

Manual vs. Electronic Data Analysis-A study with Special Reference to Teachers' and Research Scholars' Views

Dr. K. Balasubramanian. MBA, PhD

PhD

Associate Professor

Department of Business Management
Management

Villa Marie PG College for Women,
Somajiguda, Hyderabad, TS - 500 082

Dr. D. Madan Mohan MBA,

Professor

Indur P.G. College of Business

Bodhan, Nizamabad, TS.

Abstract:

In growing advancement of technology in every field particularly in the education and research brings dramatic changes in the practises of most of the phases in system. The study has been carried out by considering only quantitative research method which involves series of task or activities right from the preparing of questionnaires, Data collection till the data has been analysed and interpretation to get conclusion. An attempt has been made to know the views of the research scholars and the university teachers towards the present practises of using QT software in the research activity like Data analysis. The sample size of 80 respondents has been taken that includes 40 research scholars and 40 university teachers.

It has been concluded that the use of QT software makes the task easy for the researchers in order to accomplish the research activities. It has also been concluded that both the university teachers and research scholars have agreed that the QT software gives the high volume of reliability in the data as compare to manual.

Keywords: Data Analysis, Quantitative Software, Research Scholar, University Teachers

Introduction:

The technology has been progressing with full pace in this modern world which brings the drastic changes in the practises of education and research system. In the traditional practises of education and research system the use of paper based approach had been wider in use where they rarely make use of technology in process. On the other side in the modern practises of education and research system where the use of technology has been implemented almost in every phases of the system The research part of the education system plays vital role in the development of society which provides various facts and figures about any particular things or factors. In the research area where the research scholars have been carried out various activities in order to accomplish the particular research study, now days those activities are making use of technology. The credit goes to the technology which makes drastic shift from paper based approach to

technology based approach.

In the traditional practises, research activities specifically in the quantitative research method like conducting survey through the list of questionnaires was totally exercised through paper based approach but now this activity is carrying out through online mode. And only the questionnaires but also like data collection, clubbing all individual responses at one point, data analysis, application of different statistical tools, hypothesis testing etc. was carried out totally over paper based. But now most of the activities are making the use of technological tools like different Quantitative statistical and data analysis software such as SPSS (Statistical Package for Social Science), STATA, MS Excel, EVIEW, MINITAB, BMDP etc., and few among open or free Statistical software are R, EPI-INFO, CS-PRO, etc.

An attempt has been made to study the different views of the present research scholars who are exercising the research activities by making use of technology and the university teachers who already hold PhD degree which has been carried out in the old fashion of paper based approach.

Literature Review:

Kwak&Schniederjans (1982) Essentially, a programming problem is linear if it calls for optimization of an objective function that is a linear combination of the control variables under a set of constraints in the form of linear inequalities. A linear inequality is simply a mathematical statement to the effect that some linear combination is greater or less than some constant number. An objective function means that each unit of value measured by the function is the direct proportional result of assigning a certain value to a control variable.

Sax (1985) the quantitative study in the social sciences follows the prescriptions of the scientific method: it must be reproducible or reliable, free of bias, accurate, and valid. Reproducibility is foundational to quantitative experimentation; if a study cannot be reproduced by others, or by the same researcher at a later time, by definition it does not follow the constructs of the scientific method. Because quantitative analysis applies mathematical equations to collected data to make the analysis objective, the social sciences researcher must be particularly attentive to the collection of non-biased data.

Creswell (2003) Statistical analysis is used in quantitative research to collect, organize, and describe empirical data. All quantitative studies rely on statistical analyses because quantitative research is a method of approaching questions that is based on concrete, observable, "objective", and measurable data. Quantitative measures aim to explain causal relationships—though most often, in social science research, these methods can only determine correlations between the different factors studied, not make definite predictions about the universality of their application.

Pinar et al, (2004) In educational research, however, particular care must be paid to the way in which an investigator's biases may lead to the collection of a specific kind of information,

or to a particular sampling method that might not fairly represent the population in question. Because all researchers hold values, qualitative education researchers have criticized quantitative studies since the late twentieth century for being only marginally useful in determining the "objective truth" of life in the classrooms or of methods of curriculum construction.

Heck (2004) The movement toward accountability, toward assessing "learning gaps" between various groups, toward increasing the efficiency and effectiveness of policy implementations—along with the increasing role of the federal government and of national organizations in education—was founded upon quantitative analysis. The quality of quantitative research in education has been harshly criticized, however, and it remains a matter of concern for policy analysts and quantitative researchers. Some common critiques are that educational researchers are not adequately trained to approach social problems quantitatively, and that researchers often dismiss as irrelevant data that does not seem to match the expected results, offering explanations, after the fact, of why this data was not included in the final analysis.

Twycross & Shields (2004) In addition to concerns of reliability and bias, quantitative research must also be accurate and valid. Accuracy refers to the extent to which the experimental results accord with theoretical models, or the extent to which empirical results measure the phenomenon in question. Validity in the social sciences can be assessed in three ways: content, criterion, or construct. Content validity refers the suitability of a study's data collection and analysis methods for the questions being investigated. Criterion validity refers to whether a study uses previously validated methods or, if it is novel in its approach, it has predictive value.

William and Sawyer (2005) define IT as a general term that describes any technology that help to produce, manipulate, process, store, communicate, and/or disseminate information. This definition may be regarded as the comprehensive definition, as it covers all aspects discussed by different researchers above and includes all the components and processes needed to carry out information processing work in the organization.

Muijs Daniel (2010) 'Over the course of history, different forms of data analysis methods have been in existence. Initially, it was paper and pen and later the advent of which computer has helped invention of punching machines and later upgraded to simple calculator and complex scientific calculator. Nevertheless, pundits have revealed that Quantitative Technique Software is a software program that makes the calculation and presentation of statistics relatively easy. Quantitative Technique Software allows researchers to avoid routine mathematical mistakes and produce accurate figures in their research if they input all data correctly.

ATS, UCLA Edu, (2014) Any quantitative research cannot be done effectively without Quantitative Technique Software. Moreover, it enables pundit's faction research data for easy presentation. It helps professionals to interact with data thereby paving way for creativity and innovation. Some are user friendly interface with drop-down tips for beginners.

Objectives of the study:

- To know the views of research scholars and university teachers towards data analysis through paper based approach or manually
- To know the views of research scholars and university teachers towards data analysis through Quantitative Statistical Software

Scope of the study:

The study has broader scopes which provide significant information about the views of research scholars and the university teachers about the existing practises of research study which makes widely use of Quantitative Soft wares and technologies in the research process.

Limitations of the study:

The study has been limited with its geographical area i.e. Hyderabad city of Telangana State only which may not fit the outcome of study as to be the same for the country as whole. The outcome of study has also been limited with the views of Research scholars and University teachers of selected universities in Hyderabad. This may not match the responses of other universities.

Research Methodology:

Research design

This study is Quantitative research study (survey method) has been conducted through a list of questionnaire after screening the eligibility of the participants. The data has been analysed with SPSS 20.

Sample size

The sample of 80 respondents has been selected in equal ratio of research scholar and university teacher i.e. 40 research scholars and 40 university teachers of the study Universities.

Data Analysis:

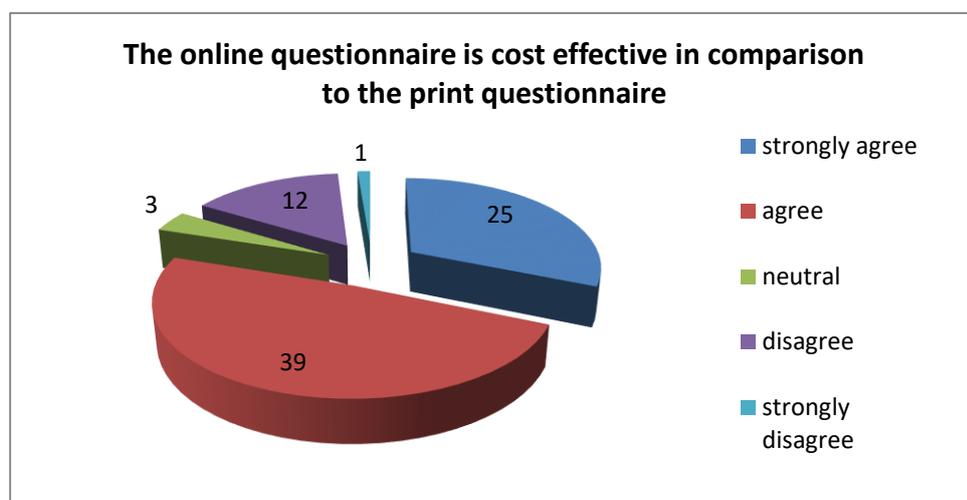


Table 1: Quantitative data about online questionnaire

From the table, it is observed that most of the respondents (25) 'Strongly agreed' that

online questionnaire is cost effective in comparison to the print questionnaire, followed by the majority of respondents who are 'agreed' (39) with the statement. However, only few of the respondents (3) are 'neutral' whereas few of the respondents (12) are disagreeing with the statement and only (1) respondent have 'strongly disagreed'.

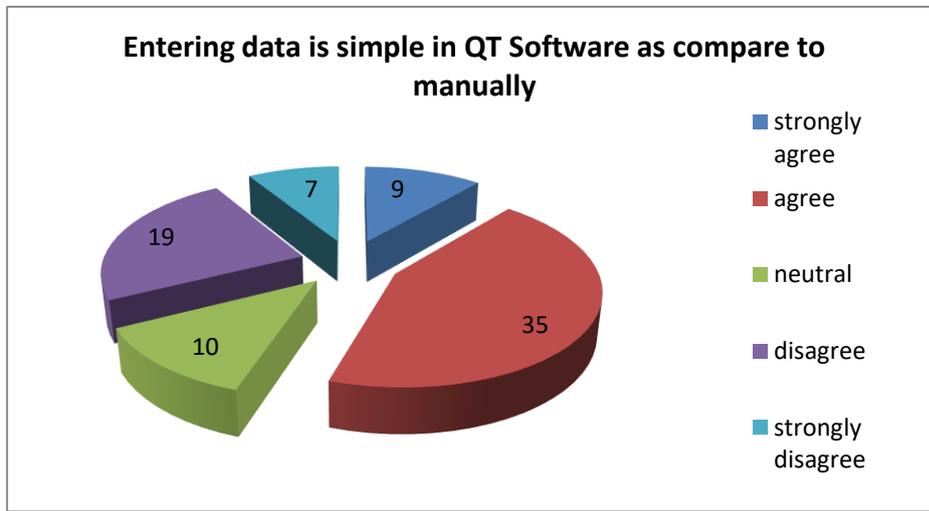


Table 2: Quantitative data about entering data in QT software

From the table, it is observed that few of the respondents (9) 'Strongly agreed' that entering data is simple in QT software as compare to manually, followed by the majority of respondents who are 'agreed' (35) with the statement. However, only few of the respondents (10) are 'neutral' whereas considerable proportions of the respondents (19) are disagrees with the statement and only (7) respondents have 'strongly disagreed'.

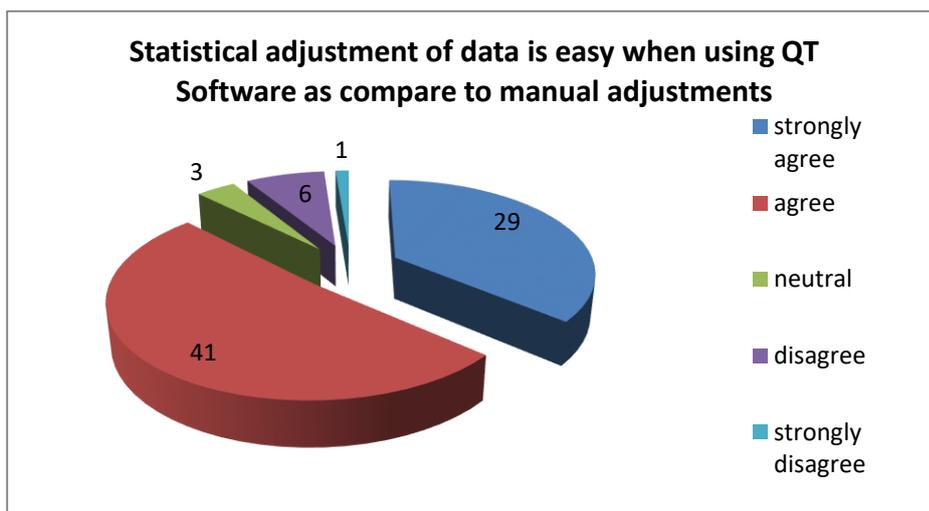


Table 3: Quantitative data about statistical adjustment of data in QT software

From the table, it is observed that most of the respondents (29) 'Strongly agreed' that statistical adjustment of data is easy when using QT software as compare to manual adjustments,

followed by the majority of respondents who are 'agreed' (41) with the statement. However, only few of the respondents (3) are 'neutral' whereas small proportions of the respondents (6) are disagrees with the statement and only (1) respondents have 'strongly disagreed'.

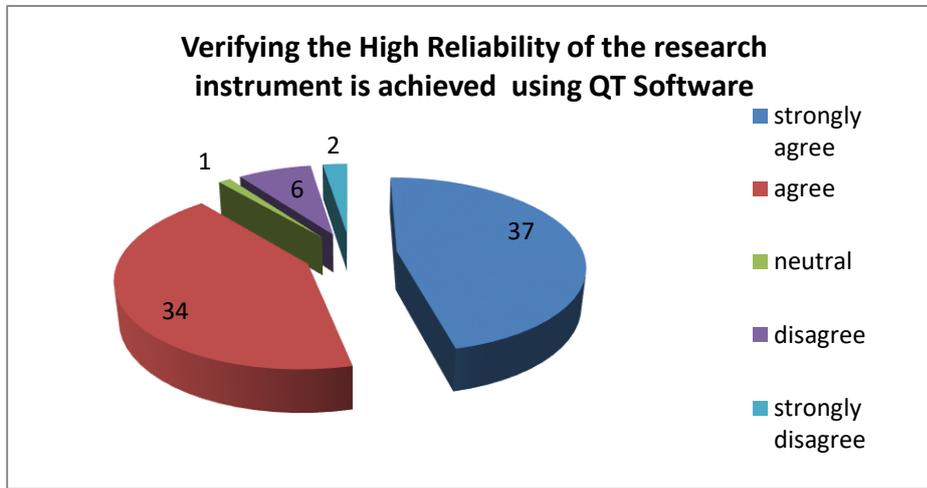


Table 4: Quantitative data about verifying reliability in QT software

From the table, it is observed that majority of the respondents (37) 'Strongly agreed' that verifying the high reliability of the research instrument is achieved using QT software as compare to manually, followed by the second majority of respondents who are 'agreed' (34) with the statement. However, only (1) respondent are 'neutrally' respond to the statement whereas small proportions of the respondents (6) are disagrees with the statement and only (2) respondents have 'strongly disagreed'.

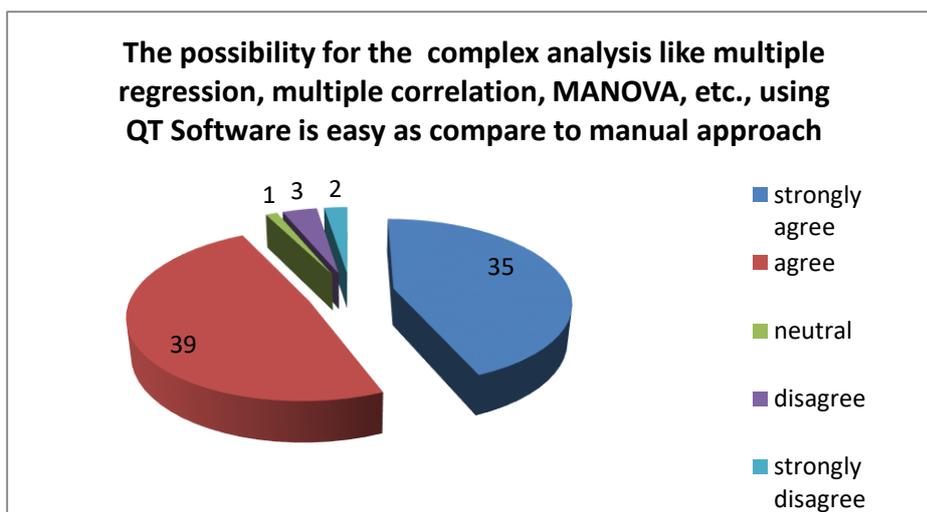


Table 5: Quantitative data about complex analysis in QT software

From the table, it is observed that majority of the respondents (35) 'Strongly agreed' that the possibility for the complex analysis like multiple regression, multiple correlation, MANOVA, etc. using QT software is easy as compare to manual approach, followed by the majority of

respondents who are 'agreed' (39) with the statement. However, only (1) respondent are 'neutrally' respond to the statement whereas small proportions of the respondents (3) are disagrees with the statement and only (2) respondents have 'strongly disagreed'.

Conclusion:

It has been concluded that majority of the respondents both research scholars and the university teachers believed that using online platform for the questionnaires is cost effective as compare to the paper based questionnaires. It has also been concluded that the almost half of the respondents agreed that entering data in the QT software is easy but in the other side almost half of the respondents believe that entering data in the QT software is not easy as compare to the paper based approach-this perhaps may be the reason of not getting enough training over the QT software. This can be overcome by conducting faculty development programs where the training of the different QT software can be teach in order to make use of technology at every phase of the research. It has also been concluded that majority of respondents believe that data adjustment is much easier in QT software than manually. It has also been concluded that majority of the respondents agrees the QT software provides much more reliability in data assurance and make easy in complex analysis.

Reference:

- Creswell, J. (2003) Research Design: Qualitative, Quantitative, and mixed methods approach. London: Sage Publication.
- Hector, Anestine. An Overview of Quantitative Research in Composition and TESOL. Department of English, Indiana University of Pennsylvania.
- Kwak, N., & Schniederjans, K. (1982). Managerial applications of operations research. Washington, DC: University Press of America.
- Muijs, Daniel, (2010), Doing Quantitative Research in Education with SPSS. 2nd edition. London: SAGE Publications.
- Pinar William (2004) what is curriculum Theory, L. Erlbaum Asso.
- Saunders, M., Lewis, P. & Thornhill, A. (2007) Research Methods for Business students. 4th edn. London: Prentice Hall.
- Saunders, M., Lewis, P. & Thornhill, A. (2009) Research Methods for Business students. 5th edn. Essex: Pearson Education Limited.
- Shelly G.B, T. J. Cashman, M.E. Verment(2004), "Discovering Computers: A gateway to information Web Enhanced", Thomson Course Technology Boston, U.K
- Tull, Donald S and Hawkins, Del I.(1988), "Marketing Research", Macmillan, NY.

- Uttara Dukkipati, (2010) "Higher Education in India: sustaining long term growth" South Asia Monitor.