk & Miller, 1992; Chin, 1998).

4.5.2.3 Assessment of Effect Size

The structural model effect size of variables for this study is shown in Table 4.12.

Table 4.12
Effect Size (f^2)

Endogenous Variable	Exogenous Variable	R Squared Included	R Squared Excluded	f-squared	Effect size
ETA	PC	.459	.357	.19	Medium
	PU	.459	.407	.10	Small
PU	PEOU	.459	.439	.04	Small
	PEOU	.246	.000	.33	Medium
PEOU	CSE	.295	.287	.01	None
	TECHINF	.295	.251	.06	Small
	INTFAC	.295	.292	.01	None
	PWSS	.295	.288	.01	None
	ORGSP	.295	.292	.01	None
	TECHSP	.295	.282	.02	Small
	GOVSP	.295	.295	.00	None

Table 4.12 show perceived cost, PU and PEOU had 0.189, 0.096, and 0.037 as effect size on e-training acceptance respectively. Therefore, their effect size interpretation are considered ad medium, small and small (Cohen, 1988). Additionally, PEOU had effect size of 0.326 on PU which is considered as medium effect size. Similarly, computer self-efficacy, technological infrastructure, internet facility, power supply, organisational support, technical support and government support have effect size on PEOU 0.011, 0.62, 0.004, 0.010, 0.004, 0.018, and 0.000 respectively. Their effect size interpretations are none, small, none, none, none, small and none respectively.

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4.5.2.4 Assessment of Predictive Relevance

The predictive relevance for this study is presented in Table 4.13.

Table 4.13
Cross validated Redundancy - Q Square Values

Total	SSO	SSE	1-SSE/SSO(Q^2)
ETA	3150	2263.802	0.281
PEOU	2250	1916.117	0.148
PU	2250	1924.912	0.144

Note: $Q^2 > 0$

Table 4.13 shows that Q^2 has relevance of .281 for e-training (ETA), .148 for PU and PEOU has .144. This shows the predictive relevance of the study model since Hair et al. (2013) argued that when $Q^2 > 0$ then model can be said to have predictive relevance. There is predictive relevance in this study since all the Q^2 of the three endogenous variables in Table 4.13 shows that Q^2 are above zero (Henseler et al., 2009; Hair et al., 2013).

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4.5.2.5 The Mediation Effects

PEOU mediating effect results between the study independent variables and e-training acceptance as well as PU mediating effect result between PEOU and e-training acceptance are presented in Table 4.14. These were achieved based on the formula by Hayes and Preacher (2010), SmartPLS 2.0 bootstrapping and method of calculation discussed previously in chapter three of this study.

Mediation has been mostly reported in terms of it being partial of full which suggest a binary distinction that is probably rarely true in social science research (Jeromy, 2009). This has made studies to suggest that it is preferable to report mediation by

focusing on quantifying the degree in either percentage terms or in terms of the size of the indirect effect (Mackinnon et al., 2007). Therefore, this study reports the findings of the mediation test carried out in degree of percentage.

Table 4.14
Result of test for mediation showing mediated relationships

Hypotheses	Relationship	Beta value	Std. Error	t-value	Bootstrapped Confidence Interval 95% LL	95% UL	Decision
3b	PEOU-> PU -> ETA	.136	.036	3.789***	.066	.207	Supported
5c	CSE -> PEOU -> ETA	.016	.010	1.596	-.004	.036	Not supported
6c	TECHINF -> PEOU -> ETA	.050	.023	2.184**	.005	.096	Supported
7c	INTFAC -> PEOU -> ETA	.011	.009	1.215	-.007	.029	Not supported
8c	PWSS -> PEOU -> ETA	.016	.010	1.680*	-.003	.036	Supported
9c	ORGSP -> PEOU -> ETA	.014	.012	1.200	-.009	.038	Not supported
10c	TECHSP -> PEOU -> ETA	.030	.014	2.089**	.002	.059	Supported
11c	GOVSP -> PEOU -> ETA	-.005	.008	-.626	-.021	.011	Not supported

Note: *T-value significant level is at 1%, 5% &10% respectively*

The study has eight hypotheses for mediation. Table 4.14 shows that four (4) out of the eight (8) hypotheses were supported. Hypothesis 3b was supported with β = 0.136, SE =0.36 and t-value =3.789. Furthermore, Hypotheses 6c; 8c and 10c were also supported with the values of β = 0.050, SE = 0.023, t-value = 2.184; β = 0.016; SE = 0.010; t-value = 1.680 and β = 0.030, SE = 0.014 and t-value = 2.089 respectively. However, Hypotheses 5c, 7c, 9c and 11c were not support with the values of β = 0.016, SE = 0.010, t-value = 1.596, β = 0.011, SE = 0.009, t-value = 1.215, β = 0.014, SE = 0.012, t-value = 1.200 and β = -0.005, SE = 0.008, t-value = -0.626 respectively. Table 4.14 showed that the presence of PU is a strong mediator with 3.789 as t-value for PEOU.

However on the other hand, PEOU as a mediator resulted in an indirect effects in almost all the relationship but there was no mediation in four of the relationships i.e.

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CSE (Computer self-efficacy), INTFAC (Internet Facilities), ORGSP (Organisational Support) and GOVSP (Government Support) with t-values of 1.596, 1.215, 1.200 and -0.626 respectively. Mediation was assessed with a two tail 10 % significance level for both of the mediators.

4.6 Determining the Goodness of Fit (GoF)

GoF of the study is presented in Table 4.15. Based on the formula for calculating GoF, the average communality value is given as 0.604 while the R square is given as 0.548 and 0.575 is the study GoF. This is considered as a good fit according to the argument by Hair et al. (2012), Tenenhaus et al. (2005) and the tenet of Watzels et al. (2009). Thus.57 for GoF indicated satisfactory model validity.

Table 4.15
Goodness of fit result

	Communality	Composite Reliability	R Square
CSE	0.554	0.854	
ETA	0.537	0.890	0.548
GOVSP	0.635	0.896	
INTFAC	0.757	0.925	
ORGSP	0.608	0.902	
PC	0.525	0.815	
PEOU	0.548	0.856	
PU	0.642	0.899	
PWSS	0.645	0.879	
TECHINF	0.550	0.857	
TECHSP	0.644	0.900	
Average Communality	0.604		
	R-Square		0.548
	R-Square * Average Communality		0.331
	GoF		0.575

Note: *Values of GoF .36 and above = large; .25 and above = medium; .1 above = small*

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4.7 Summary of Findings

In Table 4.16, summary of the results of the study findings discussed in previous sections are presented.

Table 4.16
Summary of Hypothesis Testing showing supported relationships

Hypothesis	Statement	Finding
1	PU has significant relationship with e-training acceptance	Supported
2	PEOU has significant relationship with e-training acceptance	Supported
3a	PEOU has significant relationship with PU	Supported
3b	PU mediate the relationship between PEOU and e-training acceptance	Supported
4	Perceived cost has significant relationship with e-training acceptance	Supported
5a	Computer self-efficacy has significant relationship with e-training acceptance	Not Supported
5b	Computer self-efficacy has significant relationship with PEOU.	Supported
5c	PEOU mediates the relationship between computer self-efficacy and e-training acceptance	Not Supported
6a	Technological infrastructure has significant relationship with e-training acceptance.	Supported
6b	Technological infrastructure has significant relationship with PEOU.	Supported
6c	PEOU mediates the relationship between technological infrastructure and e-training acceptance	Supported
7a	Internet facility has significant relationship with e-training acceptance.	Not Supported
7b	Internet facility has significant relationship with PEOU.	Not Supported

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Table 4.16 (Continued)

Summary of Hypothesis Testing showing supported relationships

Hypothesis	Statement	Finding
7c	PEOU mediates the relationship between internet facilities and e-training acceptance.	Not Supported
8a	Power supply has significant relationship with e-training acceptance.	Not Supported
8b	Power supply has significant relationship with PEOU.	Supported
8c	PEOU mediates the relationship between power supply and e-training acceptance	Supported
9a	Organisational support has significant relationship with e-training acceptance	Not Supported
9b	Organisational support has significant relationship with PEOU	Not Supported
9c	PEOU mediates the relationship between organisational support and e-training acceptance	Not Supported
10a	Technical support has significant relationship with e-training acceptance.	Not Supported
10b	Technical support has significant relationship with PEOU.	Supported
10c	PEOU mediates the relationship between technical support and e-training acceptance	Supported
11a	Government support has significant relationship with e-training acceptance	Not Supported
11b	Government support has significant relationship with PEOU.	Not Supported
11c	PEOU mediates the relationship between government support and e-training acceptance.	Not Supported

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4.8 Summary

A detailed discussion of the analysed results was presented in this chapter. Several techniques were used to analyse the result. It was shown through loadings that the study had achieved validity and reliability of the constructs under observation. SmartPLS 2.0 M3 was used to test the study structural and measurement models. The key findings of the study were presented. Path coefficient significance was assessed and out of the 18 direct relationships hypothesized, 9 were supported while 9 were not supported. Furthermore, the 8 mediating relationships predicted for the study show mediation of 4 relationships at two tail at10 %, 5% and 1% significance level respectively.

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CHAPTER FIVE

DISCUSSIONS AND CONCLUSIONS

5.1 Introduction

Data collected were analysed and the results were presented in chapter four. In this chapter, the revealed results in chapter four are discussed in detail. Furthermore, a summary of the research is given. Conclusions, practical, methodological and theoretical contributions as well as the limitation of the research are discussed here. Finally, future studies suggestions are presented.

5.2 Discussions

The results of this study showed that internet facilities, organisational support and government support do not influence e-training acceptance in the Nigerian civil service. However, results indicated that perceived cost, computer self-efficacy, technological infrastructure, power supply and technical support influences e-training in the Nigerian civil service. PEOU and PU indicted strong predictive influence as mediators between the above mentioned variables and e-training acceptance. These results are typical of the Nigerian scenario and different from the findings of other studies carries out in different countries due to issues of national culture (Anandarajan et al., 2002). Each of the study variables are discussed in the next sections.

5.2.1 Perceived cost

The findings of this study indicated that perceived cost has direct significant influence on e-training acceptance. This shows that cost is crucial in new system acceptance (Luan & Lin, 2005). This finding contradicts the finding of Fonchamnyo

(2013) and Alsoufi and Ali, (2014). However, it concurred with the findings of other research (Folorunso et al., 2006; Lubega & Mugarura, 2008; Kurnia, et al., 2006; Özbek et al., 2015). They considered the concept of perceived cost to mean the expenses which are incurred in the process of acceptance of new system.

Perceived cost has been looked at not only as the cost of technology acquisitions but also as savings derived from technology usage by organisations (Machogu, 2012). Hung et al (2003); Wu and Wang (2005) have argued that costs influences the acceptance of technology. Furthermore, it has also been argued that cost influences the quality of electronic training programmes that are provided in an organisation (Machogu, 2012; Adika 2003). Therefore, cost is an important factor to be considered in technology usage (Mathieson, 1991). It has been stressed that substantial financing is required for every stage of e-training acceptance (Ramayah, et al., 2012).

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This study established that perceived cost has much effect on e-training acceptance in the Nigerian civil service as the variable had the highest level of significant in the hypotheses test carried out. As such, it can then be stated that perceived cost and e-training acceptance has an inevitable bond. This study earlier stated that the acceptance of e-training in the Nigerian civil service is capital intensive project that requires a lot of financial consideration.

Therefore, perceived cost is considered as one of the major factor that could greatly influence electronic training in the Nigerian setting (Folorunso et al., 2006). Thus study result confirmed the argument that e-training acceptance requires adequate

financing for it to become a reality in the Nigerian civil service. This study therefore stresses the need for the government of Nigeria which happens to be the sole financial source of the ministries in Nigeria to allocate more funds for facilitation of training especially e-training.

5.2.2 Computer Self-Efficacy

Computer self-efficacy is one of the variables that were predicted to affect e-training acceptance in the Nigerian civil service. However, the findings of this study indicated that the relationship between computer self-efficacy and e-training acceptance is not significant, discrediting the findings by Agarwal et al. (2000) Chau and Hu, (2001) Lee (2006). In addition, although computer self-efficacy is significantly related to PEOU, PEOU does not mediate the relationship between computer self-efficacy and e-training acceptance, supporting the findings of Purnomo, and Lee (2013) and Ramayah et al. (2012). This indicates that computer self-efficacy is not influential in determining the acceptance of e-training in the Nigerian civil service.

The finding of this study is as a result of the problem of low computer literacy in the Nigerian civil service (Akpodiete, 2012). This study result indicates that individual computer self-efficacy alone cannot influence e-training acceptance in the Nigerian context (the insignificant direct effect) and even though the head of departments perceived e-training would be easy to use (the significant direct effect with PEOU), computer self-efficacy is still not crucial in e-training acceptance, indicating here that individual‘s behaviour and beliefs concerning computer is not crucial in the decision to use computer and in e-training acceptance in the Nigerian civil service.

5.2.3 Availability of resources

The findings of the three dimensions of availability of resources showed significant effects in two but insignificant effects in one dimensions. The discussions of the individual dimension of availability of resources are present in the following sections.

5.2.3.1 Technological Infrastructure

This study found technological infrastructure to have a significant direct relationship with e-training acceptance which is contrary to the findings of Thompson (2010). There were also indications of a significant direct relationship of the variable with PEOU as well as PEOU mediating the relationship between technological infrastructure and e-training acceptance, supporting the findings of Selim (2007), Poon et al. (2004) and Yiong et al. (2008). This indicates that technological infrastructure is influential in determining the acceptance of e-training in the Nigerian civil service.

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This study statistically shows that e-training can be accepted in the Nigerian civil service if it is perceived as being easy to use in the sense that user‘s belief the availability of the right and appropriate technological infrastructures can aid acceptance. Therefore, since technological infrastructure is necessary (Bhattacherjee & Hitmet, 2008), it‘s availability in adequate quality, quantity and being user friendly would help in user‘s perception of e-training reliability thereby boost e-training acceptance as well as give the assurance of the ability to implement e-training more successfully. This is because technological infrastructure is a necessity in the usage of technology and communications tools to create, manage, evaluate and

integrate information to have an enabling e-training environment (zainab, et al., 2015).

5.2.3.2 Internet Facilities

The findings indicated that internet facilities did not have direct relationship with e-training acceptance nor did the variable relate significantly with PEOU. Furthermore, PEOU did not mediate the relationship between internet facilities and e-training acceptance. This finding is contrary to findings of Jebakumar and Govindaraju (2009), Martins and Kellermanns (2004) which indicated that internet facilities is not influential in determining the acceptance of e-training in the Nigerian civil service

Although it has been agued repeatedly that availability of internet facilities is a critical factor in technology usage, this study result shows the negative issues that surrounds internet in Nigeria which were discussed earlier in the literature (Adomi & Kpangban, 2010; Bankole, 2013), that there is sceptic perception about involvement of internet in e-training acceptance.

Since it has been argued that access and connectivity (Adomi & Kpangban, 2010; Bankole, 2013; Hara & Kling, 2000), as well as the quality of the connectivity (Oduwale, 2004) and the view that it is beneficial (Saade & Bahli, 2005) can enhance the success of electronic training being accepted, there is need to address these issues to ensure that staffs perceived that government is committed in providing effective internet system in the ministries as well as backing this up with training on the usage. This according to Ahiakwo (1998) requires the involvement all the tiers of government in Nigeria due to the capital intensiveness of the awareness drive. The

cost that would be incurred in training and provision of adequate internet services is small compared to the benefit the ministries and subsequently the nation would derived to be connected to the global village (Adomi & Kpangban, 2010; Ahiakwo, 1998; Bankole, 2013;).

5.2.3.3 Power supply

The findings indicated that although there was no direct relationship between power supply and e-training acceptance, statistical evidence showed power supply to be related to PEOU and PEOU mediated the relationship between power supply and e-training acceptance, supporting the findings of Park et al. (2014). Therefore, power supply can be said to be important in the determining e-training acceptance in Nigeria civil service.

The direct and mediating effect results are surprising despite the problems of power supply in Nigerian (Adika, 2003; Adomi & Kpangban, 2010; Bankole, 2013; Oduwale, 2004). This indicates that the perception that the availability of power supplies will make e-training to be easy to accept in the Nigerian civil service. Since power supply is a national problem in Nigeria, the privatization of the power supplying body (PHCN) is a move to ensure proper funding (Ijeware, 2013). This is expected to put in place adequate equipment and proper maintenance at the power plants (Ijeware, 2013). With this development of privatization, there is expectation that more power would be generated and supplied to the populace, and the ministries which would help the country to loss the nick name of ―generator economy" (Ekpo, 2009) and be able to provide power supply that is generally accessible, moderate and dependable.

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It has been stated earlier that technology plays a large role in training these days (Clayton, 2014) and power supply been ranked 57 per cent among factors to be considered in its acceptance (Adomi & Kpangban, 2010), indicating the huge impact power supply (Alawiye, 2011) has on e-training acceptance. Therefore, it is necessary to have reliable power supply (Park et al., 2014) for it to be a contributory element. Consequently, this would encourage e-training acceptance in the civil service.

5.2.4 Perceived Support

The findings of the three dimensions of perceived support indicated that only one dimension had significant effects while two dimensions did not show any significant effects. The discussions of the individual dimension of perceived support are present in the following sections.

5.2.4.1 Organisational Support

Organisational support indicated no direct relationship with e-training acceptance nor was there evidence of any significant relationship of the variable with PEOU, contrary to the findings of Huang et al., (2011), Battachejee and Hitmet (2008), Anandarajan et al. (2002), Lee et al. (2013) and Sawang et al., (2013). Furthermore, PEOU did not mediate the relationship between organisational support and e-training acceptance, supporting the findings of Aggorowati et al. (2012) and Kok et al. (2011). This finding indicates that organisational support is not influential in determining e-training acceptance in the Nigerian civil service.

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Despite argument that organisational support is crucial in the acceptance of new information and technology, (Aggorowati et al. (2012; Alhomod & Shafi, 2013; Anandarajan et al., 2002), this study result is surprising which can be attributed to the fact that such support is considered more procedural than technical (Aggorowati et al., 2012).

This study further proves Sawang et al (2013) argument of the negative effect that would be derived from lack of organisational support in the use of electronic learning and that the perception for organisational support is very poor in the Nigerian civil service. Therefore, for the variable to have strong association with technology usage and for e-training to be accepted in the Nigerian civil service, there is need for certainty of support from the right quarters (Selim, 2007).

In addition, this study result can also be as a result of the sample of the study: being head of departments and having better knowledge of the support the ministry would get for e-training. Therefore, since perception and attitude change about technology aaceptance can be influenced by organisational support, then the support should be more of active action than just procedural talk (Aggorowati et al., 2012). As such, there is need for strong perception of support in form of appropriate resources for technology inclined programs which would give out the believe (Lee et al., 2013) that e-training is useful and thereby feasible.

Furthermore, there is a need for strong perception of the provision of adequate e-training platforms, good policies, incentives and availability of information and technical assistance in the Nigerian civil service. This can be evident in the

expansion of significant resources to support electronic training which can help in reducing the perception of encountering problem by new users (Sawang et al., 2013) of electronic training. With sufficient organisational support workers will feel comfortable in the acceptance and trust will be enhanced (Lee et al., 2013) which would lead to integrating information and communications technology to train, helping in changing the perception towards e-training acceptance in the Nigerian civil service.

5.2.4.2 Technical Support

The findings indicated that technical support does not have relationship with e-training acceptance, contrary to the findings of Rym et al. (2013), Ndubis and Jantan, (2003) Yiong et al. (2008). However, there is indication of relationship between technical support and PEOU as well as PEOU mediating the relationship between technical support and e-training acceptance, supporting the findings of previous studies (Alhomod & Shafi, 2013; Bhattacherjee & Hitmet, 2008; Ngai et al., 2007). This shows that technical support is influential in determining e-training acceptance in the Nigerian civil service when it is perceived to be easy to use.

Technical support has been argued to be one of the factors that should be considered in the acceptance and usage of technological inclined training (Folorunso et al., 2006; Selim, 2007) due to its contribution in technology facilitation (Ngai et al., 2007; Rym et al., 2013; Williams, 2002).

Furthermore, literature has shown that technical support helps in shaping user‘s perception in relation to the ease of use and usefulness of new system (Bhattacherjee

& Hitmet, 2008). This study confirms that technical support is among required necessary support for technology usage and particularly e-training acceptance even though it cannot affect acceptance on its own but when perceived to be easy to use. This indicates that technical support has strong effect on e-training acceptance through perceived ease of use, thus there is need to ensure provision of adequate and reliable technical support services (Yiong et al., 2008) in which the civil servants feel a sense of support and safety in technology usage (Venkatesh, 1999) as well as assuring that e-training systems would be up date and properly maintained. This would go a long way helping in the successful acceptance (Abba & Dawha, 2009; Kidd, 2010) of e-training.

5.2.4.3 Government Support

The findings for Government support in this study indicated that the variable did not have direct relationship with e-training acceptance nor did the variable relate significantly with PEOU which is similar to the findings of Eze et al. (2013) but departs from the findings of Tan and Teo (2000) Chong et al. (2010). In addition, PEOU did not mediate the relationship between government support and e-training acceptance, contrary to the finding of Macharia and Nyakwende (2009). This result indicates that government support is not influential in determining e-training acceptance in the Nigerian civil service.

This result is surprising since it has been argued that credibility would be given to technology acceptance with strong government support (Tan & Teo, 2000; Chong et al., 2010). This showed that even though the Nigerian government is making efforts

in supporting some aspect of the economy, their support in enhancing information technology and training is deficient (Eze et al., 2013).

This is really a serious problem found in most countries in the Africa continent (Macharia & Nyakwende, 2009) because technological innovations support is left to the public sector. This problem is hardly found in the developed countries as most things that have to do with technology usually have the most backing of the private sector (Tan & Teo, 2000). Therefore, since government support would give the ministries strength and resolution to accepting e-training, it is necessary for the Nigerian government and policy makers in the ministries to outline incentives, requirements necessary and associated with acceptance (Eze et al., 2013), make better required law and policies as well as financial backing in providing the necessary facilities that would encourage a comfortable environment (Macharia & Nyakwende, 2009) in which technology acceptance will thrive All this would inevitably give e-training acceptance the credibility it requires in the civil service.

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5.2.5 Perceived Ease of Use

The findings indicated that there is a direct relationship between PEOU and e-training acceptanceas well as a direct relationship between PEOU and PU. This is contrary to the findings of Chong et al. (2010) Purnomo and Lee (2013) Rose and Fogarty (2006). Rose and Fogarty attributed multicollinearity issues to the suppressed effect of PEOU on PU while Chong et al. (2010) and Purnomo and Lee (2013) found that PEOU did not have direct effect on acceptance. Purnomo and Lee attributed their result to the fact that PEOU tend to have less predictive power when users are experienced at using technology.

However, result supports the previous studies on direct effect of PEOU (Cheng, 2011; Davies, 1989; Lee et al., 2011) as well as agrees with the findings of Lee et al. (2010) Ong et al. (2004) Rym et al. (2013) Saade and Bahli (2005) Venkatesh and Davies (2000) who all reported on the predictive strength of PEOU on PU when it concerns technology acceptance. This result indicates: that PEOU has a strong direct and predictive effect on e-training acceptance because users are not that skilled in technology usage in the Nigerian civil service but they still have the confidence that the system would be easy to use, that PEOU can affect e-training acceptance indirectly through PU since the Nigerian civil service is filled with people who have little knowledge and confidence in technology related issues (Akpodiete, 2012).

Thus, agreeing with Purnomo and Lee (2013) argument that PEOU can have strong effect when users have less experience on technology usage. Irrespective of the fact that civil servants in the Nigerian civil service are not vast in technology usage, they still believe that e-training would be easy to use if accepted. Therefore, there is need to ensure all the necessary requirements as discussed in previous sections are made available for users so they would perceive the ease of use and usefulness of e-training.

5.2.6 Perceived Usefulness

The findings indicated that there is a direct significant relationship between PU and e-training acceptance. This result is different from the findings of past studies (Anandarajan et al., 2002; Brown, 2002). Brown (2000) argued that PU was not a strong predictor of technology acceptance in developing country. However, this study‘s result agrees with several results on this relationship that indicated a direct

effect of PU on technology usage and acceptance (Abbad et al., 2009; Davies, 1989; Lee et al., 2013; Lee, 2006; Ong et al., 2004; Park, 2009; Venkatesh & Davies, 2000).

PU was also found to be mediating the relationship between PEOU and e-training acceptance. This however is contradictory to studies such as Ramayah and Ignatus (2005) who explained this contradiction was due to the product type. However, this concurs with previous studies argument of the construct mediating effect in the relationship between PEOU and technology acceptance (Anandarajan et al; 2000; Chen, 2011; 2003; Liu et al., 2009).

Therefore, PU can then be said to have predictive effect on e-training acceptance, indicating that PU is determining (Purnomo & Lee, 2013) factor in e-training acceptance. This is to say that the result indicates that e-training is perceived as being useful and thus having the possibility of being accepted in the Nigerian civil service. Therefore, even though civil servants in the Nigerian civil service are not vast in technology usage, they still believe that e-training would be useful if accepted.

5.3 Contributions of the Study

This study adds to the body of knowledge on e-training acceptance that already exists. This was done by generating the literature on the study variables. It also helps in testing the ability of TAM in technology acceptance in developing countries, particularly the Nigerian civil service. In addition, this study serves as a point of reference for future researchers in the area of e-training. This study has contributed to TAM literature by using the combination of the aforementioned factors. The

contributions are presented in three perspectives: theoretical, methodological and practical.

5.3.1 Theoretical Implication

The contribution of this study on a theoretical ground lies in trying to bring awareness of e-training to public sector particularly the Nigerian civil service. Furthermore, the extension and testing of constructs external to TAM as well as examining the mediating effects of the predictive constructs of TAM is also part of the contribution of this study on a theoretical perspective. Relationship between the independent variables of this study and e-training acceptance, independent variables and PEOU, PEOU and e-training acceptance were established. Furthermore, this reaffirmed TAM premises for the construct of PEOU and PU and indicated they both have strong predictive influence on e-training acceptance.

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Theoretical contribution can be seen also from the findings of the study: the study established that perceived cost, computer self-efficacy, technological infrastructure, power supply and technical support have strong influence on the acceptance of e-training in the Nigerian civil service. Thorough discussions of TAM constructs and e-training acceptance were presented and the study expanded on the external variables used before on TAM.

A holistic examinations of e-training acceptance in the Nigerian civil was established, thus a contribution as prior to this research no awareness of such study being conducted or tested in the Nigerian context. The literature showed many contradictions on the researched constructs thus this study confirmed the

relationships of the researched construct with TAM showing the effects of mediators on how and why the said relationships exist.

Furthermore, this study examined the influence the constructs of the study played in e-training acceptance in the Nigerian civil service. This study used the combination of variables with TAM as a base for e-training acceptance in the Nigerian civil service, which departs from past studies. This is done empirically to support TAM for developing countries. The model of this study was developed based on Brown‘s (2002) TAM for developing countries and the peculiar nature of the Nigerian civil service of being conservative in their operations. The combination of the constructs of perceived cost, computer self-efficacy, technological infrastructure, Internet facilities, power supply, organisational support, technical support and government support helped to highlight the issues technology acceptance faces in the Nigerian context. Additionally, this study showed that the e-training acceptance could be examined through PEOU as well as directly between determining factors and e-training as stated previously. Empirically, 9 direct relationships were supported with evidences and the study also established that PU can also predict acceptance in developing country contrary to Brown (2002) findings.

5.3.2 Methodological Implication

To the best knowledge of the researcher, SmartPLS 20 M3 has not been used for research work on technology acceptance in the Nigerian civil service which is unlike previous research that have used analytical techniques that are different. SmartPLS 20 M3 being a refined analytical technique was used to examine the relationships between this study independent variables and e-training acceptance and also to

examine the mediating effects of PEOU and PU due to it‘s the capability of calculating interactions among variables.

Methodological contribution of this study is also on the aspect of scale modifications. The scales used for measuring each variable of this study were all adapted from works of other researchers but with revision and the study dropped scales with less than .050 of the minimum requirement (Hair et al., 2010). Thus giving rise to the emergence of new scales for measurement.

Another methodological contribution of this study is on the perspective of focus. Past studies of acceptance of new system had focused on either students or individual employees. This current study focus was on looking at e-training acceptance from the perspective of management particularly the heads of departments.

Furthermore, this study adds to the body of knowledge on e-training acceptance that already exists with the generation of the literature on the study variables. This study model was developed based on the peculiar nature of the Nigerian civil service of being conservative in their operations. The combination of the constructs of perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organisational support, technical support and government support has not been tested in the Nigerian context. Therefore, the study has helped in testing the ability of TAM in technology acceptance in developing countries particularly the Nigerian civil service.

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5.3.3 Practical Implication

This study highlighted the factors that can influence e-training acceptance in the Nigerian public sector, particularly the civil service. It also provided more understanding as to regarding e-training in the workplace, what needs to be done to improve the situation and further improve human resource development in the Nigerian civil service. The study showed that acceptance of e-training can increase awareness of the use of technology in the workplace (especially in the Nigerian civil service) which could increase learning culture, integrate e-training in work activities and provide an in-depth understanding of the potentialities of communication and information tools.

Moreover, this study showed that e-training as an alternative to conventional training can positively affect organisations in developing countries. Indicating that with e-training, organisational performance can be much better and particularly making the civil service move forward to another way of engaging as well as delivering knowledge to building a skilful workforce.

Furthermore, with e-training acceptance, facilities such as power supply, Internet and computers would be put in place that will improve the outlook of the civil service, removing it from the category of organisation that is ridden with obsolete infrastructure and conservatism. With e-training acceptance, the cost that is usually associated with traditional training can be reduced and invested in other aspects of the organisation which will help in adding to overall performance.

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The process of e-training acceptance can motivate decision-makers to seek support from higher authorities in the provision of finance and infrastructures to the organisation. This can help to improve the workforce thereby leading to more growth in the civil service and consequently contributing to the country‘s growth.

5.4 Limitations of the Study

This study has some limitations: First, only the federal ministries in Nigeria were considered in this study. The state, local government and other sections of the public sector were not considered. Secondly, out of the six geo-political zones in Nigeria, only two regions were focused on (North Central and North West). Nigerian regions being heterogeneous in perceptions may affect the study results being generalizable.

Thirdly, since the study was done in Nigerian only, the results may not be applicable in other countries particularly African countries. Lastly, other stakeholders were not included, only the views of heads of departments were taken into consideration, may be balance of some sort could have been achieved if other employees views were considered.

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5.5 Direction for Future Studies

The limitations identified in the above section 5.5, also serves as points to be considered for future studies. First, only the federal ministries in Nigeria were the focus in this study. Future studies may focus on the state, local government and other sections of the public sector.

Secondly, only two regions were the focus in this study, future studies could focus on all the six regions. This could help as a base for generalization of results. Thirdly,

Nigerian was the only focus of this study; future studies could contemplate applying same study in other African countries.

Lastly, since only the opinions of heads of departments were taken into consideration, future studies may contemplate including other participants from the ministries and other sections of the public sector to attain balance of some sort.

5.6 Conclusion

This study showed some relationships that have been empirically established which were directly as well as indirectly related in order to offer responses to the questions that were posed and objectives stated in chapter one. SmartPLS 2.0 M3 was used for analyses after screening and coding of collected data from heads of departments in federal ministries of North Central and North Western zones in Nigeria. Grounded on prior studies, results were found to be supported after the assessments of the measurement and structural models.

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The study has 18 direct relationships and only 9 were found to be supported. This is evident in the t-values of each respective relationship that were hypothesized. Furthermore, it was also found the 8 relationships that were hypothesized for mediations had two fully mediated and two partially mediated at 10 %, 5% and 1% significance respectively for two tails relationships. This study showed that some factors like computer self-efficacy, internet facilities, power supply, organisational support, technical support and government on their own cannot influence e-training acceptance especially in the Nigerian civil service settings. Therefore, this study recommends the need to all have these factors including technological infrastructure

on ground in the consideration of adopting e-training in the Nigerian civil service. As such it can be said that the stated questions as well as the objectives in chapter one has been achieved from the findings of this study.

The following could be drawn as the summary for this study in the aspect of gaps:

1 Many studies indicated the problem power supply contributes in technology acceptance in the Nigerian settings but non to the best knowledge of the researcher has examined power supply as an independent factor.

2 Past studies did not investigate these study factors in relation to e-training acceptance.

3 Some studies attempted to investigate some of these factors in technology acceptance but not in relation to e-training acceptance and without stating the mediating effect of TAM constructs.

4 Previous studies have examined technology intention/acceptance using TAM as a base but most have contradicting findings especially in relations to developing countries (Brown, 2002)

5 To the awareness of the researcher, there is scarcity in the use of SmartPLS 2.0 M3 as an analytical technique for the studies in e-training acceptance particularly in the Nigerian Civil service.

The following ways was used to treat these gaps that were identified:

1 This study examined power supply as a factor in e-training acceptance in the Nigerian civil service.

2 This study examined most of the factors that can increase the possibility of e-training acceptance particularly in the Nigerian settings.

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3 This study showed the reasons for the existence of the relationships in e-training acceptance through mediators.

4 This study showed that both TAM constructs have predictive influence in e-training acceptance in developing countries particularly in the Nigerian sittings.

5 The researcher used SmartPLS 2.0 M3 as the analytical technique for this study.

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APPENDICES

Appendix A

Questionnaire

Dear Respondent,

You are invited to participate in a research being conducted for a doctoral thesis at the Universiti Utara Malaysia. The aim of this research is to assess the acceptance of e-training in the Nigerian civil service. The study focuses on the role that perceived cost, computer self-efficacy, technological infrastructure, internet facilities, power supply, organisational support, technical support and government support will play in the acceptance of e-training. You are expected to complete the attached questionnaire. This task is expected to take about 15 minutes to complete.

There is no need to write names and be assured that all answers will be kept confidential. For any question concerning this study, please do not hesitate to contact the investigator at zbello03@yahoo.com

Thank you for your valuable time, attention and cooperation for participating in this study.

Regards,
Bello Zainab
College of Business
Universiti Utara Malaysia.

Section I- Demographic Information

Please read and tick as appropriate in the boxes provided your demographic information.

1. Gender: Male Female

2. Age Group: 25 to 30 years 30 to 40 years 40 to 50 years 50 years and above ( )

3. Which ministry are you currently working with? _____

4. Department/Unit:_____

5. How long have you been working in this ministry?

5: Rank/Level/Post.....

6: Number of years working with the civil service:

0 to 2 years 3 to 6 years 6 to 9 years 10 to 15 years 15 years above

7: Number of Employees in the department.....

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4: Highest Educational Qualification

Secondary Certificate ( )

National Diploma Certificate ( )

Higher National Diploma Certificate ( )

Undergraduate degree ( )

Master degree ( )

Doctoral degree ( )

Other qualification (specify please)_____

7: Number of years of using a computer system:

0 to 2 years 6 to 9 years 3 to 5 years 10 to 15 years 15 years and above

Section II

Please indicate the level of your agreement or disagreement with these statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
B. Perceived Cost					
1.I think the cost of using e-training system will be reasonable					
2. I think E-training will offer value for money					
3. I think e-training will allows for reduced cost in training					
1. I think forgoing daily travelling allowance to be with my family is reasonable					
4. I think e-training is a waste of resources					
C. Computer Self efficacy					
I could complete my training					

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activities using technology ……..					
4. If I had never used a system like it before					
5. If I had only the system manuals for reference.					
6. If I had seen someone else using it before trying it myself.					
7. If I had just the built-in-help facility for Assistance					
D. Technological Infrastructure					
8. Technological infrastructure should be adequately provided in this organisation to enable engagement in electronic training					
9. Technological infrastructure can improve the quality of my					

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work					
10. There should be sufficient Infrastructural facilities to access on line learning environment					
11. Infrastructures necessary for electronic training are available					
12. It is necessary to have access to infrastructures for electronic training					
E. Internet Facilities					
13. It is easy for everyone in this organisation to access internet facilities.					
14. The internet service providers in this organisation give high bandwidth.					
15. Internet facilities are readily available to everyone in this organisation					

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F. Power supply					
16. Power supply in this organisation is effective.					
17. There is no problem with power supply in this organisation.					
18 The frequent power outages in this organisation which can affect technology usage.					
19. The epileptic power supply in this organisation add to computer illiteracy					
20. There is prompt replacement of defective power supply facilities in this organisation					
21. There is back up power supply in this organisation.					
G. Organisational Support					
22. My organisation understands the benefits to be achieved by using e-training system					

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23. I should be supported by my organisation to use e-training system					
24. I should be encouraged by my organisation to use e-training system					
25. I am convinced that my colleagues are aware of the benefits of the e-training system					
26. The organisation can make policies to help me get use to the e-training system quickly					
27. The administration should provide the necessary resources to enable us get use to the e-training system quickly					
H. Technical Support					
26. In this organisation IT support staffs are available and responsive to my needs.					
27. The IT support staffs are competent in providing their services.					
28. I find it easy to interact effectively with					

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the IT support staff concerning IT problems.					
I. Government Support					
29. I think government encourages the usage of e-training					
30. I think government promotes the usage of e-training					
31. I think the government is active in setting up facilities to enable e-training.					
32. I think the government endorses online training in Nigeria					
33. I think the government has put in place good regulations for e-training					
J. Perceived Usefulness					
34. Using the e-training system will improve my training performance.					
35. Using the e-training system will enhance my work effectiveness.					

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36. Using the e-training l system will give me greater control over learning					
37. Using e-training will save a lot of time					
38. The e-training system will be useful to my job					
K. Perceived ease of use					
39. I think interacting with the e-training system will not require a lot of mental work.					
40. I think the e-training system will be easy to use.					
41. In my opinion, my interaction with the e-training system is clear and understandable					
42. In my opinion, my interaction with the e-training system is understandable					
43. I think the instructions for using e-training system will not be difficult to follow.					
L. E-training					

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44. I belief in my capability to interact with technology					
45. I will be cognitively engaged in doing the e-training activities					
46. I am willing to participate in e-training activities					
47. I have the initiative and motivation to learn and use the system					
48. I have high level of self-confidence in using the system					
49. I am satisfied with time and place flexibility of the system					

Thank you for completing this questionnaire.

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Appendix B

Missing Variables Results

Result Variable	N of Replaced Missing Values	Case Number of Non-Missing Values		N of Valid Cases	Creating Function
		First	Last		
CSE1	1	1	450	450	MEDIAN(CSE1,2)
CSE5	1	1	450	450	MEDIAN(CSE5,2)
TECHINF4	1	1	450	450	MEDIAN(TECHINF4,2)
ORGSP3	1	1	450	450	MEDIAN(ORGSP3,2)
ORGSP6	1	1	450	450	MEDIAN(ORGSP6,2)
GOVSP5	1	1	450	450	MEDIAN(GOVSP5,2)

Appendix C

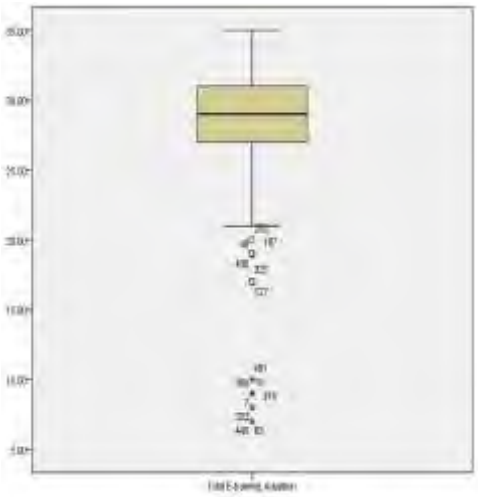
Descriptive Statistics on Total Score of E-training Acceptance

Extreme Values

			Case Number	ID	Value
Total E-training Acceptance	Highest	1	12	12	35.00
		2	29	29	35.00
		3	62	62	35.00
		4	89	89	35.00
		5	101	101	35.00[a]
	Lowest	1	445	445	7.00
		2	63	63	7.00
		3	322	322	8.00
		4	316	316	8.00
		5	389	389	9.00[b]

a. Only a partial list of cases with the value 35.00 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 9.00 are shown in the table of lower extremes.



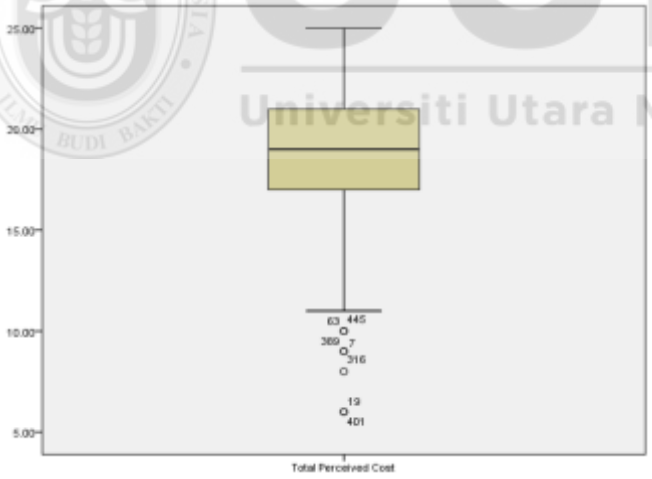
Appendix D

Descriptive Statistics on Total Score of Perceived Cost

Extreme Values

			Case Number	ID	Value
Total Perceived Cost	Highest	1	29	29	25.00
		2	101	101	25.00
		3	142	142	25.00
		4	145	145	25.00
		5	169	169	25.00[a]
	Lowest	1	401	401	6.00
		2	19	19	6.00
		3	316	316	8.00
		4	389	389	9.00
		5	7	7	9.00

a. Only a partial list of cases with the value 25.00 are shown in the table of upper extremes.



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Appendix E

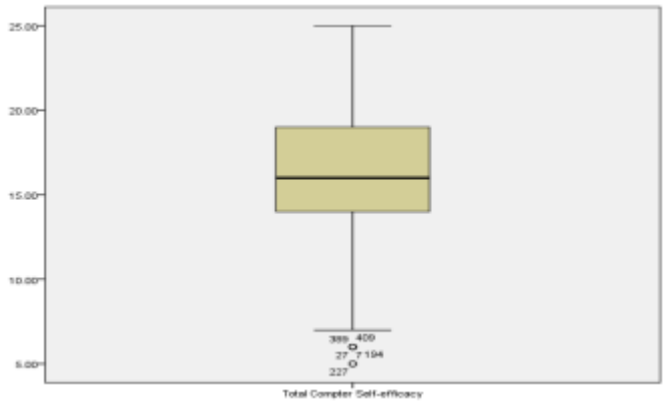
Descriptive Statistics on Total Score of Computer Self-efficacy

		Statistic	Std. Error
Mean		16.0400	.18382
95% Confidence Interval for Mean	Lower Bound	15.6787	
	Upper Bound	16.4013	
5% Trimmed Mean		16.1247	
Median		16.0000	
Variance		15.206	
Std. Deviation		3.89943	
Minimum		5.00	
Maximum		25.00	
Range		20.00	
Interquartile Range		5.00	
Skewness		-.334	.115
Kurtosis		-.185	.230

		Case Number	ID	Value
Total Compter Self-efficacy	Highest	158	158	25.00
		315	315	25.00
		29	29	24.00
		151	151	24.00
		273	273	24.00[a]
	Lowest	227	227	5.00
		194	194	5.00
		409	409	6.00
		389	389	6.00
		27	27	6.00[b]

a. Only a partial list of cases with the value 24.00 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 6.00 are shown in the table of lower extremes.



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Appendix F

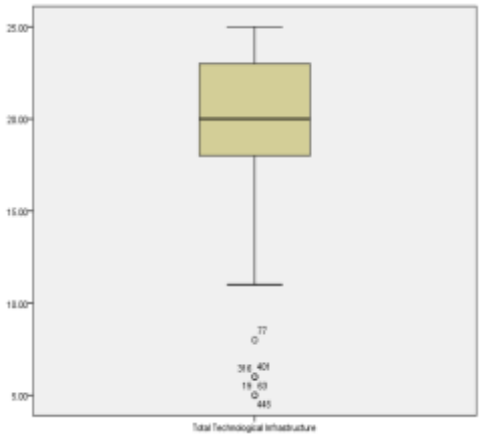
Descriptive Statistics on Total Score of Technological Infrastructure

		Statistic	Std. Error
Mean		20.1533	.15913
95% Confidence Interval for Mean	Lower Bound	19.8406	
	Upper Bound	20.4661	
5% Trimmed Mean		20.4062	
Median		20.0000	
Variance		11.395	
Std. Deviation		3.37567	
Minimum		5.00	
Maximum		25.00	
Range		20.00	
Interquartile Range		5.00	
Skewness		-1.288	.115
Kurtosis		3.181	.230

Extreme Values

		Case Number	ID	Value
Total Technological Infrastructure	Highest	12	12	25.00
		23	23	25.00
		30	30	25.00
		51	51	25.00
		58	58	25.00[a]
	Lowest	445	445	5.00
		63	63	5.00
		401	401	6.00
		316	316	6.00
		19	19	6.00

a. Only a partial list of cases with the value 25.00 are shown in the table of upper extremes.



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Appendix G

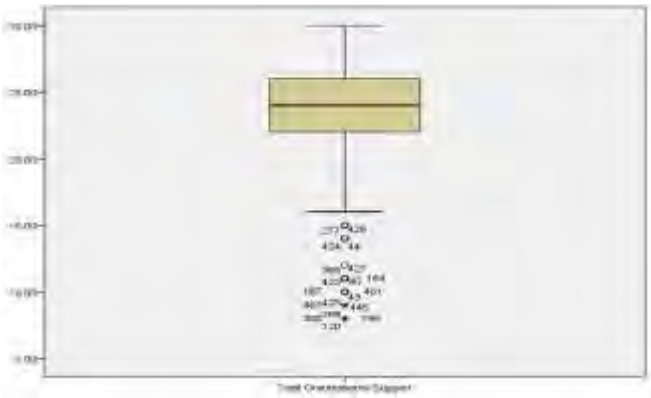
Descriptive Statistics on Total Score of Organisational Support

		Statistic	Std. Error
Mean		23.5422	.21740
95% Confidence Interval for Mean	Lower Bound	23.1150	
	Upper Bound	23.9695	
5% Trimmed Mean		23.9593	
Median		24.0000	
Variance		21.269	
Std. Deviation		4.61181	
Minimum		8.00	
Maximum		30.00	
Range		22.00	
Interquartile Range		4.00	
Skewness		-1.423	.115
Kurtosis		2.459	.230

Extreme Values

		Case Number	ID	Value
Total Organisational Support	Highest 1	13	13	30.00
	Highest 2	76	76	30.00
	Highest 3	89	89	30.00
	Highest 4	124	124	30.00
	Highest 5	126	126	30.00[a]
	Lowest 1	445	445	8.00
	Lowest 2	305	305	8.00
	Lowest 3	199	199	8.00
	Lowest 4	120	120	8.00
	Lowest 5	63	63	8.00

a. Only a partial list of cases with the value 30.00 are shown in the table of upper extremes.



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Appendix H

Descriptive Statistics on Total Score of Technical Support

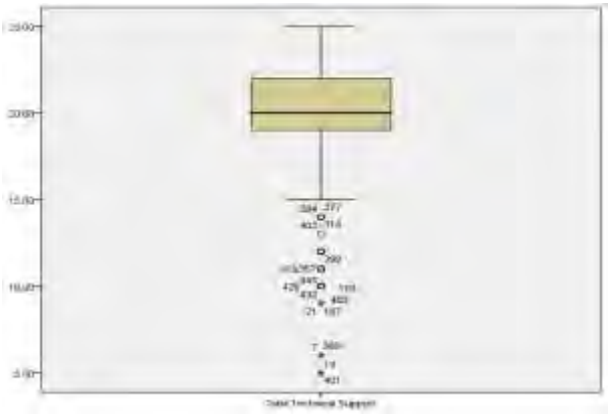
		Statistic	Std. Error
Mean		19.9244	.17539
95% Confidence Interval for Mean	Lower Bound	19.5798	
	Upper Bound	20.2691	
5% Trimmed Mean		20.2272	
Median		20.0000	
Variance		13.843	
Std. Deviation		3.72060	
Minimum		5.00	
Maximum		25.00	
Range		20.00	
Interquartile Range		3.00	
Skewness		-1.280	.115
Kurtosis		2.119	.230

Extreme Values

		Case Number	ID	Value
Total Technical Support	Highest 1	13	13	25.00
	2	27	27	25.00
	3	29	29	25.00
	4	38	38	25.00
	5	51	51	25.00[a]
	Lowest 1	401	401	5.00
	2	19	19	5.00
	3	389	389	6.00
	4	7	7	6.00
	5	403	403	9.00[b]

a. Only a partial list of cases with the value 25.00 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 9.00 are shown in the table of lower extremes.



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Appendix I

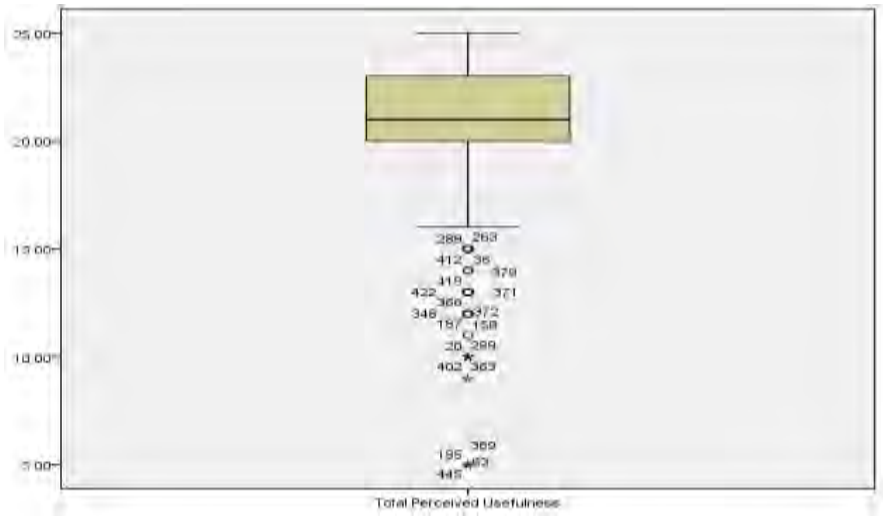
Descriptive Statistics on Total Score of Perceived Usefulness

		Statistic	Std. Error
Mean		20.9178	.16966
95% Confidence Interval for Mean	Lower Bound	20.5844	
	Upper Bound	21.2512	
5% Trimmed Mean		21.2914	
Median		21.0000	
Variance		12.953	
Std. Deviation		3.59905	
Minimum		5.00	
Maximum		25.00	
Range		20.00	
Interquartile Range		3.00	
Skewness		-1.639	.115
Kurtosis		4.133	.230

Extreme Values

		Case Number	ID	Value
Total Perceived Usefulness	Highest 1	12	12	25.00
	2	27	27	25.00
	3	29	29	25.00
	4	38	38	25.00
	5	39	39	25.00[a]
	Lowest 1	445	445	5.00
	2	389	389	5.00
	3	195	195	5.00
	4	63	63	5.00
	5	7	7	5.00

a. Only a partial list of cases with the value 25.00 are shown in the table of upper extremes.



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Appendix J

Descriptive Statistics on Total Score of Perceived Ease of Use

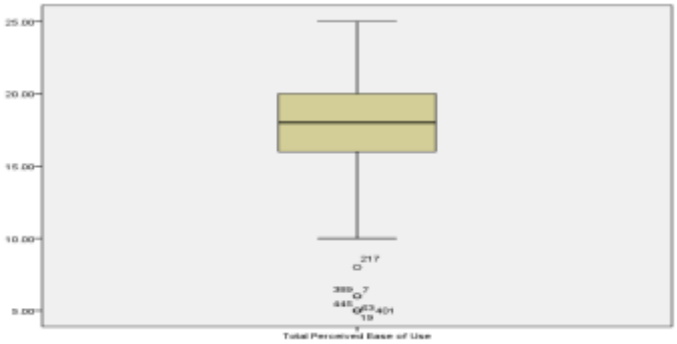
		Statistic	Std. Error
Mean		18.2844	.15977
95% Confidence Interval for Mean	Lower Bound	17.9705	
	Upper Bound	18.5984	
5% Trimmed Mean		18.4543	
Median		18.0000	
Variance		11.487	
Std. Deviation		3.38922	
Minimum		5.00	
Maximum		25.00	
Range		20.00	
Interquartile Range		4.00	
Skewness		-.844	.115
Kurtosis		1.952	.230

Extreme Values

		Case Number	ID	Value
Total Perceived Ease of Use	Highest 1	76	76	25.00
	Highest 2	101	101	25.00
	Highest 3	227	227	25.00
	Highest 4	299	299	25.00
	Highest 5	344	344	25.00[a]
	Lowest 1	445	445	5.00
	Lowest 2	401	401	5.00
	Lowest 3	63	63	5.00
	Lowest 4	19	19	5.00
	Lowest 5	389	389	6.00[b]

a. Only a partial list of cases with the value 25.00 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 6.00 are shown in the table of lower extremes.



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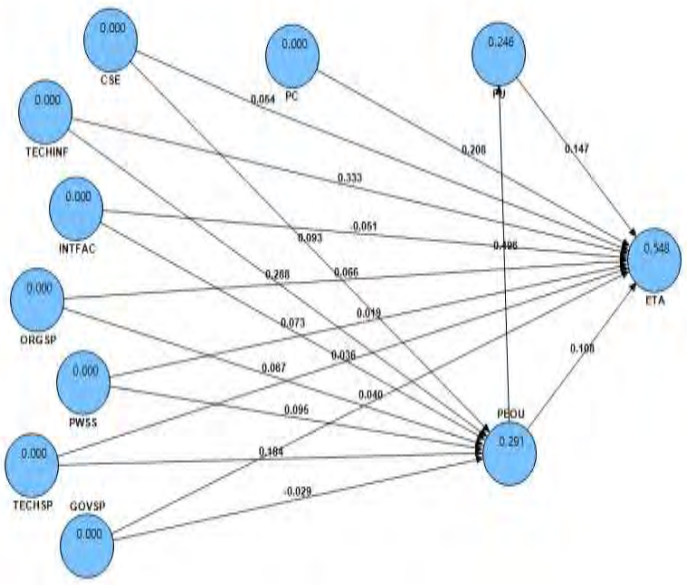
Appendix K



The explained variance of the study three endogenous variables

JOURNAL PUBLICATIONS AND CONFERENCES ATTENDED

Universiti Utara Malaysia

Bello, Z., Muhammad, A. B., Faizuniah B. P., & Mohamed, M. B. (2015). E-training Adoption in the Nigerian civil service. *European Journal of Training and Development*, 39(6), 538 – 564. Emerald Insight

Bello, Z., Faizuniah B. P., & Muhammad, A. B. (2015). E-training Adoption in the Nigerian civil service: Role of Power Supply, Perceived Ease of Use and Perceived Usefulness. *Interdisciplinary Behaviour and social Sciences*, *(ICIBSoS2014), Bali Indonesia***,** 71-75, ISBN 978-1-138-02735-0

CRC Press/Balkema – Taylor & Francis Group

Bello, Z., Faizuniah B. P., & Muhammad, A. B. (2016). The role of perceive cost, computer self-efficacy and TAM in e-training adoption in the Nigerian civil service. *European Journal of Training and Development.* Forthcoming

Bello, Z., Faizuniah B. P., & Muhammad, A. B. (2016). Examination of perceive support in e-training adoption in the Nigerian civil service. *European Journal of Training and Development*. Forthcoming

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