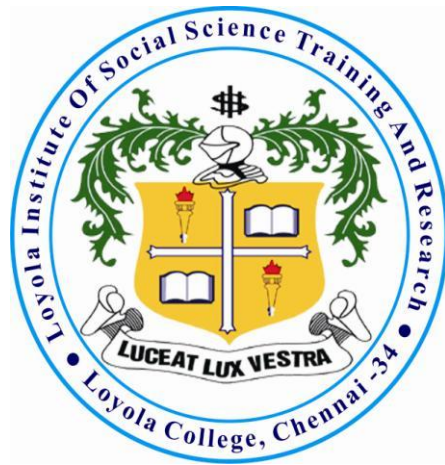# Report on the Three Days Workshop on

QUANTITATIVE RESEARCH METHODS: APPLICATION AND DATA ANALYSIS

Dates: August 12th to 14th 2013, **Time**: 9.00 am to 5.00 pm

Venue: JS-25, Statistics Smart Room, Jubilee Building 2nd Floor

LISSTAR

LOYOLA INSTITUTE OF SOCIAL SCIENCE TRAINING AND RESEARCH

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Workshop Summary

This report provides a brief summary of the workshop organized by LISSTAR, Loyola Institute of Social Science Training and Research. LISSTAR organized a three days workshop on "Quantitative Research Methods: Application and Data Analysis" from August 12th to 14th 2013 from 9.00 am to 5.00 pm in the Statistics Smart Room, Loyola College. The workshop brought together over 24 participants from different universities. The workshop was handled by a team of eminent resource persons from the respective field. Most of the participants who attended the workshop were Professors, Research Scholars and Business Analyst. The workshop provided an interactive atmosphere between the resource persons and the participants.

Program Perspective

Many scholars who aspire to write a good M.Phil or Ph.D dissertations or original articles wish to enrich their argument with statistical data. The success of this aspiration depends on the meticulous formulation of the questionnaire and careful collection of data using this technique. Once these two aspects of the quantitative research work are done properly, then one may feel that half of the work is done. Formulating relevant questions and executing meticulously in the field needs rigorous training by experienced scholars. Hence the first part of the workshop will start with formulation of a questionnaire on a given research topic. This will be followed by demonstration on the use of SPSS for data analysis.

Application of statistical software for data analysis is indispensable for any research scholar who is doing quantitative research. It is a common observation that many social science research scholars perceive research methodology and statistics as a complex matter. However, the said subject is not as complex as it is thought to be. As

it is cardinal for social science research scholars to develop the grasp in research methodology and statistics to carry out their empirical research, the programme aims to impart a crisp, clear, easy-to-understand, and hands-on training. Participants will be able to appreciate the blend of practice and theory of research methodology with relevant and contextual cases. Computer based data processing and analysis will be the central aspect of the programme. SPSS (Statistical Package for Social Sciences) has been consciously chosen as it is user-friendly and appropriate.

Dynamics

Basic understanding in normal probability distributions, hypotheses testing and descriptive statistical methods (Measures of central tendency, Measures of dispersion, Correlations and t-test) is necessary to appreciate the programme. Hence, the workshop will start with some theoretical input sessions so as to help the participants to brush the knowledge in basic statistics. These sessions will be followed by software enabled practical training with demonstration and hands-on exercise. Thus theoretical and practical sessions will be alternatively arranged so that the participants could understand, appreciate and able to meaningfully interpret the output.

Aim of the Workshop

The aim of the workshop is to enable the participants to operate the SPSS software on their own and understand when and what type of statistical method to use.

Workshop Objectives

- To provide hands-on training in the applications of statistical software (SPSS) in research data processing.
- To acquire expertise in identifying appropriate statistical tools for different types of research objectives.
- To understand the rationale behind the application of different statistical techniques.

Workshop Methodology

- Lectures and discussion
- Demonstration using SPSS software
- Hands on training using SPSS

Session

- Statistical Theory
- Hands on Experience

Content

Day-1

- Overview of SPSS (Statistical Package for Social Sciences)
- Data structuring using Data Editor
- Descriptive Statistics, Parametric Tests & Non Parametric Tests
- Measures of Central Tendency
- Measures of Dispersion
- Cross tabulation and Diagrammatic representation of data
- Correlation
- One population t-test
- Two independent population t-test
- Paired Sample t-test
- Test for one population proportion
- Test for difference between two population proportion
- Chi-square test for Independence
- Mann- Whitney U test
- Wilcoxon signed rank test
- Krushkal Wallis test
- K-S test

Day-2

- One way ANOVA
- Two way ANOVA
- Factorial Design
- Repeated Measures
- ANCOVA

- Multiple Linear Regression Model
- Usage of Dummy Variables
- R square and Adjusted R square
- Detecting and overcoming Multicollinearity
- Test for Normality
- Detecting Outliers
- Prediction and Model Validation

Day-3
- Introduction to Multivariate Analysis
- Factor Analysis
- Cluster Analysis
- Discriminant Analysis

Resource Persons

1) Dr. C. Santharam
2) Dr. Martin Luther William
3) Dr. S. Thobias
4) Prof. M. Sathyamurthy
5) Prof. S. Xavier
6) Prof. M. Syluvai Anthony
7) Prof. M. Ruban Raja

Target Participants

- Research Scholars
- Professors
- Business Analyst

Evaluation

Feedback from Evaluation forms was extremely positive. The presentation and the inputs given by the resource persons were highly valued. Participants appreciated for being able to clarify doubts with the experts.

Workshop Testimonials

LISSTAR had laid a wonderful platform for the Researchers and Business Analyst to learn the Data Analysis methodologies and its application in SPSS package, to apply it in the contemporary scenarios that are encountered in day-to-day life. The Department of Statistics collectively had handled the subject with vast reach, to make it more understandable even to pioneers in the subject, and had extensively involved in clarifying the queries put-up on the discussion forum and provided practical opportunity to handle the SPSS package for further data driving techniques. The nurturing that we had would be a significantly contributing factor in all our further research initiatives and analysis in business world, resulting individually, organizationally and to the society, in deriving the interpretation on the finding and further channeling the course of action toward betterment of environment. Thanks for the initiative, LISSTAR."

- ***Mr. Senthil Kumar R***, *Project Leader*
Amnet Systems, Chennai

It was a significant opportunity for me to take part in the Three days workshop on "Quantitative Research Methods: Application and Data Analysis conducted by LISSTAR on 12th to 14th August 2013. The course content is absolutely designed to suit the need of the Researchers. The practical session followed by the theory class is an added advantage for the beneficiaries. The Lab deserves the name 'Smart Classroom'. Sound resource persons and administrators stood behind the success of the workshop. Applause to the energetic faculty members for their Knowledge sharing! Good platform for the learners for those with research background. I strongly recommend this course for all the researchers. Our sincere gratitude to Jesuits community for their endless service in the field of Higher Education. No doubt that LISSTAR, shines in the crown of Loyola.

- ***Ms. M. Ugin Rositta***, *Ph.D Research Scholar,*
Stella Matutina College of Education, Chennai

Valedictory Function

The Valedictory function was held at the Statistics Smart Room on August 14th 2013 from 04.00 to 05.00 pm presided over by Rev. Fr. A.M. Francis Jayapathy, S.J., Director of LISSTAR, Rev. Dr. G. Joseph Antonysamy, S.J., Principal of Loyola College and Dr. C. Santharam, Head Department of Statistics, Loyola College. Among others who attended the Valedictory function were the distinguished resource persons, participants and invitees. Earlier the function started with a prayer song by the Loyola prayer group followed by the welcome and introductory speech by Rev. Fr. A.M. Francis Jayapathy, Director of LISSTAR.
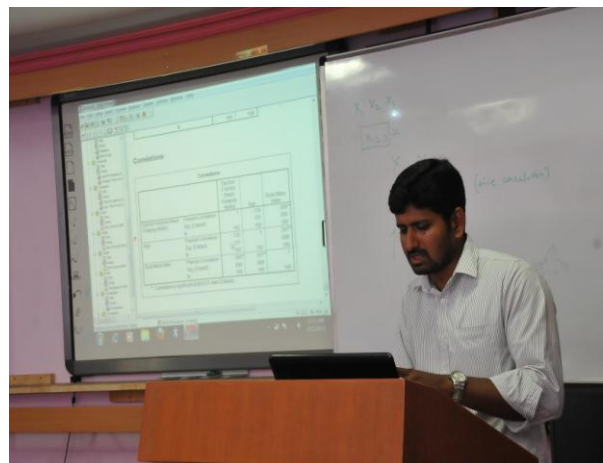
The Director of LISSTAR presented shawl and mementoes to the Chief Guest and the Resource persons. The Chief Resource person and Head of the department of Statistics Dr. C. Santharam felicitated the program. The Honorable Chief Guest, Rev. Dr. G. Joseph Antonysamy, Principal of Loyola College delivered the Valedictory Address. Another important ceremony of the occasion was the distribution of the Certificates to the participants on successful completion of the workshop. The Certificates were distributed by the Principal Rev. Dr. G. Joseph Antonysamy S.J. and Rev. Fr. A.M. Francis Jayapathy, S.J., Director of LISSTAR. There was a time of sharing where the participants shared their experiences in the three days workshop. Mr. G. Victor Ashok Kumar presented formal vote of thanks.

List of Participants

1. Mr. K. Balasubramanian
2. Dr. S. Bama
3. Mr. Banaba Sambo
4. Ms. S. Bindubashini.
5. Ms. V. Devi
6. Dr. I. Jaquline Chinna Rani
7. Dr. T. Johnson Sampath Kumar
8. Dr. Joseph Jayaraj
9. Dr. T. Mythili
10. Mr. A. Philip Arokiadoss
11. Ms. A. Pratheepa
12. Ms. P. Rajalakshmi
13. Ms. S. Rajalakshmi
14. Mr. Sanoj Herbert
15. Dr. K.S. Sarwani
16. Mr. R. Sathya Narayanan
17. Ms. Senthamizh Pavai
18. Mr. R. Senthil Kumar
19. Mr. P.S. Shanmugasundaram
20. Ms.M.S.Sheela
21. Ms.M.Ugin Roshitta
22. Ms.Veera Renuka Lobo
23. Ms. R. Vidya
24. Mr. H. Zobiakvela

Photo Gallery

Workshop