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## Assessment of Effectiveness of use of ICT Components for Services Delivery in Etsako West Local Government Area of Edo State, Nigeria

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## Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

## Article Information

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## ABSTRACT

One of the challenges facing public services in Nigeria is lack of effective and efficient service delivery. In Nigerian local governments, service delivery affects all citizens who demand quality services. Thus, the advent of Information and Communication Technology (ICT) creates opportunities for its use to promote effective service delivery in the Nigerian local government system. This study assessed ICT as a tool for effective service delivery in the Nigerian local government with a particular focus on Etsako West Local Government Area of Edo State. To achieve the purpose of the study, a total of 450 questionnaires were randomly administered to the staff of Etsako West Local Government whose population is 650. Only 420 questionnaires were returned. After data mining of the questionnaires for inconsistency, omission and incomplete filling, a sample size of 228 was taken for the research study. The chi-square was used to test the significant association between ICT penetration in Etsako West Local Government in Edo State of Nigeria on the one hand, and the relationship between the use of ICT components by staff of the local government in the performance of their duties and service delivery on the other. The test of the hypotheses showed that there is no significant association between ICT and service delivery in

the administration of Etsako West Local Government Area of Edo State. The study revealed low level of ICT usage in the studied local government and recommended among others, the need for government to create opportunity for staff of the local government to own computers and be ICT literate for efficient service delivery.

Keywords: Citizens; ICT; local government; public services; reform; service delivery.

## 1. INTRODUCTION

Service delivery has continued to be a major challenge to public services in Nigeria. A major focus of reform in many countries according to [1] is the redesign of structures, systems and processes to improve the delivering of services. The third Nigerian National Development Plan (1975-80), expressed the desire to establish effective local governments that can provide major social services at the local level. To enable these reach every locality, effective local institutions have to be established. This led to the 1976 Nation-wide local government reform which was unique in the sense that it stated the major reason for the establishment of an effective local government system to be an efficient and humane delivery of basic social services. The 1976 local government reform sought to address, improve or modify the impoverishment of local government bureaucracies, the marked disparities in social services rendered between states and within states depending on the institutional capability of local government.

Arising from the above, the challenge of service delivery affects all citizens who demand quality services from public services. There is no doubt that the challenges and complexities of service delivery are widening in the Nigerian local government system. The advent of information communication technology (ICT) thus presents opportunities for its use to facilitate effective service delivery in Nigerian public services particularly our local government system, as many countries in the globe have embraced ICT as a way forward. In the early 1980s, the need to reform bureaucracy was highly discussed all over the world and as a result, the governments of developed and developing countries faced the challenge of transformation and the need to administrative modernize practices and management system [2]. To this end, ICT is seen as a tool to support the work of governmental institutions and agencies with the objective of delivering public services and information in a more convenient, citizen centric and cost effective manner. Thus, in Nigerian local government system, ICT can be an effective tool

to ensure increased access to government services, improved value for money as well as increased productivity.

## 1.1 Statement of the Problem

One of the major reasons given for the establishment of effective local government system in Nigeria was the efficient and humane delivery of basic social services. It therefore means that local government in Nigeria were established to meet the basic social services needs of the citizens as quickly as possible. In the final analysis, local governments exist to provide services to the citizens and were expected to render these services more efficiently and more effectively than other levels of government because of their closeness to the people. Unfortunately, this has not been the case as services delivery has continued to be a major challenge affecting many citizens who demand quality services from Etsako West Local Government. Epileptic services, impoverished bureaucracy as well as lack of responsiveness to the citizens continue to be evident in the system. Therefore, the problem which this paper seeks to address is poor service delivery, ineffective utilization and unavailability ICT components common among local governments in Nigeria by assessing the effectiveness of use of ICT for services delivery in Etsako West Local Government. In other words, the study seeks to investigate the extent to which ICT components can be used to promote effective service delivery in Etsako West Local Government. To this end, the study aims at ascertaining the level or otherwise of awareness of ICT penetration in Etsako West Local Government in Edo State and to find out whether Etsako West Local Government in Edo State utilizes ICT components where available to perform their functions for effective services delivery.

## **1.2 Objective of the Study**

The paper is however set to achieve the following specific objectives:

- To determine the level or otherwise of awareness of ICT usage in the Etsako West Local Government in Edo State of Nigeria.
- To find out whether staff of Etsako West Local Government in Edo State of Nigeria use ICT facilities where available to perform their functions for effective service delivery.

## 1.3 Statements of Hypothesis

The following hypotheses shall be tested to realize the objectives of the research.

- 1. There is no association between ICT penetration in Etsako West Local Government of Edo State and service delivery.
- The use of ICT by staff of Etsako West Local Government of Edo State for the performance of their functions is not directly related to service delivery.

## 1.4 Scope of the Study

The study is an attempt to assess the effectiveness of use of ICT components for service delivery in Nigerian local government system, using Etsako West Local Government in Edo state of Nigeria as a case study. Etsako West Local Government is one the 774 local governments in Nigeria and it is located in Edo North. The workers in Etsako West Local government comprise the junior and senior staff. It is in this establishment that the study aims at examining the relationship between the use of ICT and service delivery. The study covers both the junior and the senior staff of this local government council who are the service providers. It is hoped that using this local government as a case study will give insight into what happens in Nigerian local government system and other levels of government.

## 1.5 Significance of the Study

In many organisations whether public or private, efforts are being made to enhance service delivery to citizens/customers as the case may be. Thus, the study is relevant to both public and private organizations who are services providers as well as citizens/customers that are the end users of these services. Against this background, the management of Etsako West Local Government, Edo State will find the study on the relationship between ICT and service delivery useful in policy making.

The study will equally contribute meaningfully to the growing literature in this field of research and will provide theoretical base on which subsequent researchers in this area will build.

## 2. LITERATURE REVIEW

Central to this study is the understanding of impact of ICT on service delivery in public organizations such as local government. Access to ICT is crucial to sustainable agenda for grassroots transformation. ICT enhances efficiency and makes positive impact on growth and development, enabling better delivery of public services such as health, education, agriculture, new sources of income and employment for less privileged members of the society. Therefore, any local government that is able to establish and develop ICT will reap the benefits of improved delivery of public services. ICT improves the overall efficiency of government at all levels and increases the effectiveness of services in areas such as health, education, agriculture etc.

In focusing on service delivery, public services also need to focus on the need to develop internal workplace environments that will ensure staff act in a way that deliver high quality services. The creation of a service quality culture is therefore, one of the challenges facing public services as they focus on service delivery issues [1]. According to the report on the Review of ICT governance in Queensland Government prepared by [3] government's investments in technology provides benefits to government, industry and the community at large including:

- Increased accessibility, inclusivity and flexibility in government service delivery the ability for more of the communities to interact with government, with the flexibility of choice by multiple channels and at more convenient times;
- ii. Improved value for money it enables quality services to be provided through lower cost delivery options;
- iii. Improved productivity both public servant and the economy,
- iv. Stimulation of ICT industry through identification of opportunities for innovation and partnering with the private sector to improve government service delivery.

According to [4] rapid expansion of internet holds substantial promise for developing nations which can benefit greatly from internet communications and information delivery capabilities to help meet their needs.... Nigeria generally and local government in particular, have much to gain from that revolution in communication and information access. The communication and information delivery capability of internet to all sectors of the society in areas of education, health, social policy, commerce and trade, government, agriculture, communication and science and technology, all benefits from internet access to information and to individuals through electronic mail.

ICT extends the reach of public services to the remotest areas, and allows information to flow in both directions, thus effectively empowering the poor and giving them a voice. Most communities in our local governments are isolated and may not be aware of the activities of government. This no doubt, will hamper service delivery on the part of the local government. ICT will help to promote the integration of such isolated communities into global economy [5]. [6,7] observed that active community participation and involvement especially in matters that affect them is a sinequa-non to proper resources handling and maintenance. This is reinforced by genuine acceptance by officials of local government of the rights of community members to determine their needs and allow them to direct their efforts as opposed to pseudo-participation for programmes decided by officials as this is capable of encouraging people's dependence on government to do things for them. The gains of participatory democracy as illustrated above can be fully maximized by a local government service that has keyed into the ICT programmes. Empirical research by [8] had reviewed the ICT application challenges facing and opportunities accruable from it, especially in the area of service delivery. Findings from the data in the sampled local governments revealed an incredibly low level of ICT presence and application. Likewise, lack of web presence and web portals had deprived the local governments of efficient delivery of basic services; more so as most councils were riddled with bureaucratic recommended lethargy. The paper the development of web based application to harvest data, catalyze data processing, develop capacity building, establish telecentres and integrate the local government councils into the national ICT strategic plan [8].

In the same vein, [9] from Uganda and USA respectively examined the extent of adoption and usage of ICT on one hundred and ten firms in Uganda. As regards the contribution of ICT to the firms, the study explained that the majority of respondents strongly agreed that ICT provides increased savings. increased efficiency. improved service delivery, low transaction costs, market and improved performance to organisation that invest in ICT. The results revealed that the adoption and usage of ICT by firms in developing countries follow the same pattern as in developed countries, and they only differ in the level of usage and adoption as there are various factors such as high costs of software. internet hardware. and ICT professionals, which inhibit government from adopting appropriate policies to address them [9].

[10] cited by [11] had undergone research in the internal revenue offices of Kathmandu Valley in order to understand the problems and challenges of ICT for improving service delivery in Nepal. Data revealed that the majority of the respondents saw much improvement in terms of easiness to know information in time (70%), easiness to make complaint (59%); and service delivery in time (52%). On the other hand, more than half of the respondents confirmed that reporting services like 'decreasing of discrimination'(61%) and 'easier to report'(50%) has been in the improvement process. The study concluded that there has been improvement in the application of ICTs; but that there is still lack of skill and technical know-how to use ICT for better delivery of services [10].

[12] has analyzed the experiences of egovernance at the local, state and federal levels of government in India. The study found that egovernance has brought about revolution in the quality of service delivery to the citizens by improving transparency in the administrative process, saving time due to single window service provisions, simplifying procedures, reducing corruption, improving office and records management and improving attitude and behaviour of civil servants [12].

[13] found that the use of ICT can make a significant contribution to the achievement of good governance. Analyzing case studies from countries such as the Philippines, Hunduras, Chile and South Korea, the study outlined three key contributors of e-governance: Improving government process (e-administration),

connecting citizens (e-citizens and e-services) and building external interactions (e-society). [6] also identified two major challenges that developing countries face when it comes to the successful implementation of e-government: (i.) The strategic challenge of e-readiness and (ii.) The tactical challenge of closing design-reality gap, adopting best practice in e-governance projects in order to avoid failure and to achieve success.

[14] in his study used 200 respondents to investigate information and communication technology (ICT) in local government administration, using Oshimili North Local Government Area of Delta State as a case study. The study found out that the benefits of ICTs towards local government administration are enhancement of communication and increased productivity. The study equally revealed that ICT in government has set the stage for greater transparency and possibility for greater citizens' participation. It identified limited availability of ICT facilities and recommended that ICTs such as internet, GSM system, computer and online tools for effective information and communication for service delivery should be made available in the local government area.

Using a sample of 99 ICT end users from public and private sector corporations and government departments and ministries in Nigeria, [15] investigated the contribution of ICT to good governance and government. The study found that in Nigeria, the areas most affected by ICT are as follows; the provision of 'easy to use services', ability to do the job', 'services of convenient time and place', 'facilitating communication between citizens and their elected representatives', and citizen's access to information from government agencies'. The result of the study however showed that there is a positive relationship between progress made in Nigeria towards improved coordination among government agencies, services and efficiency and the impact of the introduction of ICT projects in government organizations. The study also supported the proposition that there is a positive relationship between users' perception of improved services and the effectiveness achieved in different areas affected by the introduction of ICT. The study however recommended that future studies should investigate further the link between how ICT is managed and ICT effectiveness focusing on the transformative effects on government behaviour. including transparency and accountability as well

as service delivery. A resulting implication of this study is that effective introduction of ICT can indeed fundamentally alter the way public services are delivered.

In their research based article titled –E-Governance, Corruption and Public Service Delivery: A comparative study of Fiji and Ethiopia, [16] concluded that e-governance is positively related to improved government-citizen relationships and corruption reduction. The study using a structured questionnaire, explored the perceived role of e-governance in reducing corruption among 400 respondents each from Fiji and Ethiopia. The study has suggested that while e-governance initiatives can make important contributions to improving public services, they can best do so by helping to improve the overall relationships between governments and citizens.

[17] in another study examined the perceptions of public service delivery in Fiji so as to explore the potential of e-governance to cut corruption and improved governance. The result of the study showed that service delivery-oriented information technology can contribute to an effective, multi-pronged strategy to cut corruption in the Fiji public sector.

## 3. METHODS

This aspect focuses on the method of data collection, the population and sample size of the study and the statistical technique used in the analysis of data.

## 3.1 Population and Sample Size

The total number of both junior and senior staff of Etsako West Local Government is 650. A total of 450 structured questionnaires were randomly administered to the targeted Etsako West Local Government workers. Only 420 questionnaires were returned. After data mining of the questionnaire for inconsistency, omission and incomplete filling, a sample size of 228 was taken for the research study.

## 3.2 Method of Data Analysis

In this study, the statistical techniques adopted are simple percentage analyses, the use of tables for representation and chi-square analysis to test the hypotheses. A chi-square procedure was used to test the significance relationship between ICT penetration, use of ICT components and service delivery in Etsako West Local Government in Edo State of Nigeria.

#### 3.3 Method of Data Collection

The source of data for this study is primary source. A structured questionnaire was designed into various sections A, B and C to gather possible information from the respondents. Each section asks specific questions from the targeted respondents. Section A is to gather data on the demographic background, section B deals with the ICT awareness and usage level while section C seeks from the respondents in what manner ICT has contributed to the effective service delivery in the Local Government System.

## 3.4 Data Presentation and Analysis

#### 3.4.1 Demographic information analysis

Based on the demographic information on age bracket in Table 1, 29 out of 228 respondents fall in the age bracket of 21-30yrs making 12.7% of total respondents, 68 respondents are 31-40yrs making 29.8%, 62 respondents are 41-50yrs making 27.2%, 48 respondents are 51-69yrs and 21 respondents are 61 and above making 21.1% and 9.2% respectively. The table bellow indicates that the age bracket of 31-40yrs has the highest respondents.

#### Table 1. Distribution according to age bracket

Option	Response	Percentage
21-30yrs	29	12.7%
31-40yrs	68	29.8%
41-50yrs	62	27.2%
51-69yrs	48	21.1%
61yrs and above	21	9.2%
Total	228	100.0%
Source	e: Field survey, 2	2011

Based on the response on sex in Table 2, it was shown that 149 out of 228 respondents are males, making 65.4%, while 79 respondents are females, making 34.6% of total respondents. The table indicates that the male has the highest respondents.

Based on the position mode in Table 3, it was revealed that 87 out of 228 respondents have their positions by employment making 38.2% of total respondents, 39 have theirs by appointments making 17.1%, 24 respondents are employed by election making 10.5%, while 78 respondents have theirs from other sources making 34.2% of total respondents. The Table 3 indicates that by employment have the highest respondents.

#### Table 2. Distribution according to sex

Option	Response	Percentage
Male	79	34.6%
Female	149	65.4%
Total	228	100.0%
	Source: Field survey	2011

# Table 3. Distribution according to position mode

Option	Response	Percentage
By employment	87	38.2%
By appointment	39	17.1%
By election	24	10.5%
Others	78	34.2%
Total	228	100.0%
Source	: Field survey, 201	11

In order to investigate on the period of operation, Table 4 shows that 63 out of 228 respondents have been in service for less than 2yrs making 27.6% of total respondents, 47 respondents have been in service between 3-5yrs making 20.6%, 35 respondents is 6-8yrs making 15.2%, while 63 respondents have been in service between the range of 9yrs and above making 27.6% of total respondents. The table shows that those who have been in service for less than 2yrs and 9yrs and above have the highest respondents.

#### Table 4. Distribution according to duration

Option	Response	Percentage
<2yrs	63	27.6%
3-5yrs	47	20.6%
6-8yrs	35	15.2%
9yrs and above	63	27.6%
Total	228	100.0%
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Source: Field survey, 2011

Based on the educational level of the respondents, it was shown from Table 5 that out of 228 respondents, 36 respondents have attained primary education level making 15.8%, 132 have attained secondary level of education making 57.9% of total respondents, while 60 respondents attained tertiary level of education making 26.3% of the total respondents.

Based on the distribution according to religion of the respondents, out of 228 respondents, 78 are Christian making 34.3% of total respondents, 102 are Muslims making 44.7%, 18 are pagans making 7.9%, while 30 are practising other religion making 13.2% of the total respondents. The Table 6 depict that those practising Islamic religion have the highest responses.

# Table 5. Distribution according to educational level

Option	Response	Percentage
Primary	36	15.8%
Secondary	132	57.9%
Tertiary	60	26.3%
Total	228	100.0%

Source: Field survey, 2011

# Table 6. Distribution according to religious belief

Option	Response	Percentage
Christianity	78	34.3%
Islam	102	44.7%
Pagan	18	7.9%
Others	30	13.2%
Total	228	100.0%
Sol	urce: Field survey,	2011

The distribution according to occupation revealed that out of 228 respondents, 14, 6, 48, 62, 20, 36, and 22 respondents are accountants, Auditors, Politicians, Civil Servants, Administrators, Educationists and Other occupation having the percentage respondents of 6.1%, 3.0%, 21.1%, 27.2%, 8.8%, 15.8%, and 4.0% respectively. Table 7 indicates that civil servants have the largest respondents.

#### Table 7. Distribution according to occupation

Option	Response	Percentage
Accountant	14	6.1%
Auditor	6	3.0%
Politician	48	21.1%
Civil servant	62	27.2%
Administrator	20	8.8%
Educationist	36	15.8%
Others	32	14.0%
Total	228	100.0%

Source: Field survey, 2011.

To investigate if the use of ICT facilities can lead to effective service delivery in Local Government System, Table 8 shows that out of the 228 respondents, 183 said Yes making 80.2% of total respondents while 45 respondents said No making 19.8%.

Based on the exposure to ICT facilities for service delivery in Local Government System, Table 9 indicates that 122 out of the total respondents concluded that "Yes" they have been exposed to ICT facilities making 53.5% of total respondents while 106 respondents said "No" that they have not been exposed to ICT facilities making 46.5%.

#### Table 8. ICT for effective service delivery

Option	Response	Percentage
Yes	183	80.2%
No	45	19.8%
Total	228	100.0%
	Source: Field survey	2012

Source: Field survey, 2012

#### Table 9. Exposure to ICT facilities

Option	Response	Percentage
Yes	122	53.5%
No	106	46.5%
Total	228	100.0%
	Source: Field surve	y, 2012

As can be seen from Table 10, out of the total respondents that concluded that Yes they have been exposed to ICT facilities, 16 out of the 106 respondents said that their level of exposure is for a very long time making 15.1%, 38 respondents said is for a long time making 31.15%, 40 said it is not too long making 37.7%, while 28 respondents said that their level of exposure is just recently making 26.4% of total respondents.

#### Table 10. Level of exposure

Option	Response	Percentage	
Very long	16	15.1%	
Long	38	31.15%	
Not too long	40	37.7%	
Just recently	28	26.4%	
Total	122	100.0%	
Source: Field survey, 2012			

Investigating the availability of ICT facilities in offices, Table 11 reveals that out of the 228 respondents, 138 said "Yes" that ICT facilities are available in their offices making 60.59% of total respondents while 90 respondents said "No" to that making 39.5%.

Relating the degree of availability of ICT in offices, it was shown in Table 12 that 46 out of 138 respondents said ICT facilities are highly available making 33.3% of total respondents, 72

concluded that they are moderately available making 52.2%, while 20 respondents said that ICT facilities are not available in their offices making 14.5% of total respondents.

#### Table 11. Availability of ICT in office

Option	Response	Percentage
Yes	138	60.59%
No	90	39.5%
Total	228	100.0%
	O	0010

Source: Field survey, 2012

#### Table 12. Degree of availability

46	33.3%
72	52.2%
20	14.5%
138	100.0%
	20

Source: Field survey, 2012

As to whether the local government uses ICT facilities for administration for effective service delivery, Table 13 indicates that 158 respondents out of the total respondents said "Yes" to that making 69.3%, while 70 respondents said "No" making 30.7% of the total respondents.

Based on the respondents' perception on the usage of ICT and how often they use it, it was revealed from Table 14 that 21 out of 158 respondents said it is very often making 13.3%, 50 respondents said it is often making 31.6%, while 87 respondents said they use it sometimes making 55.1% of total respondents.

Rating the optimum usage of ICT facilities by respondents, 33 respondents out of 228 respondents in Table 15 concluded that ICT facilities are highly utilized making 14.5% of total respondents, 101 respondents said ICT facilities are moderately utilized making 44.3%, while 94

respondents accepted low utilization of ICT facilities making 41.2% of total respondents.

#### Table 13. ICT facility for administration for effective service delivery

Option	Response	Percentage
YES	158	69.3%
NO	70	30.7%
Total	228	100.0%
	Source: Field surv	ey, 2012

#### Table 14. If yes, how often do you use ICT

Option	Response	Percentage
Very often	21	13.3%
Often	50	31.6%
Sometimes	87	55.1%
Total	158	100.0%

Source: Field survey, 2012

# Table 15. Rate the optimum use of ICT facilities

Option	Response	Percentage
Highly utilized	33	14.5%
Moderately utilized	101	44.3%
Low utilization	94	41.2%
Total	228	100.0%

Source: Field survey, 2012

#### 4. DISCUSSION OF RESULT

In Table 16, ICT as service delivery tool for effective administration of local government services revealed that among the mean response analysis, ICT for administration of specific matters ranked highest, and conference/workshop on innovation ranked second followed by dialogue on important issues with very low application on security checks and challenges for the service delivery in L.G.A.

#### Table 16. Service delivery

S/N	Service Delivery	Mean Response	Rank
1	Sound accountability	3.57	7
2	Legal system/regulation	4.06	4
3	Administration of specific matters	4.30	1
4	Dialogue on important issues	4.1	3
5	Presentation/training for capacity building	3.85	5
6	Conference/workshop on innovation	4.15	2
7	Political discussions/allied matters	3.31	9
8	Planning/development scheme	3.63	6
9	Security checks/challenges	3.44	8

#### 4.1 Test of Hypotheses

Ho: There is no significant relationship between ICT penetration and Service Delivery in the administration of Etsako West Local Government Area of Edo State.

H1: There is significant relationship between ICT penetration and Service Delivery in the administration of Etsako West Local Government Area of Edo State.

#### 4.2 Analysis

$$\chi_{cal}^{2} = \sum_{i=1}^{n} \frac{(o_{i} - e_{i})^{2}}{e_{i}} = 0.256$$

See Appendix for the detail analysis

$$\chi^2_{tab} = \chi^2_{(8,0.05)=15.5}$$

From the test of hypotheses of research study,

 $\chi^{2}_{cal}(0.256)$  is less than  $\chi^{2}_{tab}(15.5)$  which implies accepting H<sub>0</sub> and concluding that there is no significant relationship between ICT and service delivery in the administration of Etsako West Local Government Area of Edo State. This implies that ICT awareness and usage in the studied local government is very low. This study confirms the work of [2], which revealed an incredibly low level of ICT presence and application in their sampled local governments. The study equally supports the work of [9] which identified limited usage of ICT facilities in Oshimili North Local Government Area of Delta State.

## 5. CONCLUSION

From the empirical evaluation of ICT as a service delivery tool for effective administration of Etsako West Local Government Area of Edo State, it was found that ICT penetration has been very low. In addition, we also found out that ICT is mainly used in administration of specific matters, dialogue and workshop/conferences in the Etsako Local Government Area of Edo State, Nigeria.

#### 6. RECOMMENDATION

Based on the findings, the following recommendations are hereby made:

1. Government should create opportunity for the local government workers in Nigeria to

own computers and be ICT literate for effective and efficient performance in service delivery.

2. The role and importance of ICT should be emphasized to enable Local Governments participate in the e-governance.

Security and safety which is utmost responsibility of any nation for healthy growth and development should be seen adopting ICT measure for security checks and challenges.

#### **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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## APPENDIX

S/NO	Observed Response <sup>(o</sup> i)	Expected Response (e <sub>i</sub> )	$[(o]_i - e_i)$	$\llbracket (\boldsymbol{o} \rrbracket_i - \boldsymbol{e}_i \Bigr)^2$	$[(o]_i - e_i)^2$
					e <sub>i</sub>
1	3.57	3.82	-0.25	0.0625	0.01626
2	4.06	3.82	0.24	0.0576	0.01508
3	4.30	3.82	0.48	0.2304	0.06031
4	4.10	3.82	0.28	0.0784	0.02052
5	3.85	3.82	0.03	0.0009	0.00024
6	4.15	3.82	0.33	0.1089	0.02851
7	3.31	3.82	-0.51	0.2601	0.06809
8	3.63	3.82	-0.19	0.0361	0.00945
9	3.44	3.82	-0.38	0.1444	0.03780
					$\chi^2_{cal} = 0.25636$

## Test of Hypothesis Analysis Chi-Square Analysis Table

The expected value 
$$(e_i) = \frac{n}{n}$$

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