



FDP on 'Quantitative Data Analysis using R'

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| Date: 2 nd -11 th Nov, 2020 | Venue: Webinar / Zoom meeting |
| Time: 04.30pm to 06.00pm | Event : Faculty Development Program |
| No. of Participant: 120 | Event Convener: Dr. Purushottam Bung, Dr. Padmalini Singh Event Coordinator: Prof. Priya Jain |

Objectives

- The FDP was intended to support researchers, consultants, and data analysts to:
 - Have a clear understanding of fundamentals of quantitative research
 - Have hands on R software tools for data analysis
 - To help them acquire a new skill set by learning R

Agenda/Flow of the Event

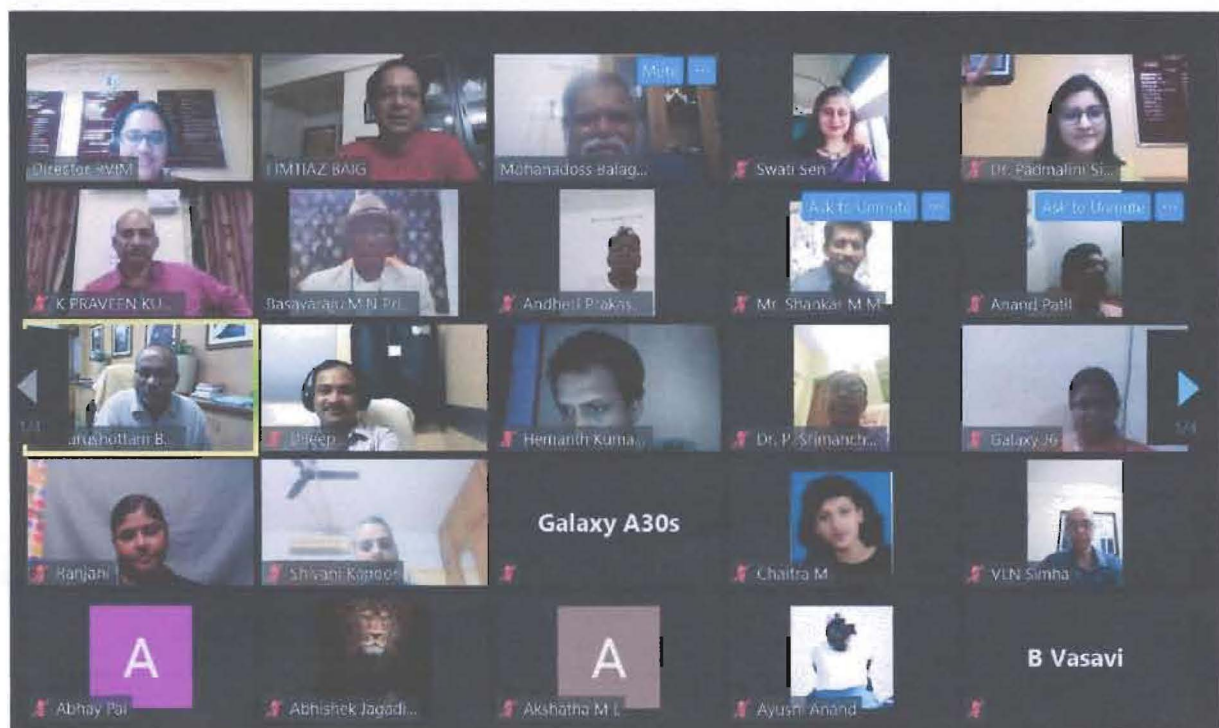
| (Dr. Ashish Singh, IIT Bombay) 04:00 PM - 06:00 PM | | (Mr. Shankar MM) Mentor – CARES, Bangalore) 04:00 PM - 06:00 PM |
|---|--|---|
| Session 1 2 nd Nov, 2020 (Monday) Measurement & Scaling | Session 2 2 nd Nov, 2020 (Monday) Measurement & Scaling | Workshop Session 11 7 th Nov, 2020 (Saturday) Introduction to R (Basics) |
| Session 3 3 rd Nov, 2020 (Tuesday) Questionnaire Design | Session 4 3 rd Nov, 2020 (Tuesday) Data coding | Workshop Session 12 8 th Nov, 2020 (Sunday) Testing of Hypothesis (Parametric & Non-Parametric tests) |
| Session 5 4 th Nov, 2020 (Wednesday) Sampling & Sampling Distribution | Session 6 4 th Nov, 2020 (Wednesday) Sampling & Sampling Distribution | Workshop Session 13 9 th Nov, 2020 (Monday) Correlation & Regression |
| Session 7 5 th Nov, 2020 (Thursday) Hypothesis testing | Session 8 5 th Nov, 2020 (Thursday) Inferential statistics (including testing of statistical significance) | Workshop Session 14 10 th Nov, 2020 (Tuesday) Exploratory Factor Analysis And alpha assessment |
| Session 9 6 th Nov, 2020 (Friday) Multivariate analysis | Session 10 6 th Nov, 2020 (Friday) Correlation and Regression (testing and interpretation) | Workshop Session 15 11 th Nov, 2020 (Wednesday) Overall Practical Approach towards questionnaire-based data analysis using R |

Outcome Achieved/ Attained:

The FDP was designed in two parts wherein first 5 days Dr. Ashish Singh, Assistant Professor, IIT Bombay deliberated on the fundamentals of quantitative research, clearing the concepts right from measurement and scaling, questionnaire design to understanding of various quantitative tools for hypothesis testing and data analysis. Once the participants had conceptual clarity, rest 5 days were dedicated for workshop where participants were simultaneously practiced the instructions by experts on the data sets made available to them in advance. This approach of theory followed by practice was successful in the following ways:

- Participants had a better understanding about the fundamentals of quantitative research right from measurement and scaling, questionnaire design and data coding, sampling and sampling distribution, Hypothesis testing, inferential statistics and Multivariate analysis
- Participants were able to understand the basics of R programming.
- Participants were able to run the codes following the expert and practicing simultaneously on their device and were able to generate the results.
- Participants were able to do the basic statistical analysis using R.
- The FDP was helpful for academicians, researchers, consultants and executives to use R for the quantitative research.

10 days FDP was completely appreciated by the participants. The expert's talk followed with the workshop was very helpful in practicing the concepts learnt by the participants.



Few testimonials of the participants



Prof. Javed Shaikh,
Academic Associate,
IIM-Ahmadabad

"RVIM is very efficient and effective in conducting such FDPs".



Mr. I. IMTIAZ BAIG
Talent Manager
Baig & Associates

"Being regular participants of the RVIM web programs, I must say as always, well structured in terms of contents, design and choice of resource person. Very meticulous and above all the service orientation of the administration is noteworthy. Dr. Bung, Dr. Padmalini, Prof. Priya and the technical team too."



Prof. Shivani Raghuvir
Research Scholar XIME

"It was a good job done. We know RVIM as not only quality oriented but ethically strong. The way the FDP was conducted it mirrored their values and approach towards higher education".



Dr. Basavaraju.M.N.
Principal,
SJR College of Science, Arts and Commerce

"You are creating good awareness about the much needed areas of research".

Measures of Reliability

- ▶ Split-half Method
 - ▶ Assessing internal consistency by checking the results of one-half of a set of scaled items against the results from the other half.
 - ▶ E.g., checking the results of odd no. items with even no. items.

- ▶ Coefficient alpha (α)
 - ▶ The most commonly applied estimate of a multiple item scale's reliability.
 - ▶ Represents the average of all possible split-half reliabilities for a construct.
 - ▶ Range: 0 - 1

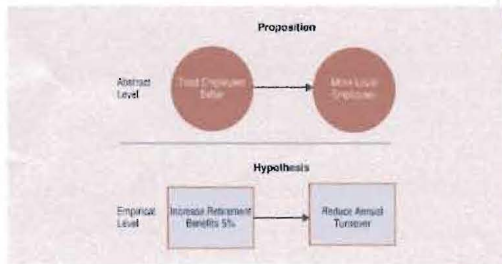
Guidelines for Constructing Questions Conti...

- Counter-biasing statement
 - ▶ *Some people have time to brush three times daily but others do not. How often did you brush your teeth yesterday?*

- Split-ballot technique
 - ▶ A question statement may be leading because it is phrased to reflect either the negative or the positive aspects of an issue
 - ▶ To control for this bias, the wording of an attitudinal questions may be reversed for 50% of the sample.
 - ▶ Small US cars are cheaper to maintain than small imported cars. (50% sample)
 - ▶ Small imported cars are cheaper to maintain than small US cars. (50% sample)

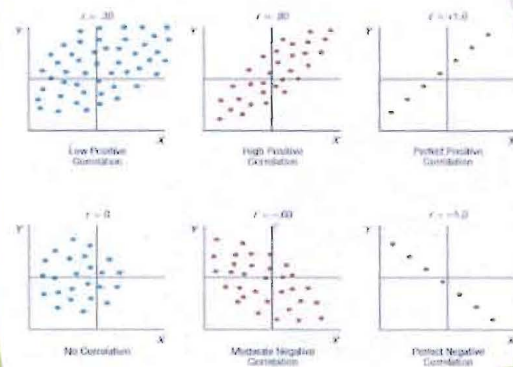
Empirical Testing

- ▶ Examining a research hypothesis against reality using data.



- ▶ Variables
 - ▶ Anything that may assume different numerical values.
 - ▶ The empirical assessment of a concept.

Exhibit. Scatter Diagram to Illustrate Correlation Patterns



Snapshot of few days- Q&A session with Mr. Shankar MM and Dr. Ashish Singh





Feedback & Coordinator Comment:

The FDP program was received much appreciation by all the participants. The participants also valued and enjoyed the interaction with the experts as well as during the FDP. The participants have requested to organize FDPs and workshop on research in future too.

Event Convener: Dr. Padmalini Singh

Event Coordinator: Prof. Priya Jain

Director