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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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**UUM**  
Universiti Utara Malaysia

**DOCTOR OF PHILOSOPHY  
UNIVERSITI UTARA MALAYSIA  
October, 2016**

**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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**Thesis Submitted to  
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In fulfilment of Requirement for Degree of Doctor of Philosophy**



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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.

**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, efikasi 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-ketua Jabatan Kementerian Persekutuan 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 sendiri 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 infrastruktur 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 perkhidmatan 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, tanggapan kos, efikasi sendiri tentang komputer, ketersediaan sumber, tanggapan sokongan.



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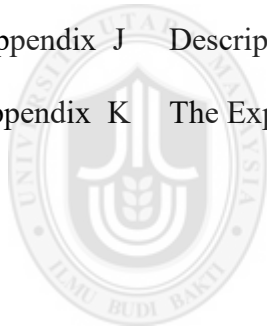
## LIST OF ABBREVIATION

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 <sup>2</sup>	Predictive Relevance



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- Appendix A Questionnaire
- Appendix B Missing Variables Results
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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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**UUM**  

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**Universiti Utara Malaysia**

## 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](mailto: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.....

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>B. Perceived Cost</b>					
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 allow 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					
<b>C. Computer Self efficacy</b>					
I could complete my training					

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					
<b>D. Technological Infrastructure</b>					
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					

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					
<b>E. Internet Facilities</b>					
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					

<b>F. Power supply</b>					
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.					
<b>G. Organisational Support</b>					
22. My organisation understands the benefits to be achieved by using e-training system					

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					
<b>H. Technical Support</b>					
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					

the IT support staff concerning IT problems.					
<b>I. Government Support</b>					
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					
<b>J. Perceived Usefulness</b>					
34. Using the e-training system will improve my training performance.					
35. Using the e-training system will enhance my work effectiveness.					

36. Using the e-training 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					
<b>K. Perceived ease of use</b>					
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.					
<b>L. E-training</b>					



44. I believe 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.

## 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

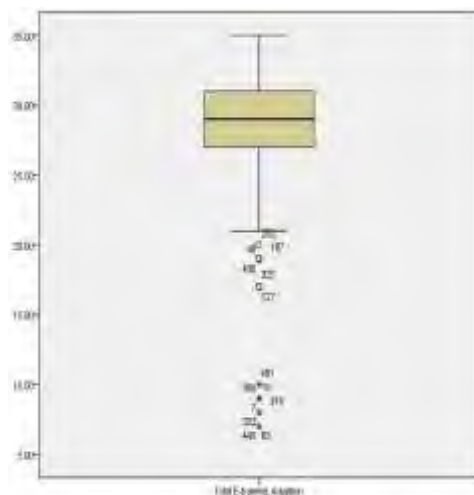
### Descriptive Statistics on Total Score of E-training Acceptance

#### Extreme Values

		Case Number	ID	Value
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 <sup>a</sup>
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 <sup>b</sup>

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.

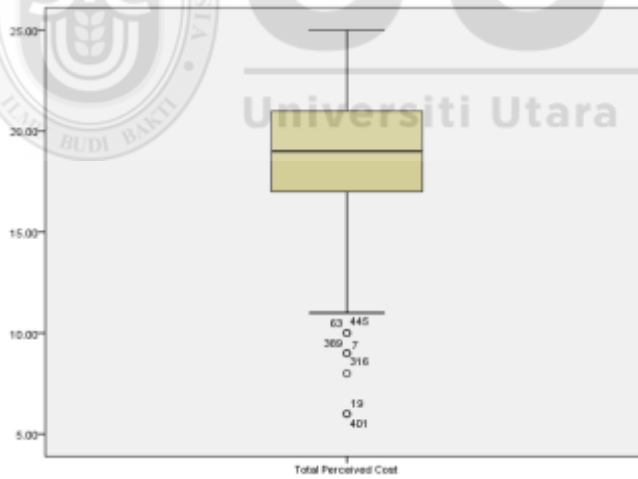


## Appendix D

### *Descriptive Statistics on Total Score of Perceived Cost*

Extreme Values					
		Case Number	ID	Value	
Total Perceived Cost	Highest	1	29	25.00	
		2	101	101	25.00
		3	142	142	25.00
		4	145	145	25.00
		5	169	169	25.00 <sup>a</sup>
Total Perceived Cost	Lowest	1	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.



## Appendix E

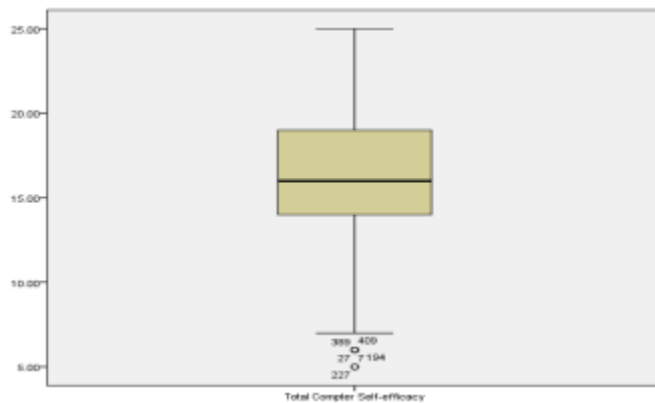
### *Descriptive Statistics on Total Score of Computer Self-efficacy*

		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
Highest	158	158	25.00
	315	315	25.00
	29	29	24.00
	151	151	24.00
	273	273	24.00 <sup>a</sup>
Lowest	227	227	5.00
	194	194	5.00
	409	409	6.00
	389	389	6.00
	27	27	6.00 <sup>b</sup>

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.



## Appendix F

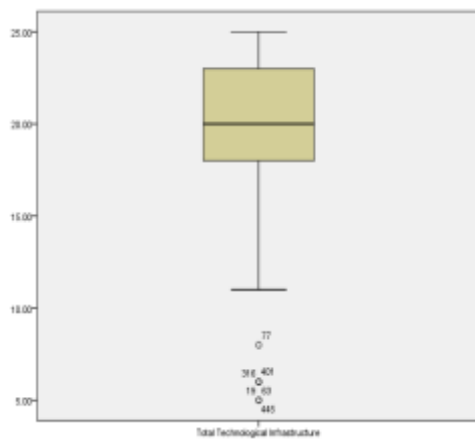
### *Descriptive Statistics on Total Score of Technological Infrastructure*

		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
Highest	12	12	25.00
	23	23	25.00
	30	30	25.00
	51	51	25.00
	58	58	25.00 <sup>a</sup>
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.



## Appendix G

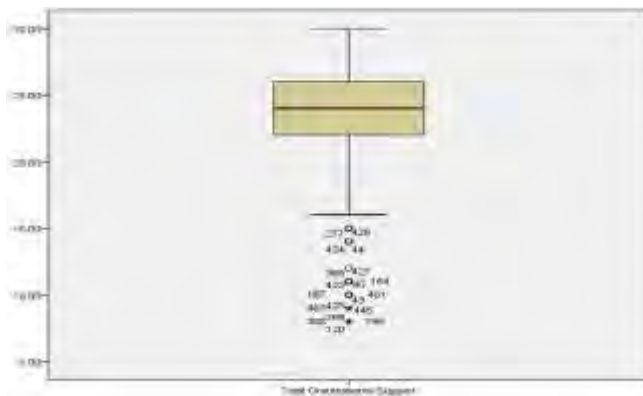
### *Descriptive Statistics on Total Score of Organisational Support*

	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
Highest	1	13	30.00
	2	76	30.00
	3	89	30.00
	4	124	30.00
	5	126	30.00 <sup>a</sup>
Lowest	1	445	8.00
	2	305	8.00
	3	199	8.00
	4	120	8.00
	5	63	8.00

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



## Appendix H

### Descriptive Statistics on Total Score of Technical Support

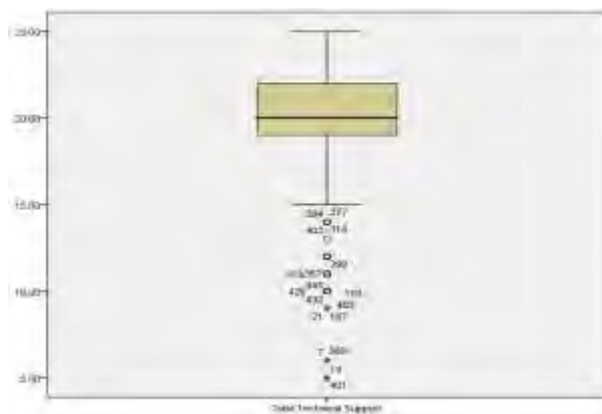
	Statistic	Std. Error
Mean	19.9244	.17539
95% Confidence Interval for Mean	Lower Bound	19.5798
	Upper Bound	20.2691
5% Trimmed Mean	20.2272	
Median	20.0000	
Variance	13.843	
Std. Deviation	3.72060	
Minimum	5.00	
Maximum	25.00	
Range	20.00	
Interquartile Range	3.00	
Skewness	-1.280	.115
Kurtosis	2.119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

### Extreme Values

	Case Number	ID	Value
Highest	1	13	25.00
	2	27	25.00
	3	29	25.00
	4	38	25.00
	5	51	25.00 <sup>a</sup>
Lowest	1	401	5.00
	2	19	5.00
	3	389	6.00
	4	7	6.00
	5	403	9.00 <sup>b</sup>

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.



## Appendix I

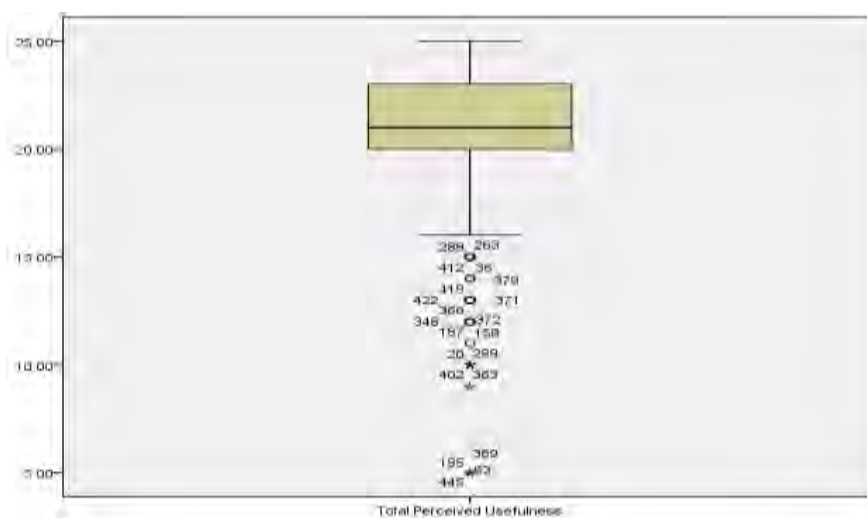
### Descriptive Statistics on Total Score of Perceived Usefulness

		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
Highest	1	12	25.00
	2	27	25.00
	3	29	25.00
	4	38	25.00
	5	39	25.00 <sup>a</sup>
Total Perceived Usefulness	1	445	5.00
	2	389	5.00
	3	195	5.00
	4	63	5.00
	5	7	5.00

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





## Appendix J

### Descriptive Statistics on Total Score of Perceived Ease of Use

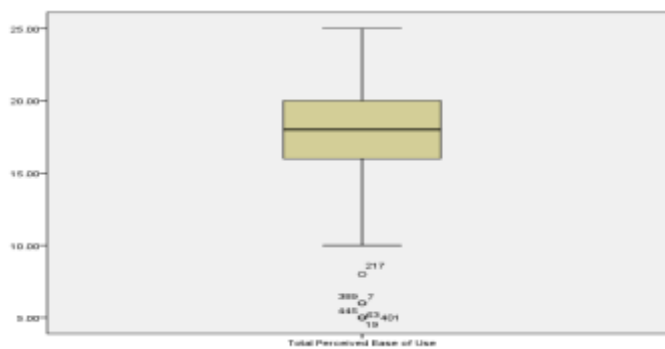
	Statistic	Std. Error
Mean	18.2844	.15977
95% Confidence Interval for Mean	Lower Bound	17.9705
	Upper Bound	18.5984
5% Trimmed Mean	18.4543	
Median	18.0000	
Variance	11.487	
Std. Deviation	3.38922	
Minimum	5.00	
Maximum	25.00	
Range	20.00	
Interquartile Range	4.00	
Skewness	-.844	.115
Kurtosis	1.952	.230

### Extreme Values

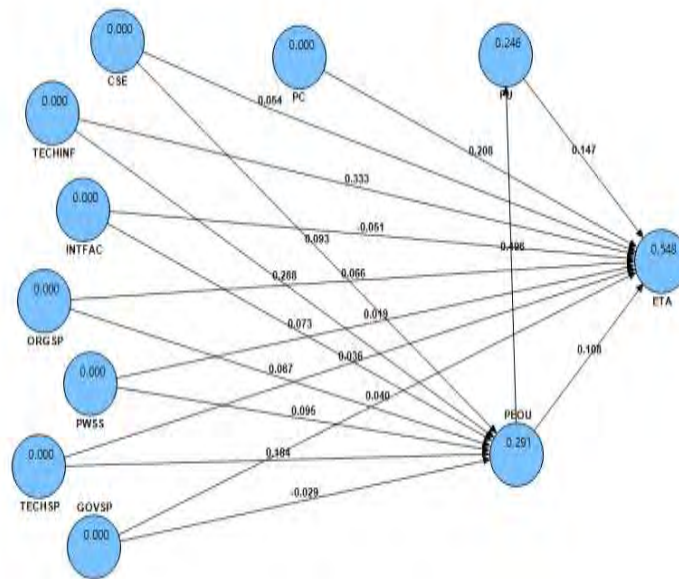
	Case Number	ID	Value
Highest	1	76	25.00
	2	101	25.00
	3	227	25.00
	4	299	25.00
	5	344	25.00 <sup>a</sup>
Lowest	1	445	5.00
	2	401	5.00
	3	63	5.00
	4	19	5.00
	5	389	6.00 <sup>b</sup>

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.



## Appendix K



*The explained variance of the study three endogenous variables*

### **JOURNAL PUBLICATIONS AND CONFERENCES ATTENDED**

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

