# INFORMATION REQUIREMENT FOR RURAL DEVELOPMENT THROUGH TELECENTRE IN KADUNA STATE, NIGERIA

STATE THE

A Project Submitted to the College of Arts and Sciences in Fulfillment of the

requirements for the degree of Master of Science

(Information and Communication Technology)

Universiti Utara Malaysia

By

Mohammed Aliyu Dogara





#### KOLEJ SASTERA DAN SAINS (College of Arts and Sciences) Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK (Certificate of Project Paper)

Saya, yang bertandatangan, memperakukan bahawa (I, the undersigned, certifies that)

#### MOHAMMED ALIYU DOGARA (804080)

calon untuk Ijazah (candidate for the degree of) MSc. (Information & Communication Technology)

telah mengemukakan kertas projek yang bertajuk (has presented his/her project of the following title)

#### INFORMATION REQUIREMENT FOR RURAL DEVELOPMENT THROUGHT TELECENTRE IN KADUNA STATE, NIGERIA

seperti yang tercatat di muka surat tajuk dan kulit kertas projek (as it appears on the title page and front cover of project)

bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan.

(that this project is in acceptable form and content, and that a satisfactory knowledge of the field is covered by the project).

Nama Penyelia (Name of Supervisor): ASSOC. PROF. DR. WAN ROZAINI SHEIK OSMAN

Tandatangan (Signature)

<u>Rofani</u> Tarikh (Date) : <u>3/3/2011</u>

Nama Penilai (Name of Evaluator)

: MADAM ZAHURIN MAT AJI

Tan**datan**gan *(Signature)* 

#### **PERMISSION TO USE**

In presenting this project in partial fulfillment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the University Library may make it freely available for inspection. I further agree that permission for copying of this project in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence by the Dean of Post Graduate Studies and Research. It is understood that any copying or publication or use of this project or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my project. Requests for permission to copy or to make other use of materials in this project, in whole or in part, should be addressed to

#### **Dean Post Graduate Studies and Research**

College of Art and Sciences Universiti Utara Malaysia 06010 UUM Sintok Kedah, Darul Aman

Malaysia

#### Abstract

Rural information telecentre content play major a role in information dissemination for the rural farmers. Telecentre information content system is a device in ICT that used to alert rural people to know what is going on in the community and updating them about improvement in their daily activities livelihood. This research work address the objectives of user requirement needs for rural ICT, in community development centers in south and north of Kaduna Nigeria. General research method was used. The prototype of telecentre content system was developed with the use of PHP, Java script for the programming language and micro media directory, Xamp as well as *Adobe* Photoshop. Ten people tested the usability of prototype. The developed telecentre content system brings about adequate information about their daily need when compare to previous way of life and improve the rural farmers to have basic knowledge in using computer. With the use of this device, positive turn around will manifest in Kaduna rural livelihood and increase in income level through market information alert.

ii

#### Acknowledgement

#### "In the Name of Allah the Most Gracious and Most Merciful"

First of all, I would like to appreciate ALMIGHTY ALLAH, for having made everything possible by giving me strength and grace to do this work.

Also, I would like to thank my supervisor for the completion of this project, Assoc. Prof. Dr.Wan Rozaini Sheik Osman for her valuable guidance and advice. She inspired me greatly to work in this project. Her willingness and motherly attitude contributed to the success of my project.

My sincere appreciation and gratitude goes to my loving wife and children. Also, special thanks to Dr. Abdul Jaleel and others which I cannot able to mention their names for their assistance and support throughout my learning period. Besides, I would like to thank the authority of Universiti Utara Malaysia (UUM) for providing me with a good environment and facilities to complete this project.

An honorable mention goes to my friends and relatives for their understandings and supports in completing this project, as well as all lecturers at the faculty of Information Technology, that they guide me all the information for completing the requirements of this study, especially my evaluator Madam Zahurin M. Aji for her advice. Without help of those that mentioned above, I would have faced many difficulties while doing this project. Finally, I dedicated this research to my late parent for the legacy they instill on me.

iii

# Table of contents

| Permission to use | . i  |
|-------------------|------|
| Abstract          | . ii |
| Acknowledgement   | iii  |
| Table of contents | iv   |
| List of tables    | v    |
| List of figures   | vi   |

# Chapter one

| 1.0 Int | roduction1         |
|---------|--------------------|
| 1.1     | Problem statement2 |
| 1.2     | Research Question  |

| 1.3 | Research Objectives       | .3 |
|-----|---------------------------|----|
|     |                           |    |
| 1.4 | Significance of the study | .4 |
|     |                           |    |
| 1.5 | Scope of the study        | .4 |
|     |                           |    |
| 1.6 | Chapter Summary           | .4 |

# Chapter two

### Literature review

| 2.0 Introduction   |  | 5                 |
|--------------------|--|-------------------|
| 2.1 Definiti       | ion of terms                             | 5                 |
| 2.2 Background     | l of telecentre in Nigeria               | 7                 |
| 2.3 Brief history  | y about Kaduna state                     |                   |
| 2.4 Literature re  | eviews on Telecentres                    |                   |
| 2.5 Equipment      | used in the telecentres                  |                   |
| 2.6 Telecentres    | connectivity.                            |                   |
| 2.7 Rural Teleco   | entres Error! Book                       | mark not defined. |
| 2.8 Telecentres    | in Africa                                | 14                |
| 2.9 Barriers to t  | elecentres in Africa                     |                   |
| 2.10 Brief descrip | ption of an ideal Telecentre Error! Book | mark not defined. |

| 2.11 | Benefits of telecentres16  |
|------|--|
| 2.12 | Selection of site for internet centre                                |
| 2.13 | Factors considered in the requirement gathering for telecentre users |
| 2.14 | Services Provided by the Telecentre                                  |
| 2.15 | Sustainability of the Telecentres                                    |
| 2.16 | Summary  |

# Chapter three

## Methodology

| 3.0 Int | roduction            |    |
|---------|----------------------|----|
| 3.1     | Awareness of problem | 29 |
| 3.2     | Summary              |    |

# Chapter four

# Data analysis and findings

| 4.0 Introduction |                                     |
|------------------|-------------------------------------|
| 4.1              | Socio-economic information          |
| 4.2              | Information on users' accessibility |
| 4.3              | Requirement needs in telecentre     |

| 4.4      | Respondent opinion concerning telecentre |
|----------|--|
| 4.5      | Summary                                  |
|          | Chapter five                             |
|          | Requirement model design                 |
| 5.0 Intr | oduction                                 |
| 5.1      | Use Case Model                           |
| 5.1.     | 1 Use-Case                               |
| 5.2      | System requirement                       |
| 5.2.     | 1 Functional requirement                 |
| 5.2.     | 2 Non functional Requirements            |
| 5.2.     | 3 Hardware requirement                   |
| 5.2.     | 4 Software requirements                  |
| 5.3      | Use case specifications                  |
| 5.4      | Use case login                           |
| 5.4.     | 1 Brief description                      |
| 5.4.     | 2 Pre-conditions                         |
| 5.4.     | 3 Characteristic of activation           |

| 5.4.4   | Basic Flow60                 |
|---------|------------------------------|
| 5.4.5   | Post-conditions              |
| 5.4.6   | Rule(s)60                    |
| 5.4.7   | Constrain                    |
| 5.4.8   | Brief description60          |
| 5.5 Pre | e-conditions                 |
| 5.5.1   | Characteristic of activation |
| 5.5.2   | Basic Flow61                 |
| 5.5.3   | Post-conditions61            |
| 5.5.4   | Rule(s)61                    |
| 5.5.5   | Constrain61                  |
| 5.5.6   | Brief description61          |
| 5.6 Pre | conditions                   |
| 5.6.1   | Characteristic of activation |
| 5.6.2   | Basic Flow                   |
| 5.6.3   | Post-conditions              |
| 5.6.4   | Rule(s)62                    |

viii

| 5.6.5  | Constrain                      |
|--------|--------------------------------|
| 5.6.6  | Brief description              |
| 5.7 Pr | re-conditions                  |
| 5.7.1  | Characteristic of activation   |
| 5.7.2  | Basic Flow                     |
| 5.7.3  | Post-conditions                |
| 5.7.4  | Rule(s)63                      |
| 5.7.5  | Constrain                      |
| 5.7.6  | Brief description              |
| 5.8 Pr | re-conditions                  |
| 5.8.1  | Characteristic of activation64 |
| 5.8.2  | Basic Flow64                   |
| 5.8.3  | Post-conditions                |
| 5.8.4  | Rule(s)65                      |
| 5.8.5  | Constrain                      |
| 5.8.6  | Brief description65            |
| 5.8.7  | Pre-conditions                 |

ix

| 5. | .8.8  | Characteristic of activation |
|----|-------|------------------------------|
| 5. | .8.9  | Basic Flow                   |
| 5. | .8.10 | Brief description            |
| 5. | .8.11 | Pre-conditions               |
| 5. | .8.12 | Characteristic of activation |
| 5. | .8.13 | Basic Flow                   |
| 5. | .8.14 | Brief description            |
| 5. | .8.15 | Pre-conditions               |
| 5. | .8.16 | Characteristic of activation |
| 5. | 8.17  | Basic Flow                   |
| 5. | 8.18  | Post-conditions              |
| 5. | 8.19  | Brief description            |
| 5. | .8.20 | Pre-conditions               |
| 5. | .8.21 | Characteristic of activation |
| 5. | 8.22  | Basic Flow                   |
| 5. | 8.23  | Post-conditions              |
| 5. | .8.24 | Brief description            |

x

| 5.8   | 8.25 Pre-conditions                        | 69 |
|-------|--|----|
| 5.8   | 8.26 Characteristic of activation          | 69 |
| 5.8   | 8.27 Basic Flow                            | 69 |
| 5.8   | 8.28 Post-conditions                       | 69 |
| 5.9   | Sequence Diagram for the flow of Use-Cases | 70 |
| 5.10  | System development                         | 76 |
| 5.11  | Finding and design Interfaces              | 76 |
| 5.12  | Testing                                    |    |
| 5.13  | Conclusion                                 | 90 |
| 6 Int | troduction                                 |    |
| 6.1   | Findings                                   | 92 |
| 6.2   | Problem and Limitations                    | 93 |
| 6.3   | Contribution of the Study                  | 94 |
| 6.4   | Future Work                                | 94 |
| 6.5   | Conclusion                                 | 95 |
| REFER | RENCES                                     |    |
|       |  |    |

APPENDIX A

xi

xii

# LIST OF TABLES

| Table 4.1: Respondents' age                               | 32 |
|---|----|
| Table 4.2: Occupation                                     | 32 |
| Table 4.3: Gender   | 33 |
| Table 4.4: Educational level                              | 33 |
| Table 4.5: Occupational experience                        | 34 |
| Table 4.6: Information medium source                      | 35 |
| Table 4.7: Telecentre content requirement                 | 36 |
| Table 4.8: ICT Literacy Training                          | 37 |
| Table 4.9: Internet Service                               | 38 |
| Table 4.10: 10 ICT Implementation (E-government services) | 39 |
| Table 4.11: Developing Economy                            | 40 |
| Table 4.12: Tele Reduce Poverty                           | 40 |
| Table 4.13: Tele Improve Friends                          | 41 |
| Table 4.14: Tele Improve Citizens                         | 42 |
| Table 4.15: Uninterupted P/Supply                         | 43 |
| Table 4.16: Adequate Broadband                            | 44 |

| Table 4.17: Tele Cultural Awareness    44  |
|--|
| Table 4.18: Job Opportunities    45  |
| Table 4.19: Access Tele Help Agric   |
| Table 4.20: Tele Help Rural  |
| Table 4.21: ICT help Weather Condition Q15       49  |
| Table 4.22: Access to ICT facilities should be made universal to all citizens realization of its goal in rural |
| area 50  |
| Table 4.23: Descriptive statistics of the contents   |
| Table 5.1: Functional requirement  |
| Table 5.2: Non functional requirement  |

# LIST OF FIGURES

| Figure 2.1: People involve in rural community information web system UNDP, (2010)                       |
|---|
| Figure 2.2: Nigeria and its 36 states (NPC, 2006)9  |
| Figure 2.3: Map of Kaduna state with its twenty three (23) local governments. (NPC, 2006) 10            |
| Figure 3.1: General Research Methodology. Adaptation from (Vaishnavi & Kuechler, 2008) 28               |
| Figure 5.1: Use Case Diagram of information system for Kaduna north and south telecentre system (KNSTS) |
| Figure 5.2: Login use case  |
| Figure 5.3: Health information use case 60  |
| Figure 5.4: Agricultural information use case 62  |
| Figure 5.5: Market information use case 63  |
| Figure 5.6: Education information use case  |
| Figure 5.7: Manage information use case 65  |
| Figure 5.8: Manage users use case 66  |
| Figure 5.9: Disaster management use case 67   |
| Figure 5.10: Weather condition use case 68  |
| Figure 5.11: Community security use case 69   |
| Figure 5.12: Sequence diagram for use cases login KNSTS page70  |

xv

| Figure 5.13: Sequence diagram for use cases health information page       | 71 |
|---|----|
| Figure 5.14: Sequence diagram for use cases agricultural information page | 72 |
| Figure 5.15: Sequence diagram for use cases health market page            | 72 |
| Figure 5.16: Sequence diagram for use cases health education page         | 73 |
| Figure 5.17: Sequence diagram for use cases weather condition page        | 73 |
| Figure 5.18: Sequence diagram for use cases community security page       | 74 |
| Figure 5.19: Sequence diagram for use cases disaster management page      | 74 |
| Figure 5.20: Sequence diagram for use cases manage users page             | 75 |
| Figure 5.21: Sequence diagram for use cases manage information page       | 76 |
| Figure 5.22: Administrator and users home / login page                    | 77 |
| Figure 5.23: English version user information page                        | 78 |
| Figure 5.24: Users agric farm implement page                              | 79 |
| Figure 5.25: users' education information home page                       | 30 |
| Figure 5.26: users' information health page                               | 31 |
| Figure 5.27: Users market information 8                                   | 32 |
| Figure 5.28: users' disaster management page                              | 32 |
| Figure 5.29: Weather condition page 8                                     | 33 |
| Figure 5.30: Community security page                                      | 34 |
| Figure 5.31: Job opportunities page                                       | 35 |

xvi

| Figure 5.32: Disaster management page in Hausa language |
|---|
| Figure 5.33: Health information page in Hausa language  |
| Figure 5.34: Agriculture information page in Hausa      |
| Figure 5.35: Administrator manage information page      |
| Figure 5.36: Administrator manage users page            |

#### **1.0 Introduction**

Information and communication technology (ICT) is an indispensable tool of the contemporary world. In fact, culture and society have to be adjusted to meet the challenges of the knowledge age. The advancement of ICT has brought about rapid technological, social, political and economic transformation which eventuated in a network society organized around (Castells, 1996). In addition, the development and proliferation of interconnected computers on a global scale has made the world to become compacted through telecenter and development of rural ICT. The quantum leap and advancements witnessed in recent times in generated tremendous wealth and economic prosperity in many countries around the world. The field of ICT has transformed virtually every facet of human activities and has

ICT have general impacts on all aspect of society whether rural or urban. Its impact has succeeded in molding the world and developing countries including Nigeria. VanBorn (2004), stated that the changing phases of most societies is influence by ICT in general and internet connectivity in particular. Yapa (2008), submits that the advancement of any nation today is measured by the degree to which its citizens have access to information communication technology

Moreover, mere non implementation of information and technology policy in Nigeria serve as one of the greatest impediment to achieving any ICT programmed in the country. In 2001, IT Policy is implemented during the establishment of a National Information Technology Development Agency (NITDA), but not well grounded in its implementation this is due to

1

# The contents of the thesis is for internal user only

#### REFERENCES

- Asmi, Y (2008). Integrated Rural Development: the Ethiopian Experience and the Debate: Scandinavian Institute of African Studies, Uppsala, Sweden
- Baron, L. F.(1999). Experiements in Community Access to New Communication and Information
- Biswas, S. (2001). Digital Empowerment: Seeds of E-Volution, in Outlook India, April 9, 2001 edition. Published available at http://www.outlookindia.com/archivecontents.asp?fnt=20010409
- Brain, E., Whitacare, P., Hartman, S. & Boggs, W. (2007). *The economic impact of Telemedicine Capability:* A Rural Hospital. December 2007. Retrieved from: www.ruralhealthworks
- Burnt., P.V and Kinnucan, M.T.(1995). Information Models and Modelling Techniques for Information Systems. Annual Review Information Science and Technology (ARIST), (25) pp175-208

Castell, M. (1996). The Rise of the Network Society. (2) Oxford: Blackwell Publishers.

Chapman, R,Slaymaker,T and Young, J.(2007). Livelihood Approaches to Information and Communication in Support Rural Poverty Elimination and Food Security. Pp23-34

Dahms, M.(1999). For the Educated People Only. Reflections on a Visit to Two

- Dandar, N. (1999). Establishing a Public Internet Centre in Rural Areas of Mongolia, in Telecentre Evalaution: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/html/main.html
- Day, P and Harris, K. (2010). Down to the Earth Vision: Community Base IT Intiative and Social Inclusion
- Delgadillo, K., & Raúl B. (1999). Learning Lessons from Telecentres in Latin Development in Senegal: An Overview. Paper available at America and the Caribbean, in Telecentre Evaluation: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/html/main.html
  - http://www.unrisd.org/cgibin/dnld1.pl?filename=infotech/sagnaeng.pdf:385.5k&thisp ge=infotech/publicat/publ.htm&filetitle=Information+and+Communications+Techno ogies+and+Social+Development+in+Senegal
- Ducatel, K and Halfpenny, P. (1993). Telematics for Community? An electronic Village Hall for East Manchester. Environment and Planning C: Government and Policy (11) 367-379

- Fuchs, C., & Eva, H. (2008). Africa and the Digital divide. Telematic and Informatic 25 (2008) pp 99-116
- Fuchs, R. (1998). Little Engines That Did: Case Histories from the Global Telecentre Movement
- Gomez, R. P., Hunt, & Lamoureux. E.(1999). *Telecentre Evaluation and Research*: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/nn/06\_Tel
- Goodman, D., & Watts, M.(1997). Globalizing food: Agrarian questions and global restructuring
- Goodman. J. (2005). Linking Mobile Phone Ownership and Used to Social Capital in Rural South Africa and Tanzania, Vodafone Policy Paper Series (3) pp53-68
- Graham,S,(1992) Best practice in Developing Community Teleservice centres. Published by the centre for Applied Social Research,Faculty of Economic and Social Studies. University of Manchester
- Harris, R, M, and Dwedney, P.(2001). Barriers to information: How formula help systems fail battered women, westport, Connecticut; Greenwood publishing Group
- Holmes, R.(1999). Gender Analysis of Telecentre Evaluation Methodology, in http://www.idrc.ca/telecentre/evaluation/html/main.html http://www.telecentros.org.mz/relator.htm
- Harris, Roger W,(2004) Information and Communication Technologies For Poverty Alleviation.Kuala Lumpur: UNDP-APDIP, 2004
- Hunt, P.(2001). *True Stories*: Telecentres in Latin America and the Caribbean, in the Electronic Journal on Information Systems in Developing Countries, Volume 4. Published available at http://www.is.cityu.edu.hk/ejisdc/vol4.htm
- Information System. (2011). All about Information System and its Application. Retrieved on January 30, 2011 at http://en.wikipedia.org/wiki/Information system
- IICD. (2006). ICTs for Agricultural Livelihood: Impact and Lessons Learned from IICD Supported Activities. Retrieved on June 24, 2006 at http://www.ftpiicd.org/file/publications/IICD-agric-impact-2006.pdf
- Intven, H., Jeremy O., & Edgardo S. (2000). *Telecommunications Regulation Handbook*, (ed.) Hank Intven. The World Bank: Washington, D.C. Published available at www.infodev.org/projects/314regulationhandbook
- Jensen, M.(2005). The Wireless Toolbox: A guide to using low cost Radio Communication System for Telecommunication in Developing Countries-African Perspective .IDEC.January,2005. Litrature online.

- Joseph, L. (1999). *Telecentre Evaluation*: A Tele-community Perspective, in Telecentre Evaluation: A Global Perspective
- Kayatekin, M. S., & Ayse K. (1997). (Eds.), Observations on some theories of current agrarian change. Review of African Political Economy, 25(76), 22–30
- Kyabwe, S., & Richard. (1999). Buwama and Nabweru Multipurpose Community Telecentres: Baseline Surveys in Uganda, in Telecentre Evaluation: A Global Perspective
- Macome, Esselina & Carlos Cumbana. (2001). Assessment of the Manhica and Namaacha Pilot Telecentres Year One
- Manir, A.K. (2009). Access to Information: the Dilema for Rural Community Development in Africa. *Paper Presented in GLOBELICS Daka*
- Meera, S.N., Jhamtani, A. and Rao, D.U.M.(2004). Information and Communication Technology in Agricultural Development: A Comparative of Three Projects from India. *The Agricultural Research and Extension Network Paper 135*
- Munyua, H. (2005). Information and Communication Technologies for Rural Development and Food Security: Lesson from Field Experience in Developing Countries. SD Knowledge: Communication for Development
- Oliver, S. (2009). *Knowledge Solutions: Watching and monitoring*. February 13, 2010. From www.adb.org/knowledge solutions. Readiness for the Networked. World glossary. http://cyberlaw.havard.edu/readinessguide/glossary.htmml. United Nations Development Programme (2007)
- Oyelaran, O., & Nyaki, B. (2010). *Internet Access in Africa*: Empirical Evidence from Kenya and Nigeria. Telematics and Informatics 21 (1), pp 67-81
- Parkinson, S. (2005). Telecentre Access and Development: Experience and Lessons for Uganda and South Africa. International Development Research Centre, Ottawa
- Prekop, P. (2005). A Qualitative Study of Collaborative information seeking. Journal of Documentation. Vol. 58, No.5. pp 533-547
- Pride Africa. (2000). *Reaping Digital Dividends with PRIDE*. Paper published available at http://www.drumnet.org/
- Punch, K. F. (2006). Developing Effective Research Proposals, 2<sup>nd</sup> ed. London. SAGE publications Ltd
- Qvortrup,L. (1994,27 February 1997)Community Teleservice centres:A document for the world Telecommunication Development Conference (WTDC) On the impact of Community Teleservice centre (CTSCs) On rural development [online]:

- Richardson, D., Ricardo R., & Moinul H. (2000). Grameen Telecom's Village Phone Programme in Rural Bangladesh: A Multi-media Case Study. Paper available at www.telecommons.com/villagephone
- Robinson, S. R. (1998). *Telecentres in Mexico: Learning the Hard Way*. Paper available at http://www.devmedia.org/documents/robinson.htm
- Robinson, S. R. (1999). On Estimating Telecentre Demand in Mexican Rural Municipios, in Telecentre Evalaution: A Global Perspective. Paper available at http://www.idrc.ca/telecentre/evaluation/html/main.html
- Robinson, S. R. (2000). *Rethinking Telecenters*: Knowledge Demands, Marginal Markets, Microbanks and Remittance Flows, in the Internet Magazine, Vol. 6, No. 2
- Roman, R., & Colle, R. (2002). Themes and Issues in telecentre Sustainability

Sagna, O. (2000). Information and Communication Technologies and Social

San-Sebastien, C. (1999). Telecenter Evaluation Issues - The Salvadoran experience, in Telecentre Evalaution: A Global Perspective. Paper available at http://www.idrc.ca/telecentre/evaluation/html/main.html

Scharffenberger, G. (1999). Telecentre Evaluation Methods and Instruments: What

- Shakeel, H., Michael B., Bruno M., & Sam We. (2000). Comparing Urban and Rural Telecenters Costs. MIT Media Laboratory, E-Development Group.
  Technologies in Bogota, in Telecentre Evalaution: A Global Perspective. Paper published on the World Wide Web and available at http://www.idrc.ca/telecentre/evaluation/html/main.html
  Telecentre Evalaution: A Global Perspective. Paper published available at http://www.idrc.ca/telecentre/evaluation/html/main.html
- Staplehurst, B. (1994). Telecentres: Lesson from Europe. National Rural Eenterprise Centre, Stonelleigh Park, Warwickshire.
- Uhegbu, N. (2008). Constraints on the information of National info-policy for Nigeria. Journal of Information Sciences 31 (1) pp 41-47
- UNDP (2010). The Information Process of Stakeholder in Community Rural Information System
- Vaishnavi, V., & Kuchler W. (2008). Design research in information System. Retrieved December 20, 2009. From: http/www.isword.org/researchdesign/dris/sworld.htm
- VanBorn, J. (2004). Copeter and the User. Copeter.ruslan.ru/outcomes/JVB.doc Works and why? in Telecentre Evalaution: A Global Perspective. Paper available at http://www.idrc.ca/telecentre/evaluation/html/main.html

- Yapa, N (2008). Utilization of ICED for LIS with special reference to Sri Lanka. Retrieved on May 24, 2010 at http://scholar.google.com/scholar?hl iminary Evaluation of Online Access Centres: Promoting Micro E-business Activi
- 4Young, J., Gail R., & Jeff R. (2001). *A Pretty in small, Isolated Communities:* in the Electronic Journal on Information Systems in Developing Countries, Vol. 4. Available at http://www.is.cityu.edu.hk/ejisdc/vol4.htm
- Yusuf, O. (2005). *Information and Communication Technology*: Analyzing the Nigerian National Policy for Information Technology. International Education Journal, 6 (3) pp 316-321
- Zahurin, M. A., Shafiz A., Wan-Rosaini, S & Nor ladah, Y. (2010). A Conceptual Model forPsychological Empowerment of Telecentre users. Computer and Information Science, 3(3)
- Zulkefti, I., Aninis, S., & Feizharudean, T. M. (2009). The Roles of Community Based Telecentre in Briesty. The digital Divide in Rural Malaysia. International journal ofHumanities and Social Sciences. Vol. 3(1). P 84