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Seminar-III

on

Meta-Analysis in Summarizing Research Results

Research means creating new knowledge whereas, meta-research is combining the large number of scientific knowledge for the better use of the scientific principles and their effects. Social science is a category of academic disciplines, concerned with society and the relationships among individuals within a society. Agricultural extension is a core discipline in social science. In social science research mainly addresses social issues, provides insight into how science and innovation is perceived by the society and how it impacts their lives. Meta-Analysis can be performed when there are multiple scientific studies addressing the same question statistically by amalgamating the results into easily inferable aggregate measure. Meta-Analysis studies also helps the government in designing and implementing policies to achieve specific objectives. The major challenge in social science is to formulate the policies but it cannot be based on results of individual studies as it is limited by the scope of the study. Thus, the Meta-Analysis is boon for the development of the society by better implementation of the programs, projects etc.

The results of the Meta-Analysis are trustworthy source of evidence, improves precision of estimates of the effect, answer questions not posed by the individual studies, settle the controversies arising from apparently conflicting studies so on and so forth. Since, extension education is an applied social science deals with the transmission of programs to grass root level, the Meta-Analysis takes it to an extra mile to ace the progress on the bright side.

With this brief background, the current seminar has been conceptualized with the following objective:

1. To understand the concept of Meta-Analysis, its objectives and its importance
2. To know the steps in Meta-Analysis, statistical models, advantages and their limitations
3. To review the related research studies

Concept of Meta-Analysis:

Meta Analysis was first put forth by Gene Glass in 1976. He defines as “a statistical synthesis method that provides the opportunity to view the whole picture in a research context by combing and analyzing the quantitative results of many empirical studies”. A Meta-Analysis is a valid, objective, statistical and scientific method of analyzing and combining different results. It is also known as overview synthesis, summarizing analysis, quantitative synthesis so on and so forth.

Objectives of Meta-Analysis:

The main objectives of meta-analysis are to summarize and integrate results from a number of individual studies, to analyze differences in the results among studies, to increase precision in estimating effects, to evaluate and further investigate an issue, to identify the evidence gap and to generate new hypotheses for future studies.

Advantages of Meta-Analysis:

- ❖ Meta-Analysis helps to combine studies with small samples and aggregating them gives higher statistical power to the combined results.
- ❖ External validity: the results can be generalized to a larger population and can be used in policy formulation
- ❖ Inconsistency of results across studies can be quantified and analyzed

Limitations of Meta-Analysis:

- ❖ An over emphasis on individual effect
- ❖ Cannot draw the valid conclusions because of publication bias
- ❖ Ignores the qualitative difference and also quality studies

Research studies:

Barbera and Yuike (2016) hypothesize that variations in online, individual, group and synchronous and asynchronous activities that can be combined in a course of instructional intervention resulted in better learning of the students than the online alone. More than (60%) of the studies stated that online learning alone cannot fetch self understanding to the students.

Robert *et al.* (2018) in their empirical meta study revealed that the effect of genetically modified Bt. Cotton have shown increased yield and seed cost over a period of time India is the only country which has shown 50.00 per cent raise in yield. Whereas in case of genetically modified maize there is no significant change in all of the economic performance indicators over time and also across the countries.

Haridra and Sharma (2020) in their Meta-Analysis research on the Agricultural Innovation reported that main objective of agricultural innovation in the recent years was to ensure the environmental protection (60%) followed by improving farm performance (28%) respectively. Majority of the researchers (92%) have discussed about the process innovation in their findings.

Conclusion:

In order to take the social science research to a long way in terms of its validity and utility, Meta-Analysis play a pivotal role in achieving it. With due diligence it can solve insurmountable scientific and social problems and also try to attain extra mile to ace the progress on the bright side. Meta-Analysis is a useful tool in social science research to summarize the results of several studies, which increases the statistical power of the estimate. The gap in evidence based policy research can be addressed with application of Meta-Analysis by considering the developmental issues critically. The researcher's consciousness and critical observations will help the social science research to provide statistical evidences for the policy makers to take further remedial actions for better implementation of the policies into the society.

References:

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