



## **A Critical Analysis of the Mixed Methods Approaches in Impact Evaluation: Experiences from Triangulation Design**

**Silas Memory Madondo**

**Silas Memory Madondo is a Mixed Methods Research, Monitoring & Evaluation Specialist  
[silasethan@gmail.com](mailto:silasethan@gmail.com)**

### **Abstract**

A study was conducted with the aim of assessing the credibility of mixed methods approaches in impact evaluation. Four key variants/models of triangulation (convergence, data transformation, validating quantitative data and multivariate models) were discussed in light of impact evaluation methodological procedures. Documentary analysis method was used for data collection, four evaluation reports from Malawi, Sierra Leone, Uganda and Kenya were qualitatively and quantitatively analyzed. The study observed a number of weaknesses linked to mixed methods paradigm that are capable of undermining its credibility. Concerns were raised on the transformation of qualitative data to quantitative data sets, with questions raised on the originality and credibility of such transformed data. Furthermore, the convergence of data from quantitative and qualitative data sets with different sample

sizes also raised some questions about mixed methods approaches. To what extent should we trust the findings of the converged data from two different paradigms with different sample sizes? The mixed methods protagonists were encouraged to conduct scientific researches in order to address the gaps raised by this study.

**Keywords:** *Mixed methods research, Impact assessment, Project management, quantitative and qualitative research, Data transformation model, Convergence model*

### **Abbreviations & Acronyms**

MMR - Mixed Methods Research

QUAN - quantitative dominant

QUAL - qualitative dominant

qual - qualitative minor

quan - quantitative minor

### **Introduction**

Developed nations are injecting billions of United States dollars annually to African nations for the purpose of

implementing poverty reduction projects. Despite massive injection of Aid, poverty in Africa is still the order of the day. However, various impact evaluation reports have been reporting a success story on poverty alleviation in Africa. A call has been made by the World Bank and International Monetary Fund for project evaluating organizations to develop rigorous approaches in impact evaluation and make use of sound mixed methods designs. The aim of this paper is to make a critical examination of the credibility of mixed methods designs in particular triangulation variant models in impact evaluation of projects/programs.

The bases of the was discussion on four major impact evaluation reports selected from countries across Africa. The impact evaluation reports were selected from;

- a) Uganda - Impact of mHealth Intervention for Peer Health Workers on AIDS Care in Rural Uganda: A Mixed Methods Evaluation of a Cluster Randomization Trial
- b) Malawi - Impact Evaluation Report External Evaluation of the Mchinji Social Cash Transfer Pilot

- c) Kenya - Hunger Safety Net Program Monitoring and Evaluation Component : Impact Evaluation Final Report 2009-2012
- d) Sierra Leone - The GoBifo Project Report: Assessing the Impacts of Community Driven Development in Serra Leone

The mHealth impact evaluation in Uganda was carried out by Chang, L.W. and his team in 2012. The purpose of the impact evaluation was to examine the impact of mobile phones on the performance of AIDS care program of 970 patients, a mixed methods approach was adopted in the overall plan for data collection and a conclusion was made that the mobile phones were effective in making the AIDS care program viable.

Another program that was scrutinized was the Social Cash Transfer impact assessment report of 2008. The impact assessment was done in Mchinji of Malawi with 800 household randomly selected into treatment and control groups. The impact assessment was conducted by the University of Malawi Center for Social Research and University of Boston. The program was observed to be helping in reducing extreme poverty. In Kenya, a

similar impact evaluation was done with households in Northern part of the country between 2009 and 2012. The purpose of the impact evaluation was to examine the impact of Hunger Safety Net Kenya, a cash transfer program that was geared towards alleviating poverty in Kenyan communities. The data collection methods were mainly qualitative and some qualitative data was transformed to quantitative during analysis. The conclusion showed a positive impact.

The GoBifo project impact evaluation report of Sierra Leone was also examined. The aim of the evaluation was to assess the impact of community driven projects in Sierra Leone, evaluation hypotheses were formulated before the study and tested. The qualitative data was converted to quantitative during the analysis. A critical analysis of the relevance triangulation variant models in impact evaluations is discussed in detail in relation to the four impact assessment reports and the paper is divided into the following categories;

- a) An Overview of Impact Evaluation
- b) Discussion of Triangulation Variant Models

- c) A Critique of the Role of Mixed Methods Approaches (triangulation designs) in Impact Assessment
- d) Conclusions
- e) Recommendation

### **An Overview of Impact Evaluation**

There is no universally agreed definition for impact evolution and the definitions vary according to the study disciplines and organizations' mission and vision. In this section I defined impact evaluation from the perspective of World Bank, United Nations and Development Assistance Committee, Organization of Economic Cooperation and Development (DAC). The World Bank defined impact evaluation as the causal effect of a development intervention measured in mediate (short term), intermediate (medium) and final or long term (IEGWB, 2012).

United nations and DAC have their own definition of impact assessment and United Nations adopted the definition of DAC. According to DAC, impact evaluation is 'positive and negative, primary and secondary long term effect produced by a development intervention, directly or indirectly, intended or unintended' (UNEG, 2013). The focus of the definition is on the long term effect and not intermediate and



mediate. The United Nations is said to be following the definition of DAC, that makes their scope of impact evaluation to differ with World Bank's focus.

It is interesting to note that, the purpose of impact evaluation is to measure the causal effect of intervention. The effect can be immediate, intermediate or long term depending with the needs of different institutions. Quasi and true experiments are two major experimental designs that are often adopted in impact assessment. There difference between the two is demarcated by the use of randomization, true experiments call for the use of random sampling when selecting subjects to control and experiment groups (Madondo, 2016). In a nutshell, impact evaluation is done for short, medium or long term scenarios.

### **Discussion of Triangulation Variant Models**

A cold war between qualitative and quantitative protagonists popularly known a 'paradigm war' gave rise to a new paradigm in research know as Mixed Methods Research (MMR). It very difficult to trace the origin of mixed methods in impact evaluation but evaluators have been using both qualitative and quantitative approaches in their assessments since time immemorial.

The year 2004 shall be greatly remembered in the history of mixed method research, Johnson and Onwuebuzie (2004) published a thought provoking article calling for the emergence of a new paradigm which they called mixed methods research. Today, mixed methods approaches are being used in medicine, social sciences and project evaluation though some gaps are still existing.

Mixed methods has four major designs and these are; triangulation, embedded, explanatory and exploratory (Creswell and Clarke, 2007). In this section, the area of focus is on triangulation design and its variants/models. Triangulation is defined as the use of qualitative and quantitative approaches in impact assessment, the mixture may start from research evaluation questions, research evaluation designs, data collection methods, sampling procedure and or data analysis tools. I discussed the following four major variants of triangulation;

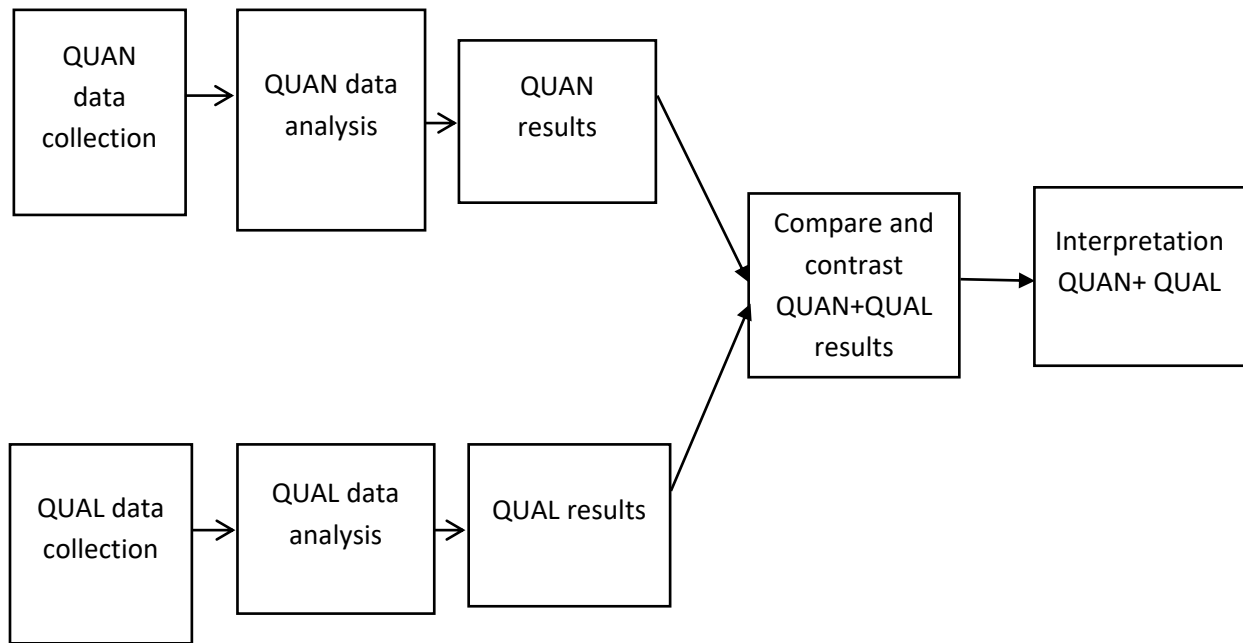
- a) Convergence Model
- b) Data Transformation Model
- c) Validating Quantitative Data Model
- d) Multivariate Research

### **Convergence Model**

The unique characteristics of convergence model is that, both quantitative and qualitative data are collected concurrently and have equal weighting. For example if an impact assessment is done using two data collection methods questionnaire (quantitative) and structured interview (qualitative), the general assumption is that both quantitative and qualitative are dominant symbolized by

QUAN and QUAL respectively. In terms of figures one would say, the impact evaluation was 50% qualitative and 50% quantitative, this is what they call equal weighting.

Convergence model is used to merge the data for qualitative and quantitative for the purpose of comparison, the other purpose is to validate qualitative and quantitative data. The figure 1 below is an illustration of convergence model;



*Figure 1 The convergence variant*  
Source: Creswell & Clark (2007)

The characteristics of convergence model are shown in the impact evaluation of the mHealth project in Uganda. The impact evaluation was done by Chang et-al (2012) ,

the main aim was to examine the impact of mobile phones on AIDS care program in rural Uganda. A quantitative tool (likert scale) was given to 38 clinic staff members

while qualitative tool (interviews) were administered to 10 clinic staff members. The finding from both qualitative and quantitative data supports the view that mobile phones managed to make mHealth program to be effective. The interesting part to note is that, qualitative and quantitative data were merged and supported the same conclusion that mobile phone were effective in mHealth program.

### Data Transformation Model

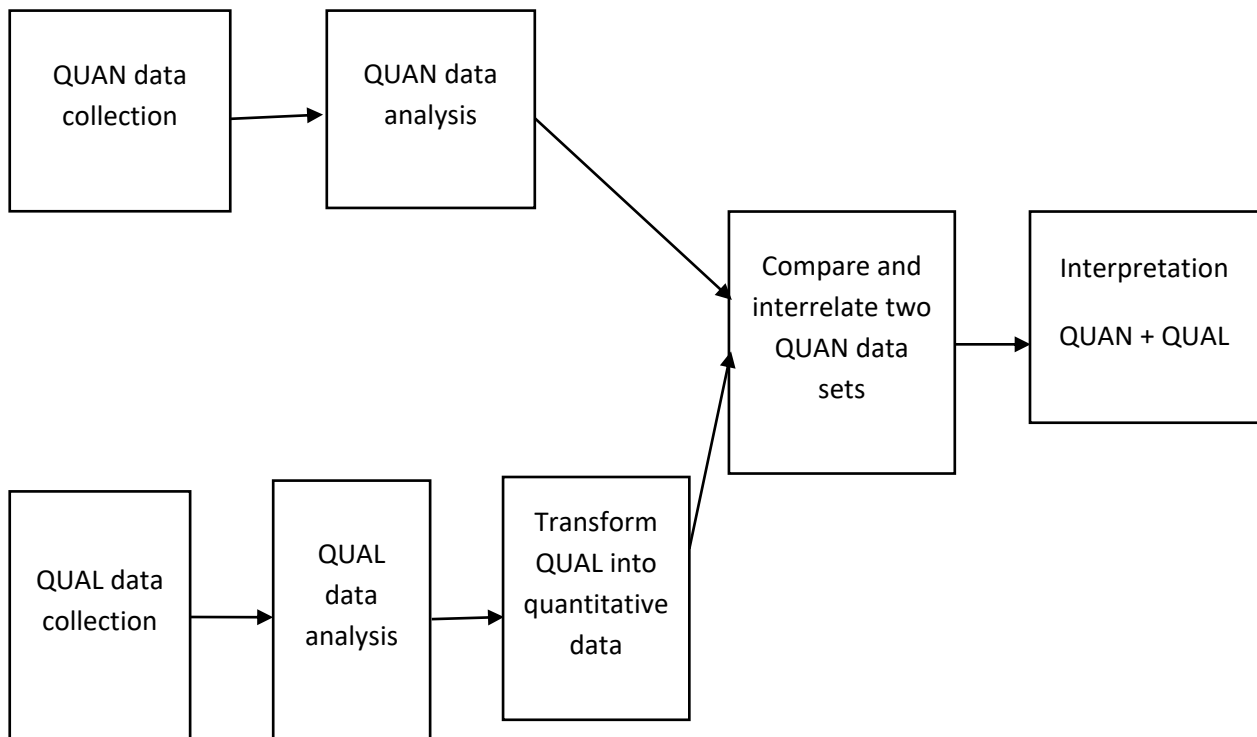


Figure 2 Data Transformation variant  
Source: Creswell & Clark (2007)

According to Creswell and Clarke (2007), just like the convergence model, there is equal weighting in data transformation model and both qualitative and quantitative data are collected concurrently. The difference is that, the qualitative data is transformed to quantitative during the analysis and the end result is the comparison of two quantitative data sets as illustrated in Table 2 below;

The data transformation model was implemented by the impact evaluation of the

GoBifo in Serra Leone, the impact evaluation was funded by UKaid, Bill &

Melinda Gate Foundation and Hewllet Foundation. The purpose was to assess the impact of community based project in Serra Leone. The qualitative data collected was converted to quantitative and the hypotheses were tested against the data. The Hunger Safety Net Program (HSNP) impact assessment in Kenya done in Mandela, Marsabit, Turkana and Wanjir counties managed to transform some qualitative data to quantitative. The transformation of qualitative data to quantitative is done in order to enable the data to be analyzed quantitatively.

**Validating Quantitative Data Model**

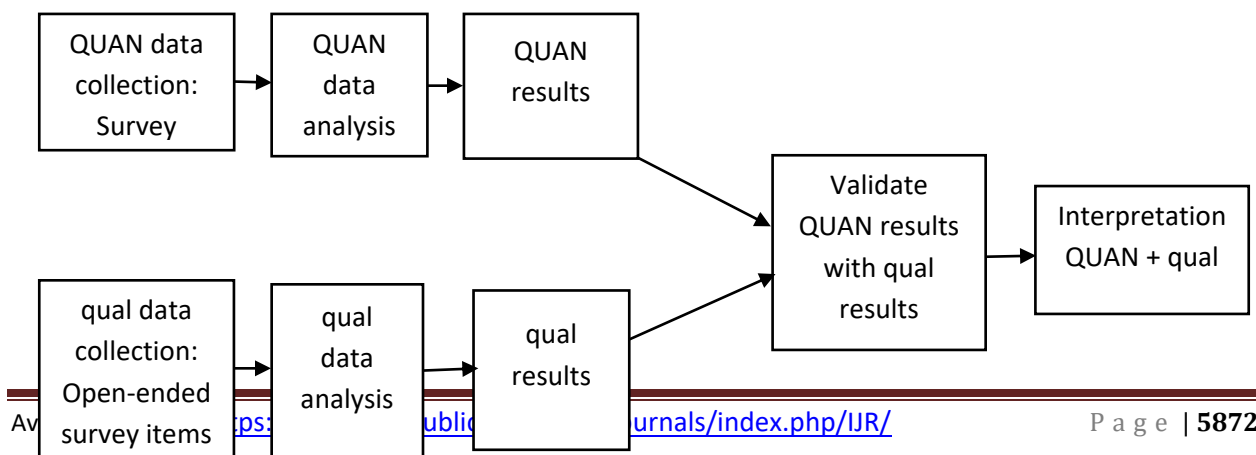
This model is different from the convergence and data transformation models in the sense that, there is no equal weighting between quantitative and qualitative data. The quantitative data is dominant (QUAN) while qualitative data is minor (qual) as shown by QUAN and qual respectively. For

example, if a questionnaire is the main source of data collection for an impact evaluation, qualitative open questions should be included in that questionnaire in order to explain the quantitative closed questions e.g.;

**Quantitative question:** The project improved my standards of living Strongly Agree..... Agree... Not Sure ..... Disagree ..... Strongly Disagree.....

**Qualitative question:** Support the answer if you tick disagree or strongly disagree?  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....

Below is an illustration of validating quantitative data model;

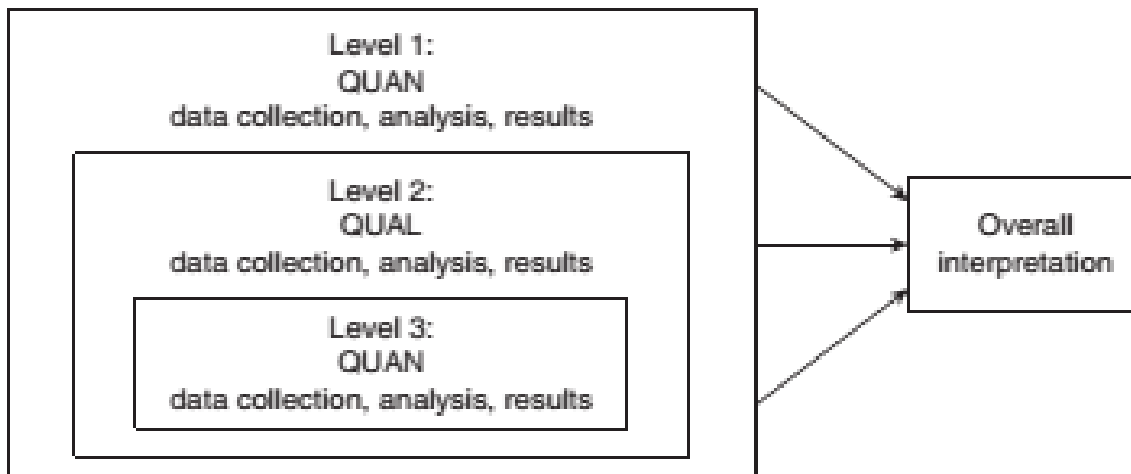


*Table 3 Validating Quantitative Data Model*  
*Source: Creswell & Clark (2007)*

### **The Multilevel Research Model**

According to Madondo (2016), data validating model is mainly used by big organizations in evaluating the impact of their projects because the implementation of the design is expensive and demanding. Multilevel research in the impact evaluation that is done in phases, one after another. The evaluators may design a purely quantitative impact evaluation, collect the data, analyze and get the quantitative results. The evaluators study quantitative results and

design an impact evaluation that is purely qualitative, collect qualitative results, analyze them and get qualitative results. The evaluators may decide to start a quantitative impact evaluation if need arises. However, a comparison of both qualitative and quantitative results should be done at the end of the impact evaluation. Quantitative and qualitative studies are done separately and the findings will be later converged. Below is an illustration of multilevel research model;



*Figure 4 Multilevel research model*  
*Source: Creswell & Clark (2007)*





## **A Critique of the Role of Mixed Methods Approaches (triangulation designs) in Impact Assessment**

The use of mixed methods approaches in impact evaluation should be recommended because findings are considered to be detailed drawn from two paradigms of research. The general consensus among the mixed methods specialist is that mixed methods approaches have a potential of handling weaknesses of each approach. For example quantitative research is not able to answered the why, how, what questions which can only be answered by qualitative approaches. A common agreement reached by the mixed methods specialists was that, the use of mixed methods approaches make the impact evaluation results to be detailed.

However, despite a success story of the mixed methods paradigm, experiences observed from the impact evaluation of projects in Serra Leone, Malawi, Kenya and Uganda raised a lot of queries on the credibility of mixed method approaches (in particular the convergence model) in impact evaluation. The first challenge observed was the problem of sample sizes between qualitative and quantitative paradigms. In the case of the mHealth project evaluation in

Uganda, it was observed that qualitative interviews were given to a sample of 10 clinic staff while the quantitative (likert scale) had a sample size of 38 clinic staff. A question may be asked, to what extend should evaluators compare data sets from two paradigm with different sample sizes?

The difference between quantitative and qualitative studies has been that of the differences in sample sizes. Quantitative studies are known to have bigger sample sizes while qualitative studies are concerned about the lived experiences of respondents rather than the quantity. Mixed methods specialists should come up with an explanation so that a direction is given on the extent to which two data sets from different paradigms with different sample sizes are converged and compared.

Another challenge emanates from the impact evaluation reports of the GoBifo of Uganda and the Hunger, Safety Net Program (HSNP) of Kenya. The qualitative data was converted to quantitative during the analysis, and another question may be raised, to what extend should we trust the credibility of data set obtained from the transformation of qualitative data to quantitative? We are forced to believed that data transformation is likely to limit its originality and therefore,

the mixed methods experts should come up with universal ways of transforming such data in order to avoid queries of the credibility of the mixed methods findings.

Another area of concern for mixed methods approaches (triangulation) is the use of sampling methods. The quantitative sampling methods are different basing on qualitative and quantitative paradigms. Why then should we converge the data obtained from different paradigms with different sample sizes? To what extent should we trust such data in impact evaluation. The methodologies of the four impact evaluation reports have shown disparities in sampling procedure basing on different paradigms, the mixed methods researchers should give a convincing explanation so that the credibility of mixed methods in impact evaluation won't be questioned.

Another area to be addressed is on when should the mixing of approaches start in mixed method. Should mixing start with impact evaluation questions, data collection methods, sampling methods, evaluation research designs or data analysis level. For example, the mixing of approaches in the impact evaluation of Mchinji Social Cash Transfer Pilot in Malawi and mHealth started mixing approaches at data collection

level while the Hunger Safety Net Program in Kenya and the GoBifo project in Sierra Leone started mixing approaches during the level of data analyses. There is feeling that the mixing of approaches in impact assessment are not clear and systematic. Mixed methods specialists should work to handle these inconsistencies.

### **Conclusion, Recommendation & Areas for Further Study**

The use of mixed methods approaches in impact evaluation are inevitable and irresistible. However, there are questions raised on the sampling, sample sizes and the stages of mixing approaches in impact evaluations. It was observed that the credibility of mixed methods in impact evaluation is at stake and therefore mixed methods specialist are encouraged to handle the questions raised in a scientific way. The following questions have to be addressed;

- a) To what extent should data from different paradigms with different sample size be converged/compared?
- b) To what extent should we trust the originality of quantitative data transformed from qualitative?
- c) At which level should mixing of approaches begin for impact

evaluation to qualify to be called mixed methods?

- d) Are there methods of measuring quantity/degree of qualitative or quantitative weights in an impact evaluation study?

### Acknowledgements

Special thanks goes to Dr. Wambiya Pascal for his enormous contribution to this work.

### References

Chang, L.W. et-al. (2011). Impact of a mHealth Intervention for Peer Health Workers on AIDS Care in Rural Uganda: A Mixed Methods Evaluation of a Cluster-Randomized Trial. *AIDS Behav.* 15(8), 1776–1784.

Merttens, F et-al. (2013). Hunger Safety Net Programme Monitoring and Evaluation Component *HSNP Impact Evaluation Final Report: 2009 to 2012*.

Miller, C. et-al. (2008). Impact Evaluation Report External Evaluation of the Mchinji Social Cash Transfer Pilot. *University of Malawi & University of Boston*.

Casey, K. et-al. Assessing the Impacts of Community Driven Development in Sierra Leone. *The GoBifo Project Evaluation report 2013 by International Initiative for Impact Evaluation*.

Impact Evaluation in UN Agency Evaluation Systems: Guidance on Selection, Planning and Management. *United Nations Evaluation Group (UNEG) 2013*

World Bank Group Impact Evaluations: Relevance and Effectiveness. *IEG, World Bank, IFC, MIGA 2012*

Trochim, W.M., Marcus, S.E., Mâsse, L.C., Moser, R.P. and Weld, P.C (2008). The Evaluation of Large Research Initiatives A Participatory Integrative Mixed-Methods Approach. *American Journal of Evaluation*, 29 (1), 8-28

Garbarino, S and Holland, J. (2009). Quantitative and Qualitative Methods in Impact Evaluation and Measuring Results. *Social Development Direct*

Bamberges, M. (2012). *Introduction to Mixed Methods in Impact Evaluation*. Inter Action

Vaessen, J. (2010). Challenges in impact evaluation of development interventions: opportunities and limitations for randomized experiments. *IOB, Discussion Paper / 2010.01*.

Madondo, S.M. (2016). *Essentials of Social Science Research*. Mount Meru University, Tanzania