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Date: 11/12/2020
Time: 02.00 PM
Venue: Dwarkinath Hall

I Seminar on
Multi-Dimensional Scaling: Application in Extension
Synopsis

Handling vast range of information with appropriate tools and techniques is the present demand in order to inform the concerned community in an easily understandable way. The problem of large volume of scattered data can be managed effectively by Multi-Dimensional Analysis (MDA). Presently we are standing at the knowledge era. The knowledge is dynamic in nature. Present challenge is to manage this vast range of knowledge and to provide right information to right person at right time. Now the question is how to represent information in easily understandable way. There comes the concept of data reduction by multidimensional analysis. With this background the seminar has been conceptualized with the following objectives:

- 1 To Understand the concept of Multi-Dimensional Scaling
- 2 To study the application of Multi-Dimensional Scaling in Extension
- 3 To review the relevant research studies

Multi-Dimensional scaling: MDS represents a set of stimuli as points in a multidimensional space in such a way that those points corresponding to similar stimuli are located close together, while those corresponding to dissimilar stimuli are located far apart (Coxon, 1982). Compared to other multivariate methods, MDS models are usually distribution-free, are relatively unaffected by non-systematic missing data, can be used with a very wide variety of data obtained from paired comparisons, ratings, rankings, triads, sorting, profiles, co-occurrence matrices *etc.* (Kruskal and Wish, 1978).

Procedure of developing MDS: First, we have to formulate the problem, get clarity about the purpose of the study and variables to be measured. Next, we have to get input data. Likert type scale is often used to get input data. Next, we have to run a suitable statistical program. Finally, we have to produce the map showing positions of several objects in the multidimensional space. Reliability and validity are to be measured and finally report is to be analysed

Applications of MDS: MDS has huge applicability in social research, marketing research, psychology, psychometrics, Management Information System (MIS) *etc.* MDS can also be used rigorously in the field of extension in measuring multi-dimensional variables, attitude, perception, semantic differential, positioning of innovation, audience segmentation, targeting, discovering underlying behavioral and personality factors, understanding audience preferences *etc*

Research Studies:

Mohanty *et al* (2009) developed a multidimensional scale for effective measurement of rural leadership by using the M-K-J-B-D method developed by a group of researchers. The present study is a blending of two research findings where the data on rural leadership have been collected from randomly selected 160 followers and 40 leaders from rural areas of Uttarakhand State of India and these have been tested through a method for developing a valid multidimensional scale with absolute reliability for effective measurement of rural leadership.

Sukanya Som (2018) constructed multidimensional Scale for measuring perception towards migration. For construction of the scale, data were collected from 300 randomly selected respondents of Uttar Pradesh (UP), Bihar and Maharashtra. After construction of the scale, perception of respondents towards migration was measured.

Conclusion:

Now MDS can be effectively used in our area of study, since most of our variables are multi-dimensional. It can help in perceptual mapping, diffusion research, in measuring attitude and perception, in audience segmenting and targeting strategies, semantic differential, understanding individual differences and to discover hidden factors of human behavior. So, we can conclude that MDS is a useful tool in extension since it can comfortably deal with ordinal data and can extract perceptual dimensions of respondents. It can definitely help us to deal with the problem we started with by reducing vast amount of data into unique dimensions that gradually come out of the analysis process.

References:

- COXON, A, P, M., 1982, *The User's guide to Multidimensional Scaling*, Heinemann Educational Books, Great Britain.
- KRUSKAL, J, B. AND WISH, M., 1978, *Multidimensional Scaling, Series: Quantitative applications in the social sciences*, Sage University Press, California.
- MOHANTY, A, K., KUMAR, G, A, K., SINGH, B, B. AND MEERA, S, N., 2009, Developing Multidimensional Scale for Effective Measurement of Rural Leadership. *Indian Research Journal of Extension Education* **9**(2).
- SOM, S., BURMAN, R. R., SHARMA, J. P., PADARIA, R. N., IQUEBAL, M. A., AND SURESH, A., 2018, Construction of Multi-dimensional Scale for Measuring Perception towards Migration. *Journal of Community Mobilization and Sustainable Development*, **13**(2): 279-285.